

ISRAEL - NATIONAL REPORT CSD-18

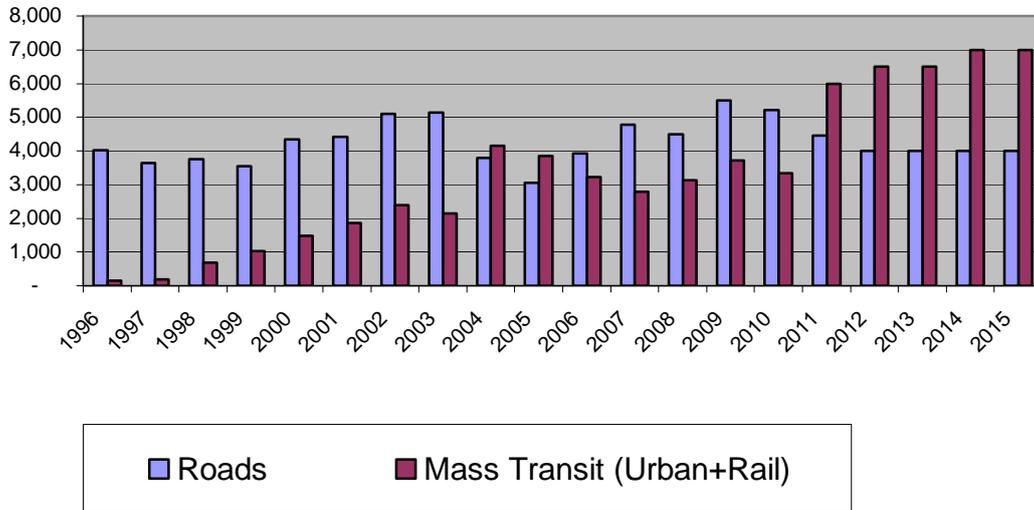
TRANSPORT

Introduction

Rising standards of living in Israel coupled by a significant growth in population have led to a steady increase in the number of motor vehicles in Israel, a growth in motorization level and a rise in distance traveled. During the last decade, the transport infrastructure investment to GDP ratio more than doubled, from 0.6% to 1.6, one of the fastest growth rates recorded worldwide. This trend is expected to continue and further accelerate, with annual investment expected to exceed \$3 billion through traditional budgetary resources and public private partnerships (PPP).

Israel's unique economic and demographic characteristics present a real challenge for policy makers. Adjusting the transport sector to these special circumstances requires long-term planning and allocation of substantial economic resources. It is imperative for Israel's government to adopt a balanced and prudent transport policy that can provide a real solution to growing requirements while addressing sustainable environmental needs, reducing congestion and increasing road safety. Thus, government policy emphasizes the expansion of public transport, mainly rail systems and mass transit systems, in order to mitigate the adverse effects of transport activities. The following chart demonstrates the allocation of major financial resources to mass transit transport, at a scale previously unknown in Israel, from some NIS 100 million (about \$25 million) in the late 1990s to a forecasted NIS 7 billion (about \$1.75 billion) in 2015. At the same time investments in roads have remained steady.

**Investment in Roads Vs. Mass Transit
(1996-2009 - Actual, 2010-2015 Forecast)
In Million NIS. (\$1=NIS 3.75)**



Policies and progress on transport access, including the rural population and poor

Israel's standard of living has significantly increased over the past two decades, reflected in the rise in the number of drivers and vehicles. The number of vehicles in Israel has more than doubled, from approximately 1 million in 1990 to approximately 2.5 million today, while the population has grown by approximately 53%. Thus, the level of motorization has risen from 220 vehicles per 1,000 residents to 330 vehicles per 1,000 residents (despite this steep rise, Israel still lags behind Europe and the U.S.A in the number of car owners). The increase in car ownership presents a twofold challenge for sustainable transport:

- Developing efficient and affordable public transport.
- Providing better road infrastructure, thus reducing traffic congestion and accidents.

Improving Public Transport Management

In January 2008 the Ministry of Transport and Road Safety published a comprehensive report: *Recommendations and Conclusions of the Committee for Inspection of the Reform in Public Transport in Israel*. The 50-page report

recommends new mechanisms and policies to improve public transport, including the establishment of two transport authorities:

- A national public transport authority: The authority will regulate the quality of transport services, transportation routes, timetables and establishment of a national information center for public transport commuters. It will encourage the accessibility of public transport to marginalized sectors of society such as Bedouins, ultra orthodox Jews, the disabled, residents in the periphery, and schoolchildren.
- A Tel Aviv regional metropolitan public transport authority: The Tel Aviv authority will regulate all aspects of the urban mass transit system in the metropolitan area.

