State of the Sea

2007 Report

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Richard and Rhoda Goldman Fund

Rosen & Meents

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Forward

Every year, Zalul, a non-profit organization advocating the preservation of the environment, has the honor of submitting its annual State of the Sea Report for Israel to the public.

The purpose of the report, as has been the aim since Zalul's founding, is to try to present the reader with a short, accurate and independent review of the state of the pollution on Israel's Mediterranean coastline and beaches, which serve as a source of recreation, livelihood, quality of life and a backdrop for Israel's inhabitants and tourists, and which constitute a major national and public asset.

In today's world there is no need to explain the importance of environmental protection and preventing pollution of seas and rivers. Polluting the Mediterranean and Israel's rivers harms the health of those who come into contact with them, namely bathers, holiday makers and sports lovers, it endangers Israel's water resources, and lowers the quality of life of the general public obliged to live with a polluted sea.

It has emerged, alarmingly, that most sea and river pollution in Israel in recent years has occurred with the knowledge and authorization of the Ministry of Environmental Protection under the direction of the Permit Committee for discharges to the sea, which operates by virtue of the law, and liberally allows the release of wastewater to the sea.

According to the data gathered by Zalul, over 100 permits for discharging wastewater to the sea are granted by the inter-ministerial Permit Committee and the Ministry of Environmental Protection every year, sometimes disturbingly close to bathing beaches. On a number of occasions permission was granted to discharge very large quantities of wastewater containing substances hazardous to the environment and to humans, even substances whose discharge to the sea is prohibited by law. A review of the Committee's activities and procedures has found that there is no real mechanism for overseeing the Committee's activities in order to bring about a reduction in the number of permits granted for discharges to the sea – a failure that enables the polluters to continue discharges to the sea under the protection of the law.

Over the years attempts have been made to force the Israeli Government to disclose, on a regular basis, the list of permits granted for discharging wastewater to the sea, the location of the wastewater flows, the quantity, quality and composition of the substances they contain, and to obligate the Government to create a regional hazard map to inform citizens, in a fully transparent manner, of the dangers they face if they bathe in the sea.

The demand that the Government disclose the list of permits also assumes that public disclosure of the permits would drive some of the polluters- as well as the Ministry of Environmental Protection and the Permit Committee (the Ministry and the Permit Committee do not themselves pollute) to choose not to continue discharges to the sea, and to invest in advanced wastewater treatment technologies, joining the national and international effort to reduce the damage done to the environment.

Over the past year, Zalul has gathered extensive information about the permits granted by the Committee to the polluters, and unfortunately, the picture that emerges is much worse than initially imagined. Thousands of tons of hazardous substances and heavy metals, tens of millions of cubic meters of partially treated sewage and petroleum products are discharged to the sea every year, at a time when advanced technologies to treat the wastewater are widely available.

The policy espoused by the Permit Committee and the Ministry of Environmental Protection must be subjected to major and immediate revisions to bring about a significant reduction in the number of polluters discharging wastewater to the sea, to encourage the use of the advanced technologies available, and to strive for the implementation of the law and the Barcelona Convention signed by Israel, in order, ultimately, to improve the state of the sea and the rivers. Publication of the permits and display of the information to the public, and obliging the actual permit holders themselves to publish the content of their individual permits publicly, will address the need for transparency and preservation of public health, and will strike a balance between the harm done by those parties in the public domain and their right to continue to exist within the framework of the law.

We wish to thank the Richard and Rhoda Goldman Fund whose generous support was instrumental in facilitating an in-depth report. We also wish to thank employees of Rosen & Meents who gave of their time and resources for the coastal survey.

Attorney Yariv Abramovich
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Executive Summary

- **Background**

The states of Israel's coastal waters are appalling.

Israel's coastal waters have been polluted over a period of many years, leading to an accumulation of hazardous and even toxic substances, incurring irreversible damage in some locations.

The Permit Committee for discharges to the sea, operating in the framework of Government ministries, is one of the main causes of the pollution, by granting permits for the discharge of industrial and municipal wastewater to the sea.

The number of permits, which has grown over the years, has intensified the quantities of pollutants pouring into the sea. Authorized discharges to the sea are currently estimated at over 100 million cubic meters per year.

This report, which examines the quantities of authorized discharges of pollutants to the sea, unveils the Permit Committee's actions and methods of operation, which deviate from the Barcelona Convention and effectively allow pollution of the sea. The granting of permits for discharge to the sea all who apply endangers the health of bathers as well as the marine ecological system, **and calls for urgent action to prevent an ecological disaster along Israel's coastline**.

This report undertakes a comprehensive examination of the permits for discharge to the sea granted to polluting bodies by the Permit Committee in order to present a snapshot of the pollution along Israel's Mediterranean coastline.

The report presents proof of the fact that the State of Israel is the largest polluter of the Eastern Mediterranean Sea basin and approves discharges of numerous dangerous pollutants to the sea, often in breach of the law in Israel, and in breach of the Barcelona Convention.

- **Findings**

From an analysis of the documents and permits in our possession, it emerges that one of the most significant parameters in granting permits for discharge to the sea is not taken into account, namely the accumulation of pollutants in the coastal waters. Based on a calculation of the quantities of substances approved for discharge to the sea, an alarming picture emerges on the extent of the pollution released into Israel's coastal waters. **Further examination of the data finds that permits are evidently granted without requiring applicants to implement advanced wastewater treatment technologies, as required by law.**

The collation of the data resulted in the locating of seven hotspots definable as "hazardous zones" in terms of the public health of bathers in the sea and in ecological terms, namely, the accumulation of pollutants in edible fish stocks.

The hazardous zones located are: Nahariya, Acre Bay, Haifa Bay, Herzliya, the Greater Tel Aviv region (Gush Dan), Palmachim and Ashdod.

Acre Bay, one of the hazardous zones to which industrial plant wastewater is discharged within the framework of Committee permits, has been used as a case study in this report. A review of the laboratory reports on approved industrial wastewater discharges to Acre Bay through the ALA terminal has resulted in the following **harsh conclusions**: **Despite grave and clear-cut breaches of the discharge permits, this did not prevent the Committee from renewing the industrial plants' discharge permits, without applying any of the sanctions warranted by law. Some of the deviations were found to be in the figure of hundreds and thousands of percent, and some industrial wastewater even contained pollutants banned from discharge by law.**

The identity of the dischargers and the details of the permits are concealed from the public across the board, and the Committee conducts its activities in secret. **The Committee doe not act transparently, and does not inform the public about the nature of the discharges and the dangers involved in bathing in the sea in zones which the industrial wastewater drains into.**

This is the first time that the permits for discharge to the sea are revealed!

- **Summary and Conclusions**

The report's findings and conclusions are that various substances are discharged into the Mediterranean Sea that constitute a real danger to public health, backed by a Government committee operating in breach of the law, and under a cloak of secrecy.

The report's conclusions:

1. Every year, the Permit Committee grants permits for discharges to the sea allowing the discharge of tens of thousands of tons of hazardous substances such as heavy metals, organic contaminants and compounds that are hazardous to human health.
2. The Permit Committee operates in secret and deliberately hides information from the public about the identity of the polluters and the permit details.
3. There are concerns that industries important to the Israeli economy are treated leniently at the time the conditions of the permits are drawn up, both in terms of pollutant concentrations and in terms of identification of deviations from the maximum limits.
4. The pollutant reduction plans prepared by the Marine and Coastal Environment Division in the Environmental Protection Ministry, the consultant body to the Permit Committee, are not taken into account when decisions are made to approve discharges of pollutants to the sea.
5. The Permit Committee operates in breach of the law and the protocols of the Barcelona Convention, approving discharges to the sea of pollutants whose discharge is banned by them.
6. The Committee does not encourage, as the law mandates, implementation of advanced wastewater treatment technologies.

The situation whereby a committee allows, in a manner that is contrary to its goals and principles, pollution of the sea year after year undermines the law.

1. Introduction

The polluting of Israel's coastal waters has not declined significantly in recent years as would have been expected.

Wastewater discharges to Israel's coastline and beaches originate from both industrial and municipal sources, and are on the rise due to industrial development and population growth. This wastewater contains an extensive mix of chemicals, heavy metals, pathogenic bacteria and substances suspected as being carcinogenic and toxic to humans as well as to the environment. The quantities discharged to the sea every year, with the authorization of the Permit Committee, include 140 tons of heavy metals, tens of thousands of tons of organic pollutants, a ton of cyanide, 1300 tons of toxic ammonia, and over 130 tons of pesticides, etc. – as detailed in this report. The distribution of pollutants along Israel's coastline has been divided into hazardous zones, each zone characterized by a main pollutant according to the type of industry in the vicinity.

Israel boasts a 190 km coastline much of which is sealed off to the public, including many polluted beaches where bathing is liable to endanger health possibly irreversibly. With growing environmental awareness and the realization that the Mediterranean Sea, being an enclosed basin, cannot be turned into a waste dump, efforts were initiated to reduce the amount of pollutants discharged to the sea from land-based sources. The efforts began in 1973 when the Barcelona Convention came into being. Protocols were added defining the way in which the Mediterranean Sea should be used without polluting it, and to facilitate its rehabilitation.

Israel is a signatory to the **Barcelona Convention** and its amendments. Israel ratified it and even enacted a law called the **Prevention of Sea Pollution from Land-Based Sources Law, 1988**, with the aim of implementing the Convention's protocols. By vigor of law an **'Inter-ministerial committee' was established 'to grant permits for discharges into the sea' (hereinafter: "the Committee")**. The purpose of the Committee is to prevent the discharge of wastewater to the sea and to encourage the polluters to find land-based alternatives to such discharges, until the total cessation of such discharges is achieved. The **Marine and Coastal Environment Division in the**

Ministry of Environmental Protection is the professional body that advises the Committee and that enforces the implementation of its directives.

The law, as aforesaid, stipulates that the discharge of wastewater to the sea, both raw and treated, is prohibited unless the applicant for the permit has proven that no advanced technologies exist to treat that wastewater. The law empowers the Committee to authorize, by exception, a permit for discharges to the sea in extreme cases where no other technologies exist anywhere in the world that could avoid the discharge of the wastewater to the sea. The dismal reality is that industry and local authorities enjoy the protection of the Committee and therefore cannot be bothered to invest in the resources required to implement existing technologies. Consequently, sea pollution occurs with Government approval.

