



Samuel Neaman Institute
FOR ADVANCED STUDIES IN SCIENCE AND TECHNOLOGY

Samuel Neaman Institute Annual Report 2012



Technion - Israel Institute of Technology

ABOUT THE SAMUEL NEAMAN INSTITUTE

The Samuel Neaman Institute was established in 1978 in the Technion at Mr. Samuel Neaman's initiative. It is an independent multi-disciplinary national policy research institute. The activity of the institute is focused on issues in science and technology, education, economy and industry, physical infrastructure and social development which determine Israel's national resilience.

National policy research and surveys are executed at the Samuel Neaman Institute and their conclusions and recommendations serve the decision makers at various levels. The policy research is conducted by the faculty and staff of the Technion and scientists from other institutions in Israel and abroad and specialist from the industry.

The research team is chosen according to their professional qualifications and life achievements. In many cases the research is conducted by cooperation with governmental offices and in some cases at the initiative of the Samuel Neaman institute and without direct participation of governmental offices.

So far, the Samuel Neaman Institute has performed hundreds of exploratory national policy research projects and surveys that serve decision makers and professionals in economy and government. In particular the institute plays an important leading role in outlining Israel's national policies in science, technology and higher education.

Furthermore, the Institute supports national projects, such as the Ministry of Industry, Trade & Labor clusters - the MAGNET program in nano-technologies, media, optics and communication, chemistry, energy, environmental and social projects of national importance. The institute organizes also comprehensive seminars in its leading fields of research.

The Samuel Neaman Institute's various projects and activities can be viewed at the Institute website. The chairman of Samuel Neaman Institute is professor Zehev Tadmor and the director is professor Omri Rand. The institute operates within the framework of a budget funded by Mr. Samuel Neaman in order to incorporate Israel's scientific technological economic and social advancement.

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Vision

To promote informed national decisions in Israel through research and analysis of well-established information

Mission

To be a leading research institute that identifies, formulates and analyzes matters of policy of national importance in the areas of scientific–technological development, economics and social issues in Israel. The Institute's activity is expected to encourage educated public debate, promote and assist the decision making process of the State of Israel and bring to the final adoption of its recommendations.

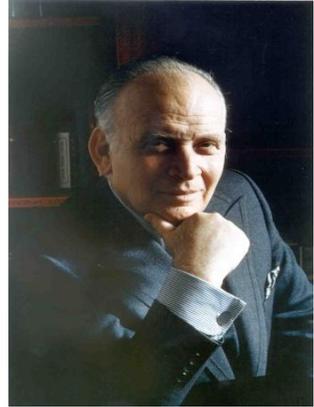
The Institute focuses primarily on formulating national policies in the fields of science and technology, industry, schooling and higher education, social integration, infrastructure, environment and energy, and other issues of national importance, where the Institute can provide valuable and unique contribution.



Founder: Samuel (Sam)

Neaman

1913-2002



"I was born in Rosh-Pina in 1913 as the firstborn of my parents, Esther and Pinchas Neaman. My mother was also born in Rosh-Pina and my father was a pioneer who came to Israel with the Second Aliyah. My wanderings began when I was three years old." This is how Samuel (Sam) began his autobiographic story in the book *Israel in and Out*, published by the Ministry of Defense.

The book portrays the life story of Sam Neaman, describing his wanderings from Palestine to Lebanon, Syria, France and back to Israel – to the battlefield of the Second World War in the Middle East and Europe.

During his wanderings, Sam Neaman never forgot his homeland, to which he felt strongly attached. His love for the land of Israel and the state of Israel motivated him to establish the institute for policy research, the "Samuel Neaman Institute", in the Technion, which is considered a leading non-profit research center in Israel, with the goal of transferring academic knowledge, from the vast store accumulated in the State's academic institutions, to applicable routes concerned with delineating a national policy, thus connecting research and the academe with national decision makers.

Samuel Neaman died on November 13, 2002, at the age of 89. To the last, he stayed involved in the Institute's activities, contributing significantly through his ideas and bestowing his vision. He left behind him a life work that continues to breathe and live, and to stimulate Israel's leading researchers and its decision makers.

The Chairman

Prof. Zehev Tadmor



In three consecutive public opinion surveys over a decade commissioned by the Institute, when asked what are the major accomplishments of Israel that you are most proud of, science and technology comes up first on the list. Clearly, the Israeli citizens, both Jews and Arabs, are most proud of the impressive accomplishments of Israel in science and technology translated into practice via the vibrant high tech industry. This raises the question, which is of great interest to us at the Samuel Neaman Institute as a National Policy Research Institute, namely what national science policy did Israel pursue over the past 65 years to reach these accomplishments? Who formulated it? Is there a formal science policy doctrine adopted by the Government? Is there a formal document describing what in fact is this policy consisting off? Or more succinctly, does Israel have a science policy?

The major goals of any *National Science and Technology Policy* are: the advancement of science and technology as a national resource; their utilization for promoting economic goals and meeting defense needs; and incorporating scientific considerations in the decision making process of all government policies¹.

Israel by default has adopted a decentralized S&T policy. Consisting of many components, this policy is not based on any official document or predetermined master plan, but has evolved step by step, over decades, through the actions of different people, in the government and the Knesset, in the universities and in industry. The result is a complex *system* through which basic scientific, technological, and industrial R&D research are carried out, as well as the education and training of scientific and technological manpower.

Developing the various components of the *policy* has been a dynamic and interactive process, which was sometimes driven from the bottom-up and sometimes from the top-down. Occasionally, it was governed by pressing needs,

¹ "The meaning of a policy for science and technology", a biennial report 1963-4, 4, p. 114, the Israel National Council for Research and Development, Prime Minister's Office.

as in the case of defense oriented research, while other times it was driven by social and economic considerations, as well as by the foresight and vision of key individuals. Since it almost always involves competition for public funding, the process necessitates dealing with political interests, which inevitably leads to compromises.

Alongside this *system*, with all its components, is the *current* governmental funding for research and development. Jointly they define Israel's S&T policy. In an analogy to the world of computers, the *system* is the "hardware", and the funding is the "software". Or if the *system* can be likened to a *machine*, the funding is the energy source driving it. This *policy*, which has led to extraordinary achievements and innovation in basic and applied scientific and technological research, has made a decisive contribution to Israel's society, economy and security.

A detailed review of the major components of Israel's S&T policy, the measure of its success and some concerns for the future will be presented at the 1st Alex Keynan Science Policy Workshop at the Israel Academy of Sciences and Humanities².

This Conference is in tribute to the late Professor Alex Keynan, who played a key and leading role in formulating and creating Israel's science and technology policy since Ben Gurion times until the recent past. He also served for over a decade on the Board of the S. Neaman Institute and whose sage advice to the Board was instrumental in helping the Institute meet its goals. He was a dear personal friend and a great friend of the Institute. May he rest in peace.

² Z. Tadmor "The Creation of the Science Enterprise of the State of Israel and the National Science and Technology Policy, May 19-20 The Israel Academy of Sciences and Humanities, Jerusalem

The General Manager

Prof. Omri Rand



In an era in which informed decisions in the fields of economy, education, society, and science are crucial, the Samuel Neaman Institute (SNI) serves as a leading think tank in Israel for such decisions. The Institute researchers are engaged in studies on national policy and thinking about subjects that are at the heart of the public interest and require sound national decisions.

The vision of the Samuel Neaman Research Institute is focused on promoting informed decision making at the national level in Israel through the research and analysis of established information. The SNI is a leading research institute in Israel that identifies, formulates, and analyzes policy issues of importance to the national resilience of Israel in order to invoke an informed public discussion, and promote and assist in Israel's decision-making process up to the decision's adoption. The Institute focuses mainly on outlining national policy on the subjects of science and technology, industry, education, and higher education, physical infrastructures, the environment, energy, and other areas of national importance to which it makes a unique contribution. The institute recruits unique research teams, and to every research field, it allocates first-class experts from all the universities and research institutes in Israel.

In 2012, the subjects and studies led by the Institute were varied and covered the different layers of society in Israel, beginning with industrial excellence, through energy and environment-related subjects, and up to the subject of the Ultra-Orthodox employment in the Israeli labor market.

The flag project of the Institute, "Israel 2028: Vision and Strategy for Israel," is worth mentioning, since many of the studies conducted are derived from it, such as: deepening the understanding of the eco-system of the Israeli hi-tech industry and an attempt to preserve its innovativeness, led by Prof. Shlomo Maital; promoting national policy on a variety of industrial subjects as part of the Center of Industrial Excellence established in 2011 under the leadership of Dr. Gilead Fortuna; the subject of infrastructures led by Prof. Hayuth; various environmental subjects and environmental responsibility, led by Prof. Ofira Ayalon; energy led by Prof. Gershon Grossman; R&D, space and patents policy led by Dr. Daphne

Getz and education and higher education, led by Prof. Tadmor. A special project on the subject of integrating the Ultra-Orthodox sector in the Israeli economy, led by Dr. Reuven Gal. In 2012, the latter research team focused on the process of integrating the Ultra-Orthodox sector in the Israeli labor market while offering applicable solutions and in collaboration with the business sector, and more.

The SNI was involved in raising the problem of the highly concentrated Israeli economy already in 2010. In collaboration with the economic newspaper, *The Marker*, a special study day was held three years ago (for the first time in Israel) under the heading: "Examining the Centralization in the Israeli Economy". About a year later, another study day was held, designed to deepen the public discourse on the subject. Thus, the Concentration Law that was recently promoted by the government serves as an excellent example of the actions taken by the SNI and its influence on decision makers. Integrating the Ultra-Orthodox sector is also an example of the influence of SNI on decision makers. The dozens of documents written on this subject by the Institute were discussed in many of the Knesset sessions, leading to legislation and significant parliamentary activity.

The challenges facing the Samuel Neaman Institute are many and varied, while being completely compatible with the vision it has set for itself. We are committed to maintaining a tradition of high-level research and professional skills. The SNI's team of researchers and information specialists are dealing continually with the identification and management of long-term national issues of importance and with presenting its conclusions and analyses to decision makers in Israel. The research body at the Samuel Neaman Institute strives to be integrative, making efficient use of its freedom in choosing its research topics and leveraging its capabilities, multidimensional expertise, and Knowledge databases that have accumulated over the years to conduct hundreds of infrastructure research studies. In addition, the Institute initiates many seminars, expert workshops, and lectures to discuss the issues with which it deals.

This annual report presents a concise description of the activities in 2012. I thank those involved in the work we do and wish us all success in the future.