Subsidized Public Transport

Government policy is to subsidize public transport fares, regulate destinations and set service frequency. In 2009, direct subsidies for public transport operators exceeded NIS 2.2 billion (\$600 million). Most of this budget (about NIS 1.9 billion or \$500 million) were allocated to subsidize bus and train fares and to maintain service to remote destinations that are otherwise not economically justified. Additionally, the government supports public transport companies in their annual procurements and renewal of their bus fleet. The government also subsidizes public transport fares for children and senior citizens. These subsidies include discounts in bus and train fares:

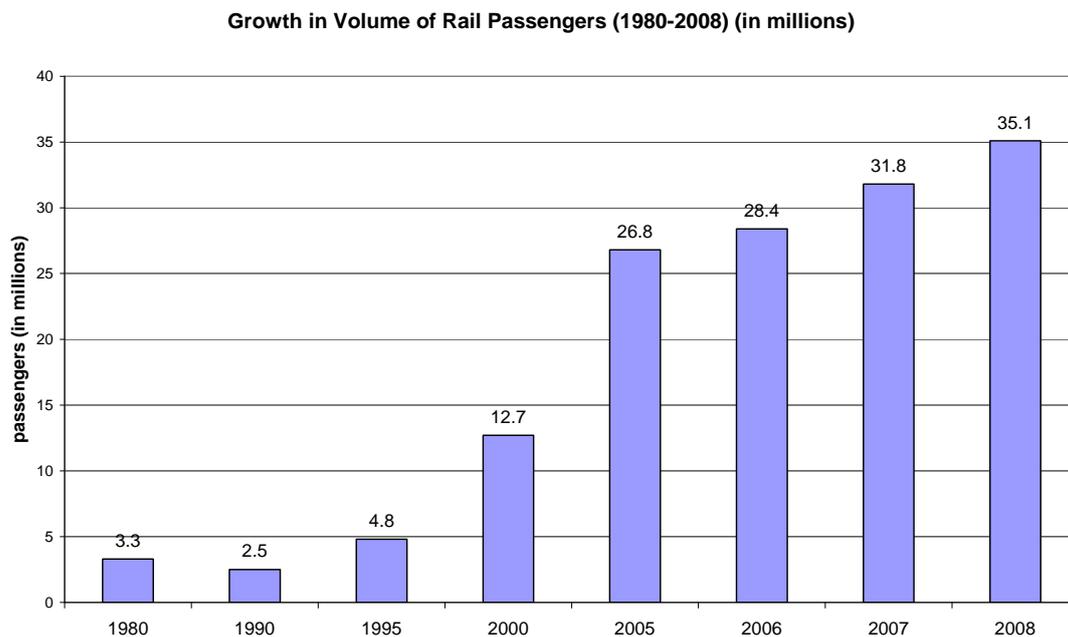
- Free travel for children under 5 years old accompanied by an adult.
- Discounted fares for schoolchildren.
- A 50% fare discount on urban and inter-city travel for senior citizens over 65.
- A semestrial city bus pass at a reduced price of up to 50% for university and college students in selected cities including Tel Aviv, Jerusalem, Haifa, Safed and Beer-Sheva.
- Discounted fares for entitled welfare beneficiaries of the National Insurance Institute of Israel.

In addition, over the past decade public bus transport in Israel moved from a service dominated by two major companies (Egged and Dan) to a multi-company service. New bus operators were introduced mainly in peripheral regions but also in more

central areas, usually, small companies with greater flexibility. As a result, costs were cut and service frequency rose.

Israel Railways

Israel's government views railways as a central mean of mass transport which is both efficient and environmentally prudent. The train is also viewed as a means for reinforcing the connection between metropolitan centers and the periphery, improving standards of living, providing employment opportunities, increasing commuter mobility, protecting the environment and providing sustainable development. After many years of stagnation and a steady decline in passenger volume, Israel Railways has begun actively working towards bridging the wide gap between Israel and other developed countries in the use of rail travel. Since the mid 1990s, passenger volume has grown rapidly (by over 1300% since 1990). It is expected that the annual number of passengers will increase from the current 35 million to some 60 million in 2015.