Most of the sea pollution is a result of the controversial policy espoused by the Ministry of Environmental Protection and the Committee in granting permits authorizing the discharge of wastewater to the sea. In effect, vast quantities of pollutants are discharged to the coastal waters and beaches with Government approval while, as a result of flawed application of the law, control over the quantities and quality approved for discharge to the sea remains problematic; in some cases, the Permit Committee, despite advice from professional units in the Ministry of Environmental Protection, refuses to revoke the discharge permits of parties discharging pollutants to the sea.

Despite judicial and public criticism, the Committee's activities remain hidden from the public eye. The policy of concealment and secrecy is endemic throughout all stages of the Committee's activities: from the publication of its meetings, to the list of entities granted permits, and ultimately to the details of the discharges. Attempts to expose the Permit Committee's work methods to public scrutiny, including the details of the actual permits themselves, are frequently stonewalled, without explanations being offered.

In preparing the report, the Committee's efforts at concealment notwithstanding, Zalul has managed to uncover a large number of permits granted by the Committee, and to determine on their basis, whether the Committee has operated in accordance with the

law and in accordance with the Barcelona Convention. The findings are testimony to an alarming situation. The underlying principles of the Convention and the provisions of the law have fallen by the wayside, and instead the Committee has turned into a body contributing to discharges to the sea, rejecting almost no applications, effectively becoming the main cause for sea pollution in Israel.

The report contains an in-depth review of the permits granted to factories and local authorities, including quantities and the terms of the discharges, and also examines the Committee's modus operandi on the basis of a case study.

2. The report's objectives

The report presents the state of the pollution in the Mediterranean Sea along Israel's coastline and beaches by means of a comprehensive examination of discharge permits granted by the Permit Committee to the polluters. The report presents proof of the fact that the State of Israel is the largest polluter of the Mediterranean Sea and approves discharges of numerous dangerous pollutants to the sea, often in breach of the law in Israel, and in breach of the Barcelona Convention.

The report, whose sources of information were and remain for the most part secret because of the Israeli Government's unwillingness to disclose the true extent of the sea pollution to the public, presents the reader with the quantities and quality of the wastewater discharged to the sea in key areas in Israel, describes the weak enforcement by the Permit Committee against polluters in breach of their permits, and demonstrates that the Committee effectively compromises Israel's efforts to comply with its international undertakings to reduce sea pollution and exposes many of its citizens to health hazards by not making its actions transparent to the public.

In the report, we present several hazardous zones in the sea opposite Israeli beaches, where huge amounts of wastewater are concentrated liable to endanger the marine environment as well as public health. The hazardous zones, set out in this report, should ideally have been disclosed by the Ministry of Environmental Protection, in an unequivocal and clear-cut manner, and not hidden from the public due to image considerations.

This report examines, for the very first time, the discharge permits and the contents of their terms, reviews how the permits were granted by the Committee, and compares this with efforts by the professional body in the Ministry of Environmental Protection (the Marine and Coastal Environment Division) to reduce the scale of the pollution occurring.

The unique value of this report is inherent in the fact that after years of concealment of information from the public eye on the quantities of pollutants discharged to the sea

and on the polluters, the full details are now disclosed following extensive efforts by the authors of the report.

It is worthy of note already at this stage that, in many cases, the Committee refuses to accept the recommendations of the Marine and Coastal Environment Division in the Ministry of Environmental Protection to make the terms more stringent or to revoke a permit in the event of excesses, thereby lending a free hand to continued pollution of the sea with its blessing.

The report describes and presents details on the following issues:

1. The extent of the pollution anticipated at bathing beaches along Israel's coastline.
2. The quantities of wastewater that the Committee approves for discharge to the sea (tons/ year), according to pollutant.
3. Case study – how the Committee refuses to take action against a polluter deviating from the criteria established by the Committee for the polluter.
4. The manner in which permits are granted and their terms defined.
5. How the activity of the Committee sabotages Israel's efforts and obligations to reduce the quantities of pollutants defined in the Strategic Action Program (SAP) prepared by the Ministry of Environmental Protection.

3. Regulations, Conventions and Laws

3.1 Prevention of Sea Pollution from Land-Based Sources Law, 1988

The law was enacted following Israel's ratification of the Barcelona Convention, and together with its regulations, constitutes the main legal source in combating sea pollution. The Law, which adopts the principles of the Barcelona Convention, prohibits the discharge of wastewater or solid waste to the sea without a permit from the **Inter-ministerial Committee that grants permits for discharges into the sea**. The Committee may, as an exception only, accede to an application to discharge wastewater to the sea, and define the terms of the permit. However, the law expressly prohibits it from issuing a permit in locations where land-based treatment or disposal or reuse alternatives exist, or in cases where the wastewater contains substances harmful to the environment. The essence and spirit of the law are also effectively designed to encourage implementation of the best available technologies for wastewater treatment and to discourage discharging wastewater to this sea.

3.2 The Barcelona Convention

The Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean

Israel ratified the Barcelona Convention for the Protection of the Mediterranean Sea Against Pollution in April 1978, which was later revised and in June 1995 became the Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean. The amendment to the Convention came into force, and in 2005, Israel ratified the amendment as well. The Convention constitutes the judicial and legal framework for the implementation of the Mediterranean Action Plan (MAP) adopted in 1975, the underlying principles of which are the protection of the Mediterranean Sea Basin's environment.

The Barcelona Convention is designed to serve as a means for routine monitoring and oversight of the state of the Mediterranean Sea, and for identifying environmental

problems and their sources. The Convention obliges member states to take all the necessary measures to reduce sea pollution and to protect the marine environment.

The Convention addresses the following issues:

- Sustainable management of the marine and land-based resources and socio-economic issues in an integrated manner (sustainable development).
- Preventing pollution of the beaches and sea on an ongoing basis and in unique incidents.
- Protecting the heritage, life and landscape of the marine environment.
- Promoting mutual assistance between states.
- Promoting quality of life.

The following countries are signatory to the Convention: Albania, Algeria, Bosnia and Herzegovina, Croatia, Cyprus, Egypt, France, Greece, Israel, Italy, Lebanon, Libya, Malta, Monaco, Morocco, Slovenia, Spain, Syria, Tunisia, Serbia and Montenegro, and Turkey.

3.3 Public Inventory of Toxic Releases into the Environment (TRI)

The public's right to know the pollutants and chemicals released by industry into its environment is a public right anywhere in the world. The United States is the most active in this regard and one of the leaders in transparency in this sphere.

American law stipulates that the public has the right to know the pollutants being released into its environment. The American Environmental Protection Agency (EPA) has a database open to public scrutiny called the **TRI - Toxic Release Inventory Program**. One product of the law is the Emergency Planning and Community Right to Know Act 1986 – EPCRA. This American law defines the categories of industry obligated to report a list of their toxic and hazardous pollutants. Citizens can obtain information about 650 types of pollutants released into the environment in their place of residence. Information is provided over the Internet without any complicated bureaucratic requirements, in distinct contrast to the situation in Israel.

4. Wastewater Discharges into the Sea - Analysis and Findings

This chapter analyzes the permits and authorization orders issued over the past year, and reviews the quantities approved by the Permit Committee for discharge to the sea. In addition, it examines the terms for each and every one of the permits and orders issued. The analysis takes an in-depth look at the permits and orders and their terms, and unveils a profile of the way the Committee operates in practice, and also looks at the orders issued by the Water Commission.

Chapter 6 addresses the Committee's mode of operation in defining and implementing policy as well as its decision-making processes, and also looks at a special committee in the Water Authority that issues authorization orders.

An analysis of the permits indicates that the quantities permitted for discharge to the sea do not comply with the "cumulative effect" criterion. That is, no review is undertaken of the total annual quantity of the hazardous materials and pollutants permissible for discharge to the sea. By contrast, for example: the Kyoto Convention which addresses air pollution and its impact on global warming is implemented in Israel by the CDM Committee. That committee examines applications for carbon emissions in relation to all the carbon emitted in the country.

The implementation of the Strategy Action Program (SAP) described in Chapter 5 of this report is inadequate, and that there are hazardous materials and pollutants whose total quantity accumulates and increases from year to year. Moreover, quantities of pollutants whose discharge to the sea should be declining from year to year are actually increasing from year to year.

The following sections show how the pollution "pie" is divided up among various segments of the Israeli coastline, and the accumulating quantity of pollutants authorized for discharge into the sea.

Table 1: Discharge Permits used in the Analysis

Polluter's Name:	Location	Site	Type of wastewater	Flow (cubic meters per year)	Type of Pollutants	Valid until
Agan Chemical Manufacturers	Ashdod	Ashdod	Chemicals	750,000	Organic matter 4500 tons (51%) Phenol 1.5 tons (69%) Herbicides 127.5 tons (100%)	30.9.2007
ALA Infrastructures	Netanya	Acre	Chemicals	3,600	Industrial plant wastewater containing mainly: organic matter, ammonia, AOX, oils, and organic compounds	30.06.2007
Haifa Refineries	Haifa	Kishon	Chemicals	5,913,000	Mineral oil 29.6 tons (19%)	30.9.2009
Gadot	Haifa	Kishon	Chemicals	3,100	Sulphide 233 kg (15%)	31.12.2011
Delta Textile	Karmiel	Acre	Chemicals	219,000	Benzene, Toluene and Xylene 70 kg (25%)	31.12.2007
Fertilizers & Chemicals	Haifa	Kishon	Chemicals	547,500	Nitrate 87.6 tons (17%)	30.6.2009
Soglowek	Nahariya	Acre	Food	73,000	Organic matter 18.3 tons	30.06.2007
Haifa Chemicals	Haifa	Kishon	Chemicals	2,372,500	Nitrate 403.3 tons per year (79%) Phosphorus 59.3 tons (16%)	31.3.2007
Unilever Bestfoods	Haifa	Port	Food	1,825,000	Nitrate 9.1 tons (2%)	31.3.2009
Carmel-Olefins	Haifa	Kishon	Chemicals	15,000	Organic matter 300 kg	31.3.2007
Miluban	Acre	Acre	Food	620,500	Benzene, Toluene and Xylene 200 kg (70%)	31.3.2007
Ashdod municipality	Ashdod	Ashdod	Effluent	8,400,000	Mineral oil 16.8 tons (11%) Ammonia 126 tons per year (16%) Nitrogen - Kjeldahl method 126 tons (31%) Phosphorus 67.2 tons (18%)	30.9.2007
Herzliya municipality	Herzliya	Herzliya	Effluent	8,030,000	Mineral oil 16.1 tons (10%) Ammonia 120.5 tons (15%) Nitrogen - Kjeldahl method 120.5 tons (29%) Phosphorus 64.2 tons (17%)	
Nahariya municipality	Nahariya	Nahariya	Effluent	5,400,000	Ammonia 81 tons (10%) Nitrogen - Kjeldahl method 81 tons (20%)	
Acre municipality	Acre	Acre	Effluent	5,475,000	Organic matter 2737.5 tons (31%) Mineral oil 16.4 tons (11%)	31.8.2007
Shafdan (Greater Tel Aviv wastewater treatment plant)	Rishon Lezion	Palmachim	Wastewater sludge	6,570,000	Heavy metals 96.8 tons (80%)	31.12.2006
Petroleum & Energy Infrastructures Ltd.	Haifa	Haifa	Chemicals	65,000	Organic matter 1.3 tons	31.12.2008

