PLANNING THE FUTURE

SAMUEL NEAMAN INSTITUTE
ANNUAL REPORT 2010

Samuel Neaman Institute
For National Policy Research

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.

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 policy research projects and surveys that serve decision makers and professionals in economy and government. In particular the institute plays an important 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 Moshe Moshe. 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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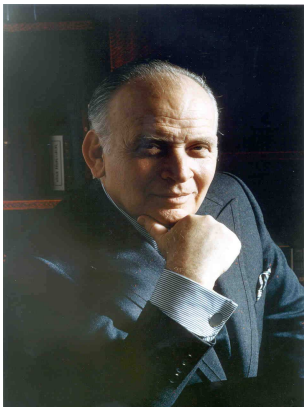

Founder: Samuel (Sam) Neaman

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 the war he served as a commander of one of the units of the British Army, attaining the military rank of major. Upon his release from the army, in Britain, when he asked to return to Israel and join the struggle for establishing the State of Israel, he was ordered by the state leadership to raise funds for the future state and so he went to South America and the United States.

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 would become a non-profit research center, with the goal of

transferring academic knowledge, from the vast store accumulated in the State's academic institutions, to practical routes concerned with delineating a national policy, thus connecting research and the academy 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.

Chairman

Prof. Zehev Tadmor

Over the past year, the official name and legal status of the Neaman Institute were changed. The institute's name was changed from "Samuel Neaman Institute for Advanced Studies in Science and Technology" to "Samuel Neaman Institute for National Policy Research." The change was made in coordination and with the consent of the President of the Technion and the Steering Committee of the Senate, and with the unanimous approval of the two formal bodies of the Institute: the five-member Board of the Institute and the seven-member Assembly of the Company. The new name is totally compatible with the mission of the Institute and the substance of the work it is carrying out since its establishment, as well as with the vision of its founder, Mr. Shmuel (Sam) Neaman. The Institute's legal status was changed according to the legal requirement of the State of Israel to convert all companies in the status of *"non-profit company"* to a status of *"public benefit company"*. The change in the Institute's legal status does not require any changes regarding its administrative, financial and scientific management, or its areas of activity.

The tenure of Prof. Moshe Moshe, the Executive Director of Neaman Institute, was supposed to end on June 30th, 2011. To my great joy, Moshe acceded to my request to extend his term by another year, until June 30th, 2012. For three years now, Moshe has been leading the Institute brilliantly, and, as can be seen from this report, has led us to many impressive achievements that benefit the country and bring the Institute satisfaction and pride, and for this we all thank him.

In our contemporary global and competitive world, it is common and fashionable to rank everything, just as in sports. Surfing the Internet, one can find ranking of countries according to their "competitiveness"; of universities according to the number of Nobel Prizes awarded to their faculty; of MBA Departments according to the starting salaries of their graduates; of scientists according to their H-factor; of actors according to the Oscars they have won; of politicians according to their popularity; of authors according to the number of books they have sold; of movies according to the millions they have made; of CEOs according to the level of their compensation; of chefs according to the number of Michelin stars they have won; of wines according to the medals given, based on the nose and taste buds of expert wine tasters.

Well, finally, policy research institutes (think tanks), such as the Neaman Institute, have also been categorized and ranked. Professor James G. McGann, the manager of the International Relations Program at Pennsylvania University, published in January 2011 an updated and comprehensive study on think tanks around the world, under the heading of "The Think Tanks and Civil Societies Program". About 1,500 researchers and decision makers participated in identifying, classifying and ranking the institutes. A total of 6,480 think tanks were identified in 169 countries, and, finally, 250 experts were asked to review and rate the think tanks. The geographical distribution of the think tanks indicates that about 30% of them are located in the USA, 27% in Europe, 18% in Asia, 11% in Latin America, 8% in Africa, and 5% in the Middle East. In Israel, 54 think tanks were identified, and in terms of the number of think tanks it is rated 18th in the world. In the Middle East, Israel is leading with the number of think tanks, followed by Egypt, with 34 think tanks. Among the leading 75 think tanks there is only one Israeli think tank listed, the Jaffee Center for Strategic Studies. In the area of science and technology policy 94 think tanks were identified globally and Neaman Institute is ranked in the 24th position.

Obviously, these rankings are problematic in many ways and should be taken with a pinch of salt. Nevertheless, the success of the Neaman Institute is also reflected in the number of visits to the Institute's website, which, as detailed in this report, reached in 2010 the number of 212,000 visitors, viewing 170 publications, news items and

recorded conventions (that is, an average of more than 500 visitors/day). The visitors of the Samuel Neaman Institute include economic leaders, decision makers, and leading researchers in Israel and around the world.

Professor Zehev Tadmor

The Chairman of the Samuel Neaman Institute

Director

Prof. Moshe Moshe

In 2010, the Samuel Neaman Institute took significant steps to realize its vision of assisting decision makers with research and recommendations to outline a national policy in a great variety of subjects. Special attention was given to subjects of science and technology policy, higher education policy, environment, industrial policy, and physical infrastructure in the State of Israel.

Among the steps taken during 2010, one program is especially noteworthy: the umbrella program for the implementing the conclusions of the "Israel 2028 – Vision and Strategy for Israel" report. This report and its wide variety of implications became recently the center of the Institute's activity. As part of this activity, a program was drafted which presented, among other things, alternatives to the industrial policy that leverages science, technology and innovation and upgrades the traditional industries. This activity was all the more important in treating the problem mentioned in the conclusions of the "Israel 2028" report as one of the major problems of the Israeli industry, that is, its binary structure: a successful hi-tech industry on the one hand, and on the other hand a traditional industry, in need of technological upgrading and innovative augmentation. Implementing these conclusions is highly significant also for bridging socioeconomic gaps in Israel.

Another important subject, loaded with social and economic significance as well, mentioned in the "Israel 2028" report, is the relative absence of the Ultra-Orthodox sector involvement in the Israeli labor force. The Neaman Institute project for

integrating the Ultra-Orthodox sector in the Israeli economy was consolidated in 2010 by drafting a "road map", and presenting it to decision makers. The subject was discussed in various workshops, meetings and forums. Both, a steering committee as well as an advisory committee were established, which include most of the leading figures who are involved in this important issue in Israel.

The policy research group on environmental subjects had also excelled itself in 2010. The steering committee of the Annual International Convention Cleantech 14, expressing its appreciation, elected in June 2010 the Samuel Neaman Institute as the excellent academic institution in the subject of environmental quality. The Neaman Institute had prepared, in a joint project with the Ministry of Environmental Protection, a protocol for recording and reporting emissions of greenhouse gases in Israel. This protocol will be used by the reporting agencies, the government and the public. It was developed by adapting the schemes used around the world to the particular needs of Israel and is based on the voluntary participation of commercial, industrial and public organizations. Those organizations that joined the system are committed to adopting the measuring and reporting methods according to the protocol's instructions.

The Samuel Neaman Institute has made in recent years a significant contribution to the establishment of a systematic and informed process of consolidating a national policy for research, technology and innovation. This work is updated occasionally and the data base is compared internationally at time periods of decades and more. The main subjects include national expenditure on civil R&D, human capital and output in science and technology. The third edition in a series of publications on indices for science and technology in Israel includes an update of key indices on the subjects of inputs and outputs in science, technology and innovativeness, as well as new subjects, such as government assistance to R&D and globalization issues. The series of these publications had contributed to the positioning of the Neaman Institute in recent years as the leading institute in Israel on the subject of national policy regarding science and technology. In the same manner, the analyses, done by our researchers, of national programs that encourage R&D and the surveys of Israel's research infrastructures, research outputs and citations of scientific publications and patents that were

completed this year, will assist decision makers and emphasize the unique contribution of the Neaman Institute to issues of national importance.

