

New project!



2014 - 2019

EPIDEMIOLOGICAL MONITORING OF THE HAIFA BAY AREA

Executive Summary

המשרד להגנת הסביבה



الوزارة لحماية البيئة
Israel Ministry of Environmental Protection



משרד
הבריאות



אוניברסיטת חיפה
University of Haifa
جامعة حيفا

Cancer Incidence
Respiratory Morbidity

Bio-monitoring

Children

Adults

Elderly

5-Year Multidisciplinary
Survey

Budget of NIS3.5M

Funded by Haifa Bay
Area Association for
Environmental
Protection

Supervised by Profession
Committee

Background

Air pollution measured in the Haifa Bay Area (HBA) has been declining in the past decades (Fig. 1).

Are these positive changes accompanied by significant reduction in morbidity and improving health status of the local residents?

The present project attempts to answer this question.

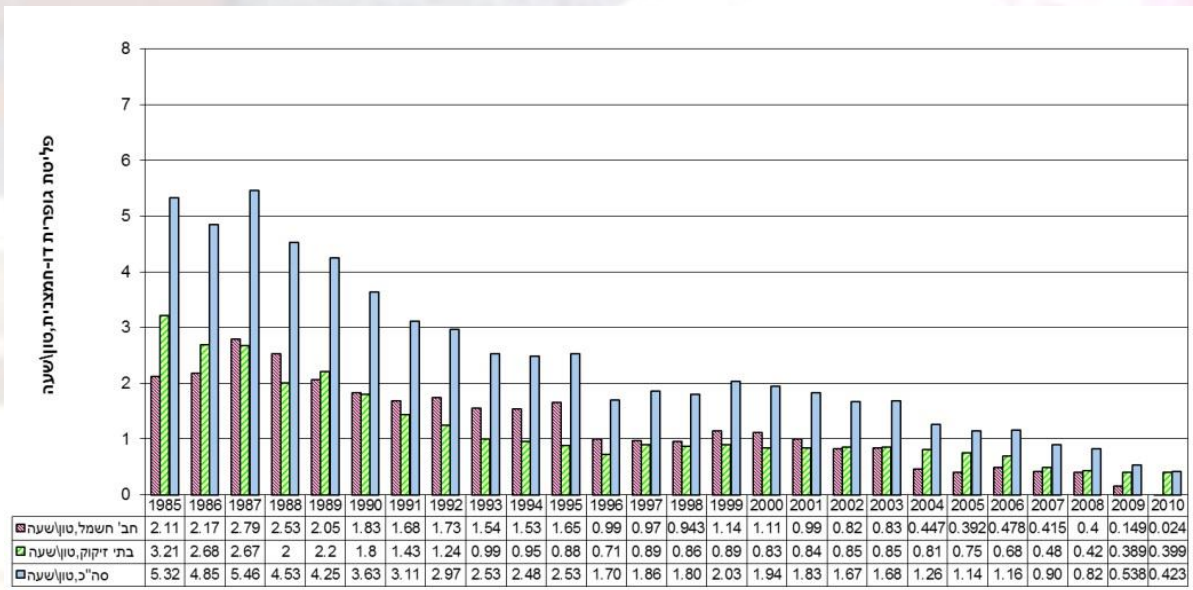


Figure 1: SO₂ emissions in the Haifa Bay area between 1985 and 2010 (Source: Haifa Bay Municipal Association for Environmental Protection, 2010 Annual Report).

What do We Know?

Data of the health status of HBA residents are rarely published and actual epidemiological situation in the HBA is largely unknown. Although there are some indications that cancer morbidity in the area has started to drop after 2000 (Fig. 2), it is uncertain whether these changes signify a sustained trend or just temporary fluctuations.