4.1 Israel's Coastline - General

An analysis of all the permits and authorization orders and a calculation of all the quantities approved for discharge to the sea produces an alarming picture of the amount of pollutants discharged to Israel's coastal waters with the Committee's acquiescence. The list includes over 50 different types of pollutants, some of which are toxic to the ecological system, and some of which are even directly harmful to humans.

Each year, the Committee, operating under the protection of the law, permits industry and municipalities to discharge tens of millions of cubic liters of polluted wastewater to Israel's coastal waters. Summarizing the permit data, one finds that the Committee in some cases authorized discharges in breach of the law of substances banned by the Barcelona Convention and by law for discharge to the sea. A list of these substances appears in the second addendum to the law.

The following sections specify the pollutants by group and by quantity approved for discharge to the sea in tons per year. In our estimation, these constitute the **minimum quantities** approved by the Committee; **it may well be that with the Committee's lack of transparency in publishing the permits**, there are additional permits hidden from public view. Moreover, taking a realistic view, it is highly probable that some of the parties discharging wastewater to the sea with a permit, are deviating from the terms granted them.

4.1.1. Heavy metals

Each year, the Committee approves the discharge of tens of tons of heavy metals to the sea. The discharge areas and the quantities of each type of heavy metal are specified, and it is already clear that the quantity is large, considerable, and cause for concern, especially **in view of the known harmful impact** of these metals on the human body and on marine ecological systems – in some cases, irreversible harm.

From Table 2 it emerges that substances known to be carcinogenic, such as lead, chromium and nickel are approved for discharge in amounts of 24 tons per year; and mercury, cadmium and arsenic in quantities of 6 tons per year. It is therefore

calculated that the quantity of heavy metals constituting a substantial health hazard totals 130 tons a year, unevenly distributed along Israel's coastline, the major proportion being approved for discharge in the Greater Tel Aviv region (Tel Aviv and Gush Dan), through the Shafdan wastewater treatment plant.

Table 2: Heavy Metals

Substance	Quantity	Substance	Quantity
Zinc (Zn)	87 tons/ year	Copper (Cu)	22 tons/ year
Arsenic (Ar)	5 tons/ year	Nickel (Ni)	7.5 tons/ year
Mercury (Ag)	200 kg/ year	Lead (Pb)	3.5 tons/ year
Chromium (Cr)	13 tons/ year	Cadmium (Cd)	1 ton/ year

4.1.2 Organic and other pollutants

In addition to the fact that the pollutants shown in the table below were approved for discharge to the sea, and constitute considerable organic load, it should also be noted that some of them are liable to be toxic to the marine environment and even to humans. A high concentration of organic pollution results in turbidity of the seawater and to a sharp drop in the oxygen content, thereby harming the ecological system. Molecular organic compound (AOX) pollutants are **truly toxic to marine life, and in high concentrations, to humans as well**. It is well known that a low concentration of toxins such as ammonia and AOX is sufficient for fish mortality. In addition to the compounds reported and measured in the industrial wastewater, there is concern that the discharge of the different types of wastewater could create new compounds, or lead to synergies about which not enough is known, and endanger, to an even greater extent, the health of all those coming into contact with the sea.

Table 3: Organic and other pollutants

Substance	Quantity	Substance	Quantity
BOD	14,800	General nitrogen	2,300
COD	34,000	Phosphorus (P)	660
Total suspended solids (TSS)	8,200	AOX	1.1
Ammonia (NH_4)	1,300		
Nitrate (NH_3)	1,200		

4.1.3 Fuel and mineral oil pollutants

Some industrial plant production processes use fuel products and mineral oils, which are then released into the wastewater, constituting pollutants liable to harm the health of humans who come into contact with them. Phenol, for example, is harmful to health, and also a toxic risk factor for the ecological system. An analysis of the permits shows that the Committee granted permits to discharge 300 tons of various oils to the sea annually, plus 6 tons of other hazardous substances, some of which are fatal in human contact.

Table 4: Fuels and mineral oils

Substance	Quantity
Mineral oil (FTIR)	260
General oils and grease	40
Phenol	4.8
Benzene, Toluene and Xylene (BTX)	1.5

4.1.4 Toxins and pest control substances

Apart from the familiar pollutants such as heavy metals, organic compounds and fuels, the Committee also authorizes the discharge of more than 400 tons of herbicides, solvents, detergents and cyanides.

Some of these pollutants are dangerous and liable to cause instant bodily harm. The solvent MIBK constitutes 40% of this class of substances.

In addition, **the Committee also approved the discharge of one ton of cyanides to the sea**. While this refers to one ton of cyanide along the entire Israeli coastline, over one year, bear in mind that this is a lethal substance, most of which was approved for discharge by the Agan Chemicals plant in Ashdod, and the rest for discharge primarily in the sea opposite Gush Dan (Greater Tel Aviv region) beaches.

Table 5: Toxins and Pest Control Substances

Substance	Quantity
Cyanides	1.1
Herbicides	187
Methyl isobutyl ketone (MIBK)	180
Detergents	70

The graphs below show the distribution of the different pollutants according to their contribution to the overall pollution of the Israeli coastline (type of substance and quantity in tons/ year):

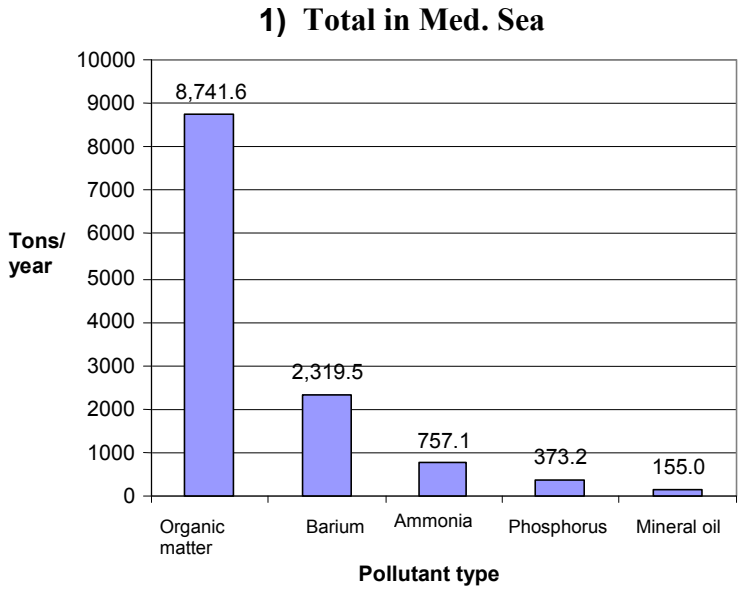

Figure 1: Total pollutants discharged to the Mediterranean Sea (1)

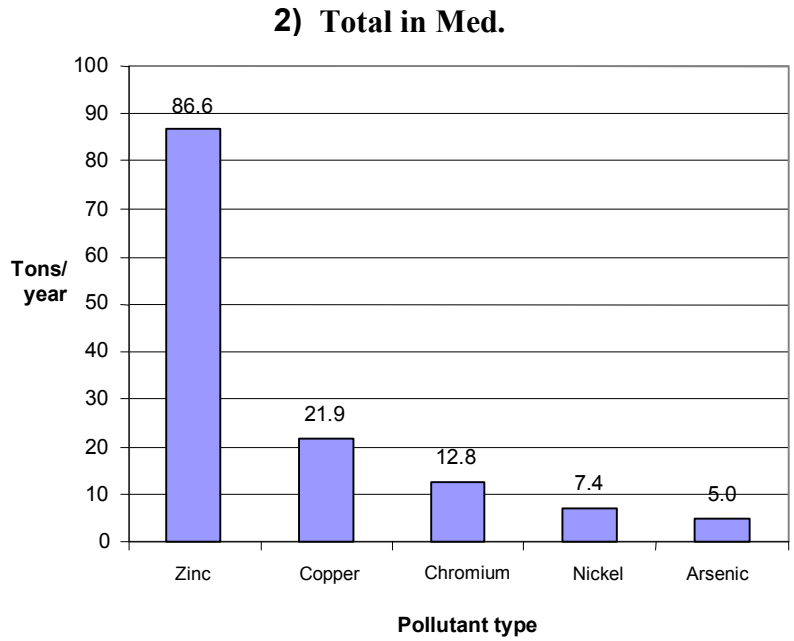

Figure 2: Total pollutants discharged to the Mediterranean Sea (2)