Rail Investment

In an effort to realize the immense potential inherent in the development of the rail system, both in terms of passengers and freight, the government decided in 2001 to transform the Railway Authority into a governmental company. This step facilitated the implementation of organizational efficiency measures. The organizational change

was accompanied by a government decision to invest \$7 billion in a multi-year program, to be implemented by 2016, to establish a rail connection between all major and medium-sized Israeli cities.

The government's vision, as embodied in the multi-year development program, was to connect by rail the four major metropolitan areas (Jerusalem, Tel Aviv, Haifa and Beer Sheva) and establish a suburban rail network in the Tel Aviv metropolitan area. Other major projects in the program include upgrading of the signaling system and initial steps for electrification of the network.

In February 2010, this program was supplemented with an additional \$5 billion program which aims to connect Haifa to Beit She'an and Acre to Carmiel at a total cost of nearly \$2 billion and to convert the railway system from diesel locomotives to electric trains while renewing the rolling stock at a cost of about \$3 billion.

Following is a look at some of the major projects:

- **The Tel Aviv-Jerusalem Express Line:** The flagship project for coming years is the Express Line (A1) between Tel Aviv and Jerusalem, which will connect Israel's two main centers with a journey time of 28 minutes. The route is only 56 km (35 miles) long but a major part of it (20 km or 12.5 miles) runs through hills and mountains, requiring the construction of tunnels as well as the construction of a central station in Jerusalem 80 meters (260 feet) underground. The first section, between Tel Aviv and Modi'in, was completed in 2008. The section between Modi'in and Jerusalem is expected to be completed and operational in 2016. The line is planned to carry 6-7 million passengers a year.
- **The Eilat Railway (in planning):** The city of Eilat lies at the southernmost tip of Israel and is a major tourist destination. Eilat is also the southern gateway to Israel, acting as the port of entry for goods from Southeast Asia, Africa and Australia. Connecting Eilat by rail to the center of the country is expected to significantly benefit international trade, tourism and the development of Israel's southern region. The project plan will be completed by 2016.

- **The Eastern Railway Line (in planning):** The planned Eastern Railway Line is located alongside Road 6 - the Cross Israel Highway. The line will run from Lod to Hadera and will complement the Coastal Line. It will be used to carry freight and passengers. The Eastern Railway Line is a strategic project due to its potential to incorporate an inland port, which will serve to transfer freight to and from the Haifa and Ashdod seaports. The estimated cost of the project is \$1 billion and it is expected to be built in cooperation with the private sector (PPP).

Road Infrastructure

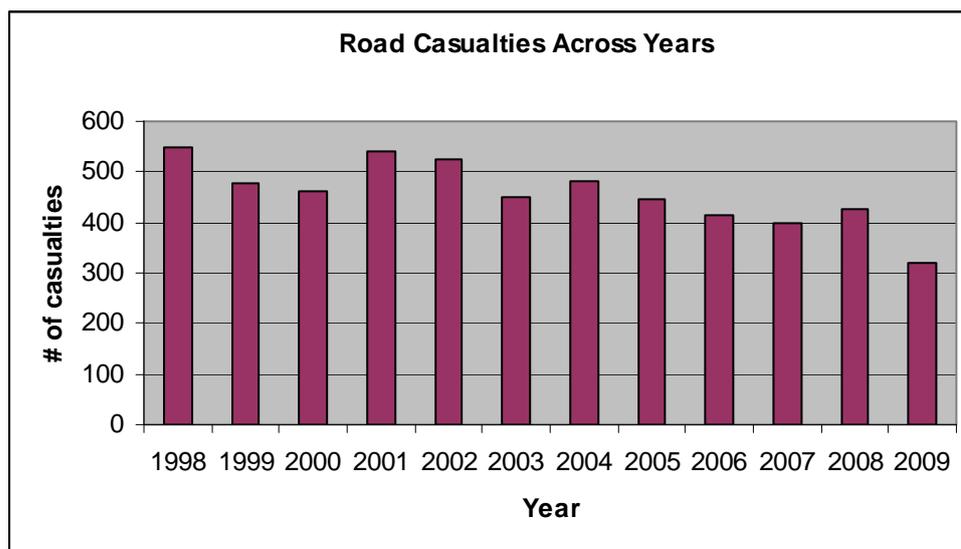
In recent years, within the framework of the government's balanced approach to transportation planning and in an attempt to meet the growing demand for road transportation alongside the development of public transport, the government invested an average of NIS 3.5 billion (nearly \$1 billion) annually to implement large-scale road infrastructure projects. Several roads in Israel, including the Cross-Israel Highway, were advanced as a result of fruitful cooperation with the private sector, in the form of Build-Operate-Transfer projects. Some of the main road infrastructure projects include:

- **Road 22 (Krayot bypass):** The new road is expected to provide a real solution to traffic problems in the Haifa metropolitan area. The project will accelerate the development of the region including the construction of thousands of housing units. The total cost of the project is estimated at \$500 million, with operation expected to start in 2015.
- **Road 16 (Jerusalem Entrance):** The project will improve access to the capital city and lower traffic congestion. The total cost of the project is estimated at \$350 million. The project is being examined for implementation as a Build Operate Transfer (BOT), with operation expected to start in 2015.
- **Cross Israel Highway:** A large section of the toll highway (Highway 6) crossing Israel South-North has already been completed. Plans have been approved to extend this major highway further north.
- **Fast lane on Highway 1 entering Tel Aviv from the east:** Under construction.

- **Carmel Tunnels (Haifa):** This road, under construction, will enable traffic flow in a tunnel bypassing the urban center of Haifa.
- **531 Lateral Feeder Road from Kfar Saba to Ra'anana:** Under financial closure.

Road Safety

Israel's government accords high priority to reducing the number of road accidents. To attain this end, the National Authority for Road Safety Law was enacted in 2006. The Road Safety Authority develops work plans and budgets for integrated activities with the police, the judicial system, media, local authorities and others to combat road accidents. In recent years, Israel has witnessed a sharp decrease in the number of fatal casualties in road accidents (see chart below), despite a 40% increase in car transportation volume.



Improving Road Network Management

An important element in government policy relates to increased road capacity by means of more efficient use of existing infrastructure:

- Implementing Intelligent Transport Systems (ITS) for traffic control and management (under development): The main aim of operating ITS is to improve the efficiency of existing transport infrastructure, increase the level of road safety, improve services, protect the environment and reduce costs.

Various ITS technologies are being implemented or are planned for implementation in Israel, such as:

- Traffic monitoring and data distribution.
- An integrated public transport database.
- Emergency and special event management
- Adopting economic incentives (e.g., congestion toll) for optimization of demand management.
- Relieving traffic congestion on major highways, mainly by widening existing roads.
- Increasing road safety by improving proper road maintenance.
- Separating local and intercity traffic, mainly through developing bypass roads.

Road Planning: Context Sensitive Solution Planning

Israel is a small and highly populated country with a limited supply of open spaces. The conservation of open spaces and environmental protection are a key ingredient in road planning guidelines issued by the Ministry of Transport and Road Safety. The guidelines instruct road planners to implement a newly developed method of Context Sensitive Solution (CSS). The CSS guideline is a tool enabling planners to minimize the social and environmental negative impact of new transportation facilities. The CSS guidelines include:

- Methods to identify sensitive elements in the planning sphere. As a result, planners are enabled to change the planned elements of the project, such as driving speed, layout of the intersection, etc.
- Instructions on making changes without compromising the other elements of the project plan, such as infrastructure safety and service provision.

It is expected that several advantages will result from enabling a wide perspective alongside greater flexibility in transport planning project: costs will be reduced, less open spaces will be consumed and adverse environmental impacts will be minimized.

National Master Plans

Land use planning in Israel is regulated by the different levels of national, regional and local planning committees. At the end of 2005, the National Planning and

Building Board approved the Comprehensive National Master Plan for Building, Development and Conservation (known as Plan 35). This plan specifically calls for urban development to be adapted and linked to transportations systems, especially mass transit. It instructs the editors of local and regional plans to concentrate development contiguous to the public transportation axes and in direct relation to them. Additionally, a new national master plan is in preparation – the Comprehensive National Master Plan for Land Transport Infrastructure (Plan 42). The aim of Plan 42 is to set instructions for a national land transport system that is integrative, efficient, sustainable, and economically developed. The plan is expected to make efficient use of Israel's scarce land resources, to minimize social inequalities, to promote pluralism, and to protect the environment. It sets ten preliminary goals that include:

- Reversing the trend from commuting by cars to public transport commuting.
- Setting the national layout of transport infrastructure, in order to improve and prioritize public transport services.
- Extending the synergy between transport planning and land use planning, and improving the economic efficiency of the transport system.