The Samuel Neaman Institute's research group won in 2010 a wide scope contract as part of the Seventh Framework Program of the European Union (FP7) together with a group of institutions from European countries. The goal of this study is to examine the role played by the demand side in creating technological knowledge. The Samuel Neaman Institute researchers are involved in major parts of the project, and a new methodology that maps innovation systems in each country (whose principles were recently presented to the other partners in this study) will be developed and completed as part of this project.

A new Water Forum was launched this year in cooperation with the Grand Water Research Institute at the Technion and the Water Authority. A summary of the first workshop was published in an SNI preprint format. Water issues are of supreme national importance in our country and the Neaman Institute will contribute its capabilities and skills to the national efforts.

Conferences and workshops organized by the Neaman Institute excite interest among professionals and the general public. I will mention now just a few of the meetings held this year: The meeting that addressed the issue of centralization in the Israeli economy, was widely debated by the press. The meetings of the Energy Forum and of the Higher Education Forum were attended by many professionals and experts. The interesting workshops, as part of the BioNorth Project and the above mentioned meeting of our new Water Forum were held with the participation of senior researchers and decision makers.

The Neaman Institute is responsible for the information centers of projects as part of the MAGNET Consortiums, and the number of consortiums to which we provide information services grew.

Prof. Moshe Moshe
Director of the Samuel Neaman Institute

Research Activity at the Samuel Neaman Institute

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A. Israel 2028 – Vision and Strategy for Israel – a Framework Program for the Samuel Neaman Institute

B. The Activity of the Samuel Neaman Institute on the Subject of Higher Education

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

D. Activities of Samuel Neaman Institute in the Field of Energy and Environment

E. Society, Health and National Resilience

F. General

A. – Israel 2028 – Vision and Strategy for Israel – a Framework Program for the Samuel Neaman Institute

General

Further to the effort to actually implement the program "Israel 2028 – Socio-Economic Vision and Strategy in a Global World", the Samuel Neaman Institute initiated several projects designated to prepare a multi-annual implementation plan, in collaboration with government agencies.

Under the aforementioned plan, work has been done which was designated to allow collaboration with the Government for effective implementation.

In order to market and promote the execution of the program, efforts have been made to find partners in the Government who will be willing to adopt the implementation program and participate in its funding. Over the year, activities in the following fields have taken place at the Neaman Institute:

1. Integration of the Ultra-Orthodox sector in the Israeli economy (see Chapter E)
2. Acceleration of integrating the Arab population in the Israeli economy
3. Intelligent introduction of the policy of building infrastructures to achieve the objectives of 2028
4. Innovation policy for the hi-tech sector
5. Leveraging academic and industrial knowhow for creating a new knowledge-intensive industry
6. Upgrade and intensification of the classical industries in order to solve two fundamental problems presented in the Israel 2028 Vision:
    a. Creating an innovative and competitive global classical industry
    b. Reducing the gap between the hi-tech and the classical industry sectors which will solve the problem of dual economy.

In 2010, the Chief Scientist of the Ministry of Industry, Trade and Labor and the U.S.-Israel Science and Technology Foundation (USISTF) ordered a research with respect to "2010 Innovation – Active Industrial Policy for the Leverage of Science, Technology and Culture of Innovation". Furthermore, Dr. Reuven Gal, a Senior Researcher, was recruited to the project of "Integration of the Ultra-Orthodox Sector in the Israeli Economy". Dr. Gal introduced a road map to promote the subject while including most of the factors in the economy. These subjects will be separately presented later on.

Leader of implementation of the Israel 2028 Vision - Dr. Gilead Fortuna.

Innovation 2011 - Active Industrial Policy for the Leverage of Science, Technology and Culture of Innovation

The program commenced at the end of 2009, continued during 2010 and is planned to end by February 2011. The work is funded by the U.S.-Israel Science and Technology Foundation (USISTF) and is coordinated therewith. The work is also led by the Chief Scientist of the Ministry of Industry, Trade and Labor.

The goal of the project is to suggest alternatives for an initiating and proactive national industrial policy which leverages the advantages of Israel's science and technology jointly with the culture of innovation. It is an attempt to promote the implementation of the conclusions of the "Israel 2028 – Socio-Economic Vision and Strategy in a Global World" program. The work focuses on three out of the ten subjects which were marked as major for reaching the targets of the Israel 2028 Vision: The global challenge, the leverage of science, technology and R&D and the upgrade of the classical industries, including the upgrade of business achievements and the reduction of the social gap resulting from the existence of a dual economy.

The three subjects are extremely inter-related with respect to the fact that industry is a key factor and serves as their growth engine. The classical industry is larger, but its contribution to the economy is smaller than that of the knowledge-intensive industry (top quality technology) and its further existence requires an upgrade. Another common denominator is the belief and the intention that the upgrade of the classical industry can be accelerated with the assistance of the knowledge-intensive industry.

The fields of industry in the report were divided into three major topics and three additional sub-topics, while a separate work group focusing on a specific professional field was created in each.

1. Upgrade of the classical industry

2. Leverage of scientific achievements and emerging technologies to create a new prospering and sustainable knowledge-intensive industry.

   With respect to industrial directions based on new emerging technologies, we elected three industries defined as such:

   a. Life sciences / biotechnology

   b. Civil space

   c. Clean-tech

3. The characteristics of the current hi-tech industry and a suggestion to update the national policy in promoting this industry.

During 2010, each of these workgroups conducted a series of workshops, group meetings and consultations with experts and has completed a concluding report in the beginning of 2011 which includes major findings, analysis of barriers and suggestions for policy.

Each group handled a different sector of industrial activities and anyway, the work methods and the emphases differed from each other. The recommendations are immediate-, medium- and long-term.

An integration of the work is currently concluded into a central report which will be distributed as soon as possible.

In 2010, the project staff included people from various fields of the economy and the Neaman Institute.

The following are the Neaman Institute project team members:
Prof. Miriam Erez; **Prof. Dan Peled**; **Dr. Ofira Ayalon**; **Dr. Daphne Getz**; **Prof. Amnon Frenkel**; **Prof. Shlomo Maital**; **Dr. Moshe Elad**.

Work group leaders:
Giora Shalgi, former CEO of Rafael Advanced Defense Systems Ltd.

Elad Shaviv, Cisco Systems Israel Ltd.

Dr. Orah Dar, Advisor to the Chief Scientist

Dr. Ruth Alon, Chairperson of Israel Life Science Industry (ILSI)

Major-General (Reserves) Prof. Itzhak Ben-Israel, Head of Israel National Council for R&D and Head of the Program of Defense Studies at the Tel Aviv University

Dr. Dganit Paikovsky, Yuval Ne'eman Science, Technology & Security Workshop at the Tel Aviv University

Project coordinators:

David Miron-Wapner, U.S. – Israel Science and Technology Commission

Dr. Moshe Elad, Samuel Neaman Institute for National Policy Research

Dorin Almog-Sudai, Samuel Neaman Institute for National Policy Research

Head of Steering Committee:

Dr. Eli Ofer, Chief Scientist of the Ministry of Industry, Trade and Labor

Project Leader: Dr. Gilead Fortuna

National Policy for Chemical Industry

In preparation for the International Year of Chemistry 2011

Led by the Israel Chemical Society, we participated in the steering team for Israel's program under the International Year of Chemistry 2011 as well as in the Industrial Committee for the events of 2011.