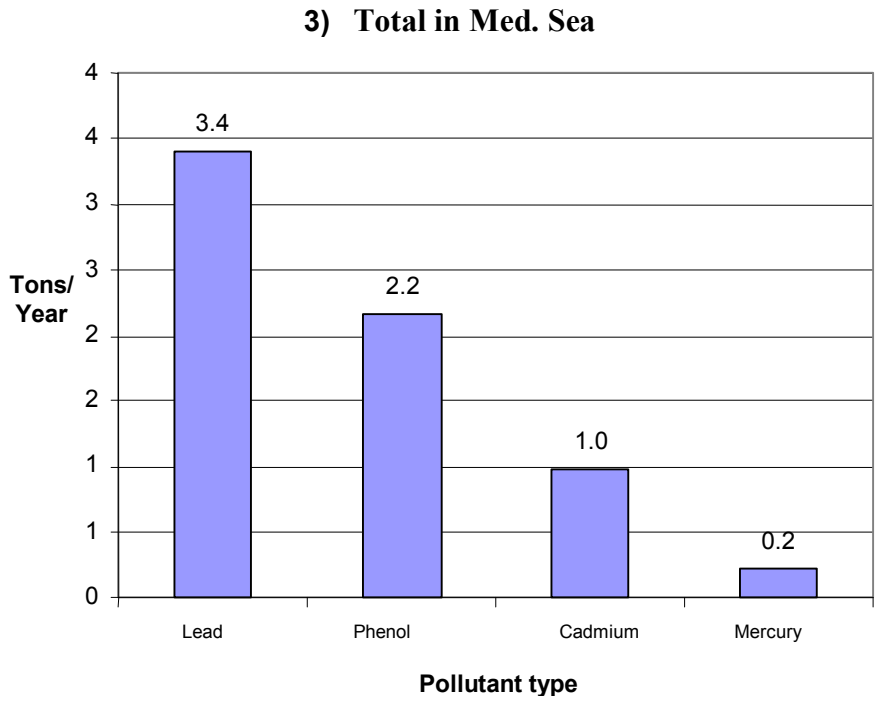

Figure 3: Total pollutants discharged to the Mediterranean Sea (3)

4.2 Locating and mapping out hazardous zones

During the preparation of the report, seven "**hazardous zones**" were located – zones into which several polluted wastewater sources flow, either directly from the industrial plants themselves, or via polluted rivers. These zones, **of which the public has not been informed**, and which are listed below from north to south, in our opinion, constitute a danger to humans and to the environment as a result of the high concentration of pollutants they contain.

It is important to remember that the data presented herein refers only to the quantities specified in the permits. However, the concern is that additional sources of discharges exist, **whether with permission and concealed from the public eye**, or without permission, caused by parties operating in breach of the law in the absence of enforcement by the Ministry of Environmental Protection.

4.2.1 Nahariya zone

A hazardous zone extending from Achziv in the north to south Nahariya

The effluent from the Nahariya municipality wastewater treatment plant is the source in this zone: a discharge of thousands of cubic meters. In all probability, the discharge will cease in the coming months.

The Committee permitted the Nahariya municipality to discharge 81 tons of suspended solids (TSS) and 81 tons/ year of ammonia, constituting 6% of the total ammonia approved for discharge to the sea in Israel. The permit also allows the discharge of 200 tons of various nitrogen compounds per year. The impact of the aforesaid pollutants is presented in appendix D.

The Committee also allowed the municipality to discharge an average of 2 tons of heavy metals to the sea annually, primarily chromium, nickel and zinc. Permission was also granted to discharge 11 tons of mineral oil originating from fuels into the sea annually, constituting 4% of all mineral oils permitted for discharge to the sea in Israel.

Since municipal sewage is the main source of the pollution, bathers are at risk from pathogens (bacteria) found in the sewage. Apart from the authorization granted to discharge Nahariya's municipal wastewater to the sea, some observations were made of direct discharges to the sea of wastewater from the Milouot (Milos) food plants, as well as storm waters from the Achziv River polluted with untreated municipal sewage.

4.2.2 Acre Bay

Hazardous zone extending across parts of Acre Bay

There are two main contributors to the sea pollution in this zone:

a. The Acre municipality – the characteristics of the pollution are similar to those of the Nahariya municipality. The discharge of sewage in Acre will cease sometime in July 2007 after the treatment plant currently under construction completes its trial run.
b. ALA Infrastructures Terminal – a site and pipeline for the discharge of industrial wastewater to the sea was built at the initiative of the Ministry of Environmental Protection and the Ministry of Industry, Trade & Labor, and began operating about a year ago. Thousands of cubic meters of wastewater flow through this pipeline from factories in the Galilee, the main ones being: Miluban (1600 cu.m/day) and Delta Textile (1000 cu.m/day). The discharge flows through a marine pipeline extending one kilometer out from the bathing beach. The proximity of the pipeline's outfall to bathing beaches serving hundreds of thousands of residents from the western Galilee, and flawed operation of the terminal working without a business license, constitutes a major environmental nuisance. The discharge site lacks the wastewater holding facilities required. As aforesaid, the Company does not have a legal business license, and several inspections found grave deviations from the terms of the discharge permits granted (see section C in this chapter). It is of note that despite the deviations found from the permit, the Committee has granted the ALA Infrastructures terminal another permit.

The quantity of wastewater approved for discharge to the sea via the ALA terminal currently stands at thousands of tons of various pollutant types. This wastewater

includes at least 2,800 tons/ year of organic pollutants constituting 32% of the total quantity approved for discharge to the Mediterranean Sea, and 280 tons of ammonia per year, constituting 35% of the national total. The figure below shows Acre Bay's relative share of the overall ammonia pollution along Israel's Mediterranean coastline.

In the Acre Bay hazardous zone, over 18 tons of oil per year were approved for discharge to the sea, constituting 13% of the national total, and 50 tons of phosphorus per year. It is important to note that in reality, as shall be demonstrated below, a much greater quantity of pollutants is discharged to Acre Bay, due to grave deviations from the maximum limits defined in the discharge permit.

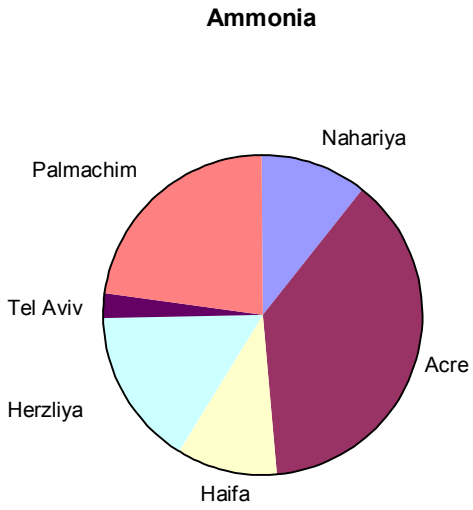

Figure 4: The distribution of ammonia discharges between the hazardous zones

4.2.3 Haifa Bay Zone

This hazardous area extends from Haifa suburban (Krayot) beaches to Haifa's Quiet Beach

The Haifa Bay zone is extremely polluted due to the large number of polluting industries in the vicinity, chemical industries in particular. Some plants discharge wastewater directly to the sea or into the port, while others discharge wastewater to the sea via the Kishon River.

The following industrial plants are the main polluters in the Haifa Bay zone:
the Refineries, the Gadot plant, Deshanim plant, Haifa Chemicals, Carmel-Olefins, Petroleum & Energy Industries (Tashan), Unilever plant (Telma) and wastewater treatment plants along the riverbed; the biggest one of all being the Haifa wastewater treatment plant which has been discharging effluent into the river since 2004 without a permit and without an authorization order from the Water Commission. Its contribution to the river's pollution is mainly in the form of high nutrient concentrations.

The Committee even allowed the aforesaid industrial plants (not including the Haifa wastewater treatment plant) to discharge their wastewater to the bay. The wastewater approved for discharge includes the following types of contaminants: BOD (235 tons/ year), mineral oils (over 33 tons/ year) constituting 23% of the total quantity authorized for discharge into Israel's coastal waters, ammonia (over 70 tons/ year), phosphorus (over 75 tons/ year), constituting 20% of the total quantity authorized for discharge into Israel's coastal waters, barium (over 27 tons/ year), and phenol (over half a ton/ year), constituting 28% of the total quantity authorized for discharge into Israel's coastal waters. Metals liable to constitute a public health hazard include: chromium, nickel, lead and copper which together total half a ton/year.

The graph below shows the contribution of each of the industrial plants to the permitted pollution for discharge to the Haifa Bay zone. Clearly, the Haifa Chemicals plant constitutes the main source of heavy metals, while the Refineries constitute the main source of mineral oils.

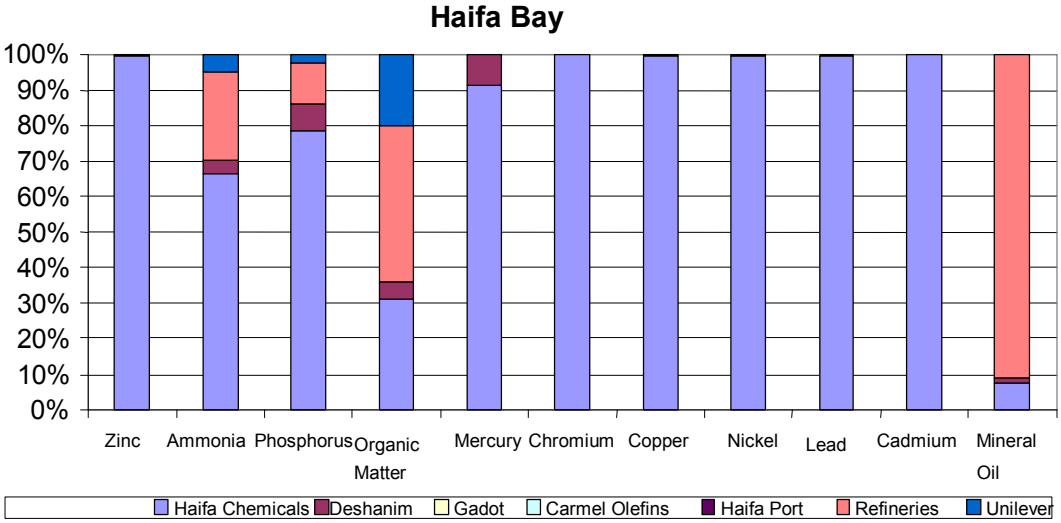

Figure 5: The contribution of Haifa industrial plants to the polluting of Haifa Bay

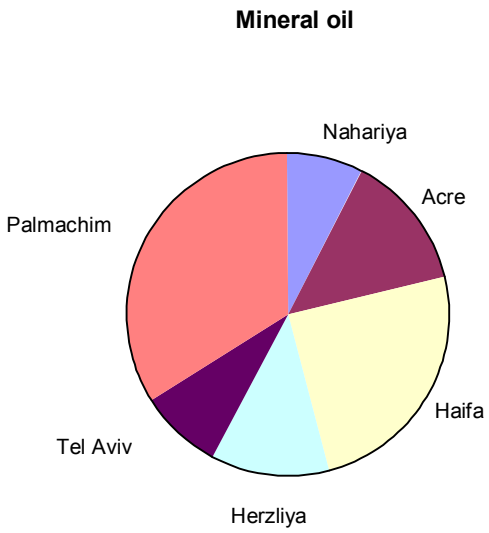

Figure 6: The distribution of mineral oil discharges between the hazardous zones

4.2.4 Herzliya

This hazardous zone extends along the town's coastline which has several bathing beaches

The Herzliya municipality's wastewater treatment plant was granted permission to discharge 8 million cubic meters of effluent along Herzliya's coastline. The treatment plant's wastewater includes 120 tons of suspended solids (TSS) per year, and 120 tons

of ammonia per year constituting 15% of the total quantity approved for discharge to Israel's coastline.