Fuel prices and tax reform

Removing subsidies on fuel

September 2009 marked the conclusion of a four year fuel tax reform to match the taxation on diesel and gasoline. At the same time, the diesel annual car licensing fee was reduced to match the fee on gasoline engine cars. This reform was designated to reduce economic distortions influencing the choice between diesel and gasoline powered cars and subsequently environmental pollution. Large businesses and industries that depend on diesel fuel for income generation are entitled to apply for diesel tax refunds. Buses and taxies are also included in this refund scheme.

Regional and global transport system integration encouraging efficient modes.

Rail transport

Israel's Ministry of Transport and Road Safety is promoting planning of the Jezreel Valley Railway Line (Ha'Emek Railway) connecting Haifa through Beit She'an to the

Jordanian border. This will allow the efficient transfer of freight from Europe and the US through the Haifa seaport to Middle East countries such as Jordan and Iraq, shortening the current maritime route by thousands of kilometers, significantly reducing trading costs and contributing to the sustainable development of the region. Because of its importance as a regional project, this railway line is being promoted by the European Union and is expected to attract the involvement of international organizations in its finance and implementation.

Maritime transport

The vast majority of Israel's international trade is conducted by sea and the main commercial ports (in Haifa, Ashdod and Eilat) handle 98% of the country's import and export volume. In the last decade the amount of cargo passing through Israel's ports has doubled and this trend is expected to continue as international trade expands further.

In December 2006, the Israel Ports Company presented the Minister of Transport and Road Safety with its proposed Fifty Year Strategic Master Plan for the development of port infrastructures along the Mediterranean coast, with government approval following in the beginning of 2007. The plan provides both a long and a short-term vision. It calls for the development of Haifa and Ashdod ports in a phased approach based on demand growth, with special emphasis on improving the level of service and increasing competition. The plan further recognizes the potential to exploit Israel's unique geographical position as a maritime gateway to the region as the geopolitical climate improves.

The government has also decided to advance plans for building additional container terminals in Haifa and Ashdod ports (each containing a 1.2 km long pier) at an investment of \$1 billion for each terminal.

The Israel Ports Company has taken the first steps towards implementing the government decision and has chosen two international maritime engineering firms to complete the detailed design of the terminals. The planning of these new projects is accompanied by stringent environmental impact assessment. Issues of water quality,

seabed conservation, biodiversity, marine ecosystem rehabilitation and sea sand erosion are taken into consideration.

Motorways of the Sea

Activities to encourage efficient sea transportation are taken as part of the European Union plan known as *Motorways of the Sea*. The main aim of this plan is to improve port communications with peripheral regions of the European continent and thus strengthen the networks between countries and encourage sea and train movement of goods vs. transportation by trucks.

Urban transport planning and policies

Mass transport projects

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. Additionally, in recent years special bus lanes were constructed throughout urban centers to enable free flow of public transport.

Specific projects of mass transport are at different stages of planning and implementation in the urban metropolitan areas of Tel Aviv, Jerusalem and Haifa:

The Jerusalem light rail train

With over 730,000 residents in an area of 126 sq. km (31,500 acres), Jerusalem is the largest city in the country, both in population and in size, with its population expected to reach 900,000 by 2020. Due to socioeconomic factors, public transport is widely used in the city. In 2002, the CityPass Group, a consortium of local and international companies, won the tender to build and operate the first light rail line in Jerusalem.

The main objectives of the project include:

- Encouraging the use of public transport.
- Revitalizing the city center.
- Reducing noise and air pollution and encouraging businesses and pedestrians to return to the city center.

- Reducing traffic congestion across the city.

Work on the project began at the end of 2006 and the line is scheduled for operation by May 2011. The electrically powered light rail train will be able to accommodate more than 500 passengers in one ride and will run every 4.5 minutes during rush hours. The first line of the train includes a 14 km strip of light rail crossing the city of Jerusalem. An impressive component of the first line is the new 120 meter-long bridge situated across the main (western) entryway to Jerusalem, which was commissioned from the leading international bridge designer and architect, Santiago Calatrava.

The construction of the light rail in the city center is accompanied by urban regeneration of the public sphere – roads, sidewalks, business fronts and construction of bicycle lanes. Additionally, the light rail project has incorporated a general upgrade in the public transport of the city: designating special bus lanes, prioritizing public transport in traffic lights, restricting the entrance of private cars to the city center and changing the city's ticketing system.

