



**The Knesset
Research and
Information Center**

Information about Israeli Academics Abroad and Activities to Absorb Academics Returning to Israel

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This document was written for the Knesset Science and Technology Committee, with a proposal for the agenda submitted by several Knesset Members on the subject of "Nobel Prize winning and the Israeli brain drain".

Central issues in the higher education system and its budget are discussed extensively in an updated Knesset Research and Information Center document.¹ This document will present updated data about Israeli academics leaving Israel for other countries ("brain drain") and activities to bring them back from abroad and absorb them in Israel ("brain gain"). Actions by relevant bodies on this issue will also be detailed.

1. Background and data

The phenomenon of academics migrating from country to country, often called "brain drain," is part of a wider phenomenon of "international work migration", with its origin in personal circumstances (aspirations for career development and availability for advancement; the search for opportunities to improve salary and quality of life), socio-economic processes (demographic changes; excess demand for work in certain sectors in some countries concurrent with excess supply of workers in the same fields in other countries), or a combination of both.²

The Knesset has been requested to address this issue many times. For example, in 1983 Science and Development Minister Yuval Ne'eman, in response to a query on the issue of the brain drain from Israel, raised in the Knesset Plenum, announced the establishment of centers to attract educated Israelis located abroad.³ In recent years, the Science and Technology Committee and the Education, Culture and Sports Committee held several hearings on the issue. For example, in a meeting in 2008, then-chairperson of the Education Committee MK Michael Melchior said that the brain drain phenomenon is closely connected to the lack of strategy or long-term planning in the fields of science and academia in Israel.⁴ At the conclusion of a hearing conducted by the same committee in 2010, then-chairperson of the committee, MK Zevulun Orlev, said that the quality of research in Israel is likely to be damaged by the accumulating budget cuts to higher education of recent years.⁵

In response to agenda proposals submitted by several Knesset members in 2013 on the topic of brain drain and the planned 100 million NIS cut to the higher education budget, Education

¹ The Knesset Research and Information Center, [Description and Analysis of the Higher Education Budget in Recent Years](#), written by Anat Levy, October 20, 2013 [Hebrew].

² The Knesset Research and Information Center, [The Israel National Brain Gain Program - Israeli Centers for Research Excellence](#), written by Roy Goldschmidt, June 6, 2010 [Hebrew]. For more background see: The Knesset Research and Information Center, [The Brain Drain Phenomenon and Brain Recruitment Abroad and in Israel](#), written by Ron Tikva, June 25, 2006 [Hebrew].

³ Knesset Minutes, 10th Knesset, Meeting 181 of the 10th Knesset, Query of MK Shevach Weiss on the topic of: Israel Brain Drain, March 2, 1983 [Hebrew].

⁴ Education, Culture and Sports Committee, Protocol no. 384, [Academic Brain Drain](#), March 3, 2008 [Hebrew].

⁵ The Knesset Research and Information Center, Education, Culture and Sports Committee, Protocol no. 226, Establishment of Centers for Excellence in the Higher Education System, June 7, 2010 [Hebrew].

Minister Shai Piron said that in order to deal with the problem, he set a goal of increasing the number of staff members at universities from 4,300 in 2010 to 5,000 by 2015, and at colleges from 1,600 to approximately 2,000 (for more data on staff hiring in recent years, see section 2.4). The minister also mentioned the Israeli Centers for Research Excellence (i-core), described in detail below.⁶

For various reasons, it is difficult to offer accurate quantification of academic migration, not least of which is the uncertainty of the migrants themselves as to their intention to stay abroad. In addition, sometimes figures refer to Israelis with academic education who joined academic institutions abroad, while sometimes they refer to Israelis with academic education who work in their field (high-tech or any other sector). Below are a few select figures.

Central Bureau of Statistics (hereafter: CBS) data indicates that in 2011, 4.9% of all those who received degrees from institutions of higher education in Israel (from 1984-2004) lived abroad for over three years. The rate of those who lived abroad for three years or more is even higher for those with **doctorates** (10.5%) and those with a graduate degree in medicine (7.2%). Some 6.7% of those who lived abroad for three years or more in 2010 **returned to Israel** the following year. Of those returning, the rate of those with a graduate degree (7.5%) was higher than those with doctorates (4.1%).⁷

According to a recent publication of the Samuel Neaman Institute, 16% of all those with doctoral degrees left Israel in the last decade. This statistic places Israel in the middle of the chart ranking emigration of doctorate-holders among selected countries: underneath Belgium and Holland (18%), but well above Sweden (7%) and Germany (3%).⁸ Additional data is presented by the Israel National Brain Gain Program, which operates out of the Office of the Chief Scientist at the Ministry of Economy (more details on this program in the following section).