In addition, approval was also granted to discharge oils (16 tons/ year) constituting 11% of the total quantity approved for discharge to Israel's coastline, and over 64 tons/ year of phosphorus, constituting 17% of the total quantity approved for discharge to Israel's coastline. Note that the Herzliya municipality is in the process of upgrading its wastewater treatment plant after Zalul's battle with it in 2005.

4.2.5 Greater Tel Aviv (Gush Dan) Region

This hazardous zone extends from the Zuk beach in the north to the Bat Yam beaches in the south

The bathing beaches in the Greater Tel Aviv region – from Bat Yam to Herzliya receive wastewater originating mainly from the Shafdan (the municipal wastewater plant for the Greater Tel Aviv region) – (municipal wastewater sludge) discharged through a marine outfall located 5 km from the shore. In addition, wastewater is discharged into the Yarkon from the wastewater treatment plants of the towns of Ramat Hasharon, Hod Hasharon and Kfar Saba amounting to 11 million cubic meters per year. The permit for discharges from the Shafdan wastewater treatment plant to the sea does not specify criteria for many other contaminants (such as: Ammonia, Nitrogen, BOD, COD, AOX, etc.).

The wastewater approved for discharge to the Greater Tel Aviv region coastline has similar characteristics to the wastewater discharged in Herzliya, but in much greater quantity. In addition to this wastewater, the Committee approved the discharge of wastewater from industrial plants in the Negev through the Shafdan wastewater treatment plant to the sea, turning the Shafdan pipeline into an additional marine outfall.

In addition, discharges of the following were also approved to this zone: oil (11 tons/ year), organic pollutants (200 tons/ year), ammonia (17 tons/ year) and phosphorus (11 tons/ year).

The Committee even approved the discharge of heavy metals liable to compromise the health of bathers. The quantities are as follows: mercury (170 kg/ year), cadmium (290 kg/ year), chromium (9 tons/ year), nickel (3 tons/ year), lead (2 tons/ year), barium (450 tons/ year), copper (19 tons/ year), and zinc (67 tons/ year). Most of the heavy metals approved for discharge to the sea along the Israeli coastline as a whole were approved for the Greater Tel Aviv region.

4.2.6 Palmachim zone

The Palmachim hazardous zone extends around the Soreq River estuary.

This hazardous zone suffers from pollution due to the discharge of effluent from the Jerusalem municipality along the Soreq River as well as some from the Ashdod municipality. The discharge of effluent into the Soreq River is based on an authorization order granted by the Water Commission (now the Water Authority). The effluent has similar characteristics to the effluent in the Herzliya hazardous zone; however, the quantity permitted is higher, totaling 38 million cubic meters. In addition to these pollutants, the suspicion is that wastewater from other sources are also discharged into the Soreq River, some with a permit, some without one.

The following discharges were approved into this hazardous zone: over 720 tons/ year of organic pollutants (BOD), 47 tons/ year of oils constituting 33% of the quantity permitted for discharge along the Israeli coastline as a whole, over 170 tons/ year of ammonia constituting 21% of the quantity permitted for discharge along the Israeli coastline as a whole, and over 97 tons/ year of phosphorus constituting 26% of the quantity permitted for discharge along the Israeli coastline as a whole.

Apart from organic pollutants and heavy metals, discharge of the following toxic substances were also approved: arsenic (3 tons/ year) constituting 61% of the quantity permitted for discharge along the Israeli coastline as a whole, and cyanide (150 tons/ year) constituting 18% of the quantity permitted for discharge along the Israeli coastline as a whole.

It should be noted that this zone boasts popular beaches, which have been closed off to bathing on quite a number of occasions due to the sea pollution.

4.2.7 Ashdod

The Ashdod hazardous zone extends from Ashdod port in the north to Nitzanim in the south.

Industrial wastewater from chemical plants, and municipal and industrial sewage are discharged to the coastal waters of this hazardous zone. This zone also receives unauthorized and unmonitored pollution released into the sea at the Lachish river estuary. A survey conducted by Zalul found that the municipal and industrial wastewater had extremely high levels of pollution liable to endanger bathers' health. As a result of Zalul's battle, an administration was set up to rehabilitate the river and stop the polluters.

An analysis of the permits and authorization orders determined that most of the pollution approved for discharge to the sea came from the Agan Chemicals plant. The pollution in this zone is characterized primarily by organic matter, chemicals and pathogens. The organic pollutants approved for discharge to the sea total 4,500 tons per year, constituting 51% of the quantity permitted for discharge along the Israeli coastline as a whole.

The figure below shows that the permit holders in this hazardous zone are allowed to discharge the largest quantity of organic pollutants (BOD) into the sea of all the permit holders in Israel. Permission was also given to discharge phenol (1.5 tons/ year) in this hazardous zone, constituting 69% of the quantity permitted for discharge along the Israeli coastline as a whole. Agan Chemicals located in this zone has a permit allowing it to discharge herbicides in excess of 127 tons/ year and solvents (MIBK) in an amount of 90 tons/ year.

Additional discharges of wastewater exist in the Ashdod hazardous zone that are in breach of the law. This raises the suspicion that the quantity approved for discharge is lower than the quantity actually discharged.

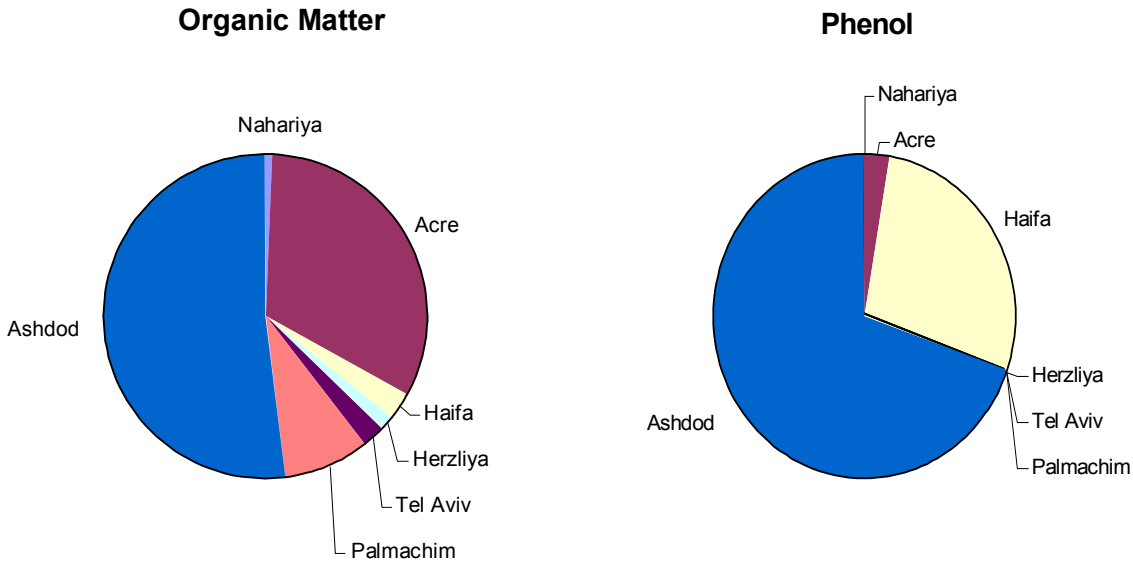

Figure 7: The distribution of phenol and organic matter discharges between the hazardous zones

4.3 Permit terms and actual discharges – the ALA facility in Acre Bay - a case study

In the preparation of the report and analysis of the permits, the ALA facility in Acre Bay was chosen as a case study for the actual state of sea pollution. An examination of the laboratory analyses for the four industrial plants discharging their wastewater through the ALA facility, including an analysis of the wastewater samples taken at the facility itself, warrants the conclusion that one can extrapolate from the specific case in question to all the instances in which the sea is polluted with the Committee's permission, and to its impotence in dealing with polluters who breach their discharge permits.

During the information gathering process, dozens of laboratory analyses were gathered on samples of wastewater discharged through the ALA facility, and that were examined at a certified laboratory. The laboratory analyses indicated deviations of tens and hundreds of percent from the permits, as well as the presence of pollutants prohibited by law (second addendum) in the wastewater. Some of the wastewater

discharged into Acre Bay was found to be toxic and some was suspected of toxicity. The laboratory results were compared with the values approved in the permit; the conclusions are severe and unequivocal, namely, that **grave deviations exist from the discharge permits**.

The industrial plants whose wastewater was found to be in breach of the permits on numerous occasions, as well as the ALA terminal itself, recently applied to renew their discharge permits through the ALA facility. **Despite the grave and clear-cut breaches, the Committee did not hesitate in renewing the plants' permits for discharges to the sea**, without changing the quantities and without applying the sanctions warranted by law.