We participated in preparing the presentation for the Year of Chemistry while using materials produced for the "National Policy for the Chemical Industry" Project and which was updated in 2009.

We participated in the events which launched a formal session of the Science and Technology Committee in the Knesset.

Discovery of significant gas quantities in Israel – is it an opportunity to establish a new chemical gas-based industry?

Upon finding the vast gas quantities and clarifying the need for a national policy for using the discovery in the long-run, we commenced with thinking and planning the options for the establishment of a gas-based chemical industry as an inexpensive source for raw materials.

The aforementioned industry can provide solutions of fuel for transportation, on one hand, and by-products for various uses such as fertilizers, plastics, etc., on the other.

The project is planned to continue in 2011 and at this stage a workshop is planned for the middle of 2011.

Reuven Wax, former CEO of Makhteshim South, participates in the project. Mr. Wax was one of the leaders in the national policy research for the chemical industry.

Project Leader: Dr. Gilead Fortuna

National Policy for Cooperation in Businesses and Science with East-Asian Countries

The expansion of the cooperation and sales in the emerging markets - the giants in East-Asia, China and India, in particular - has become more important during the last year.

Nowadays it is clear that in addition to the fact that we should expand the export to the aforementioned countries, we should be aware of the shortage in capital in the West and of the surplus in capital in the East, which Israel can use for the further prosperity of the industry, if it learns how to create a correct process.

A research planned in coordination with MATIMOP - the Israeli Industry Center for R&D (hereinafter: **"MATIMOP"**) in 2010 was postponed in favor of the 2010 Innovation Project. Toward the end of the year, we contacted the Chief Scientist and MATIMOP to draw conclusions from the experience accumulated in recent years with respect to business management and cooperation in China and India. The program we proposed for 2011 is to analyze the successes and failures in order to create supporting tools for success in the upcoming years.

The importance of the research became clear upon completing the writing of the "2010 Innovation – Active Industrial Policy for the Leverage of Science, Technology and Culture of Innovation" Project. In addition, business with the East is essential as part of the medium-term industrial policy, which requires the diversion of the export markets from the West to the emerging markets (mostly located in the East).

The project will commence upon its approval by MATIMOP.

Project Leader: Dr. Gilead Fortuna

Decision on the Establishment of a Research Center on National Industrial Policy

As a direct continuation of the 2010 Innovation Report, the Neaman Institute decided to establish a research center on national industrial policy.

The establishment of the center commenced this year and the implementation of the program will commence in 2011. The objectives of the center are to preserve a long-term strategic view on industrial policy as well as to hold discussions and form a policy with respect to new topics or topics which emerge over time.

The topics planned to be initially discussed under the research in 2011 are:

1. Industrial policy to exploit the natural gas reserves discovered. First, the emphasis will be on examining the profitability of the establishment of a natural gas by-product industry, which is a global industry launching a network of additional industries, such as alternative fuel, plastics, fertilizers and construction materials.
2. Selling large Israeli companies to foreign companies, such as the sale of Makhteshim Agan Industries Ltd. to CHEM CHINA. What should be the national policy in order to preserve the industry and the added value in Israel?
3. Follow-up of the recommendations of the "2010 Innovation – Active Industrial Policy for the Leverage of Science, Technology and Culture of Innovation" Project:
    a. Upgrade of the classical industries – organizing model industries as well as local clusters of industry (based on a pilot commencing in Northern Israel), training and tutoring project which commenced in February 2011 in collaboration with the Information Center for Innovation at the Technion.
    b. Clean-tech Industry Promotion Policy – further to the recommendations of the Committee. Priority is granted to the said sector as no clear national policy has been formed yet with respect thereto.

c. The way the implementation of national clusters is focused therein (incubator, university, industry and academy).

4. Planning a national policy for cooperation in business and science vis-à-vis East-Asian countries – expanding the cooperation without losing our relative advantages and the classical markets essential in the West.
5. Defining long-term indices for the success and follow-up of the progress – proposal, discussion.
6. Searching for guidelines to cope with policy issues based on the priorities of the Ministry of Industry, Trade and Labor.
7. Expanding the market infrastructure for the water industry abroad, in coordination with Newtech, the Water Administration at the Ministry of Industry, Trade and Labor.

Project Leader: Dr. Gilead Fortuna

A Strategy for National Infrastructure in Israel for 2050

Planning infrastructures for the long run is highly important in Israel for at least three major reasons: The limited physical area of Israel, the continued demographic growth at a relatively fast pace and the long time required for planning, approving, financing and executing infrastructure projects.

A major goal of this research is to keep open options for the long term planning and implementations, preventing obstacles that will hinder the establishment of strategic facilities and networks, and to coordinate optimal exploitation of the limited area of our country.

The project concentrates on evaluating future demands for physical infrastructures in Israel and on its ability to establish adequate and sustainable infrastructure systems that will meet the expected demand. Another emphasis in this project is the examination of the interaction between various infrastructure components and

between them and the relevant economic, social and environmental systems.

The project attempts to define, from one perspective, where and when infrastructure systems turn into obstacles to economic growth and how these obstacles can be prevented; from another perspective, it is an attempt to evaluate how infrastructure systems can support and encourage growth. The project concentrates mainly on the infrastructure areas of surface transport, road and rail, the port layout, the production and distribution of energy, water infrastructures, developing the required manpower and its training in the fields of construction and infrastructure.

The strategy for national infrastructure in Israel is an ongoing project. During the year, because a more extensive occupation with shorter term infrastructure studies, which had a long term impact, the strategic perspective of the subject was reduce and concentrated to few subjects such as planning and development of Mass Transit Transportation Systems, such as suburban and interurban rails, light rail transit LRT, Bus Rapid Transit system (LRT) which can restrain in the future travelling by private cars, mainly in metropolitan areas, along with long distance passenger and freight trains in high demand routes.

Strategic planning of infrastructure development is vital because the implementation takes a long time. Yet, to ensure the attainment of the goals defined for the long term, some major elements should be adopted from the recommendations and these must already be implemented in the immediate and short term.

The project Team: **Prof. Yehuda Hayuth** (Team Leader), **Prof. Doron Balasha** and **Eng. Gideon Hashimshoni.** Project coordinator: **Dr. Moshe Elad.**

Israel's Policy on Developing Transport Infrastructure

This research focuses on preparing a policy document on the subject of a transport master plan for the National Council for Economy at the Prime Minister's Office.

The objective of the study was to assist in the development of a policy to be determined by the Government on the subject of road and rail transport development in Israel.

The study examined a varied series of parameters of the existing transport system in Israel and evaluating transportation trends abroad, particularly of rail transport solutions. The impact of "business as usual" scenario was analyzed. The facts that Israel is among the most crowded countries in the world in terms of number of cars per km of paved roads was illustrated. That and the limitations of physical size of the country and constrains to further expand the road network, have a great impact on the strategic planning of surface transportation systems in the country.