Research Activities at the Samuel Neaman Institute

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A. "Israel 2028: Vision and Strategy for Israel"

Head of the program: Dr. Gilead Fortuna

The project "Israel 2028 – Vision and Strategy for economy and Society in a Global World" is a national project led by the Samuel Neaman Institute since 2008. The project has evolved into its present stage, in which it focuses on:

1. Integrating the Ultra-Orthodox sector in the Israel economy, led by Dr. Reuven Gal. In 2012, the team focused on the process of integrating the Ultra-Orthodox sector in the Israeli labor market, while suggesting applicable solutions, working in collaboration with the business sector.
2. Deepening the understanding of the ecosystem of the Israeli hi-tech industry and attempting to maintain its innovativeness, led by Prof. Maital.
3. Promoting a national policy on a variety of industry-related subjects within the framework of the Industrial Excellence Center, established in 2011, according to the following subjects:
 - A. Leveraging academic and industrial knowledge to build the hi-tech industry while focusing on the areas of cleantech, water, and civilian space (led by Dr. Gilead Fortuna).
 - B. Upgrading and empowerment of the classic (traditional) industry (led by Giora Shalgi).
 - C. Implementation of a national policy for the chemical industry and leveraging the new natural gas reserves (led by Dr. Gilead Fortuna).
4. Dealing with infrastructure and environmental issues, with an emphasis on sustainability in industry and enhancing long-term transport services, led by Professors Yehuda Hayuth and Ofira Ayalon and Dr. Gilead Fortuna.

Toward the end of five years from the date of submitting the Israel 2028 Report to the Government, it was agreed with the U.S.-Israel Science & Technology Foundation (USISTF) that an updated review should be prepared next year (2013), which would deal with the contribution of the activity in the past five years toward the realization of Vision 2028, identifying the achievements and gaps, and attempting to propose operation modes to continue the realization of the vision.

B. The Industrial Excellence Center

Head of the Center: Dr. Gilead Fortuna

The Industrial Excellence Center was established in 2011 and aims to promote a national industrial policy. The Center helps formulate and promote a proactive policy of industrial excellence, intended to sustain a balanced and high-quality national industry that maintains a healthy lifecycle, which is tested by its global competitive advantage and the quality employment of all sectors of society. The Industrial Excellence Center is also part of the Israel 2028 Vision.

The Center focuses on three sectors that are positioned in different stages of the lifecycle: the hi-tech and the chemical industry, which are at the peak of their accomplishments; new industries built on emerging technologies - cleantech, life sciences, aerospace, natural gas, and nanotechnology; and classic industry, which is currently at its lowest point and must be empowered.

In 2012, the Center focused on the following projects:

- A. Empowering classical/traditional industries.
- B. Challenges of water usage in global industry to promote the Israeli water industry.
- C. National policy on cooperation in business and science with East-Asian countries.
- D. The National Council for Civilian Space R&D in Israel.

B.1 Empowering the Classical Industry

Project team: Giora Shalgi in collaboration with Prof. Shlomo Maital and Dr. Gilead Fortuna, as part of the Industrial Excellence Center

As a result of various cooperative efforts during 2012, the following changes occurred:

- A. A positive momentum was created in the "Northern Cluster," which produced a critical mass of enterprises with effective access to growth-supporting state aid centers.
- B. The Industrial Excellence Program was augmented by adopting the EFQM Standards led by the Standards Institute and the Israel Society for Quality, including certification and training infrastructure.
- C. The excellence program in the Galilee was established, as part of the goals of the Galilee Development Authority.
- D. Promotion of vocational-technological education, including re-starting the construction of the historical Bosmat School was accomplished.
- E. The MOVING UP program was consolidated in collaboration with the Center for Innovation at the Technion.
- F. The counseling program of the Agency for Small and Medium Businesses was launched, in a framework that is consistent with the recommendations made by our committee.

B.2 Challenges for Water Usage in Global Industry

Project team: Dr. Gilead Fortuna in collaboration with Shiri Freund-Koren as part of the industrial Excellence Center

This research project began in 2011 and was designed to increase the competitiveness of the Israeli water industry in the world. The project aims to map industrial sectors that use large amounts of water, requiring innovative technological developments to reduce water consumption per unit of product, to allow the release of emitted water while preserving the environment, and to highlight the solutions to opportunities and needs that will enable businesses to grow and become more robust.

The project includes mapping water industries that can meet the defined challenges, linking industries to identified global challenges and initiating meetings with the companies involved, and holding dedicated training seminars. The study focuses on seven sectors of water-intensive global industries that were identified as having growth barriers that require improvement and innovation in the field of water technology. In 2012, three reports on the following sectors were published:

- A. Metal and mineral mining.
- B. The pharmaceutical industry.
- C. The food industry, with an emphasis on soft beverages and dairy products.

Many consultants with expertise in various industrial sectors and the water industry worked together with members of the academe on the project.

Some of the research results were presented in the green table meetings, organized by the Ministry of Environmental Protection and the Ministry of Trade and Industry and Labor, as well as the Manufacturers' Association. Additionally, the research findings were presented at Cleantech 2012 Convention in Haifa.

B.3 National Policy on the Chemical and Natural Gas Industry

Head of the program: Dr. Gilead Fortuna

The emphasis in 2012 was on the research and application of natural gas for the benefit of the energy services in Israeli industry, and on a feasibility study on using natural gas in the synthetics industry of downstream products.

The application of natural gas in industry requires that the dilemma concerning its transportation in Israel be studied. According to the solution that was selected, a government company transports the gas to the distribution centers and to the largest consumers, but transport to smaller industries is left to private enterprises. We believe that this leads to small and medium industries having an unequal opportunity to realize the benefits of natural gas, and that the present design will mainly affect classic industries, whose energy costs constitute a significant part of their expenses, and whose profits do not allow them to be competitive without replacing liquid fuel with natural gas. We recommended an amendment to the policy.

One of the activities was a professional meeting of the energy forum on subject of the planned fuel mixture for the Israeli energy sector, which was held at the Samuel Neaman Institute.

The application of gas in the synthetics industry seems to us certainly to be economic in terms of the domestic consumption of plastics, polymers, and fertilizers, and to be important raw material for new synthesis for export as well increasing the added value of Israel's industry. Research aimed at understanding the options and implications of the recommended national policy continues.

B.4 Cooperation Policy in Business and Science with East Asia

Head of project: Dr. Gilead Fortuna

1. **India: The final report on the Samuel Neaman Institute's extensive activities, whose objective is to strengthen the strategic cooperation between Israel and India, was distributed.** The report summarizes the rationale, framework, and findings of a research program devoted to the study of the potential inherent in commercial and scientific cooperation between Israel and India, with an emphasis on commercial and scientific innovation.
2. Alongside the drafting of the summary report, a process is taking place that involves promoting some of the project's conclusions and using the lessons that have been learned to find ways to strengthen the ties between Israel and India by leveraging the new trend of Indian companies purchasing Israeli companies and attempting to connect to Israeli innovations being developed in universities, incubators, and start-up companies.
3. **China: Participation at a convention for business companies led by Poalim Capital Markets, where we contributed our experience, primarily from the perspective of Teva.** Our proposals focused on searching for further leveraging in continuance to the purchase trends of Israeli companies and a-technologies purchases from Israel.

B.5 The National Council for Civilian Space R&D in Israel

Samuel Neaman Representative on the Committee: Dr. Gilead Fortuna

Dr. Gilead Fortuna's appointment as a member of the National Council for Civilian Space R&D Committee in 2012 allowed the Samuel Neaman Institute to become more active and contribute significantly to the National Council for R&D. Furthermore, in 2012 there were three meetings of the committee, during which Dr. Fortuna was appointed to head the sub-committee that deals with R&D strategy in space.

The role of the committee is to advise on formulating a long-term R&D policy in the field of commercial space that will allow the strategic objectives set out to be effectively achieved. The basis for the civilian space vision is the document submitted to the President in 2010, and the measures of success in achieving the objectives have to be derived from this document.

The role of the subcommittee is to build strategic thinking that will allow a long-term plan to be presented from which the tool for presenting indices of success will be derived, and which will also serve as a baseline for updating over the coming years.

In 2012, guidelines were presented for studying the opportunities of and barriers to industrial areas to guide the continued work of the Committee in 2013. In addition, separate indices of international visibility were presented, as well as of the lateral impact on research, education, and pride in the sector and the attainment of the goals of business sales.

B.6 Supplying Electricity to Ships in the Harbor (Cold Ironing)

Work is carried out by Prof. Yehuda Hayuth with a steering team on behalf of the Shipping and Ports Authority headed by Dr. Dan Livne

In recent years, pressure on the shipping industry in general and on seaports in particular to reduce greenhouse gas emissions for the purpose of improving the quality of the work environment and the environment as a whole has increased. In this context, one of the significant measures to reduce pollution and improve air quality at the port and around the city is to change the source of the electric power supplied to ships anchored for loading and unloading from the auxiliary motors of the ships to a power source from shore. This process is called "Cold Ironing" or On-Shore Power Supply (OPS).

The increasing global trend of changing the electrical power source when ships visit ports from the ships' auxiliary engines to an on-shore power supply is reflected in a vast array of ports all over the world that have adopted the method and established such facilities on some of their docks, which have already been working for several years. Installing power supply facilities for the ships anchored in port is currently voluntary, but the relevant international authorities have already started discussions on mandatory action for ports to make the change in question, mainly because of environmental considerations.

In Israel, too, the issue is relevant. The Israel Ports Company, which is responsible for developing ports, plans to integrate Cold Ironing facilities in two new container terminals that are planned to be located in the State of Israel in the current decade. At the end of 2012, a delegation of the French company Schneider Electric, one of the largest companies in the world specializing in the subject, visited the Samuel Neaman Institute at the Technion. The study includes new material communicated by the Company following questions that were raised. In addition, the company representatives have expressed their desire to cooperate with the SNI on the subject of trends in ports around the world in the field of on-shore electricity supply.

Work should be completed and delivered to the customer, the Shipping and Ports Authority at the Ministry of Transport, in early 2013.

B.7 National Infrastructure in Israel for the Year 2048

Prof. Yehuda Hayuth

This is an ongoing project that deals with long-term planning on developing national infrastructures. Planning long-term infrastructure is of great importance for Israel for at least three reasons: the limited physical dimensions of the country; the continued relatively rapid demographic growth; and the long time required for planning and execution of infrastructure projects. Among the main goals of the research is to keep options open in the long-term, remove barriers that would prevent the construction of strategic facilities and networks, and a coordinated and optimized use of the limited areas of the country.

The project focuses on assessing the future demand for physical infrastructures in Israel and the ability to establish the appropriate infrastructure and sustainable systems that will meet the expected demand. Another highlight of the project is examining the interactions between the various infrastructure components, and between them and the relevant economic, social, and environmental systems. The objective of the work is to define where and when infrastructure systems become barriers to economic growth and how to avoid these barriers, and is also to assess how infrastructure systems can support and encourage growth. The project is concentrated mainly on the infrastructure areas of land transport, i.e., roads and rail, and the port system, - as well as developing and training the required workforce in the construction and infrastructure sectors.