For the purposes of comparison, an examination was undertaken of several industrial plants discharging through the ALA facility: Delta-Textile in Karmiel, Miluban in Kfar Masaryk, Sogloweg in Shlomi and Milouoff in the Milouot industrial zone. In addition, the quality of the wastewater in the ALA terminal outfall pit was examined before discharge into the marine outfall pipeline.

The following is a comparison of the laboratory analyses for the permissible levels (the industrial plants are presented in alphabetical order). In the case of industrial plants discharging under a permit granted by the Permit Committee, a comparison was made of the criteria used by the Permit Committee to determine the permit for each individual plant. In the case of plants discharging wastewater according to special authorization granted them by the district administration, the findings were compared to the criteria specified in the ALA facility permit, which were set by the Permit Committee.

4.3.1 ALA (wastewater discharge terminal)

The present investigation reviewed the laboratory test results against the criteria specified in the ALA permit for discharges to the sea. The samples collected by the Ministry of Environmental Protection reflect the discharges at that time. The discharge might have consisted primarily of wastewater flows from one specific

industrial plant, or of a mix of several plants after their wastewater had collected in an 80 cubic meter pit (with the capacity of two tanks).

Since deviations had been found in the wastewater of the industrial plants discharged to the sea through the terminal, it is only natural that the samples at the terminal itself would deviate from the permit and the law. Deviations were found in two of the four samples collected on June 26, 2006, July 11, 2006 and September 4, 2006 by the Ministry of Environmental Protection.

The findings indicate that when the wastewater quality is compared with the discharge permit, deviations exist on the following criteria:

- **BOD (Biological Oxygen Demand):** on June 26, 2006, a deviation of 200% was found from the authorized figure for discharge to the sea, and on July 11, 2006, a deviation of 600%.
- **Wastewater pH value:** an acidity value of 5 was registered in a test; the permissible range is 6.5 to 9.0.
- **Toxicity:** In samples from June 26, 2006, the wastewater was found to be **toxic** in Microtox tests: it was sufficient that the volume of water tested in a Microtox test contain 20% ALA wastewater to result in a 50% reduction in bacterial luminescence. A similar result was found in the sample taken on July 11, 2006.
- **Total suspended solids (TSS)** On July 11, 2006, 170 mg/L of suspended solids was measured while the criteria allow the terminal to discharge 100 mg/L - a deviation of 70% from the authorized figure for discharge to the sea.
- **Fecal coliforms:** In a sample from July 11, 2006 a very high concentration of bacteria was found: 50 million fecal coliforms. This represents a deviation of thousands of percent above the standard (200 bacteria).

The most alarming and serious finding is that in half the reports reviewed (2 out of 4), the wastewater discharged from the terminal's "outfall pit to the sea" was found to be toxic in Microtox tests (a standard test for the presence of toxins in wastewater). **It is stressed that a permit for discharge to the sea is granted to industrial plants**

despite the fact that the regulations demand that the toxicity factor be weighed when issuing such a permit (third addendum).

In this regard, it is important to note that the discharge facility began operating a year and a half ago, and that as of the date of the writing of this report, the ALA facility still does not have a business license as required by law, which in itself adversely impacts its ability to enforce environmental issues.

4.3.2 Delta Textile

Delta Textile currently discharges wastewater through the ALA facility, although its original permit granted by the Permit Committee was to dump its wastewater deep at sea. A year and a half ago, the permit was converted into one that allows Delta Textile to discharge its wastewater through the ALA facility without any changes to the criteria, even though the discharges are now close to shore instead of deep at sea. For the purposes of comparison, 4 laboratory reports were reviewed of tests conducted on wastewater received from the Delta Textile plant and discharged to the sea. The criteria approved for discharges from the Delta Textile plant to the sea were compared against the concentrations measured in the samples on the following dates: July 3, 2006, August 21, 2006, September 4, 2006 and December 13, 2006.

The comparison between the discharge permit and the wastewater received from the Delta Textile plant for discharge to the sea indicates that all the wastewater samples deviated from the permit, as evident from the following table.

Table 6: A comparison of the analyses from the Delta Textile plant

Delta					
Sample date	**Pollutant (parameter)**	**Units**	**Concentration found**	**Permitted concentration**	Deviation percentage (%)
03/07/2006	Oils and grease	mg/L	13	8	**62.5**
03/07/2006	Sulfides (S)	mg/L	6.4	1	**540**
21/08/2006	General oils and grease	mg/L	24	8	**200**
21/08/2006	Mineral oil in IR instrument	mg/L	4.5	2	**125**
04/09/2006	Oils and grease	mg/L	14	8	**75**
04/09/2006	Sulfides (S)	mg/L	25	1	**2400**
04/09/2006	Mineral oil (FTIR)	mg/L	2.1	2	**5**

Delta					
Sample date	**Pollutant (parameter)**	**Units**	**Concentration found**	**Permitted concentration**	Deviation percentage (%)
04/09/2006	BOD	mg/L	264	250	**5.6**
04/09/2006	Toxicity (Microtox test).	Light loss percentage/ 15 minutes	67		
04/09/2006	Luminescent Bacteria EC 50	Percentage of sample (concentration)	75		
13/12/2006	Oils and grease	mg/L	15	8	**87.5**
13/12/2006	Sulfides (S)	mg/L	14	1	**1300**
13/12/2006	Mineral oil (according to FTIR)	mg/L	10.2	2	**410**
13/12/2006	BOD	mg/L	284	250	**13.6**
13/12/2006	Suspended solids at 105°C	mg/L	98	40	**145**
13/12/2006	Toxicity (Microtox test)	Light loss percentage/ 15 minutes	62		
13/12/2006	Effective concentration EC 50	Percentage of sample (concentration)	80		

In the laboratory reports addressing the four wastewater samples from the Delta Textile plant discharged through the ALA facility, 14 deviations were found from the approved discharge criteria, the gravest of which are:

- Oils: In the sample of September 4, 2006, a deviation of 200% from the approved value was found; in the sample of September 4, 2006, a deviation of 2400%, and in the sample from December 13, 2006, a deviation of 1300%. In the mineral oil tests of December 13, 2006 a deviation of 410% was found.
- Sulphide (S): In the sample of July 3, 2006, a deviation of 540% from the approved value was found, and in the sample of December 12, 2006 a deviation in excess of 87%. In the mineral oil tests of December 13, 2006 a deviation of 410% was found.

Some of the deviations include substances listed in the second addendum to the regulations effectively banned from discharge to the sea.

The table below clearly shows that the deviations found are grave, amounting to tens and hundreds of percent, and include pollutants liable to harm the health of

bathers and the marine ecological system. In granting permits, the Committee should have taken the toxicity of the wastewater into account; however, even though toxins were suspected in one sample, the Committee allowed discharge of wastewater to the sea to continue.

4.3.3 Soglowek

Soglowek discharges wastewater through the ALA facility, under a permit granted it by the Permit Committee. For the purposes of comparison, 3 laboratory reports were reviewed of tests conducted on wastewater received from the Soglowek plant and discharged to the sea. The criteria approved for discharges from the Soglowek plant to the sea were compared with the concentrations measured in the samples on the following dates: September 4, 2006, November 23, 2006 and December 13, 2006.

In the laboratory reports referring to the four wastewater samples from the Soglowek plant discharged through the ALA facility, 14 deviations were found from the discharge criteria authorized, the gravest of which are:

- **BOD:** In the sample of September 4, 2006 a deviation of 46% was found from the standard approved by the Committee, and on December 13, 2006 a deviation of 40%.
- **Toxicity**: The sample of September 4, 2006 had suspect toxicity in view of the fact that a light loss of 70% and an EC 50 concentration of 70% was found. In the light of these results, the wastewater can be characterized as having suspect toxicity. According to the third addendum to the regulations of the law, toxic wastewater or wastewater with suspect toxicity is banned from discharge to the sea.
- **Total suspended solids (TSS)** In the sample of December 13, 2006 a substantial deviation of 4.5 fold from the approved value was found: 464 mg/L versus an authorized value of 100 mg/L.
- **Substances whose discharge is banned (according to the second addendum):** at least one sample was found to contain substances whose discharge is banned: phosphorus, phosphates, zinc, copper, nickel, chromium, barium and detergents.

4.3.4 Miluban

Miluban discharges its wastewater to the sea through the ALA facility, according to a permit granted it by the Permit Committee. The Miluban plant was granted a discharge permit with two sets of criteria. the first, "Miluban – temporary criteria for discharge to the sea, effective until December 31, 2006" and the second, "Miloban – criteria for discharge to the sea, as of January 1, 2007".

In tests conducted on October 26, 2006, October 30, 2006, November 20, 2006, November 26, 2006 and December 13, 2006 by the Ministry of Environmental Protection, in respect of wastewater received from the Miluban plant and discharged to the sea through the ALA terminal, every sample contained at least one deviation from the discharge permit granted to Miluban, evident in the comparison presented below.

Table 7: A comparison of the analyses from the Miluban plant

Miluban					
Sample date	**Pollutant (parameter)**	**Units**	**Concentration found**	**Permitted concentration**	**Deviation percentage (%)**
13/12/06	Zinc (Zn) in ICP	mg/L	4.89	1.5	**226**
13/12/06	Oils and grease	mg/L	12	10	**20**
13/12/06	TOC (as expressed in C)	mg/L	363	220	**65**
13/12/06	Toxicity (Microtox test)	Light loss percentage/ 15 minutes	62	40	**55**
13/12/06	AOX expressed as a chloride	mg/L	6.9	1.5	**360**
13/12/06	BOD	mg/L	138	30	**360**
13/12/06	COD	mg/L	1052	800	**31**
13/12/06	Suspended solids at 105°C	mg/L	120	45	**167**
26/11/2006	Zinc (Zn) in ICP	mg/L	3	1.5	**100**
26/11/2006	AOX expressed as a chloride	mg/L	1.7	1.5	**13.3**
20/11/2006	Zinc (Zn) in ICP	mg/L	6.35	1.5	**323**
20/11/2006	AOX expressed as a chloride	mg/L	1.6	1.5	**6.7**
30/10/2006	Oils and grease	mg/L	15	10	**50**
30/10/2006	Suspended solids at 105°C	mg/L	48	45	**6.7**
26/10/2006	Zinc (Zn) in ICP	mg/L	6.7	1.5	**347**

In the laboratory reports, 15 deviations were found from the discharge criteria authorized by the Permit Committee. They are:

- **AOX (Organic halide compounds):** Of five samples, three were found to have deviant values that were approved for discharge to the sea. On December 13, 2006, a deviation of 360% was found, on November 26, 2006 a deviation of 13% and on November 20, 2006 a deviation of 7%. It should be noted this compound is actually banned from discharge to the sea under the second addendum to the regulations.
- **Zinc (heavy metal):** On December 13, 2006, a deviation of 226% was found from the value approved for discharge to the sea, on November 26, 2006 a deviation of 100%, on November 20, 2006 a deviation of 323%, and on October 20, 2006 a deviation of 347%. It should be noted that zinc is actually banned from discharge to the sea under the second addendum to the regulations.
- **Oils and grease:** on December 13, 2006, a deviation of 20% was found from the value approved by the Committee for discharge to the sea, and on October 30, 2006, a deviation of 50%.
- **Toxicity:** On December 13, 2006, the wastewater was found to be toxic according to a Microtox test. The law and regulations do not permit discharge of wastewater suspected as toxic to the sea.