It is evident that there is a need for immediate shift of priorities toward the development of mass transit systems and rail transportation in the metropolitan areas and in major routes connecting between the center of the country and the periphery, at the expense of the private cars.

In light of the need to design a national policy for the development of sustainable transport system and the necessity to provide the Government with information and recommendations which will allow the implementation of the policy, the study dealt with two separate, although related issues. The trends of research and policy of relevant transport infrastructure issues abroad, particularly in Europe, were evaluated.

Among the subjects that were included in the evaluation: national and regional priorities of the transport modes connecting core and periphery areas; the impact of improved rail transport development on the interaction between central and periphery regions, the impact of efficient and sustainable transport systems between the core and periphery on the level of interactions, housing market, employment pattern and value of land in the periphery.

Another aspect that was part of the study dealt with methodology of evaluation the costs and benefits of transportation projects. One part of that subject was related to methods of analyzing the cost and benefits of the rail project at the level of a single line

as opposed to analyzing it as part of a whole rail network. This is particularly important in a national perspective policy. Another part of the methodological part was devoted to the role and significance of "externalities" factors in the evaluation of the benefits of a transport projects. These factors are mostly related to impact of the rail or road project on developments factors of the region, beyond the direct impact of the cost benefit analysis of the transport project. This issue is somewhat controversial between planners and governments but it can have a decisive role in the decision to approve or disapprove a project.

The research team includes **Prof. Yehuda Hayuth** (Team Leader), **Prof. Doron Balasha** and **Eng. Gideon Hashimshoni.** Advisor: **Prof. Shlomo Maital**

Green Aviation – Literature Review

The Civil Aviation Authority of the Ministry of Transport has approached the Samuel Neaman Institute to conduct a literature review of the subject of "Green Aviation".
The objectives of the study:

- To identify the relevant and related issues, discussed and researched internationally.

- Following the analysis of the subject, to highlight the most relevant issues to of Israel.

The general topic which is defined as "Green Aviation" is attracting in the last few years a lot of attention in international conferences, policy papers and publications by international organizations dealing with aviation and environment, regulatory bodies in the countries' level, aircraft manufactures, air lines, airports and research institution. In the recent conference on global warming which took place in Cancun, "Green Aviation" was one of the important issues on the agenda.

In the first phase of the study, a wide spread screen of publications, documentation and research papers was conducted. As an outcome a least of 14 topics were selected. The subjects which were classified included, among others: Alternative Fuels, EU Emissions Trading, Fuel Efficiency, Air Quality and Sustainability, Emission Policy options, Aircraft Noise and Green Airports.

In light of the wide range of topics, it was decided together with the representative of the Civil Aviation Authority to concentrate on topics which are most relevant to Israel:

- "Green Aviation" policies in selected International group of countries (USA, EU and ICAO).
- "Green Airports" – planning, development, operation, management and maintenance of airports and their environmental policies in selected airports in North America, Europe and the Far East.

- Selected topics related to Israel such as "birds and hazardous conditions to airports and aviation" and "co-ordination of civil and military aviation on environmental issues.

Each one of the above issues was illustrated by exerts and summaries of documents and articles and an extended bibliography which allows familiarity with the material.

The research Team: **Prof. Yehuda Hayuth** (Team Leader), **Orly Natan** and **Ortal Faibushenko.** Advisor: **Dr. Ofira Ayalon**

Introducing "Cold Ironing" into Israeli Ports

The Israel Port Authority at the Transportation Ministry has signed an agreement with the Samuel Neaman Institute to conduct a study that is intended to reduce air pollution and improve the quality of the environment in which the port operates. The term "Cold Ironing" expresses an attempt to limit the amount of carbon emission caused in the port due to the operation of generators on anchored ships and to replace them with an external source of energy on the dock. This is a relatively new process, which is being experimentally implemented in a small number of ports around the world, and only a few new ships are currently equipped to accommodate an external power source for the ship.

It is assumed that the air pollution caused in the port and its region will be reduced if the power produced by ships' generators is replaced by electricity produced at the power station at a site that is distant from the port. The energy utility of the power station is more efficient than that of the generators operated by the ship, and also it is easier to control the emission of gases from one or two chimneys in a power station than from dozens of generators operated by ships in the port.

The study will examine the four following subjects: A. A review of global trends in this area, presenting several examples that are already operative in ports around the world. B. The economic costs involved in installing and maintenance of the facility in the port and the costs to the ship owner. C. The environmental aspects of the relatively new method in comparison with the continued existing state and the international charters on the subject. D. The operational aspects of the system for the port and ship, including the scope of the required electricity supply to operate such a system.

The study will be conducted by **Prof. Yehuda Hayuth,** in collaboration with external technical counseling, if required.

A Project for Developing an Infrastructure Corridor between Haifa Port and the Jenin Border Checkpoint

In December 2010, a proposal for a project that will be a part of the Seventh Framework Program of the European Union (FP7) was submitted. The general subject of the broad project, in which universities, airports, seaports and private companies from Europe will take part, is:

SUSTAINABLE TRANSPORT INTERFACE MODELLING (STIM)

The goal of this specific project, submitted by the Samuel Neaman Institute as part of the general project, is to develop an effective and sustainable infrastructure corridor between Haifa Port, Gilbo'a Region, and the border crossing point near Jenin, adjacent to which an industrial zone and logistics centers will be built, on both sides of the border. The infrastructure corridor and the activity along it and each of its parts will contribute significantly to an improvement in the economy, employment, quality of life and environment in this area. The project duration is two years and its budget, as part of the general project, is estimated at 100,000 Euro. The decision regarding the winning proposal will be made around mid-2011.

The research proposal was submitted by **Prof. Yehuda Hayuth** and **Architect Yosi Price.**

Technion Nation:
Technion's Contribution to Israel and to Humanity

A great many people, in Israel and abroad, are unaware of the remarkable and numerous ways Technion has contributed to the wellbeing of Israel, its economy and people, and to humanity in general, since it was founded in 1924.

In this project, we seek to document these path-breaking contributions and show how a science and technology world class research university like the Technion can change the world through its innovations. To date, we have conducted a Web-based survey of Technion alumni, which elicited more than 4,000 responses. In our book, we will document the contributions made to Israel and to the world by Technion graduates, recount some of the many remarkable inventions and breakthroughs they have generated, examine the social return on the human capital Technion has created, and examine the roles Technion graduates have played and are still playing in driving forward Israel's 'start-up nation' and dynamic high-tech industry.

The project leaders are: **Prof. Shlomo Maital** and **Prof. Amnon Frenkel**

Activities on Innovation and Urban Planning

The coordinators of activities on TOD (***Transit-Oriented Development:*** urban planning that is based on public transportation, high-to-medium density development around railway stations) are: Prof. Shlomo Maital, Prof. Daniel Gat (Technion), and Dr. Yodan Rofe (Ben Gurion University). On Marth 9th, 2010, a Workshop was held at the Samuel Neaman Institute on the subject of TOD. The main lecturer was Prof. Peter Katz, a leading founder of the New Urbanism school. About 100 people attended. The goal was to focus interest on siting railway stations in the center of cities, instead of

outside the city (for instance, in Ofakim), and developing residences and workplaces around them. A TOD-based development program was presented by the mayor of Ofakim, Zvi Gringold. A publication on this subject is now available. *

A team from the Neaman Institute, including Prof. Amnon Frenkel, Prof. Shlomo Maital and Dr. Daphne Getz, was part of a group that won a grant awarded by the European Union for research on "Demand-driven Innovation" (PICK-ME). The team was selected to lead the crucial Work Package #1. An innovative method for mapping innovation eco-systems in each participating country, developed by Profs. Frenkel and Maital, was presented to the project participants in Torino, Italy. The goal is to encourage the six other participating countries to map their own individual innovation ecosystems, in order to shape unique, effective pro-innovation policies suitable for each country. Further details on the "Pick-me" project can be found in Chapter C in this report. An initial working paper describing the new methodology has been completed. Using it, each participating country will hold a workshop in which experts 'map' the nation's innovation ecosystem.