Strategic planning of infrastructure development is essential both because of the long periods of time involved in the planning, the process of obtaining approvals, financing implementation, and because of the need to identify and maintain options for further development in the long term. However, in order to ensure the achievement of long-term objectives, key elements have to be derived from the recommendations that must already be applied in the immediate and longer term.

During the year, due to the engagement in shorter-term infrastructure issues, mainly in the area of shipping and ports, the activity in the field of long-term strategic thinking was reduced.

B. 8 Innovativeness in the Traditional Industry

Project team: Faculty of Industrial Engineering and Knowledge and Innovation Centre: Prof. Miriam Erez and Dr. Iris Arbel. Samuel Neaman Institute: Prof. Shlomo Maital

A joint venture of the Center for Innovation and Knowledge, Faculty of Industrial and Management, Technion and the Samuel Neaman Institute. The project's goal: to help companies in traditional industries to upgrade their ability in the areas of innovation and export, through workshops and guiding projects carried out with the assistance of experienced mentors. The first round of the project was successfully completed in 2011 and included seven companies, some owned by kibbutzim.

The second round, which is now taking place, includes five companies: Bermad, Gan Shmuel, Hishtil, Stainless Steel, and Tefron. In the summary meeting, the companies reported on their projects. During 2012, this project moved to the Misgav region, where workshops are being held for projects in the business incubator and in the Misgav region.

B.9 Transferring Technology and its Commercialization

Project coordinator and book leader: Prof. Shlomo Maital

How to translate technological knowledge obtained in academe into commercial success is a disturbing question that concerns many researchers and entrepreneurs in the academe. The Samuel Neaman Institute faces the issue as part of its involvement in the Technion.

Thus, in August 9, 2012, a workshop was held for the staff of the Technion business unit, headed by Beni Sofer under the auspices of the Vice President for Research, Prof. Oded Shmueli. The lecturers included Amir Nyberg, the CEO of Yeda (Weizmann Institute), Dr. Harold Wiener, the Director of the venture capital fund Terra Ventures, Dalia Megiddo, the Director of Health Venture Partners, Gal Ehrlich of Ehrlich & Furstner, Lior Aviram and Amir Elisko, of Shibolet & Co. The senior research associate, Prof. Shlomo Maital, organized the conference, together with Beni Sofer and his team, and presented the results of a survey he conducted among the heads of technology transfer in leading universities abroad, including MIT, Harvard, Stanford, and others. Based on lectures given at the conference, a book will be published on the subject of how to translate scientific and basic technological research into commercial success. The book will include lectures related to the question of how VCs see the commercialization of academic research. How can research of high potential be identified? How can intellectual property be protected? Other legal aspects of intellectual property will also be addressed.

C. National Policy on Higher Education

C.1 Higher Education Forum

The Forum is managed by Prof. Omri Rand, Prof. Avinoam Nir, Representing Bashaar and Dr. Niel Sherman, the CEO of the United States-Israel Educational Foundation

The Samuel Neaman Institute along with Bashaar – the Academic Community for Israeli Society – and the Fulbright Program have shared the Higher Education Forum, which was established following the international conference held in December 2004 at the Samuel Neaman Institute on "Transition to Mass Higher Education Systems." The purpose of the Forum is to hold discussions on issues concerning the higher education system in Israel and to hold an open dialogue between universities, colleges, CHE and PBC, the Government, and other public agencies. Three meetings were held during 2012:

- On January 20, 2012, a meeting was held on "Planning the future of public and private higher education" with the participation of Mr. Moshe Vigdor, CEO of CHE/PBC, Bashaar, Prof. Rivka Carmi, President of Ben Gurion University, Chairperson of VERA, Prof. Aliza Shenhar, President of the Jezreel Valley College, Chairman of Committee of Public Colleges, Professor Zeev Neumann, President of the Academic Studies at the College of Management. Compere: Prof. Jacob Eiram, Bar-Ilan University, Bashaar.
- On May 22nd, 2012, the meeting of the Academic Convention, which was drafted in the forum, took place, whose objective was to formulate the basic principles that define the status, nature, and functions of the higher education system in Israel. The Forum chairman was Prof. Zehev Tadmor and the panel included Mr. Moshe Vigdor CEO of PBC and CHE, and Professor Zeev Zachor, the former President of Sapir College.
- On December 21st, 2012, the meeting "Globalization, the Bologna process and the higher education system in Israel," was held, attended by: Prof. Sarah Guri Rosenblit - Dean of Technology and Development, the Open University and Dr. Ami Shalit - Director and Academic Secretary, Feinberg Graduate School, Weizmann Institute of Science.

Sessions were filmed and recorded and can be seen on Samuel Neaman Institute website
www.neaman.org.il

C.2 Unique aspects in the Technion development

Prof. Uri Kirsch

The study attempts to understand how, despite being an institution with limited resources relative to prestigious institutions in the world, the Technion has managed to achieve the status of a world-class scientific-technological university, and at the same time to achieve weighty national missions, and be a factor that has had an unprecedented impact on the development of Israel. The study offers a broad view of the development of the Technion, from the beginning of its establishment until today. Unique aspects that developed in the institution are presented, such as its managerial and academic culture, national contribution, and academic status, which explain the reasons for its success, as well as the institution's ability to overcome difficulties and crises over the years.

C.3 Academic Freedom in Israeli Universities

Heading the project: Prof. Uri Kirsch

Does Israel have problems related to academic freedom and academic independence that require action? Is there a place for such an activity within the walls of SNI, and if so, on which points should we focus? What is the preferred framework for such an activity (discussions in a wide forum, academic research activities, etc.)? Questions of this kind have been considered in a special discussion that the Samuel Neaman Institute decided to lead as part of its involvement in the subject of higher education in Israel.

The conclusions of the discussions were compiled in a workbook that was created following the hearing and can be downloaded from the Samuel Neaman Institute website.

D. Science, Technology, Industry, Economy and Human Capital

D.1 Indices for Science, Technology and Innovation in Israel and international comparison

Head of the program : Dr. D. Getz,
Project team : Prof. D. Peled, T. Buchnik and I. Zatzovetsky

At the beginning of the 21st century, the Samuel Neaman Institute identified the need to establish an infrastructure for advancing a systematic and ongoing process of forming a national policy on research, technology, and innovativeness.

Establishing a database and comparable and updated indices was the first stage in the program initiated by the Samuel Neaman Institute, whose objective was to help policy makers map and evaluate Israeli R&D activities, the skills, the scientific infrastructures, and their financing over the years, and draw comparisons on the international level. Within this framework, three publications on the subject of "Indices for science, technology, and innovativeness in Israel: A comparable database" were printed.

The first publication in this series appeared in 2005 and dealt with the national expenditure on civil R&D, human capital in science and technology, and outputs in science and technology. The second publication, which appeared in 2007, included all three chapters of the first publication in an extended and updated version, and two new chapters about economic indices for science and technology activities and the introduction of technology into households. The third publication in this series appeared in 2010 and included all the chapters appearing in the 2007 publication in an updated and extended version, with new chapters on globalization and R&D by sectors.

The database and the indices are not the final product, but a starting point for discussion and brainstorming by experts and policy makers. We hope that it will contribute to our ability to analyze and understand the processes and influences of decisions regarding policy in the fields of science, technology, and innovativeness. The comparability of the activity indices and their effects on a time axis in Israel with the development of identical indices in other countries help in the process of formulating and updating an informed policy on the basis of the analysis of the emerging picture that is based on the data, indices, and trends in Israel and their comparison with similar processes around the world.

D.2: R&D Outputs in Israel – A Comparative Analysis of PCT Applications and Distinct Israeli Inventions

Researchers: Dr. Daphne Getz, Dr. Eran Leck, Amir Hefetz

The research is a joint project of SNI and the National Council for Research and Development (NCRD), operating under the auspices of the Ministry of Science and Technology. This work, which is the second publication in a series of researches, uses PCT application and patent family data in order to describe, analyze and compare the dynamics of Israeli innovation. The novelty in this particular research is the use of the "distinct invention" indicator. This indicator, based on the EPO's (European Patent Office) DODDB patent family, is aimed at neutralizing double counting of identical patent applications (inventions), as a result of their filing in numerous patent offices around the world.

In the past two years, SNI has acquired and developed new databases in the field of patent statistics. The most important among these databases, is EPO's PATSTAT which constitutes the "backbone" of the research data. It includes data on patent applications and granted patents for more than 100 patent offices. SNI uses five supplementary datasets which are linked to PATSTAT and supply additional information (assignee name harmonization, sector allocation, regionalization, triadic patents, and characteristics of foreign R&D Centers) on the patent's applicants and inventors. These additional information layers vastly improve data retrieval, data segmentation and data analysis capabilities. PATSTAT and its supplementary databases enable SNI researchers to conduct in-depth analyses, such as investigating shifts in patenting activity by technological fields on a comparative basis (Israel and OECD countries), describing the patenting activity and scope of the foreign R&D centers in Israel and identifying the new markets (e.g. BRIC countries) which are becoming increasingly important to Israeli firms.

The outputs of the research include: **A.** An analysis of Israeli patenting activity in an international perspective (OECD countries) using PCT applications. **B.** An analysis of distinct Israeli inventions (applicant and inventor counts by year, sectoral distribution of distinct Israeli inventions, distribution by patent classification, class and ISIC industrial classification). **C.** Globalization aspects of Israeli distinct inventions and the characteristics of the foreign R&D centers in Israel. **D.** investigation of Israeli patenting activity in BRIC countries. **E.** An exploration of the nexus between patenting activity and economic output in national and international perspectives, using econometric models and numeric simulation methods.

D.3 R&D Outputs in Israel: International Comparison of Scientific Publications, 1990-2011

Head of the project: Dr. Daphne Getz. Research team: Yair Even-Zohar, Iris Eyal, Dr. Avishag Gordon, Dr. Noa Lavid and Ella Barzani

The purpose of the work, performed in collaboration with the National Council for Research and Development at the Ministry of Science and Technology, is to examine the outcomes of research and development in Israel, as expressed in scientific publications in academic journals, according to different criteria over time.

The infrastructure of the collected data in this work allows us to evaluate the scientific status of Israel and to identify directions and development trends, using a variety of indices that provide information about the extent and quality of publications in various research areas and allow them to be compared on the international level. An analysis of authors' details and their location allows us to examine patterns of cooperation between Israeli researchers and their colleagues in industry and the academe in Israel and around the world.

To execute the work, SNI acquires regular updates of the leading bibliometric databases in the world, and adapts it to the needs of the research using a process developed at the Institute, which includes cleaning and processing the data according to their attribution to institutions and sectors. The final report will be completed during 2013. A previous report on the subject, which presented the research output for 1981-2008, was published in 2011. The full reports can be downloaded from the Samuel Neaman Institute website.