The deviations found amount to tens and hundreds of percent and some include substances listed in the second addendum to the regulations actually banning their discharge to the sea.

4.3.5 Milouoff

The Milouoff plant discharges its wastewater to the sea through the ALA facility, under authorization received from the Northern District in the Ministry of Environmental Protection to discharge wastewater to the sea. For the purposes of comparison, 7 laboratory reports of wastewater tests gathered by the Ministry of Environmental Protection were analyzed. The criteria approved for discharges through the ALA facility to the sea were compared with the findings of the laboratory reports of: April 25, 2006, May 25, 2006, May 26, 2006, May 28, 2006, May 30, 2006, May 31, 2006 and June 26, 2006.

In the findings, two of the seven samples immediately stand out in the comparison. In the sample of April 25, 2006 a high concentration of fecal coliforms was found, as well as wastewater suspected of being toxic. The sample of May 23, 2006 indicates wastewater with suspect toxicity. The BOD concentration (biological oxygen demand defined as an organic pollutant) was high and the coliform concentration of 24,000 was over 100 times higher than the standard approved by the Committee.

- **BOD (Biological Oxygen Demand):** On May 23, 2006 deviations of 40% and more from the standard approved by the Committee were found.
- **Fecal coliforms:** The presence of fecal coliforms in the Milouoff wastewater is cause for concern, because these bacteria are generally associated with sanitary sewage originating from humans or other mammals. On April 25, 2006, 5800 coliform bacteria were found in the Milouoff wastewater. And on May 23, 2006, 24,000 coliform bacteria were found in the Milouoff wastewater. Their presence testifies to real concern about major pathogenic contamination of the wastewater. This may indicate a poor level of treatment, or possibly, no treatment at all, of the Milouoff wastewater. A poor level of treatment would certainly not stand up to the BAT requirement, and hence, there is good reason for questioning the wisdom of granting the Milouoff plant a permit.
- **Toxicity:** On April 25, 2006 and on May 23, 2006, the wastewater was found to have suspect toxicity, and as aforesaid, the regulations effectively ban such discharges to the sea.

5. Strategic Action Program (SAP) – Examination of Compliance with the Objectives

The strategic action program for dealing with pollution from land-based sources adopted in 1997 by the member states of the Barcelona Convention was formulated to help countries bordering on the Mediterranean prepare and implement a National Action Plan (NAP) to supervise pollutants reaching the Mediterranean Sea. The overall aim of such a plan is to reduce pollution throughout the Mediterranean drainage basin and to minimize the pollution entering the Mediterranean Sea from land-based sources by the final year, 2025.

The national action plan is designed to encompass all types of land-based pollutants discharged to the sea: wastewater discharges from industry and municipalities, integrated coastline management, municipal solid waste management, handling of hazardous materials, use of pest control substances, air pollution, etc. The Ministry of Environmental Protection is the body responsible for moving these processes forward in Israel.

As part of the report on the present state of the sea, the policy for minimizing pollutant discharges to the sea was examined by comparing the quantity of the abovementioned substances **actually discharged to the sea in the past** with the quantities of pollutants **approved for discharge to the sea today**. The working assumption behind the comparison was that over the years from the commencement of the Strategic Action Program (SAP), the Committee would approve an ever smaller quantity of pollutants. According to the NAP, 2003 is the baseline year adopted by the Ministry of Environmental Protection in the NBB report for the comparison of the quantity of pollutants discharged to the sea; the present report examines the quantities for that year as well as for 2004. For the purposes of comparison, the group of heavy metals was selected from all the pollutants approved for discharge to the sea (Table 8).

From the findings it emerges that the Permit Committee approves discharges of heavy metals to the sea <u>in an amount greater than the reduction required.</u>

It is important to note that the growth percentages presented below may even be greater - and of other pollutants as well - as additional sources of pollution with permission exist that are concealed from public view, not to mention parties who discharge to the sea in breach of the law.

<u>Table 8: Analysis of compliance with the SAP goals</u>

kg per year	2003	2006/7	2003 – 2006/7
Mercury (Hg)	69	222	+69%
Cadmium (Cd)	144	983	+85%
General Chromium (Cr)	3,989	12,755	+69%
Copper (Cu)	13,847	21,850	+37%
Nickel (Ni)	3,842	7,428	+48%
Lead (Pb)	1,634	3,403	+52%
Zinc (Zn)	47,859	86,622	+45%

The conclusion drawn from the analysis of the strategic Action Program (SAP) is that the policy established to reduce the quantity of pollutants discharged to the sea is not implemented, and that its implementation in the near future is doubtful, as long as the Committee continues to approve the discharge of larger quantities of contaminants than in the past. It transpires, therefore, that the quantity of pollutants approved by the Committee at the present time for discharge to the sea is much greater than the quantity actually discharged to the sea five years ago – <u>in complete contradiction to the NAP policy</u>.

6. Permits for discharge to the sea and Authorization Orders

6.1 The Inter-ministerial Committee granting permits for discharges to the sea

The focal land-based sources of direct discharges to the sea operate under a permit from the Inter-ministerial Committee granting permits for discharges to the sea. The Committee was set up based on the Prevention of Sea Pollution from Land-Based Sources Law, and is chaired by a senior deputy director from the Ministry of Environmental Protection. The Committee has eight members: the Ministry of Defense, the Ministry of Transport, the Ministry of Tourism, the Water Authority (formerly the Water Commission), the Ministry of Health, the Ministry of Industry, Trade & Labor, and the Ministry of Agriculture) and a representative from the green organizations. The technical information is received from the Marine and Coastal Environment Division which serves as an advisory body to the Committee.

By law, permits for discharge to the sea should only be granted when no land-based alternative is available. As a rule, and in the spirit of the law, the Committee and the Ministry of Environmental Protection should treat such permits as an oversight tool for imposing demands for continuing improvements until discharges are significantly reduced, since the ultimate goal is a process of continuous improvement at the wastewater level. In some exceptional cases, it may be concluded that discharge to the sea is the preferred environmental solution, provided that the best alternative technology (BAT) and most economically viable technology is implemented.

In the application for the permit, the applicant lists its particulars and the details of its land-based source of the pollution, as well as the following details:

a. A description of the wastewater source (such as the plant's manufacturing facilities), details of the wastewater treatment facilities, and the technological measures used to treat the waste or wastewater before it is discharged to the sea.

b. A physical and chemical description of the wastewater designated for discharge to the sea.
c. A description of the discharge: dates, location, method of discharge (such as a marine outfall pipeline).
d. A description of the proposed discharge's marine and shore environs.
e. The reasons for the permit application, including a review of land-based alternatives and reuse.

Applicants for a permit are obliged to pay a processing fee. The recent trend is to stipulate in the law or in the regulations that the polluter also pay a discharge levy. In our opinion, this trend should be encouraged with urgency to promote equality before the law, and to create an economic deterrent to polluting of the sea; the levy is also expected to compensate for the harm inflicted on the natural resources which belong to the general republic.

The Committee is prohibited from granting a permit when the following conditions exist:

a. A land-based alternative exists for treatment or disposal.
b. Reuse methods exist.
c. The discharged wastewater contains substances hazardous to the environment listed in the second addendum to the law ("the Black List") or, the best available and economically viable technology (BAT) have not been installed and operated.

Over the years the public has been denied access to information on the permits, and specifically to data on discharges to the sea, despite repeated statements by the Ministry of Environmental Protection about the need for transparency. The Marine and Coastal Environment Division in the Ministry of Environmental Protection maintains and operates a system that organizes and manages the data on discharges to the sea granted in the framework of permits, so that there is no technical or practical obstacle to publication of the said information and making it accessible to the public. In the past, the Ministry of Environmental Protection has annually published on its web site a partial list of the permit holders, the discharge category, the discharge site and the maximum permissible annual discharge, as well as some of the polluters'

names. **This information is no longer up-dated, and access to copies of the permits, including their details and data have been blocked. Moreover, despite the fact that the permits granted to the permit holders expressly stipulate that the details of the permit will be published on the Ministry's website (Appendix E), in practice, the website does not display a single permit.**

Zalul has, over the years, examined the Committee's operations both in terms of quantity and in terms of policy. An analysis of the Committee's discretion gives rise to a worrying situation whereby thousands of tons of hazardous substances are approved for discharge to the sea under its direction.

In a review of the conditions stipulated in the permits, both in terms of the quantities and concentrations and in terms of the discharge policy, differences were found that seem to indicate the application of double standards for different permits. Some industrial plants were granted approval to discharge high concentrations of contaminants to the sea, while others were granted approval for low concentrations only. Discharge of contaminants in higher concentrations allows the polluter to get away with only partial treatment and without having to make the appropriate investment in wastewater purification systems, in breach of the law and its provisions. In addition, the manner in which the maximum limits are defined for pollutants in the wastewater discharged to the sea, and according to which deviations from the terms of the permit are determined, is not consistent across all the permits. The discharge permits for plants belonging to large corporations are characterized by vague and obscure wording that makes it difficult to prove that the quality of the wastewater discharged by those plants deviates from the terms of the permit.