Prof. Maital's new book, *Global Risk/Global Opportunity*, has been published, as well as the Hebrew translation of his book on innovativeness management, *Management, Entrepreneurship and Innovation*, by Magnes Publishing House (Hebrew University).

Together with the Knowledge Center for Innovation, Faculty of Industrial Engineering, led by Prof. Miriam Erez, Prof. Shlomo Maital initiated a series of workshops for senior managers in the traditional industries, called "Moving Up", in an effort to upgrade companies' capabilities in exports and competitiveness in world markets. Seven companies enrolled.

Prof. Maital writes a blog (www.timnovate.wordpress.com), a column in the fortnightly magazine *Jerusalem Report*, and frequently contributes to an opinion column in the business daily *Globes*.

* **TOD -** Transit Oriented Development -Urban Development Around Train Stations. Samuel Neaman Institute, April 2010.

B. The Activity of the Samuel Neaman Institute on the Subject of Higher Education

The Higher Education Forum

The Samuel Neaman Institute, in collaboration with “Bashaar” - Academic Community for Israeli Society, and the Fulbright Foundation, organizes the higher education forum. The higher education forum was established following an international conference held in December 2004 at the Neaman Institute on the subject of "Transition to Mass Higher Education Systems." The goal of the forum is to hold discussions on issues that concern the higher education system in Israel and to hold an open dialogue between the universities, colleges, Israel Council for Higher Education, Planning and Budgeting Committee, and other government and public organizations. The forum is managed by Prof. Moshe Moshe, the director of the Samuel Neaman Institute, Prof. Mordechai Schechter from Haifa University, representing "Bashaar", and Dr. Neil Sherman, the CEO of the United States – Israel Educational Foundation. The following two meetings took place in 2010 (the meetings were videotaped and recorded and can be watched at the Samuel Neaman Institute website, www.neaman.org.il).

The meetings of the higher education forum:

Higher Education Forum No. 16 – 28.5.2010

Meeting on the subject: **"Higher Education in the United States"**

Lecturer: **Prof. Molly Broad – President of the American Council of Education**

Higher Education Forum No. 17 – 11.6.2010

Meeting on the subject: **"Management Methods in Universities"**

Lecturers: **Eitan Raf and Prof. Zvi Ziegler**

Excellence Evaluation of Universities in Israel – Approaches, Issues and Achievements

The goal of this project is to examine various aspects that concern excellence evaluations of universities in Israel. Approaches and issues concerning excellence evaluation are universal subjects that are dealt with by many countries. Correct evaluations contribute to the promotion of excellence, while inadequate evaluations may evoke negative processes and even significant damage. In addition to these universal subjects, the project deals also with aspects unique to Israel, expressed in the results of the excellence evaluation. The existing approaches and methods can be classified in general as follows:

- Quantitative methods to evaluate research, based mainly on publications and citation indices.
- Qualitative evaluations – peer review, panels, evaluation committees, surveys, polls, and so on.
- Combined methods that combine quantitative measurement methods with qualitative assessments.

Each of these methods has its own advantages and disadvantages, and they are all criticized, by both professionals and the subjects of the evaluation. The quantitative methods have significant defects and disadvantages that may create mistaken, biased and even misleading results related to various methodological defects, indices of limited usage, unprocessed data that include mistakes and errors, variance between the evaluated areas, inappropriate measurements and usages, and so on.

In an effort to examine these issues, the work presents the ratings of the first countries in the world in various areas, a comparative summary of Israel's position in the world, and a view of the universities in Israel based on various indicators, indices, and databases. The limitations of the indices are presented, as well as the results' biases under the influence of various assumptions. The clear conclusion is that quantitative results in general, and their significance in particular, should be considered carefully.

Also presented are the results of a qualitative assessment of studies in various areas in Israel, as these are reflected in the reports of international assessment committees that

have operated in recent years, following the initiative of the Higher Education Council. A concise review is provided about the "influence" of universities, beyond academic achievement in research and teaching, which is expressed in their contribution to industry and technology. Innovative initiatives are presented to evaluate learning outcomes by creating valid indices.

The work presents a review of the university ratings, from the aspects of teaching and research. The ratings have a negative influence on the conduct of the institutions, which tend to ascribe greater significance to them than is possible on the basis of the data. The needed corrections and improvements are presented, as well as the results of the university ratings in Israel according to well-known international ratings.

The evaluation of research achievements for budgeting and funding purposes is discussed, which is a controversial subject. For selective funding, an appropriate evaluation system is required, whose operation involves high costs, mainly due to the variance between the institutions. The work presents several conclusions, resulting from an analysis of the Israeli, the British, and the Australian experience among others.

Head of the project: **Prof. Uri Kirsch**

Using Ornaments for Geometry and Multi-Cultural Education: Development, Implementation and Evaluation

Our study involves both secondary school students and prospective teachers. We developed the course "Issues in Ethnomathematics: Teaching Geometry in Socio-Cultural Context" as part of the departmental curriculum, and run it since 2007. The course presents visual artifacts as complex geometric structures and provides practice in construction of ornaments using symmetries and transformations. We expose students to galleries of ornaments of different cultures where they analyze their geometrical properties and construct them using compass and straightedge. The study

of geometry goes hand in hand with the inquiry of the cultural roots of the ornaments where it enriches learning by adding a cultural humanistic dimension. The course culminates in a workshop "Joyful Learning of Geometry in Cultural Context" in which each student teaches a diverse group of pupils from Jewish and Arab high schools. Each student chose a different culture to present for his pupils. Some chose old cultures such as Old Egyptian, Japanese, Rangoli, and others chose Jewish, Islam and Ukraine to state few. Pupils drew ornaments using compass and straight edge, inquired into the tradition and wrote an essay on it with variety of ornaments from the chosen culture and worked out geometric problems related to the ornament. At the end of the workshop, the pupils presented their work on a poster and all the students presented their works in a gallery set for that purpose.

We carefully followed up the learning of the course and revised it from year to year on the basis of reflection and conceptualization of the research findings. The research instruments include, observations, questionnaires, interviews, analysis of students' performances, and videotaped of students' activities. By triangulation of these data, a detailed description of the learning progress of each student was extracted. We found that the students developed motivation and desire to make a deep inquiry in both mathematical and cultural aspects. Several works demonstrated creativity in geometry and visual design. Students discerned interesting geometrical problems and found original solutions. Most of all, a conceptual change in the perception of geometry happened. The students became aware of ornaments in their environment, seeing them not only as decorations, but as culturally meaningful geometrical patterns possessing interesting geometric transformations and symmetries.