⁶ Knesset minutes, the 19th Knesset, meeting 64, Agenda proposals on the topic of: Nobel Prize winners in Chemistry and the Israeli brain drain, October 16, 2013 [Hebrew].

⁷ Central Bureau of Statistics, Extended stay abroad Three years and more Recipients of Degrees from Israel, Press release, December 25, 2012 [Hebrew].

⁸ Samuel Neaman Institute, Science, Technology and Innovation Indicators in Israel: An International Comparison (Fourth edition), 2013, Figure 3.24 p. 77. The data is based on a 2009 survey conducted by the Central Bureau of Statistics. Whether the emigration is permanent or for the purposes of continued education (post-doctorate, etc.) is not indicated.

Doctoral and medical degree graduates in Israel from 1985 to 2010 who, in 2011, had lived abroad for over a year⁹

| Field | Number of doctoral and medical degree graduates |
|--|--|
| Humanities | 127 |
| Social Sciences | 148 |
| Medicine | 643 |
| Chemistry | 160 |
| Engineering and Architecture | 220 |
| Mathematics, Statistics & Computer Science | 204 |
| Physical Sciences | 352 |
| Biological Sciences | 603 |
| Total | 2,520 |

A study conducted by the CBS found that the primary destination today for academic degree-holding emigrants from Israel is the United States.¹⁰ **Data on the number of Israeli students studying abroad today is likely to indicate the future trends of brain drain destinations;** the United States was and still is the leading country in absorbing Israeli and other students, but in recent years the rate of students studying there decreased significantly (from 25% of all Israeli students studying abroad in 2006 to 15% in 2010). In contrast, the rate of Israeli students studying in Germany and Italy rose significantly.¹¹

Professor Dan Ben-David has in the past published data indicating higher levels of Israeli academic staff in the United States, significantly higher than other countries. According to these statistics, for every 100 staff members at higher education institutions who stayed in Israel there are 29 Israeli staff members at higher education institutions in the United States. In comparison, only 1.1 Japanese staff members and 3.4 French staff members moved to the United States for every 100 who stayed in their home country.¹² A previous study conducted by Professor Arik Gold and Professor Omer Moav found that for every 10,000 residents of Israel there are 41

⁹ Dr. Nurit Eyal, Director of the Israel Brain Gain Program, Office of the Chief Scientist at the Ministry of Economy, [Response to the Knesset Research and Information Center](#), January 26, 2014 [Hebrew].

¹⁰ Central Bureau of Statistics, [Emigrating Israeli families: who goes where?](#) Eilat Cohen-Kastro, January 2013 [Hebrew, includes abstract in English].

¹¹ Samuel Neaman Institute, [Science, Technology and Innovation Indicators in Israel: An International Comparison \(Fourth edition\)](#), 2013, p. 183.

¹² Taub Center for Social Policy Studies in Israel, [Press release](#), October 7, 2013. The data is based on an updated previous study by Prof. Dan Ben-David from 2008.

emigrants from Israel who are graduates of institutions of higher education. The researchers estimated that Israel is first in the world in terms of the rate of educated citizens who emigrate to the United States.¹³ As stated, the United States is the primary destination for those with higher education, not only Israelis, but also from all other countries in the world.¹⁴

In addition, the CBSs' most recent study indicates that the phenomenon of Israeli academic emigration is part of a worldwide phenomenon expected to grow with time, due in part to immigration policies of the destination countries, which encourage immigration of highly skilled workers and provide them with benefits.¹⁵

2. Activities to absorb returning academics

The following will detail five avenues in which action has been taken to attract Israeli academics back to Israel from abroad and re-absorb them into Israeli academia or industry.