The examples are many; only the main findings are presented in this report:

a. The Agan Chemicals plant in Ashdod was granted permission to discharge a higher concentration of BOD to the sea (6000 mg/L) than other plants (Miluban – 20 mg/L and Unilever – 25 mg/L).
b. The Haifa Chemicals plant in Haifa Bay was granted permission to discharge a higher concentration of ammonia (20 mg/L) than other operations (Shafdan – 6 mg/L and the Haifa Refineries – 3 mg/L). Such significant discrepancies are

also found in the concentrations of phosphorus and nitrates approved for discharge to the sea.

c. The Shafdan was granted permission to discharge a much larger quantity of heavy metals despite the close proximity of the marine outfall to the beaches of the greater Tel Aviv region. For example, the Shafdan was granted permission to discharge a cadmium concentration of 3.6 mg/L to the sea while Miluban was permitted a concentration of 0.5 mg/L. Lead (Pb) of 28 mg/L, compared with 0.5 mg/L approved for Gadot Biochemical Industries.
d. In the Haifa Chemicals permit, the terms approved for the maximum discharge limit are complicated and vague, so that even when high concentrations of the contaminants are discharged in its wastewater, no deviation could actually be identified.

Not only are the Committee's decisions hidden, so too are its meetings. Parties having an interest have no right to be present at the Committee's meetings, and participation in order to argue against a permit applicant requires submission of a request to the chairman in advance.

6.2 Water Authority authorization orders

Authorization orders to discharge wastewater into rivers is granted by a special committee in the Water Authority (formerly the Water Commission) coordinated by the Ministry of Environmental Protection. The Deputy Water Commissioner serves as the committee chairman. The authorization orders are issued by virtue of the **Water Law 1959**. Granting an authorization order to discharge wastewater /effluent to a river that flows to the Mediterranean coast is tantamount to granting permission to discharge it to the sea. Moreover, it must be stressed that most illegal discharges are into rivers.

The Water Law prohibits polluting of water sources with effluent, wastewater or brine concentrations. However, the committee does sometimes permit the discharge of wastewater or effluent into a river arguing that there is no alternative or in order to allocate water to a river. In such cases, the committee defines terms and maximum limits for the discharge similar to the permit for discharge to the sea.

The process for obtaining an authorization order for discharges to a river is not as easy as obtaining a permit for discharges to the sea. At the time of the writing of this report, and according to the information on the Ministry of Environmental Protection website, there are currently 14 active authorization orders. In contrast to the permits granted by the Permit Committee for discharges to the sea, the Water Authority's authorization orders are posted on the Ministry of Environmental Protection website. Moreover, even rejected applications for authorization orders also published!

In contrast to the Permit Committee requirements, the applicant for an authorization order from the Water Authority is required to specify to the committee members whether the effluent discharge will benefit the river, otherwise the application is rejected.

7. Summary

Zalul's State of the Sea 2007 Report examined sea pollution in terms of how the permits for discharges to the sea were granted by the Ministry of Environmental Protection. The report examined how the Permit Committee actually approves discharges to the sea in practice from both a scientific perspective (pollutant quantities) and political perspective (how the terms of the permits are determined). The report's findings indicate that each year the Permit Committee approves discharges of thousands of tons of pollutants to Israel's coastline without making any real demands on the polluters to implement advanced wastewater treatment technologies. The report also found that leniency is often exercised in granting permits and in defining their terms. Such leniency is reflected in the high quantities of wastewater containing pollutants approved for discharge, some of which are banned from discharge by law.

The report specifies the quantities of pollutants approved for discharge to the sea by the Committee and addresses the health and environmental implications liable to endanger bathers in the sea. In an in-depth analysis of Acre Bay as a case study, the laboratory tests of wastewater actually discharged into this zone were compared with the maximum limits for the pollutants approved for discharge in the relevant permits through the ALA facility wastewater pipeline to the marine outfall.

The report's findings point to major deviations, both from the maximum limits and from the terms of the permit, so that in effect, the quantities of pollutants discharged and that continue to be discharged, are higher than the approved quantities, in breach of the law!

An analysis of the permit terms and a comparison of the terms granted to the different plants hints strongly at the application of double standards in the wording of the discharge permits. The analysis shows that industrial plants important to the Israeli economy are treated leniently, both in the wording of the permits and when it comes to enforcement. Thus, for example, in the case of plants belonging to corporations, such as those discharging into the Kishon River, the ability to identify deviations from the discharge permit according to the table of values in the permit, is difficult or

impossible because of the vague and obscure wording used. The result is that these plants can continue to deviate from the maximum limits. This is not the case for permits granted to small and private plants.

The maximum limits imposed on discharge permits are not determined on the basis of the total quantity approved for discharge to the Israelis coastline, contrary to the situation with carbon emissions. The findings from the permits reviewed and the manner in which they were granted point to the fact that maximum limits are defined for each plant on an individual basis, without proper consideration of the wastewater treatment capabilities currently available in the world. Evidently, the reports and recommendations of the Marine and Coastal Environment Division in the Environmental Protection Ministry concerning the quantities of wastewater released from industrial operations every year are not discussed at the Committee's meetings dealing with the granting of permits.

Disclosure of information about the permits to the general public is often resisted by the Ministry of Environmental Protection. The strange arguments presented prevent the public from being aware of the risks they face by bathing in the sea. The report found that the Permit Committee for discharges to the sea conceals its activities from the public, apparently deliberately, concealing the publication of its scheduled meetings (which are closed to the public), concealing information about the discharging parties and their names, and concealing the actual permits themselves.

That and more. All the permits state on the front that the permit details will be published on the Ministry of Environmental Protection website, but in practice, not a single permit is displayed on the site. In contrast, the authorization orders for discharges to rivers granted by the Water Authority are published on the Ministry of Environmental Protection's website, as are rejected applications for authorization orders.

From the review of the permits and the in-depth analyses which led to alarming findings about the ease with which hazardous substances are discharged to the sea, the following conclusions have been drawn:

1. Every year, the Permit Committee grants permits for discharges to the sea allowing the discharge of tens of thousands of tons of pollutants such as heavy metals, organic contaminants and compounds that are hazardous to health.
2. The Permit Committee operates in secret and apparently deliberately hides information from the public about the identity of the polluters and the details of the permits, contrary to its declarations.
3. There are concerns that industries important to the Israeli economy are treated leniently when the conditions of the permits are drawn up, both in terms of pollutant concentrations and in terms of identification of deviations from the maximum limits.
4. The pollutant reduction plans prepared by the Marine and Coastal Environment Division in the Environmental Protection Ministry are not taken into account when decisions are made to approve discharges of pollutants to the sea.
5. The Permit Committee allegedly operates in breach of the law and the protocols of the Barcelona Convention, approving discharges to the sea of pollutants whose discharge is banned by them.
6. Contrary to the provisions of the law, the Committee does not encourage, implementation of advanced wastewater treatment technologies.

The report's findings and conclusions paint a grave and worrying picture in which the State of Israel exercises no real control over the quantity of pollutants discharged to the sea, most of which occurs with the approval of a Government committee. This situation, which constitutes a significant danger to bathers in the sea, and which harms the marine ecological system, must be stopped. The situation whereby a committee allows, in a manner that is contrary to its goals and principles, pollution of the sea year on year undermines the rule of law.

8. Sources

Ministry of Environmental Protection reports

The National Action Plan(NAP) for the prevention of sea pollution from land-based sources – "The business as Usual Alternative", the Ministry of Environmental Protection, 2006.

The National Balance of Budget (NBB) of pollutants, the Ministry of Environmental Protection, August 2004.

The multi-year balance sheet of pollutants for the Mediterranean Sea 1998-2004, the Ministry of Environmental Protection, 2007.

Websites:

www.sviva.gov.il

http://www.epa.gov/tri/

9. Appendixes

נספח א' - TRI

U.S. Environmental Protection Agency

Toxics Release Inventory (TRI) Program

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What is the Toxics Release Inventory (TRI) Program

In 1984 a deadly cloud of methyl isocyanate killed thousands of people in Bhopal, India. Shortly thereafter, there was a serious chemical release at a sister plant in West Virginia. These incidents underscored demands by industrial workers and communities in several states for information on hazardous materials. Public interest and environmental organizations around the country accelerated demands for information on toxic chemicals being released "beyond the fence line" -- outside of the facility. Against this background, the Emergency Planning and Community Right-to-Know Act (EPCRA) was enacted in 1986.

EPCRA's primary purpose is to inform communities and citizens of chemical hazards in their areas. Sections 311 and 312 of EPCRA require businesses to report the locations and quantities of chemicals stored on-site to state and local governments in order to help communities prepare to respond to chemical spills and similar emergencies. EPCRA Section 313 requires EPA and the States to annually collect data on releases and transfers of certain toxic chemicals from industrial facilities, and make the data available to the public in the Toxics Release Inventory (TRI). In 1990 Congress passed the Pollution Prevention Act which required that additional data on waste management and source reduction activities be reported under TRI. The goal of TRI is to empower citizens, through information, to hold companies and local governments accountable in terms of how toxic chemicals are managed.

EPA compiles the TRI data each year and makes it available through several data access tools, including the TRI Explorer and Envirofacts. There are other organizations which also make the data available to the public through their own data access tools, including Unison Institute which puts out a tool called "RTKNet" and Environmental Defense which has developed a tool called "Scorecard."

The TRI program has expanded significantly since its inception in 1987. The Agency has issued rules to roughly double the number of chemicals included in the TRI to approximately 650. Seven new industry sectors have been added to expand coverage significantly beyond the original covered industries, i.e. manufacturing industries. Most recently, the Agency has reduced the reporting thresholds for certain persistent, bioaccumulative, and toxic (PBT) chemicals in order to be able to provide additional information to the public on these chemicals.

Armed with TRI data, communities have more power to hold companies accountable and make informed decisions about how toxic chemicals are to be managed. The data often spurs companies to focus on their chemical management practices since they are being measured and made public. In addition, the data serves as a rough indicator of environmental progress over time.

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Last updated on Friday, June 9th, 2006
URL: http://www.epa.gov/tri/whatis.htm

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