Head of the project: **Prof. Daoud Bshouty**

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

Science, Technology and Innovation Indicators in Israel: An International Comparison

The need to establish an infrastructure to promote a systematic and continued process of consolidating a national policy for research, technology and innovativeness was identified at the Samuel Neaman Institute in the early 2000s.

The first stage in a program initiated by the Neaman Institute was to establish a database and comparable and updated indices for the purpose of assisting policy makers to map and evaluate R&D activities in Israel, their capabilities, scientific infrastructures and funding over the years, and to compare them with those of other countries. In this framework, three reports on the subject of "Indices for science, technology and innovativeness in Israel: A comparative data infrastructure" have already been published.

The first publication in this series appeared in 2005. The pamphlet comprised three chapters: national expenditure on civil R&D; human capital in science and technology; and outputs in science and technology. It was written in a format similar to that of the pamphlets published by organizations in other countries and was received with great interest in Israel.

Encouraged by the success and interest engendered by the first publication, a second updated and extended edition in this series was prepared, this time in collaboration between the Samuel Neaman Institute and the Central Bureau of Statistics. It was published in 2007. This publication included all the three chapters of the first publication in an extended and updated version and two new chapters: Economic indices for science and technology actions and the introduction of technology into households.

A third publication in the series appeared in 2010, which included many key indices on the subjects of inputs and outputs in science, technology, and innovativeness. This publication includes updated indices as well as new chapters such as Globalization and

government assistance to R&D. The indices in the publication are presented for Israel for periods of a decade and more and even include international comparisons. They help elucidate the general picture, which reflects the impact of the government's policy, the policy of the higher education institutions and the policy of the business sector, and the influence of this policy on the entire economy.

These publications were designed to serve as a basis for international comparison and to analyze Israel's position on the various indices as well as to provide information to policy shapers and others who are dealing with policy issues in these areas. One of the major goals of the Israeli science and technology policy is to promote a balanced R&D system and to make sure that oriented R&D and innovativeness operate in a way that contributes to society and the economy. We hope that these publications will provide useful insights and will have an influence on the national and international policy and contribute to studying and understanding the present situation of Israel in the context of science, technology and innovativeness.

The project team: **Dr. Daphne Getz, Prof. Dan Peled, Tsipy Buchnik, Ilia Zatcovetsky** and **Yair Even-Zohar.**

R&D Outputs in Israel 1990-2008: Israeli patents in an international comparison

Patents are a unique source of technological knowledge. They are considered a good index of invention and R&D activity and can be used to estimate the scope of technological and scientific innovation of countries, regions, sectors and firms. Information about patents allows technological changes, knowledge transfer, cooperation and the exploration of new technological areas to be monitored.

The major goal of this study is to analyze in a combined manner the characteristics of patent applications and the approved patents submitted to the United States Patent and Trademark Office (USPTO), European Patent Organization (EPO) and the Israeli Patent Office. The analysis will take in account the number of patents and patent applications, examine trends over the years and the relation between the patent owners and inventors, patent slicing by technological classifications, identify the geographical location of innovation, examine cooperation between sectors (industry, hospitals, government and academic research institutes) and between Israel and other countries.

The study includes a literary review with a general background and a description of the rules and procedures related to patent registration, the evaluation processes and their approval by the different patent offices in the world and in Israel. Data will be analyzed according to the methodology and recommendations of the OECD guide, which are presented in the literary review. The study is a joint venture of the Samuel Neaman Institute, the Science Ministry and the R&D National Council.

Research team: **Dr. Daphne Getz** (head), **Dr. Eran Leck, Yair Even-Zohar, Amir Hefetz** and **Orly Nathan.**

R&D Outputs in Israel 1981-2008: Israel's Scientific Publications in an International Perspective

The research is a joint effort between the Samuel Neaman Institute and the National Council for Research and Development (NCRD). The main aim of this research is to analyze the status of research in Israel in comparison with selected countries using bibliometric indicators.

The Israeli bibliometric information infrastructure established for this project allows an in-depth look at the research output (scientific public) published by authors in Israeli institutions, the National Science Indicators database allows worldwide comparison of the Israeli main bibliometric indicators.

The project includes a bibliometric analysis of the Israeli research output and evaluation of its quality and quantity with respect to the main scientific fields of the publications, their institutions and organizations attribution (academy, industry, hospitals etc.), national and international cooperation in co-authorship between Israel and other countries, and between organizations.

Research team**: Dr. Daphne Getz** (Head), **Yair Even-Zohar, Bella Zalmanovich, Dr. Eran Leck.**

Consultant: **Prof. Gideon Czapski**

Mapping National Research Infrastructures

The Neaman Institute won a tender of the Israel National Council for Research and Development – the National Committee for Research Infrastructures (VATAM) - through the Science and Technology Ministry - to conduct a study with respect to the mapping of national research infrastructures.

The purpose of the research is the mapping of the existing national research infrastructures and the definition of the needs of Israeli researchers with respect to the upgrade and establishment of new research infrastructures.

The research was conducted in 2010 and focused on the equipment and facilities included in the research infrastructure. A center with scientific/technological equipment that is a candidate for being recognized as a national research infrastructure must meet the following criteria:

A. The infrastructure serves more than one institution and more than one research group.

B. The infrastructure is open to all the researchers in this area in Israel (researchers from academic research institutions, hospitals, industrial companies and so on) even if payment is involved.

C. The infrastructure contains scientific/technological research equipment exceeding 10 million shekels (about $2.5 million) or more.

D. The infrastructure is on the leading technological-research level, relative to the situation in the scientific world.

The mapping study is intended to build the knowledge and data base that will allow the state of Israel to build a road map for planning, improving, and establishing national research infrastructures. The work consists of three major parts covering the subjects:

A. Mapping existing research infrastructures in Israel. B. Evaluating future needs for research infrastructures. C. Comparing Israel with similar countries regarding research infrastructures.

The study reviewed research infrastructures in which R&D activity takes place with respect to the overall spectrum of scientific and technological fields: Biology and Medical Sciences, Materials, Exact Sciences, Environment, Energy, Humanities and Social Studies. The reviewed research infrastructures can be found in academic institutions, research institutes, industrial companies, hospitals and government, public and private institutions and organizations. The mapping does not include organizations and institutions with unique equipment used for the implementation of security-related R&D, unless they also serve the civil R&D.

The findings of the research were concluded into a report describing the mapping of the research infrastructures which exist in Israel. The report includes two chapters: The first chapter describes the mapping of the research infrastructures which exist in Israel and includes the methodology for mapping and the conclusion of the main data relating to the 87 research infrastructures mapped. To complete the picture of the research infrastructures available to researchers in Israel, the second chapter deals with international research infrastructures whose usage by Israeli researchers is funded by Israel.

An additional report deals with the future needs related to establishing new research infrastructures and effecting significant improvements in the existing research infrastructures. The report includes a comparison between Israel and several other countries that are similar in terms of size and technological level, and also includes a summary regarding the information and computerization system that was established for collecting and processing the data gathered through the different research questionnaires during this work.