D.4 Innovation in the Service Sector

Head of the project: Dr. Daphne Getz. Project team: Vered Segal,
Tsipy Buchnik and Ella Barzani

This initiative by the Samuel Neaman Institute with joint funding of SNI and the Chief Scientist at the Ministry of Industry, Trade and Labor, is designed to examine innovation in the service sector for the first time in Israel.

The service sector represents a large segment, ranging from 70 to 80% of the economic activity of OECD countries. Therefore, it is important to identify the factors that influence growth and innovation in the service sector and to formulate a policy to encourage the implementation of support programs for companies, research, and cooperation in various sectors of this segment. The purpose of the work is to show a clear picture of the characteristics of the services sector and open the door to understanding the issue of innovation in this sector. The final report consists of seven chapters:

1. Definitions and classifications in the sector of trade and services.
2. Data indicating the centrality and importance of the service sector in Israel and an international comparison according to the following indices: GDP, employment, services export and business demography, and data regarding innovation in the service sector, based on the indicators of total productivity growth and expenditure on R&D and innovation.
3. A literature review on innovation in services based on recent works and studies on the characteristics of services innovation, indices, and surveys used in the field, and the necessity and importance of consolidating a policy for the services sector.
4. A policy that is oriented toward innovation in services, the programs used to advance the field, and an evaluation of the effects of programs in Germany, Finland, Denmark, Iceland, Norway and Sweden.
5. Review of the existing policies and programs in Israel to promote innovation in the service sector.
- 6-7. Summary and Recommendations.

D.5 A Study Examining Cooperation between the Industry and Infrastructure Centers in Nanotechnology at the Technion

Head of the project: Dr. Daphne Getz. Research team: Vered Segal and
Bella Zalmanovich

The Russell Berrie Nanotechnology Institute (RBNI) was established in 2005 as a joint venture of the Russell Berrie Fund and the Israeli Government, through the National Infrastructures for the R&D Forum (TELEM), INNI and the Technion. The Institute's vision is to position the Technion and Israel at the forefront of global R&D in the field of nanotechnology.

Strengthening the ties with Israeli industry and the transfer of technology developed at the Technion to the industry is a major target of RBNI. The Institute has invested heavily in the establishment and upgrading of ten major infrastructure centers in the various faculties at the Technion. The use of infrastructure equipment is open to researchers from the academe and industry in Israel, and a large number of universities and industrial companies use the equipment purchased with the support of RBNI.

As part of the effort of RBNI to improve cooperation between the major infrastructure centers in nanotechnology at the Technion and industrial companies, the Samuel Neaman Institute was asked by RBNI to conduct a study that would help them to understand better the needs of the industry regarding the use of nanotechnology infrastructure centers at the Technion, and what model of cooperation between the Technion and the industry best suits the needs and interests of both these organizations.

Some of the suggestions and requests elicited during the assessment conducted by the Samuel Neaman Institute have already been successfully implemented.

A detailed report of the study was delivered to RBNI. The report includes a list of companies that responded to the questionnaire and their characteristics, and a summary of the feedback given by the companies about each of the research infrastructures, on various parameters related to the use of these infrastructure by the industry.

The needs and issues that are important to companies that have potential for cooperation with the Technion Nanoscience infrastructure centers were summarized, and RBNI management uses this information in order to reach these companies and interest them in cooperation and in the use of the infrastructures.

D.6 Policy Incentives for Knowledge Creation: Empiric Methods and Evidence (Pick-Me)

Research team: Dr. Daphne Getz, Prof. Amnon Frenkel,
Prof. Shlomo Maital, Dr. Eran Leck and Mr. Emil Israel

The project is implemented under the Seventh Program of the European Union (FP7), a consortium that consists of seven countries (Italy, Germany, France, Spain, Poland, the UK, and Israel). The purpose of the project is to examine empirically the role of the demand side in the creation of technological knowledge, identify technological and organizational innovation, and encourage an increase in productivity.

The project examines the structure of networks and connections that link the various institutional actors (research infrastructures, business communities, decision-makers) involved in the creation and exploitation of technological knowledge at the company level and in the technology sector, and the spatial dimension in which processes take place.

This year, work on work package 2, "Review and classification of technological innovation policy: the demand side and the supply side," has been completed. This project was led by a research team of the Samuel Neaman Institute. A full scientific report was submitted to the project management, which included mapping of technological innovation ecosystems in five of the seven partner countries in the project, a comprehensive literature survey on technological innovation that was tailored according to a generic template of a technological innovation ecosystem, and a review of case studies representing key principles of demand-based innovation in a market economy.

In the second year of the project, the research team of the Samuel Neaman Institute will work on three work packages: "Evaluation of demands and the development of knowledge bases in knowledge-based sectors and regions"; "Matching the demand to the training of knowledge workers in local labor markets"; and "The development of demands, sectorial development and organizing innovation activities". The PICK-ME project began in January 2011, and is expected to last 42 months.

D.7 Mapping national systems of technological innovativeness: Creating a basis for agreement on policy

Project team: Prof. Amnon Frenkel and Prof. Shlomo Maital

A book that deals with technological innovation, based on the material collected as part of work package No. 2 of the Pick-Me Project, in which a novel methodology for mapping the ecosystem of technological innovation in five European countries that participate in the project was successfully tested. The book is being written by Prof. Amnon Frenkel and Prof. Shlomo Maital. The publisher is the British publishing house, Edward Elgar Publishing. In order to expand the emerging picture, the two researchers led workshops with experts in three other countries (that are not participants in the Pick-Me Project): Singapore, the Shanghai area in China, and the Province of Ontario, Canada. The material resulting from the workshops serves as a basis for mapping the ecosystems of innovation in these places and will expand the international scope presented in the designated book. The draft of the book is expected by the end of April 2013.

D.8 Intellectual Property in the Government Sector: The State of Affairs

Head of the project: Dr. Daphne Getz. Research team: Larisa Eidelman, Bella Zalmanovich, Miriam Asotsky and Sharon Bar-Ziv

The goal of the study is to create an infrastructure for forming a policy on the issue of intellectual property rights to knowledge that constitutes a product of R&D activity that is funded by the government and executed by governmental agencies/civil servants. The aim is to consolidate recommendations on guidelines in order to build a strategy for managing intellectual property in accordance with the government R&D objectives and to study the implications of knowledge transfer owned by the government through the commercialization of intellectual property rights.

During 2012, the R&D objectives that are executed by government research institutes were examined through interviews with the managers of research institutes, and by the various ministries through interviews with the head scientists in the various offices. In addition, the legal framework for managing intellectual property rights owned by the state, a review of the latest legislation, proposed legislation, and policy documents, was presented. Additionally, the implications of the transfer of knowledge originating from the government R&D sector through commercialization of intellectual property rights and the management of government-owned intellectual property rights between 1954 and 2010 were presented. A comparative review of the R&D system and intellectual property policies in selected countries in the OECD was conducted.

A final report on this subject was submitted to the Committee on Academic-Industry Relations of the Affairs of the National Council for Research and Development in October 2012.

D.9 A Policy on Levering Stem Cell Research through Intellectual Property

Research team at Samuel Neaman Institute: Dr. Daphne Getz,
Larisa Eidelman, Bella Zalmanovich, Miriam Asotstky and
Yair Even-Zohar;

Project team at Haifa University: Prof. Niva Elkin-Koren, Dr. Yael
Bergman-Eshet, Sharon Bar-Ziv, Talya Ponchak and Dalit Sagiv

The goal of the research is to create an infrastructure for designing a policy concerning research, development, and knowledge transfer in the field of stem cells. This policy was intended to encourage scientific innovativeness as well as help lever Israel's position as a leader in this field in the global arena.

The research focused on mapping the existing situation in stem cell research in Israel, examining alternative models for leveraging stem cell research and cooperation between various research sectors, and developing a legal framework that will assist cooperation between the actors in this field in the various sectors and the leveraging of stem cell research.

This innovative study provides policy makers with a broad picture regarding the stem cell research situation in Israel and the legal aspects involved in managing stem cell research. This study combines the expertise areas of two leading research institutions: the Samuel Neaman Institute and the Law and Technology Center at Haifa University.

During 2012, Samuel Neaman Institute researchers analyzed the scientific activity in Israel in the stem cell field in the academe, industry, and hospitals, using three questionnaires that were administered to companies, researchers in the academe, and research institutes and researchers in hospitals, including interviews with representatives of the various sectors. In addition, data from research questionnaires that were administered to lawyers and/or patent editors who are involved in the stem cell area were collected and analyzed, including application companies at the universities. A framework and methodology for analyzing and presenting the data was built, and the data from several different sources, including bibliometric analysis of the quantity and quality of scientific output in the field of stem cell publications and patents as compared to other selected countries, was integrated. A report summarizing the findings was submitted to the Ministry of Science on December 2012. Additionally, the study findings were presented at the conference "Intellectual Property in Biotechnological Research in Israel" held at the Haifa University.

This is a joint research project of the Samuel Neaman Institute and Haifa University.

D.10 Evaluating the Infrastructure Program of the Science and Technology Ministry

Head of the project: Dr. Daphne Getz; Project team: Vered Segal, Oshrat Katz-Shacham, Ella Barzani, and Noa Zemer-Batsir

The continuance of research to evaluate the short and long-term effects of research and knowledge centers, which received funding from the Ministry of Science and Technology from 2000 to 2010 as part of the infrastructure program, was commissioned by the Ministry of Science and Technology.

The scientific infrastructure program of the Ministry of Science and Technology has been operating since 1995 in order to bridge the gap between basic academic research and the development of applications, and aims to reduce the maturation time of useful technological ideas. The development of applications, toward which this program is oriented, may lead to the realization of the economic potential of scientific research, and in the long term also to the growth of the Israeli economy and to Israeli scientific research being positioned at the forefront of science and technology in the world.

This evaluation study is a continuation of a research study conducted by SNI in 2005 to examine the economic effects of scientific research and programs carried out as part of the infrastructure program.

D.11 Mapping National Research Infrastructures

Head of the project: Dr. Daphne Getz. Research team: Vered Segal, Bella Zalmanovich and Oshrat Katz-Shacham

The Samuel Neaman Institute is conducting a further study on the subject of ‘Mapping National Research Infrastructures in Israel’ in 2012-2013. In 2008, the Israel National Council for Research and Development – The National Council for Research Infrastructures (VATAM) through the Science and Technology Ministry, published a tender to conduct a study that would map national research infrastructures, which the Samuel Neaman Institute won. The goal of the study was to build a knowledge and data base that would allow the State of Israel to formulate a road map for planning, upgrading, and establishing research infrastructures.

The study findings were summarized in a report that includes 88 existing research infrastructures in Israel as well as international research infrastructures that are open to researchers from Israel. The report was published and uploaded to the website of the Samuel Neaman Institute so that all the stakeholders could make use of it.

As part of the current further research, the Samuel Neaman Institute is updating the mapping of the existing research infrastructure (equipment purchased, number of users, planned upgrading, etc.) and of international research infrastructure used by researchers from Israel (annual cost, government agencies supporting the infrastructure, number of users from Israel, etc.).