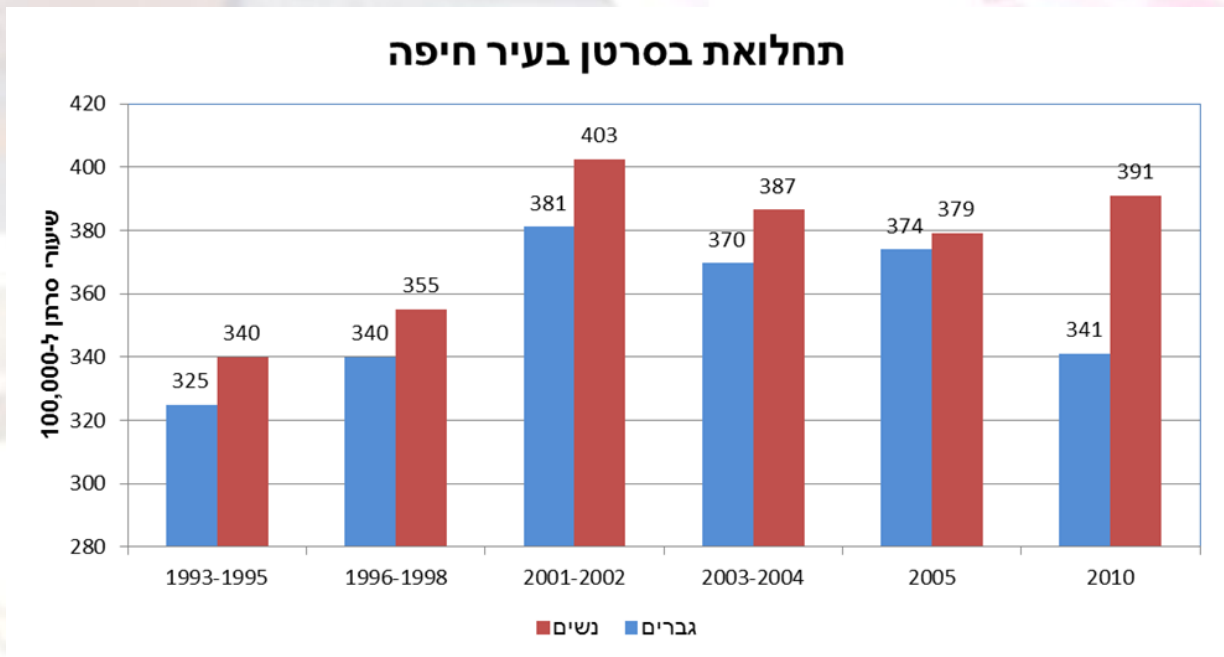


Figure 2: Cancer incidence in the Haifa Bay area by gender between years 1993 and 2010 (source: Israeli National Cancer Registry, Ministry of Health, Reports).

Research Goal and Objectives

The study will determine whether the ongoing reduction in air pollution, observed in the recent years in the HBA, resulted in a sustained improvement of the health status of its residents.

Specific objectives of the study are **fourfold**:

- To determine the geographic patterns and prevalence rates of population morbidity in the HBA, relative to the cities of Tel Aviv and Hadera, used in the study as controls;
- To monitor, prospectively, annual changes in the geographic patterns of population morbidity and morbidity prevalence rates across the HBA relative to the control cities;
- To investigate the strength of association between population morbidity and air pollution in the HBA;
- To trace annual changes in the strength of association between the observed population morbidity and air pollution exposure in the HBA.

Monitoring Approach

According to the proposed research approach, there is no either need or tangible benefits in small cohort studies, which are not representative of the whole population and which results may be biased due to a potential sampling bias. Instead, health monitoring can be implemented by integrating existing health monitoring data sources that are already computerized and readily available.

Project Data Sources:

- Israel National Cancer Registry will be used to monitor changes in cancer morbidity.
- Records of Mother and Child outpatient clinics will be used to monitor changes in the health status of the newborn and pregnant women;
- Computerized records of Health Maintenance Organizations will be used as the source of information on asthma prevalence among the 6-14 year old, and on drug prescriptions, reflecting potential response to both long-term and acute air pollution events.
- Information on IDF conscripts (demographic attributes and health status determined by universal medical examinations during the IDF conscription process), will be used to monitor changes in the asthma prevalence among the conscripts.

The project will also include biological monitoring and studies of the links between population morbidity and air pollution levels measured by the existing network of air quality monitoring stations (AQMS).