The research team includes: **Dr. Daphne Getz** (Head), **Dr. Dan Kaufman, Dr. Nir Ben Aharon, Vered Segal, Reut Marciano, Bella Zalmanovich** and **Ella Barazani.**

Innovation in the Service Sector

The service sector, in its different branches, plays an important role in the economic activity and forms about three quarters of the gross national product in Western economies. In recent decades, the development of the service branches constituted the main source of growth in the economy, since the service branches provide inputs to other economic activities, allowing the development of new business activities and models. The service sector includes a broad spectrum of activities having different characteristics, including the traditional sectors, such as retail and tourism, and those with a high technological content, such as communications and computer services.

A new study by the Samuel Neaman Institute and J.R.C. has been launched for the Chief Scientist Chamber at the Industry, Trade and Labor Ministry on the subject of "Innovation in the Service Sector". The purpose of the study is to create a clear picture of the subject of Innovation in the service branches and present suggestions, as a possible policy in the area, to encourage innovation and growth in this important sector. The most important purpose of this step is to assist service oriented organizations, in achieving innovation-based growth, establishment, and profitability. Innovation in the Services Sector can be expressed in simplifying logistical processes, in control processes, in decision making, in initiating, adopting and generalizing innovation from the hi-tech worlds, and in modern support of clients.

First, the work will include both a literary review and a review of the policies in Israel and in other countries around the world, an examination of the R&D law from the aspect of supporting the subject of Innovation in the Services Sector, a review of the Israeli market and case studies in a number of leading companies in Israel as well as a few small companies in their early stages. Based on the work, an analysis and an understanding of the steps taken until now in the field will be carried out and initial recommendations will be formed. The work will assist policy makers in examining ways to promote Innovation in the Services Sector in Israel.

Research team: **Dr. Daphne Getz** (Head), **Vered Segal and Ella Barazani**

Yossi Ran and **Eyal Ran from J.R.C.**

Evaluating the NOFAR program

A study to evaluate the NOFAR program was financed jointly by the Samuel Neaman institute and the MAGNET administration and is planned to take place mostly during 2010.

The NOFAR program was conceived as part of the implementation of the recommendations made by the "Monitor Report," and stresses the need to establish a fund to support the development of inventions in the fields of biotechnology and nanotechnology that have a commercial potential in universities, so as to increase the chances of successful transfer of the technology from the academy to industry. The program helps build a bridge between the basic research and the applied research at the stage at which industry has not yet recognized the idea as having a commercial potential.

The program allows research groups in the academy to continue with the execution of an applied research program that is no longer entitled to the support of competitive research funds, intending to promote basic research, and to bring the idea to a maturity level that enables industrial actors to show an interest in it and decide whether they are willing to invest in its development.

The main goals of this research are to analyze the contribution of those involved in the NOFAR program and examine the factors that influence success or failure, according to the data collected in about 130 NOFAR studies conducted over recent years. The methodology chosen is based on attitude surveys (questionnaires) and selected case studies, to be conducted among the representatives of the involved organizations: Researchers from the academy, representatives of the relevant firms (industry), professional analyzers and application companies. The results of the empiric analysis, together with the materials collected during the interviews will assist the formulation of operative recommendations and conclusions that will help decision makers with regard to future NOFAR studies and the NOFAR program in general.

Research team: **Dr. Daphne Getz** (head), **Dr. Eran Leck, Vered Segal** and **Iris Eyal**

Active Researchers Survey in the Russell Berrie Nanotechnology Institute at the Technion (RBNI)

After one year of the Russell Berrie Nanotechnology Institute's (RNBI) activity, the Samuel Neaman Institute and RNBI initiated an evaluation study to map the various activities in nano-science and nanotechnology that were taking place at the Institute. The goal of the study was to examine the activity of the Nanotechnology Institute over time, and to estimate the results and the effects on the activity of the researchers at the Institute. This first survey was conducted during 2007. The present survey, which is the second one conducted, was intended to estimate the development of the nano area at the Technion and to examine the influence of the different programs, operated by the Russell Berrie Nanotechnology Institute, and the changes that occurred in the researchers' activity in the nano area in the long term. Evaluation of the Institute's activity is based on the results of examining the progress made in the various nano areas and the extent of the influence resulting from the Institute's investments in these areas. On the basis of these evaluations, the Samuel Neaman Institute provided feedback to the RBNI directorate regarding its activities and programs during its five years of operation.

The major research tool used in this study is an evaluation survey. The survey was based on a comprehensive questionnaire that was administered to the active researchers at the Institute during 2009. We also used a bibliometric analysis of publications to evaluate the scientific outputs of the researchers' activity in the Institute.

The findings of the evaluation survey are presented using qualitative, descriptive and inferential tools, which include a qualitative analysis and relevant statistics. In analyzing the empirical findings, special emphasis is placed on examining the differences between the results of the present survey and those of the survey of 2007.

A summary report of the survey results and the bibliometric analysis of publications on the subject of nanotechnology were submitted to the directorate of the Russell Berrie Nanotechnology Institute in 2010. The report serves as an internal management tool of RBNI.

Research team: **Dr. Daphne Getz** (head), **Larisa Eidelman** and **Yair Even-Zohar.**

Policy Incentives for the Creation of Knowledge: Methods and Evidence (PICK-ME)

Innovation and knowledge creation have long been regarded as key factors in the process of economic growth. A well-established consensus exists among researchers and practitioners alike that the presence of a targeted and coherent innovation policy constitutes a necessary condition for countries to undertake the path for sustainable economic growth. In the past decades, the bulk of innovation and technology policies has mainly been designed by relying on a **supply side perspective**, which implicitly assumed the creation of technological knowledge as an outcome of an existing R&D process. The **demand-side perspective** has long been neglected with respect to innovation policy, because policymakers, academics and the business community have mostly emphasized the benefits of supply side strategies. Only recently, the debate about innovation policy has gradually begun to focus on the role of demand, both public and private, in spurring innovation and technology creation.

The Samuel Neaman Institute has joined a consortium of seven countries in a project targeted at researching the demand side perspectives of innovation policies. The PICK-ME project is a part of the European Commission's Seventh Framework Programme (FP7). PICK-ME will analyze the role played by the demand side in the generation and exploitation of innovation and productivity growth, at a theoretical and especially at an empirical level. The project will consider the linkages among the different institutional actors (research infrastructure, business community, policymakers) and sectors and will analyze the geographical dimensions in which these processes take place.

SNI's researchers will be involved in four "work packages" (WP) in the framework of the project. SNI will lead the first work package (review and taxonomy of supply-side and demand-side innovation policies). This work package will supply the basis for the following seven WP's by creating the basic knowledge on the demand and supply sides of innovation policy. *The SNI team, led by Prof. Amnon Frankel, has developed an innovative methodology for constructing a visual portrayal of each country's innovation ecosystem, as the basis for effective policy formation and discussion.* The method has been implemented by Israeli and German teams, and will shortly be implemented by several of the remaining EU participants. The thrust of the SNI

method is that each nation has a unique, national innovation ecosystem based on its culture and institutions; to be effective innovation policies must be individually tailored to that ecosystem. Results was presented to the group in November, in Valencia Spain, and the initial phase of the project will be completed in June 2012.

Project agreement signed in September 2010.
Project starting date: January 2011. Duration: 42 months.

Research team: **Dr. Daphne Getz, Prof. Amnon Frenkel, Prof. Shlomo Maital, Dr. Eran Leck.**

Facilitating Collaboration in Stem Cell Research through Intellectual Property

The purpose of this research is to provide a systematic basis for designing a research and development (R&D) policy framework and to facilitate knowledge transfer in the field of stem cell research. The proposed study will explore different frameworks for collaboration between government, industry and academic research centers and will propose effective valuation methods.