A literature survey was also conducted on the process experienced by Finland, Australia, the Netherlands, and the European Forum on Research Infrastructures, ESFRI (European Strategy Forum on Research Infrastructures), from the stage after mapping research infrastructures to the stage of creating a roadmap for research infrastructures.

D.12 Human resources in Science and Technology - models for Technology Forecasting

Research team: Dr. Daphne Getz, Tsipy Buchnik and Bella Zalmanovich

This work was commissioned by the subcommittee, Academia-Industry Relations of the National Council for Civilian R&D (Molmop). One of the goals of this committee is a re-examination of the suitability of the training provided by higher education institutions for the needs of the future economy.

There is an agreement among policy makers and academics that investments in human capital profit individuals, organizations, and society as a whole. Educated people have a better chance of finding their place in the labor market and earning more. The usefulness of education to society is reflected in economic growth, social cohesion, and low crime rates. However, although education, training, and lifelong learning are a promising form of investment, the resources required for this purpose have to be allocated effectively. It is important to consider that the education and training system should be flexible and able to adapt to the changes in the skills required in the labor market over time. These challenges do not face only policy makers but also higher education institutions, companies, and individuals. Training and education that are adapted to market needs will contribute to the employee's personal welfare, competitiveness, innovation of the companies in the various economic sectors, and society as a whole.

Although there is a consensus about the importance of an educated and skilled workforce, matching the skills and training to the labor market of the future is not certain.

Since Israel has no institution that deals with projections for supply and demand of scientific and technological human resources and for developments related to technology, the Samuel Neaman Institute was asked to present a literature review on technology forecasting and human resource forecasts studies that are being conducted in several countries in the OECD.

D.13 A Survey of Israel's Foreign Relations in Science, Research, and Development at the National and Institutional Level

Head of the project: Dr. Daphne Getz,

Project team : Dr. Gilead Fortuna,

Prof. Uri Kirsch, Prof. Shlomo Maital, Eliezer Shein,

Larisa Eidelman, Ella Barzani, Oshrat Katz-Shacham

and Golan Tamir

The purpose of the survey and the rationale for its implementation is the need to build a database that concentrates the information about the foreign institutional scientific relations of the State of Israel. This computerized database should be a tool to help design policies regarding the scientific foreign relations for the National Committee for Foreign Relations' Coordination at the Molmop and other relevant organizations

Israel's international R&D relations are diverse and numerous, and most of the information on Israel's scientific foreign relations is dispersed among various agencies. This scattering creates a situation where there is no coordination and planning between the needs and the possibilities in the different areas or between programs with other countries and organizations. Israeli representation in international institutions is sometimes duplicated or missing.

This database will be based on an analysis of a survey to be conducted through questionnaires to examine the existence of foreign relations in science, technology, and R&D at the national and institutional level. In addition, the survey will address the various aspects related to national policies, such as identifying strengths, identifying duplicate and characterizing missing connections at the state level, recommendations for preferred areas, organizations, and countries to develop R&D relations and more.

D.14 Tax Benefits for R&D in Israel

Research staff: Prof. Dan Peled, Prof. Benjamin Bental, Dr. Daphne Getz, Tsipy Buchnik, Ilia Zatzovetsky and Avi Sasi

This work examines the tax incentives system to encourage R&D in the business sector in Israel. More than two thirds of the member countries of the OECD and many other industrial countries encourage R&D activities in the business sector with tax benefits based on the volume of R&D expenditures reported by the firms. The rate of the countries that choose to incentivize R&D investment with tax benefits is on the rise, which reflects both the recognition by the business sector of the importance of R&D and the increasing competition between countries over attracting R&D investments. Israel has almost no tax breaks to encourage investment in R&D. The main channels of government support of R&D in Israeli businesses are R&D grants given by the Chief Scientist of the Ministry of Industry, Trade and Labor, and the government's direct contracts with extra-government entities to execute R&D to meet government requirements (procurement). However, tax benefits in the sense of an encouragement program that goes beyond recognizing R&D expenses for corporate tax in the year of expenditure, a benefit that exists in OECD countries including Israel, are lacking.

How does the world incentivize? And what should Israel do to adapt? This research reviews tax incentive methods used to encourage R&D employed in the world, and their effectiveness. The work combines theoretical and empirical studies of the impact of various tax incentives on the R&D performed by firms, and the number of firms that choose to invest in such activities. The work is a joint venture of the Samuel Neaman Institute and the National Council for Research and Development at the Ministry of Science.

D.15 Expertise and Distribution Indices of R&D Activities in the Economy

Research staff: Prof. Dan Peled, Prof. Benjamin Bental, Dr. Daphne Getz, Dr. Eran Leck, Tsipy Buchnik and Ilia Zatzovetsky

Although in Israel the proportion of the GDP expended on R&D is among the highest in the world (in absolute numbers, Israel is second in the world in terms of high-tech companies traded on NASDAQ and has the quickest growth rate in the number of total patents of Israelis registered at USPTO), the intensity of Israeli R&D does not necessarily indicate a desirable distribution of R&D across disciplines and economic sectors. It is feared that the continued growth rates we have seen over the last decade, given the excessive concentration of R&D activities in certain areas, will slow or cease. In the absence of appropriate data, an agreed definition of indices, and comparisons with other countries, it is difficult to determine the right distribution of R&D across fields of knowledge and different economic sectors.

A desirable distribution of R&D across disciplines would reflect the scientific and technological capabilities and the relative advantages to the economy by sectors, as well as strategic considerations relating to the development of R&D in the world. In practice, the sectorial distribution of R&D activities in the economy is affected by various stakeholders, whose economic interests do not necessarily match the national interest. A necessary condition to formulate a national strategy for proper distribution of R&D investments in Israel is having the latest information about the sectorial distribution of R&D in Israel and a comparison of this distribution with data from other countries. Accordingly, in this work, indices of the distribution scope of R&D activities across disciplines and industries are developed and implemented, with the goal of analyzing this scope. These distribution indices will be used for making inter-sectorial comparisons of R&D activities, monitoring development trends in R&D over time, and making international comparisons of R&D according to sectors and branches in different countries. In October 2012, an interim report was written, which included data on R&D investments and outputs across sectors, patents, and areas of economic activity, and a review of possible distribution indices.

The work is a joint venture of the Samuel Neaman Institute and the National Council for Research and Development at the Ministry of Science.

The study began in 2011 and is expected to be completed in 2013.

E. Evaluating Performances and Contributions Made by Immigrant Scientists Employed by the KAMEA Program of the Ministry of Absorption in the Academe in Israel

Research staff: Prof. (Emer.) Avraham Shitzer, Mechanical Engineering, Technion and the Samuel Neaman Institute;

Research assistants: Miriam Asotsky, Irada Kazimova and Smadar Shaul

The study is in its second year and relates to the financial aspects of the program, which was initiated in 1998 by the Israeli government in order to continue absorbing from among the senior-level immigrant scientists in universities, colleges and research institutions. The purpose of the program is to enable the extended absorption of immigrant scientists who have completed the Giladi program. Most of the program participants are employed in research groups in higher education institutions and some in research institutes or hospitals. The institutions employing the scientists usually undertake to employ them until pensioned retirement. In the first stage, their employment is guaranteed for three years. Other objectives include upgrading their academic status as researchers to levels and salaries that are in line with those of senior faculty members at the same institution, and the accumulation of resources to be used in due course for their pension payments.

The program is financed by the Planning and Budgeting Committee of the Council for Higher Education (PBC) and the absorbing host scientist or institution. In institutions that are not funded by the PBC, funding was divided only between the Ministry of Immigrant Absorption and the institution that employs them. The above interim report refers in detail to the payment flows, for each of the scientists who participated in the program, through an annual distribution between the funding organizations. The report is based mainly on detailed data forwarded by the Ministry of Immigrant Absorption.

F. The Information Centers of MAGNET Consortia

Manager of the information centers: Dr. Daphne Getz;

Coordinator: Josef Linhart

Information specialists: Orly Nathan, Ella Barzani, Bella Zalmanovich,
Ayelet Raveh and Noa Zemer-Batsir;

Information systems manager: Golan Tamir

A computerized information center, one of the largest in Israel, is operated at the Samuel Neaman Institute. The center was established to fulfill the needs of knowledge management and to supply information science services to consortia that operate within the MAGNET program, and is part of the MAGNET program of the Industry, Trade and Labor Ministry. The information centers are based on a computerized system, planned according to the requirements of the staff of the Samuel Neaman Institute, in collaboration with the consortia. During 2012, the Samuel Neaman Institute operated ten information centers for MAGNET consortia providing assistance in: databases, informatics services, tools to support organizational management, and more. The information centers for consortia operated by Samuel Neaman Institute in 2012 include:

Bio-medical photonics (BMP): Diagnosis and treatment solutions in the bio-medical field in general and in digestive diseases in particular. Broadband communications for rapid deployment by rescue forces (RESCUE), focusing on technologies for the next generation of communication systems for emergency and rescue forces. HDTV quality video in real-time on the open internet network (NET-HD): technologies to increase the effective capacity of the Internet to deliver video at HD quality, while doubling the volume 10,000 times. Nanotube Empowerment Solutions (NES): vital generic technologies that allow the use of nanotubes in selected and groundbreaking applications. Cognitive radio networks (CORNET): Building blocks in the technology of cognitive radio in the areas of sensing, cognitive engines, platforms, and networks that will constitute a breakthrough in the design of radio networks. Sensing at low lighting level (HySP), which addresses the development of technologies of digital cameras, and processes and methods to produce arrays of hyper sensitive photonics. Advanced optical high-speed telecommunications networks (TERA SANTA): developing technologies and building blocks to realize the next generation of optical networks and 'The Israeli Smart Grid Consortium' (ISG): Developing a technological infrastructure for integrating the communication network and elements of command and control in the electricity network through optimal utilization of the energy available to realize a greener world.

G. Environmental Protection

The Energy and Environmental Team at the Samuel Neaman Institute is celebrating a dozen years work.

During these years, the team at the Samuel Neaman Institute, prepared white papers, studies, surveys and policy recommendations in leading topics in the environmental sector in Israel – waste management (municipal, hazardous and packages); greenhouse gas emissions reduction and adaptation to climate change; an array of issues related to energy and the planning of the energy sector in Israel;

National priorities documents, designed to provide a current picture of the situation in Israel and abroad, and to formulate policy recommendations necessary to achieve the desired goals.

The documents prepared by the team, led by Professor Ofira Ayalon, are used by senior management in relevant government ministries (Finance, Environmental protection, Energy and Water, Industry and Trade, etc.), the Knesset Information Center and the latest entries in Wikipedia. Opinion columns on environmental issues are published in the print and electronic media.