Surveys

The project includes **six** research subtopics (monitoring modules):

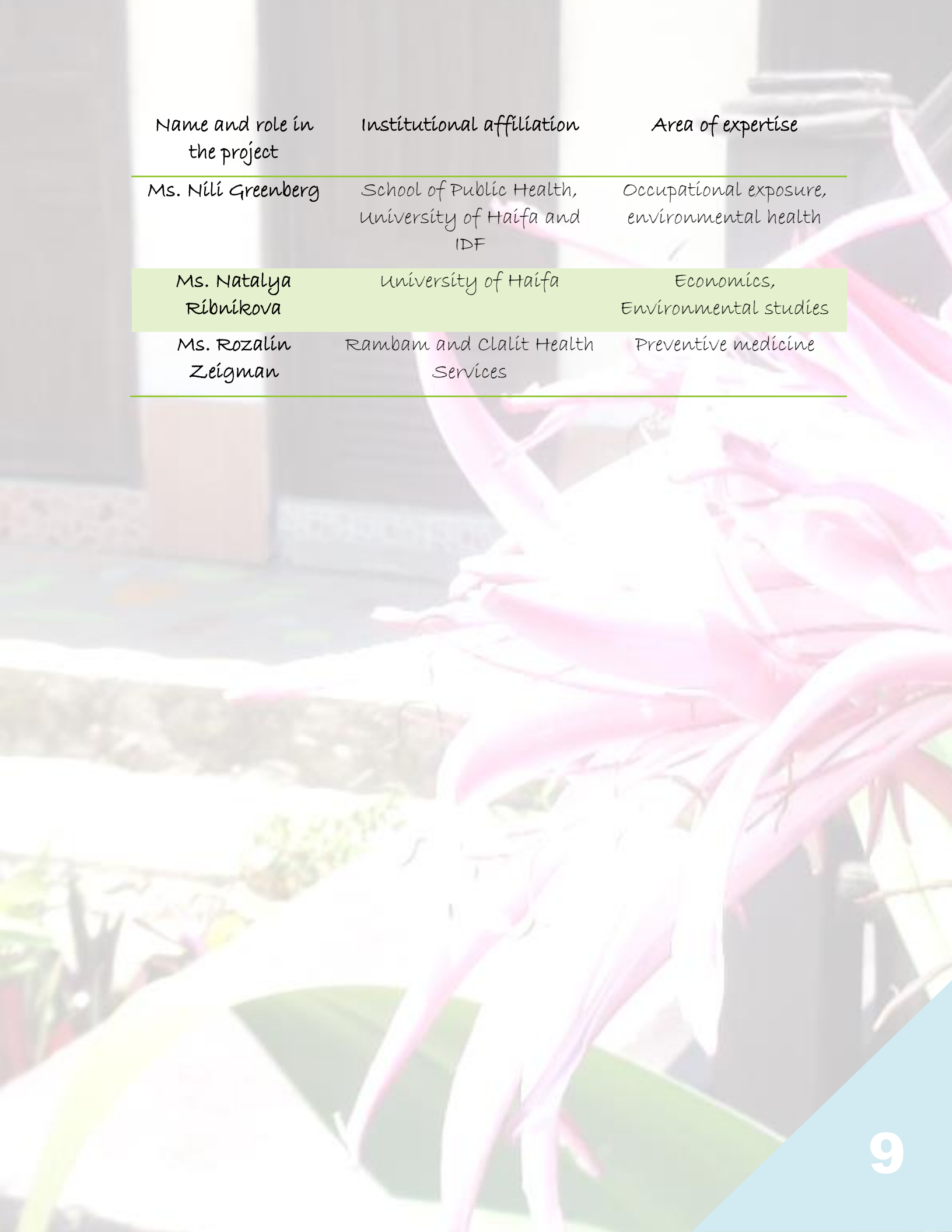
- **Subtopic 1:** Cancer incidence in the Haifa Bay area and its association with air pollution (Prof. B.A. Portnov (PI); Prof. S. Linn; Prof. B. Reiser; Dr. L. Keinan-Boker, & N. Rybnikova).
- **Subtopic 2:** Health status of the newborn and pregnant women (Dr. I. Kloog (PI), Prof. J. Schwartz and Prof. B.A. Portnov).
- **Subtopic 3:** Trends and changes in children's asthma morbidity, as reflected by health clinics' turnover (Prof. K. Karkabi (PI); Prof. S. Linn (PI); Prof. H. Bibi & Ms. R. Zeigman).
- **Subtopic 4:** Assessment of the asthma risk among the IDF conscripts (Prof. R. Carel (PI); Prof. S. Linn; Dr. M. Spritz & Ms. N. Greenberg).
- **Subtopic 5:** Biological monitoring of air pollution impact (Prof. L. Fireman (PI), Dr. Y. Alcalay, Dr. P. Chuwers & Prof. I. Udasin).
- **Subtopic 6:** Air quality monitoring (Dr. M. Zusman (PI); Dr. S. Paz & Dr. I. Fainaro).