2.1. The Israel National Brain Gain Program¹⁶

In a 2010 government decision on the issue of The Israel National Brain Gain Program,¹⁷ it was decided to adopt a program to strengthen academic research staff, formulated by the Higher Education Planning and Budgeting Committee in cooperation with the Minister of Education, via establishment of Centers for Research Excellence (see details on the implementation of this decision in section 2.2). In addition, it was decided to "encourage, locate and absorb brains" by establishing a database and placing research and science professionals interested in returning to Israel into various positions in academia and industry. The establishment of the database and its operation was entrusted to the Ministry of Aliya and Immigrant Absorption. However, in 2012, an agreement was signed between the Ministry of Immigrant Absorption, the Planning and Budgeting Committee, the Ministry of Finance and the Ministry of Economy, according to which a website and database under joint ownership of the Ministry of Education and the Ministry of Immigrant Absorption would be established.¹⁸ According to this agreement, from 2012 to 2016, an inter-ministerial program for encouraging, locating and absorbing brains in Israel would be operated by a steering committee. A contact and information center would also be established as part of the program, as well as a mechanism for aiding job searches¹⁹. The program's

¹³ The Shalem Center: Socio-Economic Institute, [Brain Drain from Israel](#), Eric Gold and Amir Moav, May 2006 [Hebrew].

¹⁴ OECD, [Globalisation and Higher Education](#), Education Working Paper No. 8, 2007.

¹⁵ Central Bureau of Statistics, [Emigrating Israeli families: who goes where?](#) Eilat Cohen-Kastro, January 2013 [Hebrew, includes abstract in English].

¹⁶ Dr. Nurit Eyal, Director of the Israel Brain Gain Program, Office of the Chief Scientist at the Ministry of Economy, [Response to the Knesset Research and Information Center](#), January 26, 2014 [Hebrew].

¹⁷ Government decision 1503, March 14, 2010.

¹⁸ According to the inter-ministerial agreement, the program is run administratively under Matimop, a government nonprofit organization operating by virtue of a 2004 Israeli government decision with the goal of promoting international technological industry cooperation.

¹⁹ Undated inter-ministerial decision. Received from Dr. Nurit Eyal, Director of the Israel Brain Gain Program, Office of the Chief Scientist at the Ministry of Economy, via email, February 2, 2014.

administration reported that the mapping of the needs of the economy indicates the many advantages of brain gain for Israeli industry, especially for the high-tech industry.²⁰

The program has three primary goals: assistance for returning academics in finding work and the process of returning to Israel; formulating recommendations and initiating programs to eliminate barriers based on data and information; coordination of specific complementary plans in cooperation with other entities, for example cooperation with entities engaged in absorbing immigrant academics (such as Gvachim, Bioabroad, the Israel National Labor Federation and the Jewish Agency). Services for potential employers are also offered by the program, such as screening and referral of candidates.

The program was launched in June 2013 and is in the beginning of its implementation, and because it is meant to be a long-term program, it is still too early to evaluate its implementation. Today, it is being promoted by the program's administration and by the staff person responsible for recruitment and placement. The program administration's activities include: regular contact with those living abroad (through social networks, monthly mailings, meetings at Israeli centers and initiating contact). Development of preparatory workshops for integrating into employment and for the absorption of the whole family into Israel are also being planned, as well as participation in the cost of plane tickets for job interviews in Israel.²¹

The administration estimates that the number of academics living abroad in 2011, the target audience for encouraging return to Israel and integration into industry and academia in Israel, is 9,423 people, with the following distribution into disciplines:

Number of degree recipients from Israel from the years 1985-2010 who lived abroad in 2011, according to areas of study

| Field of Study/Occupation | Number of people who received degrees from Israel between the years 1985-2010, living abroad in 2011 |
|--|--|
| Medicine | 716 |
| Chemistry | 348 |
| Engineering and Architecture | 3,162 |
| Mathematics, Statistics & Computer Science | 2,385 |
| Physical Sciences | 927 |
| Biological Sciences | 1,568 |
| Total | 9,423 |

²⁰ Dr. Nurit Eyal, *ibid*, telephone conversation, February 2, 2014.

²¹ Dr. Nurit Eyal, *ibid*, Response to the Knesset Research and Information Center, February 2, 2014.

Today, 3,390 persons with higher education are listed in the program's database, of whom the majority (68%) are from the business sector. Only 8% are academic faculty members at institutions of higher education overseas, and 11% are in postdoctoral positions. 79% of those listed currently reside in the United States, 8% in Canada and 5% in the U.K.²² According to data from the program's administration, since the program began operating, some 55 Israeli academics are known to have returned to Israel, most of them from the hi-tech industry.