The Tel Aviv Metropolitan Mass Transit System (NTA)

The Mass Transit System – Tel Aviv Metropolitan Area is an advanced mass transit system that will enable the Tel Aviv metropolitan area to continue to develop and to provide adequate access to the city center. After years of planning, preliminary work has begun on the first line (the Red Line). The light rail, which will travel above-ground and underground at high speed and high frequency, will connect central Tel Aviv to large urban centers. (<http://www.nta.co.il/site/en/neta.asp?pi=40>)

The main objectives of the project include:

- Providing high level public transport services to reduce private car use.
- Significantly reducing travel time.
- Reducing traffic congestion in the city and access roads.
- Providing an incentive for urban development and renewal along the new route and around the stations.
- Reducing air pollution.

The MTS Group, a consortium of international and local companies, won the tender. The first line should be fully operational by 2015.

Bus rental stations in Tel Aviv

The Tel Aviv municipality with the support of the Ministry of Transport is in the process of establishing a network of automatic bicycle rental stations in the city. Rentals will be by means of a credit card, without prior reservations. During 2011, about 100 bicycle rental stations are expected to be operational, with over 2000 bicycles available for rental. This scheme is expected to encourage the use of environmentally friendly transport and complements the establishment of a wide network of bicycle lanes in the city of Tel Aviv city. In future this scheme is expected to be expanded to the neighboring cities of Tel Aviv.

Haifa Transport Master Plan Administration

The Haifa transport consortium is the active planning body of the Ministry of Transport and the city of Haifa. It is responsible for planning and development of integrated transport in the city of Haifa and Israel's northern region. The consortium is currently active in:

- Formulating the transport policy for the Haifa metropolis
- Reevaluating the public transport system
- Preparing a master plan for parking in Haifa
- Planning bicycle trails in Haifa bay
- Formulating a master plan for road safety
- Implementing traffic regulations

The Haifa Transport Administration runs three main projects which are in different stages of implementation:

- **The Bus Rapid Transit (BRT) "METRONIT"**: This project aims to build a new network of high capacity hybrid powered buses that run on exclusive rights of way. The first line is planned to connect the urban center of Haifa bay (the Krayot) to the transport centers of lower Haifa. The line is expected to be operational at the end of 2011.

- **Haifa Cable Car:** The unique topographic structure of Haifa makes it very difficult to connect different sections of the city. In an attempt to connect the city's lower area (at sea level) with Haifa University and the Technion (Israel Institute of Technology) situated on top of the Carmel Mountain, a plan has been drafted to build a 4 km cable car. Investment in the project is expected to reach some \$45 million. The project, which will carry 5,000 passengers an hour, has proved to be economically feasible and is expected to significantly shorten travel time and divert passengers from private cars to public transport.
- **Mass Transit System on Road 79 Nazareth-Haifa Bay:** The project aims to improve the connection between two major urban centers in the north (Haifa and Nazareth) and will encourage the use of public transport. The total cost of the project is estimated at \$900 million. The project is being examined for implementation as a BOT (Build Operate Transfer) project.

Joint governmental and non-governmental initiatives

A joint initiative of Transport Today & Tomorrow (a non- governmental organization (NGO)), the Ministry of Environmental Protection and the Ministry of Transport is entitled Green Commuting. (http://www.s-t.org.il/info_en.asp?id=-364706580) The project seeks ways to reduce car use in home-to-work trips. In the initial part of the project, three policies are under consideration:

1. Building preferential parking for people that arrive at work by carpool.
2. Establishing the legal framework for working from home.
3. Revoking the legal basis for current practices in the public sector that link salary payments to car ownerships.

On the practical level, the project is developing means to encourage workers to commute via carpooling, public transportation, cycling, etc. Israel Railways is now offering a special program granting businesses a 17% discount for employee travel. In addition a shuttle system will be established from train stations to nearby employment regions. (http://www.s-t.org.il/index_en.asp#).