G.1 Hazardous Household Chemicals and Hazardous Waste: Policy and Procedures Recommendations for Implementation in Israel

Head of the project: Dr. Debby Mir, Project manager: Prof. Ofira Ayalon,
Editing: Yaara Grinberg

This year we chose the issue of hazardous household chemicals and hazardous waste management as a national priority in the environmental field, as chemicals and wastes are not properly handled institutionally or systemically in Israel.

Dr. Debby Mir wrote a document summarizing the global knowledge and activities currently available in developed countries and provided recommendations for implementation in Israel. The paper exposes the environmental and health hazards associated with the acquisition, use and disposal of hazardous household chemicals and household waste. The background document was distributed to participants who attended an expert's workshop held at the Samuel Neaman Institute.

The document was published as a National Priorities Report for 2012.

G.2 Voluntary Greenhouse Gas Registration and Reporting Program Voluntary Greenhouse Gas Registration and Reporting Program

The project staff: Prof. Ofira Ayalon, Dr. Miriam Lev-On,
Dr. Perry Lev-On, Tal Goldrath and Yaara Grinberg

With Israel's joining the OECD countries, the State of Israel faces a new era on various issues, including various environmental concerns. The transition from Israel's definition as a developing country to achieving the status of a developed country brings a demand for significant changes in managing the infrastructure and the environment in the country. As part of this change, the government has recognized the importance of the activity in the field of reducing greenhouse gas emissions (despite the absence of a formal international commitment by Israel in this field at present), and three years ago began to lead this project, through the Ministry of Environmental Protection in collaboration with the Samuel Neaman Institution. Israel is at the nascent stage of setting national targets to reduce greenhouse gas emissions and passing legislation that will delegate authorities to the various government offices to regulate these national goals.

To allow the management and monitoring of the realization of these goals, a national voluntary system was established to report and record greenhouse gas emissions. The system, designated for industrial commercial, financial, and other entities, came into force in mid-2010 (defined as a pilot year) and 36 organizations have filed their reports for 2011; their total emissions constitute about two-thirds of the total emissions in the economy. The process of designing the procedures and methods for the Israeli system, as well as the support and the monitoring of the reports, was undertaken by the environment and energy team at the Samuel Neaman Institute at the Technion and the team of the Ministry of Environmental Protection, in collaboration with a wide range of stakeholders.

G.3 Israeli Climate Change Information Center

Information Center Manager: Prof. Ofira Ayalon;

Project staff: Prof. Mordechai Shechter (University of Haifa), heading the economic research, Prof. Nurit Kliot (University of Haifa), heading the water sector research, Prof. Haim Kutiel (University of Haifa), heading the climatic changes research, Prof. Arnon Soffer (University of Haifa), heading the geopolitics research, Prof. Manfred Green (University of Haifa) heading the public health research, Prof. Marcelo Sternberg (Tel Aviv University) heading the biodiversity research, Prof. Guedi Capeluto (Technion) heading the green building research. Ms. Debby Kaufman prepared the international marketing document.

According to a government resolution, the Ministry of Environmental Protection was requested to prepare a national plan for adaptation to climate change in Israel. In order to implement the resolution, the Ministry initiated the establishment of the Israeli Climate Change Information Center (ICCIC) to work to strengthen existing scientific knowledge regarding the climate change adaptation in Israel and market the Israeli knowledge accumulated to other target countries. This was achieved by assembling existing knowledge on the subject, converting the knowledge into policy documents, implementing this knowledge in the work of different ministries, and technology distribution and Israeli know-how to other countries.

The objective of the Israeli Climate Change Information Center (ICCIC) is to be the coordinator of leading professional knowledge on climate changes in Israel, including the consequences of and optimal adaptation, and integrate this knowledge in strategic arrays of the public, social, economic and environmental sectors. In addition, a marketing plan of the accumulated knowledge in countries with similar characteristics to Israel was prepared, so that these countries will profit from the Israeli knowledge.

The team of ICCIC is responsible for analyzing Israel's anticipated climate changes and their impact on water, health, biodiversity and urban development. Furthermore, various adjustment measures costs and consequences on the Israeli economy were examined, including the geo-strategic aspects involving Israel's neighbors.

ICCIC is centered in Haifa University, and includes researchers from the Technion, Tel Aviv University and the Neaman Institute. The Neaman Institute provides an online platform, used by the researchers and the Ministry of Environmental Protection referees.

In 2012 ICCIC issued two reports - Report No. 1 reviewed existing knowledge on the issue, identified and prioritized knowledge gaps. Report No. 2 provided policy recommendations and an international marketing program for ICCIC deliverables.

G.4 Green Campus

Green Campus Council Chairperson: Prof. Tali Tal of the Science Teaching Unit at the Technion, Technion Green Campus Coordinator on behalf of SNI: Tal Goldrath

The Technion Green Campus Project, which has been promoted by the Samuel Neaman Institute for more than a decade, is designed to impart and enhance values on the subject of the environment and its preservation within the Technion community. The project aims to take steps that promote the green environment around the campus, focusing on action, and to raise the environmental awareness of students, faculty members, and staff on campus, with the understanding that such awareness will continue to exert its influence outside the campus, in the homes and future workplaces of the future engineers.

The project is managed by the Green Campus Council which includes representatives of the academic staff, key members of the Technion administration, and the construction and maintenance departments. The Green Campus activities address education and increased awareness of the environment, conserving natural resources (water, energy, recycling, etc.), pollution prevention, and more. It coordinates the range of environmental activities that occur on campus, and serves as a communication channel and meeting point for the various initiatives across campus.

The Green Campus activities can be found on the campus website: <http://greencampus.technion.ac.il>

G. 5 The Water Forum

The forum coordinator: Prof. Avi Shaviv, Research assistant: Tal Goldrath

The "Water Forum," established in 2009 by the Samuel Neaman Institute in cooperation with the Israel Water Authority and Grand Water Research Institute at the Technion, serves as a platform for discussing and analyzing key issues in order to contribute to the formulation of white papers on a variety of topics in the field of strategy and policy. The discussions in the Water Forum are conducted in an academic and professional framework by a team that comprises experts in various academic and research institutions and public and governmental agencies dealing with topics related directly and indirectly to policy issues in the water sector. The discussions are an important stage in the examination and analysis of the emphases and main directions of the water policy in Israel, and we hope that they will help in formulating long-term policies for the water sector in Israel. In this regard, the topics to be discussed in the forum are agreed by all three partners and address key topics related to the *Long-Term Master Plan for the National Water Sector (2050)* that is being formulated by the Water Authority in the last few years. The Forum documents are edited in a format that is suitable for the use of policy makers and decision makers in the water sector.

The Forum reports can be found on the Samuel Neaman Institute website - www.neaman.org.il.

H. Energy

H.1 Energy Forum

Head of the project: Prof. Gershon Grossman;
Research assistants: Yaara Grinberg and Tal Goldrath

The purpose of the energy forum is to maintain a professional infrastructure in the field of energy in Israel, and to allow meetings, symposiums and discussions that encourage the promotion of projects in the field of renewable energy and energy conservation. Through the forum, the Samuel Neaman Institute formulates professional and applicable positions, on which experts and stakeholders in the field and decision-makers in various government offices that participate in the forum agree.

In 2012, three Energy Forum meetings were held:

1. 24th Energy Forum: Solar Energy for Residential Buildings in Israel (20/3/2012)

This Forum focused on the potential of solar energy utilization in buildings in Israel, and the opportunity to expand existing regulations and apply them on multi-story buildings will contribute to enhance the use of solar energy, savings of energy and money and reduction in air pollution at the national level. These savings may allow deferral of the construction of the next power station in Israel by several years.

2. 25th Energy Forum: Israel's Energy Sector – Vision for 2028 (6/6/2012)

The major axis around which the discussion about the energy vision for 2028 has revolved was the mix of energy sources to be used in future years. The recommended mix for electricity generation, as agreed upon by most participants, is 50% natural gas, 30% renewable energy, and the remaining 20% - coal, oil shale, and possibly nuclear energy. However, the correct method for reaching conclusions regarding the optimal mix involves analytical modeling and its application to different scenarios of assumptions and parameters, and these issues should be the focus of discussion among the experts.

3. 26th Energy Forum: Oil Shale Production in Israel (15/10/2012)

One of the local energy sources of the State of Israel is oil shale - a source of fossil fuel that appears in the form of marl or chalk rocks containing organic matter, which is mostly kerogen. Oil shale development in Israel has the potential to contribute significantly to the country's energy economy, to energy independence, and to reducing dependence on imported fuels - primarily oil and refined petroleum products. Environmental impact may, however, be quite severe.

H.2 Master Plan for Energy

Project team at Samuel Neaman Institute: Prof. Ofira Ayalon
and Yaara Grinberg

The Ministry of Energy and Water (formerly, the Ministry for Infrastructure) issued a tender in August 2010 requesting proposals for the development of an Energy Master Plan for the Israeli market, and in 2011 the TAHAL Group was chosen to develop the Plan.

The Energy and Environment Team at the Samuel Neaman Institute was selected to be part of the consulting team assembled by TAHAL. The Team is responsible for evaluating the environmental impacts of the different potential energy scenarios. In addition to defining environmental goals, the Ministry asked that the Master Plan include courses of action that will reduce the economic and environmental costs to the Israeli economy.

As part of the Energy Master Plan, the Energy and Environment Team will assess environmental parameters that affect and will be affected by the energy market, these include:

- Electricity production – a review of the costs in environmental damage from various power stations, as well as benefits, and an environmental-economic analysis of the different energy sources for electricity generation;
- Energy efficiency and its environmental impacts – energy efficiency has many advantages, including: economic savings, reduction of environmental pollutions, and addressing present demand for additional electricity production;
- Demand management and load shifting – demand management is a tool, which when used correctly, can be of great benefit to consumers, the producer (Israel Electric Corporation) and the national economy;
- Renewable Energies – the Team will assess the environmental impacts of the different types of renewable energy (mostly solar, wind and biomass), their benefits and their impact on public open spaces;
- Transportation – Issues such as growing demand for energy efficiency in transportation, using renewable sources (for example, electric cars), and petroleum substitutes will be examined in light of their costs and environmental benefits;
- Energy use in industry - Issues such as growing demand for energy efficiency in industry, using renewable sources (for example, solar heating), and petroleum substitutes will be examined in light of their costs and environmental benefits.

During 2012, reports describing the progress of the work were submitted presenting the characteristics of various models in electricity, oil and gas, and comprehensive methodology for building models of the energy sector.

I. Society, Education, Health and National Strength

I.1. Integrating the Ultra-Orthodox Population in the Israeli Economy

Head of the Project: Dr. Reuven Gal; Research Assistant: Ilia Zatzovetsky;
Research team: Yehezkiel Farkash. Project coordinator: Moshe Papo;
Volunteer: Hudi Zak. Writers of "success stories": M. Berman and
H. Feder; Researchers of "Integrating English, Mathematics, Computers in
the Ultra-Orthodox Education System," M. Shahaf and Y. Morgenstern

The 'Ultra-Orthodox Integration Project' has been in progress for three years and constitutes a combination of research and application, following the motto "In order to make a difference, a strong research infrastructure is needed, but research without application is futile and useless."