NOTE: All the analyses will be performed for the Haifa bay area using Tel Aviv and Hadera as reference lines.

Research Team

Name and role in the project	Institutional affiliation	Area of expertise
Prof. Boris A. Portnov (Project leader, Principal Investigator)	Dept. of Environmental Management, University of Haifa	Environmental exposure analysis, geographic information systems (GIS)
Prof. Rafi Carel (Principal Investigator)	School of Public Health, University of Haifa	Epidemiology, occupational medicine
Prof. Shai Linn (Principal Investigator)	School of Public Health, University of Haifa	Epidemiology, occupational medicine
Prof. Benjamin Reiser	Department of Statistics, University of Haifa	Biostatistics
Prof. Joel Schwartz	School of Public Health, Harvard University	Air pollution modeling, environmental epidemiology
Prof. Haim Bibi	Barzilai medical center and Ben-Gurion university	Pediatrics
Prof. Khaled Karkabi	Technion and Clalit Health services	Family medicine
Prof. Elizabeth Fireman	The Institute of Pulmonary and Allergic Diseases, Tel-Aviv Medical Center, and Faculty of Medicine, Tel	Biological monitoring

Name and role in the project	Institutional affiliation	Area of expertise
	Aviv University	
Prof. Iris Udasin	Clinical Research and Occupational Medicine, EOHSI Clinical Center, Rutgers Medical Center	Environmental and occupational medicine
Dr. Lital Keinan-Boker	School of Public Health, University of Haifa and Israel & Center for Disease control, Ministry of Health	Epidemiology, disease control
Dr. Itai Kloog	Dept. of Geography, Ben-Gurion University	Environmental epidemiology, GIS
Dr. Shlomit Paz	Dept. of Geography and Environmental Studies	Climate change, environmental epidemiology
Dr. Manor Shpritz	IDF, Medical corps	Preventive medicine
Dr. Maya Negev (Professional committee coordinator)	School of Public Health, University of Haifa	Public health policy
Dr. Marina Zusman (Project Coordinator)	Dept. of Environmental Management, University of Haifa	Occupational medicine, environmental epidemiology
Dr. Patricia Chuwers	School of Public Health, Sackler Faculty of Medicine, Tel Aviv University	Environmental and occupational medicine
Dr. Yifat Alcalay	Faculty of Medicine, Tel Aviv University	Biological monitoring



Name and role in the project	Institutional affiliation	Area of expertise
Ms. Nili Greenberg	School of Public Health, University of Haifa and IDF	Occupational exposure, environmental health
Ms. Natalya Ribnikova	University of Haifa	Economics, Environmental studies
Ms. Rozalin Zeigman	Rambam and Clalit Health Services	Preventive medicine

Professional Committee

The study is supervised by the Steering Committee composed of representatives of the Ministries of Health and Environmental Protection, the School of Public Health of the University of Haifa, representative of environmental NGOs and representatives from the World Health Organization - European Center for the Environment and Health.

Institutional Cooperation

- University of Haifa
- The Institute of Pulmonary and Allergic Diseases, Tel-Aviv Medical Center
- Center for Disease Control, Ministry of Health
- Israel Defense Forces
- Harvard University, School of Public Health
- Ben-Gurion University
- Technion
- Clalit Health services
- Barzilai medical center

Budget in NIS (5 years)

Staff salaries (incl. student scholarships)	2,321,250
Travel expenses	95,000
Professional advisory & consulting	310,000
Databases and software purchase	210,000
Administrative equipment	20,000
Other expenses	75,000
Institutional overheads (15%)	454,690
Total	3,485,940

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Webpages:

<http://management.haifa.ac.il/index.php/he/nrem-research-publications/main-projects>

<http://management.haifa.ac.il/index.php/he/research/news>

<http://management.haifa.ac.il/index.php/he/departments/nrem/42-departments/nrem/research>

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