2.2. The Israeli Centers for Research Excellence: *i-core*²³

As stated, the Council for Higher Education (CHE) and the Planning and Budgeting Committee (PBC) are promoting a multi-year reform program formulated to strengthen scientific research in Israel.²⁴ It announced that the framework of the program would include the establishment of 30 centers for excellence to build the infrastructure for innovative research and to place Israel at the forefront of global research, in accordance with the cabinet decision presented above. The program is run jointly with the Israel Science Foundation, and one of its major goals is “Brain Gain”: Bringing excellent researchers back to Israel, as a central means of fortifying the research capabilities and the academic faculty of the institutions of higher education in Israel.²⁵ Every research center is staffed by researchers from across all of Israel’s institutions of higher education.

In October 2011 the first four centers for research excellence were opened. In May 2013, 12 additional centers began operating.²⁶ The centers will be provided with a total budget of 705 million NIS for a five year activity period for each center, of which 450 million NIS came from the PBC budget, and the remainder from the partner institutions and donations. The establishment phase of the centers has been completed and the designated funds have been fully

²² The program’s database, which includes details about Israelis with higher education abroad, is based on a previous database, which was established by the National Council for Research and Development (NCRD) in the Science, Technology and Space Ministry. Today the database is owned jointly by the Economy Ministry and the Ministry of Aliyah and Immigrant Absorption and operated by the Economy Ministry.

In response to our inquiry, the NCRD stated that in recent years it has continued to gather information on the brain drain phenomenon through research cooperation that it initiated with the CBS. Research conducted in this framework included tracking Israeli doctors and advanced degree holders from Israeli institutions of higher education who lived abroad (see for instance footnote 7). Shlomo Herskowitz, NCRD advisor, telephone conversation, February 2, 2014.

²³ Noa Tal, The Council for Higher Education, Response to Inquiry from the Knesset Information and Research Center, Email, January 29, 2014 [Hebrew].

²⁴ Higher Education in Israel Multi-year Reform Plan. See for instance: Finance Ministry, State Budget Proposal for Fiscal Years 2011-2012, Major Provisions of the Budget and Multi-Year Budget Plan, October 2010 [Hebrew].

²⁵ *i-core* website, accessed: January 29, 2014.

²⁶ The first wave of centers of excellence engage in the following fields: Gene Regulation in Complex Human Disease; Solar Fuels; Cognitive Sciences; Algorithms.

The second wave of centers of excellence engage in the following fields: Of 12 new centers, five engage in research of the Social Sciences, Humanities and law, and seven in Exact Sciences, Engineering, Life Sciences and Medicine. From: *i-core* website, see footnote 25.

utilized. The operation, guidance, evaluation and oversight phase continues.²⁷ **So far, 58 new researchers have been absorbed by the centers, 55 of whom returned from leading overseas institutions immediately upon the completion of post-doctoral studies²⁸ or after receiving academic positions overseas. The aim of the program is to directly absorb 80 new researchers at the centers of excellence.**

2.3. The Israel Academy of Sciences Contact Center

The Israel Academy of Sciences Contact Center was established within the framework of the higher education reform program presented above. This center works to locate Israeli researchers overseas and to establish direct and efficient interfaces between them and academic bodies, for the sake of their repatriation and successful absorption. The Contact Center works in cooperation with the database of the Israel National Brain Gain Program and refers to it persons with higher education interested in integrating into the industry. **Today there are 2,641 academics listed in the database of the program, and so far at least 430 returning researchers have been accepted at universities with the Contact Center's assistance. Of these, 205 were accepted at places of employment between 2010 and 2013.**²⁹ Moreover, the Contact Center conducts employment conventions overseas. Most of those listed with the Contact Center are doctorate holders on the way to academic careers.³⁰

2.4. Hiring New Faculty Members at Institutions of Higher Education

Studies point to a growing number of students for every senior faculty member in Israel. For instance, according to Professor Ben-David, between 1973 and 2010 the **number of senior faculty members** was reduced at the Hebrew University of Jerusalem (by 17%), at Tel Aviv University (by 26%) and at the Technion (by 26%).³¹ Current figures from an earlier Knesset

²⁷ Noa Tal, The Council for Higher Education, [Response to Inquiry from the Knesset Research and Information Center](#), email, January 29, 2014; Knesset Research and Information Center, [Description and Analysis of Higher Education Budget in Recent Years](#), Anat Levy, October 20, 2013 [Hebrew].

²⁸ In general, after a doctorate, researchers are expected to undergo post-doctoral training abroad, and therefore almost all those who are destined for a career in academia travel abroad for a certain period of time.