The project's foci are on three main channels of integration: Military and civilian service (military – mainly the "Orthodox service" programs in the IDF - *Shahar*; civilian - participation in the National-Civic Service); Education (expanding study subjects, academic studies, professional training); And encouraging Ultra-Orthodox population into "official" and productive employment. The Project's work is conducted in coordination with relevant government agencies, including the Prime Minister's Office (and the National Economic Council), the Ministry of Industry, Trade and Labor, Finance Ministry, Education Ministry and the IDF. The dissemination of the project's annual report to all Knesset members and government ministers allowed the project to get a foothold at the decision making and the legislature levels. 2012 saw extensive activity of the Project in the following areas:

Military Service: Members of the Project were commissioned as an advisory body to several Knesset committees -- the Knesset Foreign Affairs Committee, and the Plesner Committee. A special workshop was given to the IDF Personnel Directorate staff on the subject of the Haredi society and alternatives to the Tal Law.

Education: Activities include mapping the Haredi educational institutions; publishing the "EMC -- English, Mathematics, and Computers -- Report; and advising to the Technion and other academic institutions on the issue of integrating U-O students in higher education.

Employment: The *Shachmat* Program (Ultra-Orthodox Integration in Technological Enterprises) was designed, to promote the integration of the Ultra-Orthodox in high-tech industries.

I.2 Non-Stop Mathematics: Interweaving Mathematical News Snapshots in the Teaching of High School Mathematics

The project staff: Prof. Prof. Nitsa Movshoviz-Hadar, Dr. Ohad Zohar, Dr. Batya Amit, Dr. Atara Shriki. Supervising the project's assimilation in Ort high-schools: Dr. Eli Eisenberg, Senior VP and Head of R&D and Training Administration ; Lea Dolev – Head of Mathematics Teaching

Starting in October 2011 and continuing through 2012, the Samuel Neaman Institute participated in partial funding of the project "Non-Stop Mathematics" with the National Science Foundation. The purpose of the work is to expose high school students of secondary schools in Israel to contemporary mathematics news, while increasing their motivation to study the subject as a live, vibrant, and creative field, without affecting the pace of progress in teaching the curriculum and without harming students' achievements in the matriculation exams. Mathematics curricula in most countries, including Israel, do not reflect the ongoing work and the new knowledge frequently being accumulated in mathematics. Many graduates of the education system are under the misconception that mathematics is a closed and stagnant area, where all the answers are known and very little, if anything, is left to stimulate their curiosity and desire to invest in creating. In an attempt to deal with the problem, the project team developed a set of short PowerPoint presentations focusing on breakthroughs in the field of mathematics, appropriately exposed to high school level students. During the report period, an experiment was conducted in two schools of the ORT network. The experiment will continue in 2013.

I.3 The People Israel Project – the Guide to the Israeli Society

www.peopleil.org

The project team: Prof. Oz Almog and Dr. Tamar Almog

"People Israel" is an Internet magazine, which is a comprehensive textual and visual guide to the Israeli society, based on the belief that by providing current, rich, varied, and reliable information, along with a comprehensive analysis and interpretation of different phenomena, it would be possible to contribute to an in-depth knowledge about various sectors in Israel, formulating effective public policy and reducing prejudices and stereotypes among the Israeli public, to encourage tolerance for others and give legitimacy to the wealth of diversity.

During 2012, a dynamic cultural calendar that includes concise current information (text, pictures and links) about important and diverse events in the Israeli society (mainly cyclical and multiparticipant events) was developed as part of the project. A new exhibition, "The Israeli spirit," was held at the digital gallery including the work of six photographers. Synagogues were documented at Rosh Ha'ain, a training course was held for senior NCOs in the IDF, and growth was recorded on the website in terms of the volume of information and its contents.

I.4 Adopting ICT in agriculture, education and development of the rural space

Project coordinator: Dr. Ehud Gelb

This study deals with the cultivation and optimization of innovation in agriculture, using ICT as a means to design agricultural education for a variety of ages and the development of the rural sector. These are of strategic importance to Israel. The recommendations and conclusions derived from the study were incorporated in the report by the Samuel Neaman Institute whose objective was to empower classic industries. The report was presented in 2012 to the Ministry of Agriculture and regional rural organizations.

The project included a public domain e-book titled "ICT in Agriculture: Perspectives of Technological Innovation". It was co-sponsored by EFITA, the Agricultural Economics Research Center of the Hebrew University and the Samuel Neaman Institute. The book can be downloaded at: <http://departments.agri.huji.ac.il/economics/gelb-main.html>. It includes recommendations for the initiation and development of ICT in agriculture, including public funding recommendations to encourage the adoption of ICT in training and agricultural research.

In addition this year the book was referenced to an instruction book published by the World Bank : *ICT in Agriculture Sourcebook. The book* can be accessed at:

<http://www.ictinagriculture.org/ictinag/sourcebook/multiple-themes>.

It is also included as background reference of the Open University of the UNESCO <http://otp.unesco-ci.org/search/node/ict> in agriculture type: ct_resource.

Study Days, Seminars, and Conventions Held During 2012

Higher Education Forum Meetings:

- "Planning the future of public and private Higher Education". Meeting No. 21 was held on January 20, 2012. Lecturers: Mr. Moshe Vigdor, Prof. Rivka Carmi, Prof. Aliza Shenhar, Prof. Zeev Newman. Compere: Prof. Jacob Eiram.
- "Academic Convention." Meeting No. 22 was held on May 23, 2012. The Chairman of the forum was Prof. Zehev Tadmor and the panel included Mr. Moshe Vigdor and Prof. Zeev Zachor.
- "Globalization, the Bologna process and the higher education system in Israel." Meeting No. 23 was held on December 21, 2012. Lecturers: Prof. Sarah Guri Rosenblit and Dr. Ami Shalit.

Samuel Neaman Annual Lecture:

"The authority is all mine! The responsibility for the results is all yours. The story of Israel's intelligence." The 10th Samuel Neaman Annual Lecture was given on January 1, 2013. Lecturer: Mr. Ephraim Halevy.

Examining the centralization in the Israeli economy, and its implications (second conference held on February 6, 2012, in continuance of the first conference held in 2010).

The purpose of the seminar was to promote public discourse on the national capital allocation.

Two topics were discussed: "The control issues in the interface between real and financial companies and controlling interest in banks," led by Mr. Guy Rolnik (*The Marker*) and with the participation of Mr. Daniel Doron, MK Einat Wilf, attorney David Hodak, attorney Yehuda Talmon, and attorney Dror Strum. The second topic was "Issues related to pyramidal holding structure and the gap between capital and control," led by Mr. Yoram Ariav and with the participation of Attorney Nili Even-Chen, Mr. Haim Oron, Prof. Amir Barnea, Mr. Sever Plotzker and Mr. Constantine Kosenko.

Energy Forum Meetings

- “Solar Energy for Residential Buildings in Israel.” Energy Forum No. 24: March 20, 2012.
- “Israel's Energy Sector – Vision for Israel 2028.” Energy Forum No. 25: June 6, 2012.
- “Oil Shale Production in Israel.” Energy Forum No. 26: October 15, 2012.

Infrastructure meetings

A seminar on "Port infrastructure in Israel" was held in conjunction with the Israeli Chamber of Shipping at the Samuel Neaman Institute on July 30, 2012, attended by senior members of the shipping industry and ports, the Ministry of Transport, Israel Ports Company and the Manufacturers' Association.

Participation of researchers in conferences in Israel

Study days, seminars and conferences on the subject of Environmental Protection

Date & Location	Conference/ Event	Topic of Lecture
February 22-23, 2012 Eilat	The Eilat-Eilat Forum for Renewable Energy and innovation in Energy	Ofira Ayalon: How to improve the chances for success of technological innovations by funding the crossing of the "death valley"
March 19, 2012 Tel Aviv	Green Growth and Green Jobs- Global Trends and the Israeli Case	Ofira Ayalon: Innovation and opportunities in green jobs
March 27, 2012 The National Museum of Science, Haifa (Madatech)	Study day on sustainability and reducing consumption	Tal Goldrath: Energy efficiency and resources savings
April 1-2, 2012 Tel Aviv	GLOWA, Tel Aviv University, IPCRI Science and the response to climate change in Israel	Ofira Ayalon: Research in the field of adaptation and long-term implications of climate change
May 16, 2012 Tel Aviv	A meeting of environmental Managers	Ofira Ayalon: Greenhouse gases and their influence on organizations - trends and opportunities
October 16, 2012 Haifa	The First Haifa Cleantech conference	Ofira Ayalon: The cleantech governmental drivers
October 16-18, 2012 Tel Aviv	40th Annual conference on Science and Environment of the ISEEQS	Ofira Ayalon, Miriam Lev-On, Perry Lev-On: Reducing the emissions of greenhouse gases (mitigation) that are non-CO2: Greenhouse Gas Emissions - Global Overview and Implications for Israel

Study days held by the Information Center (ICCIC) on the Subject of Adjustment to Climate Change

<u>Dates</u>	<u>Topic</u>	<u>Location</u>
January 12, 2012	Seminar to Summarize the Work of the Geostrategic Team at the ICCIC on preparedness for Climate Change in Israel, held on the 8 th anniversary of Reuven Haikin's demise.	Haifa University
January 17, 2012	Effects of Climate Change on Infectious Diseases Passed by Vectors - an Israeli Point of View	Haifa University
February 5, 2012	Climate Change Impacts on Biodiversity in Israel - What we know, What We Need to Know, and What Can We Do?	Tel Aviv University
February 21, 2012	Seminar Summarizing the Work of the Steering Committee on the Issue of Water in the ICCIC	Haifa University
February 27, 2012	Preparedness for Climate Change in Israel and Policy Decision-Making in the Field of Green Buildings	The Technion
February 28, 2012	Seminar Summarizing the Work of the Climate Change Team at the ICCIC: Climate Change in Israel, Implications and Preparation	Haifa University

Ultra-Orthodox Integration Project – 2012

Date	Subject	Location
January 23, 2012	A meeting of the Knesset Foreign Affairs and Defense on Haredi recruitment to the IDF and NCS. http://youtu.be/Wh-Lnnw-sgE	Jerusalem
May 3, 2012	Dr. Reuven Gal, Samuel Neaman Institute for National Policy "'Tal Law' – Where to?" Conference held at the Institute for National Security - INSS http://www.inss.org.il/upload/(FILE)1340630023.pdf	
May 29, 2012	Dr. Reuven Gal was summoned to appear before the committee 'To promote integration and equality in the sharing of the burden,' at the Knesset, headed by MK Yohanan Plesner.	Jerusalem
July 9, 2012	SNI Integration team participated in the 'Haredi Integration Lobby', headed by MK Yoel Hasson. http://www.inn.co.il/News/News.aspx/240755	Jerusalem
Sept. 3, 2012	Lecture by Dr. Reuven Gal on "Repealing the Tal Law - the lost script" as part of a conference entitled "Simulation – Implications of the Tal Law being Repealed." Http://youtu.be/L5KC7NdIGoE	Jerusalem

The Activities of the Center for Industrial Excellence

Date	Conference/ meeting	Location	Researcher	Subject
March 21, 2012; May 9, 2012; December 25, 2012; February 28, 2012	A series of round table discussions on Green Growth	Jerusalem Tel Aviv	Dr. Gilead Fortuna	The goal: Reaching an understanding between all parties on advancing industry while securing the environment. The subjects discussed: The meaning of natural gas, the options to combine gas in processes, innovativeness in promoting green solutions, and suggestions for obtaining feasibility evidence in Israel for innovative solutions for the Cleantech industry in Israel. The discussions were led by the Environment and Industry, Trade, etc. Ministries, the Manufacturers' Association and the Green Organizations.