Vehicle efficiency and emissions policies

National Plan for the Reduction of Vehicular Pollution

A national action plan, designed to reduce pollutant emissions from vehicles, was approved by government decision in October 2007. The decision calls on the Ministries of Environmental Protection, Infrastructures, Transport and Finance to take a wide variety of steps, including:

- Setting mandatory emission standards for smoke emissions from diesel vehicles and carbon monoxide emissions from gasoline-powered vehicles, adapted to each vehicle model;
- Allocating a special budget for the recruitment of inspectors for air pollution tests conducted in vehicle licensing bureaus;
- Authorizing Green Police inspectors to order owners of vehicles that do not comply with emission limits to stop using their vehicles;
- Calling on the Ministry of Transport and Road Safety to prepare a pollution reduction program for the center of Tel Aviv which is based on restricting the movement of polluting vehicles;
- Implementing a plan for the scrapping of old vehicles, which will offer owners payment for transferring their old vehicles for scrapping and metal parts recycling;
- Calling on the Ministry of Transport and Road Safety to renew roadside air pollution tests for vehicles by its enforcement patrols which check the working order of vehicles;
- Calling on the relevant officials in the Ministry of Finance and the Tax Authority to present a program for encouraging employees to reduce their private car use and switch to public transportation or other alternatives that reduce private car use;
- Imposing a differential tax on vehicles, based on the "green index" published by the Green Tax Interministerial Committee;
- Prohibiting the movement of heavy vehicles on main traffic arteries during peak hours, with the exception of vehicles designated for passenger transport;
- Giving preference in tenders for service vehicles in government agencies to fuel-efficient, environment friendly vehicles;
- Establishing a national vehicle laboratory to assist in checking vehicle compliance with advanced standards and to contribute to wise decision making on the subject.

- Reviewing the advantages and disadvantages of electric cars charged from the national electricity grid and recommending policy within a year.
- Setting significant economic incentives for promoting alternatives fuels, which are not oil-based, as well as diesel substitutes.

Green Tax Reform

The purchase tax on private cars in Israel is one of the highest in developed countries and stands at 92% (excluding hybrid cars and electric vehicles). On August 2009, Israel approved a Green Tax reform which seeks to improve vehicle efficiency and reduce emissions. The reform sets price rebates correlating to the degree of reduced vehicular air pollution. Vehicles in the lowest emission category, after the refund, pay a 45% purchase tax. The uniqueness of this reform lies not only in the progressive manner in which car prices are linked to emissions, but also in the fact that the different emission categories are based on "local pollutants" rather than CO₂ emissions alone. Under this new reform, hybrid cars are charged only 30% tax and electric vehicles (with zero emission) 10% tax.

The tax group of each vehicle model is based on the following:

- Air pollution testing of each car model before it is approved for use in Israel, or in Europe or in the USA. The test results provide information on the following pollutant emissions: carbon monoxide (CO), hydrocarbons (HC), nitrogen oxide (NO_x), particulates (PM) and carbon dioxide (CO₂).
- Factoring of the emission data of each model by means of a "green grade." The grades are divided into 15 groups of pollution that form the basis for tax credits, with group 1 representing the cleanest vehicle group and group 15 the most polluting.

The new tax structure has made cleaner and smaller cars less expensive by thousands of dollars, while the cost of polluting cars has increased significantly, thereby incentivizing the public to purchase more environment friendly cars.

Additionally, the changes in the car tax reform include:

- Switch to a linear method of calculating the value of use¹ of a company car. The value of use of a company car is now calculated based on its book value, rather than according to the value of usage groups that were previously used.
- Grant of tax benefits for the import of a diesel vehicle which is equipped with a particulate trap at a rate of NIS 1,500 to NIS 4,000 shekels (more than \$1,000), depending on the type of converter.
- Grant of tax benefits to reduce the use of a company hybrid car by 500 shekels per month (\$130).

Eco-Labeling of New Vehicles

Recent regulations prepared by the Ministry of Environmental Protection require every advertisement for a new vehicle to include data on air pollution, based on air pollutants and greenhouse gases that are emitted from the vehicle. An air pollution level is determined for each vehicle on a scale from 1 to 15, with 1 representing the lowest emissions and 15 the highest. In addition, the vehicle advertisement must include data on laboratory testing of fuel consumption in urban and interurban driving. According to the regulations, advertisements and exhibition halls are required to display a notice in the form stipulated in the regulations. The objective of these regulations is to increase public awareness of the subject in order to allow consumers to choose the most appropriate car for them.

Vehicle Retirement in Israel

A vehicle scrapping program was initiated by the Ministry of Environmental Protection, in cooperation with the Ministries of Transportation and Finance, on January 1, 2010. Owners of vehicles 20 years old or older, equipped with a valid vehicle registration license, are eligible to deliver their vehicles to six authorized scrapping sites and to receive NIS 3000 (about \$800) from the State in remuneration.