²⁹ There is likely to be a certain overlap between the Contact Center's data and that of the absorption of researchers at the centers for excellence (section 2.2) and at institutions of higher education (to be presented in section 2.4). The Israel Academy of Sciences announced that the PBC is slated to support the creation of a new program for the Contact Center, which will enable the organized and synchronized tracking of data.

³⁰ Bat-Sheva Shor, Director of the Contact Center for Israeli Researchers, the Israel Academy of Sciences, [Response to Inquiry from the Knesset Research and Information Center](#), January 31, 2014 [Hebrew].

³¹ Taub Center, [press release](#), October 7, 2013; Samuel Neaman Institute, Indices for Science, Technology and Innovation in Israel and International Comparison, 2013, p. 99 [Hebrew].

According to CHE publications, the ratio of students to faculty indeed rose from 16 students per faculty member in the 1990s to 21 students in 1999/2000 and to 24 in 2005/06. In the following years the ratio stabilized at around 24 students to each faculty member. The Higher Education multi-year Reform Program submits a return to an average ratio of 21 students to each senior faculty member as the goal. **In 2012/13 a drop in the ratio to around 23 students to each senior faculty member was recorded.** See: The Council for Higher Education, [Statistical Data prior to the Opening of the Academic Year 2013/14](#), press release, October 10, 2013 [Hebrew].

Research and Information Center document point to a small change in the downward trend. As stated, in most years of the previous decade the number of full time positions for senior faculty was in a downward trend: 4,633 full time positions in 2001/02 compared to 4,297 full time positions in 2009/09 - a drop of roughly seven percent. In 2011/12 there were 4,443 full time positions for senior faculty - an increase of three and a half percent since 2008/09. However, the number of full time positions for faculty over the entire period (2001-2012) exhibits an overall downward trend of about four percent.³²

In response to our inquiry the CHE³³ stated that the **institutions recruited more than 1,000 new faculty members in the last three years,**³⁴ **including Israelis who returned from overseas,** of a recruitment goal of 2,000 by 2015/16, set by the PBC in the framework of the Higher Education multi-year Reform Plan (2010/11-2015/16) presented above. The Council stated that with the large number of faculty members retiring over the past three years (and following many years in which the faculty staff pool was not replenished) the universities' faculties grew by some 300 new members.

From data presented by Chairman of the PBC, Professor Manuel Trajtenberg, at the CHE's annual conference, it emerges that in the years 2010/11-2012/13 some 1000 senior faculty members were, as mentioned, accepted (at institutions of higher education Israel), and after deducting the retiring faculty members the number of researchers in senior faculties grew by 300 at universities and by 380 at academic colleges.³⁵ The CHE stated that it is working on actively gathering information from the institutions about new faculty members accepted and faculty members who retired between 2009/10-2013/14, and that the details will be received from the institutions in the coming months.

2.5. Activities of the Ministry of Science, Technology and Space

In 2012 the Ministry of Science, Technology and Space granted scholarships designated for scientists returning to Israel. Some examples of the ministry's activity in the field:

- Promoting a joint initiative in cancer research with the Israel Cancer Research Foundation (ICRF), at a total cost of 800,000 NIS. The ministry funds the salary components and the ICRF funds the research infrastructure and equipment. In this framework two returning Israeli scientists were absorbed at the Galilee Scientific Research Institute and the Hebrew University of Jerusalem. In response to our inquiry, the ministry stated that the possibility of continuing the program is under consideration.

³² Knesset Research and Information enter, [The Issue of External Teachers in the Higher Education System in Israel](#), Assaf Wininger, July 21, 2013 [Hebrew].

³³ Noa Tal, The Council for Higher Education, [Response to Inquiry from the Knesset Research and Information Center](#), email, February 2, 2014 [Hebrew].

³⁴ 40% were taken in by academic colleges.

³⁵ Professor Manuel Trajtenberg, [Higher Education in Israel in 2013: Third Annual Conference](#), The Council for Higher Education, May 2, 2013 [Hebrew].

- Publication of a call for application for scholarship grants for doctoral and post-doctoral students, in which it announced a preference for returning residents. “Returning resident” in this context refers to a scientist who lived overseas for at least five years and received “returning resident” status from the Ministry of Aliyah and Immigrant Absorption.³⁶

³⁶ Omri Kozak, Senior Advisor to the Director General of Science, Technology and Space Ministry, Response to inquiry from the Knesset Research and Information Center, email, February 2, 2014 [Hebrew].