October 16, 2012	Cleantech Conference	Haifa Auditorium	Dr. Gilead Fortuna	"Innovation and cooperation to promote the Cleantech industry."
December 5, 2012	How to do businesses in China	Poalim Bank, Tel Aviv	Dr. Gilead Fortuna	Learning from personal experience in doing business in China

November 25-25, 2012	Seminar	Tel Aviv	Dr. Gilead Fortuna	Joint seminar with the Commission of the European Market - EU -Israel Seminar on Technology Transfer with an Emphasis on Clean Tech
December 17, 2012	Seminar	Haifa, the Technion	Dr. Gilead Fortuna	Technical meeting on water usage with a team from the State of Massachusetts
December 17, 2012 November 28, 2012	Consultation committee on life sciences	Haifa MATAM	Dr. Gilead Fortuna	Discussions on the right and effective implementation of the Life Sciences Park initiated by the Haifa Economic Corporation and IBC
December 4-6, 2012	2012 3 rd European Forum For Innovation Dec 4-6 2012	Tel Aviv	Dr. Gilead Fortuna	Lecture on entrepreneurship and recommendations to entrepreneurs at the above Entrepreneurship conference

Researchers' Participation in Conferences Abroad

Date	Subject	Researchers	Location
September	Energy Challenge and Environmental Sustainability, 12th IAEE European Energy Conference: A lecture on reducing greenhouse gases emissions and an action plan for Israel: Strategies, Incentives and Accountability.	Prof. Ofira Ayalon, Dr. Miriam Lev-On, Dr. Pery Lev-On	Venice, Italy
February	Presenting "People Israel" in an international academic convention "Ethnographic Photography As a Means of Learning and Teaching Cultural Diversity - People-Israel Project as a Case Study," <i>The IJAS (International Journal of Arts & Sciences) Annual Conference</i> .	Dr. Tamar Almog and Prof. Oz Almog	Malta

Samuel Neaman Website

WWW.NEAMAN.ORG.IL

The website is managed by Golan Tamir, Shir Goldfarb, Yehiel Bracha, and Shai Zelman

The Samuel Neaman Institute's website serves as a platform for the work of the Institute and its researchers. In fact, the website serves as the Institute's information center and as a home for the Samuel Neaman Institute's activities. Furthermore, all the Institute's publications since 1987 can be downloaded from the website, and visitors can register for the conferences organized and led by the Samuel Neaman Institute and contact the various researchers working at the Institute. The website's languages are Hebrew and English and it is updated regularly, thus exposing the Samuel Neaman Institute to both professionals and the general public.

The opening page of the Institute's homepage shows research in progress, new publications, media, news, events, opinion pieces, media news, and other issues. On the Researcher Page one can see all of activities of each researcher at the Samuel Neaman Institute: Projects, publications, opinion pieces, press, and events that he/she led.

A mirror site in English was launched in 2012, and a new YouTube channel was opened, showing the video contents of the Samuel Neaman Institute.

In 2012, the number of visitors was 40,000, most of whom (65%) were new. The average stay time on the site is approximately 4 minutes.

Once a quarter, the Samuel Neaman Institute distributes a newsletter to about 8000 subscribers, to which one can register on the site.

In our Facebook account, <http://www.facebook.com/NeamanInstitute>, people can be notified about future events, news from the press and recent publications; visitors can respond to and share any article or news.

List of Publications for 2012

Articles can be downloaded from the Samuel Neaman Institute's website

www.neaman.org.il

Technion Nation, Prof. Amnon Frenkel, Prof. Shlomo Maital

Solar Energy for Residential Buildings in Israel - Summary and Recommendations of the 24th Energy Forum Discussion at Samuel Neaman Institute, Prof. Gershon Grossman, Tal Goldrath

Report No. 1 – A Summary of the Existing Knowledge and Identifying Knowledge Gaps. Ayalon, O. (Ed.), Green, M., Suffer, A., Kutiel, H., Kilo, N., Caplet, G., Sternberg, M., & Schechter, M. (August 2012). The Israeli Climate Change Information Center (ICCIC).

Report No. 2– Israel Adaptation to Climate Change Policy Recommendations- Executive Summary. Prof. Ofira Ayalon, Prof. Mordechai Shechter, Prof. Nurit Kliot, Prof. Haim Kutiel, Prof. Arnon Sofer, Prof. Manfred Green, Prof. Marcelo Sterenberg, Isaac Guedi Capeluto, Tal Goldrath.

EMC Studies – a Report, Mayan Shachaf, Yehuda Morgenstern.

The Way to Integration, Dr. Reuven Gal, Ilia Zatzcovetsky.

Global Challenges for the Water Industry in the Gas and Oil Production – Survey and Challenges, Dr. Gilead Fortuna, Shiri Freund Koren

Innovation in the Service Sector, Dr. Daphne Getz, Vered Segal, Tsipy Buchnik, Ella Barzani.

Global challenges for the water industry in the API production industry, 3rd Report, Survey and Challenges, Dr. Gilead Fortuna, Shiri Freund Koren.

Global challenges for the water industry in the mineral mining industry, 2nd Report, Survey and Challenges. Dr. Gilead Fortuna, Shiri Freund Koren.

Hazardous Household Chemicals and Hazardous Waste: Policy and Procedures Recommendations for Implementation in Israel, Dr. Debby Mir, Prof. Ofira Ayalon, Yaara Grinberg

Like Some, Like All, Like None: A Comparison of Five National Innovation Ecosystems, With Emphasis on Markets & Demand, Prof. Amnon Frenkel, Prof. Shlomo Maital, Dr. Eran Leck.

Israel Adaptation to Climate Change Policy - ICCIC 1st Report - Executive Summary, Prof. Ofira Ayalon, Prof. Mordechai Shechter, Prof. Nurit Kliot, Prof. Haim Kutiel, Prof. Arnon Sofer, Prof. Manfred Green, Prof. Marcelo Sterenberg, Isaac Guedi Capeluto, Tal Goldrath.

Greenhouse Gas Emissions Reporting and Registration System in Israel: Summary of Reports for 2011, Prof. Ofira Ayalon, Tal Goldrath, Dr. Miriam Lev-On, Dr. Perry Lev-On, Yaara Grinberg.

Greenhouse Gas Emissions Reporting and Registration System in Israel – Operation Protocol and Guidelines for Reporting, Summary of Reports for 2011, Prof. Ofira Ayalon, Tal Goldrath, Dr. Miriam Lev-On, Dr. Perry Lev-On (May 2010).

The Israel Energy Sector – vision for 2028 - Summary and recommendations of the 25th Energy Forum discussion at Samuel Neaman Institute, Prof. Gershon Grossman, Tal Goldrath.

The Israeli Climate Change Information Center, Report No. 2– The Center’s Policy Recommendations, International Marketing of the Information Center’s Products, Prof. Ofira Ayalon, Prof. Mordechai Shechter, Isaac Guedi Capeluto, Prof. Manfred Green, Prof. Haim Kutiel, Prof. Nurit Kliot, Prof. Marcelo Sterenberg, Prof. Arnon Sofer.

Oil Shale Production in Israel- Summary and recommendations of the 26th Energy Forum discussion at Samuel Neaman Institute, Prof. Gershon Grossman, Yaara Grinberg.

The Potential of Haredim for Universities, Ilia Zatcovetsky.

Educated Decision-Making: Annual Report 2011 Samuel Neaman Institute, Neaman Institute.

Haredi Integration: A Model, Possible Scenarios and Mapping, Dr. Reuven Gal, Ilia Zatcovetsky, Gilead Malach.

India-Israel Collaborative Business Innovation: An examination of its potential and the processes to achieve it, Dr. Gilead Fortuna, Prof. Gad Ariav, Prof. Liron Nadav, Naftali Moser.

Orthodox Employment - Information Booklet, Dr. Reuven Gal, Ilia Zatzovetsky.

Green Aviation - Literature Survey, Prof. Yehuda Hayuth, Orly Nathan, Ortal Faibushenko, Prof. Ofira Ayalon

Global challenges for the water industry in the Food and Beverage industry, Dr. Gilead Fortuna, Shiri Freund Koren.

Technion's Contribution to the Israeli Economy through its Graduates, Prof. Amnon Frenkel, Prof. Shlomo Maital.

The Israeli Climate Change Information Center (ICCIC), Report No. 1 – A Summary of Existing Knowledge and Identifying Knowledge Gaps. The Israeli Climate Change Knowledge Center, Ayalon, O. (Ed.), Green, M., Soffer, A., Kutiel, H., Kliot, N., Capeluto, G., Sternberg, M., & Schechter, M.

Publications by the Ultra-Orthodox Integration Project Team

Mapping of Haredi academic institutes in Israel	Ilia Zatzovetsky	January 2012
Operational recommendations for recruiting Haredim , following the abolition of the “Tal Law” by the High Court	Dr. Reuven Gal Ilia Zatzovetsky	March 2012
Assessment of anticipated costs of implementing SNI recommendations	Ilia Zatzovetsky	August 2012
Shachmat Project – A new model that could lead to a significant increase in the number of Haredim who study and are later integrated into the high-tech industry in Israel.	Hudi Zach	August 2012
Combination Yeshivas - Describing another track that might help expand the IDF Haredi integration.	Ilia Zatzovetsky	November 2012

Newsletter 7	Believing in Integration - a special issue	Ilia Zatzovetsky	Jan 2012
Newsletter 9	Believing in Integration	Ilia Zatzovetsky	May 2012
Newsletter 10	Believing in Integration	Ilia Zatzovetsky	Nov 2012
Compilation of Articles 6	General study courses in the Haredi educational system	Ilia Zatzovetsky	Aug 2012

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