Clean Air Law

The Knesset (Parliament) approved the Clean Air Law on July 22, 2008. The law will go into effect on January 1, 2011. The law provides a comprehensive framework for the treatment and prevention of air pollution by setting responsibilities and imposing

¹ Value of use of a company car - the financial worth of using a company car, calculated per monthly use. This value is added to the individual's income projections and taxed by income tax.

obligations on the government, local authorities and the industrial sector. Among the provisions of the Clean Air Law is authorizing the Ministry of Environmental Protection to deal with vehicular pollution, as follows:

- Determine car emission regulations and standards for license renewal.
- Set standards for fuel quality and components.
- Authority to give personal orders to polluting industries and car fleets.
- Prohibit the use of polluting vehicles until compliance with the standards.

Green Government

On December 13, 2009, Israel's government approved a decision entitled: "*Green Government*" - *efficient governmental operation*. This government decision aims at setting the Israeli government as an example of sound environmental management that integrates steps for sustainability in its activities. This decision includes guidelines for car procurement:

- A maximum emission rate will be defined for the different car categories in all government car tenders.
- Government car tenders will favor procurement of fuel efficient cars.
- The government car authority will develop instruction programs for fuel efficient driving.

Development of any transport technology research and development (public sector or private)

Better Place

Israel has been chosen by the company 'Better Place' to be one of the first countries in which it will provide a network and services that make an electric car affordable to buy and easy to use. Better Place intends to lease electric vehicles (EVs) and provide a network of charge spots and battery switch stations for powering these vehicles. The company will also provide in-car services to ensure that drivers can confidently drive and plan trips in their EVs and the EV network software to optimize the use of energy and minimize the need for additional electricity generation and transmission infrastructure. For more information see: <http://www.betterplace.com/>

Demonstration and Research Projects

The Ministry of the Environment has initiated four research studies on the most suitable measures for reducing vehicular pollution under Israel conditions. The goal: to demonstrate efficiency in reducing emissions and to check potential impacts on vehicle performance in the first stage and to bring about wide-scale use in polluting vehicles in the second phase. The demonstration projects relate to: diesel oxidation catalysts (DOC), particulate traps in combination with oxidation catalysts, continuous regenerative traps and diesel particulate filters.

The Chief Scientist Division in the Ministry of Environmental Protection has funded numerous research studies on the reduction of pollution from vehicles. Many of the studies were carried out by the Internal Combustion Engine Laboratory of the Center for Research on Energy Engineering and environmental Protection, Faculty of Machine Engineering, Technion, Haifa. Some examples:

- Development of simulation model for regeneration processes in diesel engine particulate traps.
- Development of a proposed standard on periodic inspection of in-use power two wheelers in Israel.
- Survey of the automotive renewable fuels worldwide.
- Fleet tests with garbage trucks equipped by particular traps (filters).
- Implementation of natural gas use for vehicle city buses engines by use of diesel oxygenation catalytic converters.
- Reduction of particulate emissions from urban buses by use of continuously regenerating trap (CRT) diesel particulate traps.
- Estimation of in-use catalytic converters efficiency in Israel

Capacity building needs on transport activity assessment and analysis for integrated planning (e.g., urban transit, congestion relief, non-motorized transit, vehicle efficiency programs development, assessing fiscal incentives, inter-modal freight management systems)

Sustainable Transport at Local Municipalities – a joint initiative of Transport Today & Tomorrow (an NGO) the Ministry of Environmental Protection and the Ministry of Transport - aims to encourage initiatives and comprehensive planning by

municipalities to increase the opportunities for promoting a systematic sustainable approach from within. Two main initiatives are currently in progress:

1. **The Sustainable Transportation in Israel Contest:** This yearly contest invites heads of municipalities, regional councils, and local councils to publicly present transport plans for future projects. The projects propose solutions that are not based on private cars usage and new road building, but rather promote the use of public transport, walking, cycling, changing commuting habits, making the use of private cars more efficient, etc. http://www.s-t.org.il/info_en.asp?id=290483964
2. **Sustainable Transport Course:** This course offers 15 meetings on sustainable transport to city engineers, planners, people in charge of sustainable development, as well as representatives of resident' groups interested in promoting sustainable transport in their cities.