The research will also explore and analyze the following aspects of stem cell R&D: (1) Stem cell R&D in Israel; (2) Regulatory schemes and legal / ethical impediments; and (3) Policy ramifications and legal strategy.

The research is carried out by the Samuel Neaman Institute in collaboration with the Law and Technology Center at Haifa University. Each of the teams offers a field of research expertise with a different emphasis on content and methodology, all in the science policy research field.

During 2010, the Samuel Neaman team commenced with performing the empirical work including data and information retrieval and mapping of R&D activities in the academy, industry and hospitals. Currently, a survey using questionnaires which were especially developed and personal interviews with scientists in the stem cells field is taking place. We will also conduct bibliometric research of publications and patents. In addition, we will provide data for further examination of factors and components required to prepare and combine recommendations which will contribute to leveraging the research in the stem cells field.

Research team at SNI: **Dr. Daphne Getz, Larisa Eidelman and Bella Zalmanovich**

Research team at Haifa University: **Prof. Niva Elkin-Koren, Dr. Yael Bregman-Eschet, Sharon Bar-Ziv** and **Talya Ponchek**

Evaluation of the Program
Salary-Employment Advancement of New Immigrants

In order to encourage the employment of new immigrants and of returning residents, the Ministry of Immigrant Absorption assists employers by funding the salaries of immigrants for a limited period. Assistance is designed to help advance new immigrants in employment, and the employer must undertake an obligation to continue to employ the immigrant at the conclusion of the period of assistance, and to train the immigrant as necessary.

The current study was commissioned by the Ministry of Immigrant Absorption in cooperation with the Samuel Neaman Institute. The main goals of the research were: to identify the factors which affect the employment of immigrants at the conclusion of the period of assistance and in the course of time, examine the effect of running the program on the employment of new immigrants and formulate recommendations that could assist policy makers in improving the program.

Methodological framework of the study included a survey of attitudes among 651 new immigrants who participated in the program during 2006-2008 and among 181 employers who have received assistance, from the Ministry of Immigrant Absorption, in funding the employment of immigrants in these years. In addition interviews were conducted with the parties involved in the program. The survey return rates were 24% of the immigrants and 42% of the employers. In addition, phone interviews were conducted to examine the immigrants' current employment status.

The results demonstrate that the program has accomplished its main objective of increasing the employment status of new immigrants. At least 56% of the program participants were employed in 2010. Comparison of the employment status of immigrants before and after their participation in the program was used to assess the change in their employment status using three levels: poorer employment status, same employment status as before, employment status improved.

The improved status means that the immigrants were unemployed or had a non-professional job before their participation in the program and during the research were employed, or professionally employed, accordingly.

Of 126 immigrants who responded to the research questionnaire, 49% have improved their employment status after their participation in the program, the employment status of 42% remained unchanged and the employment status of 9% have worsened. The variables which were found as significant predictors of improved employment status compared to poorer or unchanged employment status, were: contact with the Ministry of Immigrant Absorption before the program, a small number of new immigrants working at the same workplace where the immigrant worked while participating in the program and mentoring stage in which an experienced department fellow trained the immigrant. The results demonstrate that most of the participants were satisfied with the program and with their workplace.

Based on the research findings, conclusions and recommendations were formulated to provide program managers a comprehensive view of the immigrants and their employers about the program and the factors that can affect its success in improving the employment status of immigrants in Israel.

The empirical data collected in this study will be used for the formalization of recommendations that could assist policy makers in improving the program.

Research team: **Prof. Miriam Erez** (Head), **Vered Segal, Miriam Asotskaya, Alla Tsuper**

Information centers of MAGNET Consortia

A computerized information center, one of the largest in Israel, operates at the Samuel Neaman Institute. The center was established to meet the needs of knowledge management and to supply information science services to consortia that operate under the MAGNET program. The information centers are based on a computerized system and are planned according to the requirements of the staff of the Samuel Neaman Institute in collaboration with the consortia.

For the past eighteen years, the Samuel Neaman Institute participates in the MAGNET program of the Industry, Trade and Labor Ministry, the aim of which is to encourage generic-technological R&D in Israel. The goal of the program is to create cooperation between companies in industry and researchers from the academy in R&D in various areas. The program was launched in 1992 by the Chief Scientist of the Industry, Trade and Labor Ministry. At present, MAGNET operates fifteen consortia and supports three other tracks for the development of high-tech industry (Users' Association, MAGNATON and NOFAR).

The Samuel Neaman Institute has contributed greatly during the establishment and development stages of the program, in cooperation with the Chief Scientist, and has acted as a mediator between the academy and industry in encouraging joint R&D and transferring technologies between the two sectors. The Samuel Neaman Institute defined the idea of a central information center of the MAGNET consortia as part of the cooperative effort between all the researchers in the industry and the academy who are members in these consortia.

During 2010, the Samuel Neaman Institute operated thirteen information centers for MAGNET consortia. In 2011, one consortium will complete its research period and we shall submit proposals for information centers for new consortia that MAGNET will approve.

The services provided by the information centers include:

1. **Establishing information database**: The database is intended to organize and store the internal information created in the consortium; it includes periodic technical reports, presentations, contact lists, forms, correspondence, and so on.

The website of the information database is accessible to authorized users only. The website's system for information management is based on a standard Internet interface, allowing quick and convenient access to information.

2. **Information science services**: The service's purpose is to provide the consortium members with updated information published on the subjects dealt with by the consortium. The information is retrieved from technical professional databases and from websites; it includes standards, patents, professional articles and news. The information is distributed to the consortium members on a regular basis.

3. **Aid tools for organizational management**: The upgraded system provides modules to assist in the organizational management of the consortia, such as workgroup meeting management, through an interactive calendar, mailing lists for transferring messages and annoucements, and secured forums for holding unstructured discussions between the members of the consortium.

4. **Consortia's open websites:** Building websites for consortia that are interested in publishing their activity around the world, including: NES, BMP, NET-HD, REMON, ISRC, NEGEV, ISMART, and so on.

5. **Human resources:** The information center employs seven information specialists who established and manage the different information centers: **Ella Barazani, Orly Nathan, Bella Zalmanovich, Ortal Faibushenko, Iris Eyal, Ayelet Rave and Yair Even-Zohar.**
   Chief Information Officer: **Golan Tamir;** Manager: **Dr. Daphne Getz;**
   Coordinator: **Eng. Joseph Linhart**

Information centers for consortia operated by Samuel Neaman Institute in 2010:

The 4G Mobile Network (REMON)

REMON consortium dealt with the core thechnologies and principal components of the 4th generation in mobile cellolar communication.

Broadband Short Range Wireless Communication (ISRC)The ISRC consortium aimed to develop generic building blocks for short range high data rate communication systems, focusing in the UWB and WLAN technologies.

The 4th Generation Imaging Machines (IMG4)

IMG4 aims to create the 4th generation of imaging machines which will automatically: Observe, learn, and optimize performance ultimately providing better cost-effectiveness. IMG4 deals with technology gaps such as: Image noise, drifts and errors, due to multiple reasons: Changing product to sample, Data surplus, Lack of calibration methods, imaging machines complexity.

Next Generation Personalized Video Content Services (NEGEV)

Negev Consortium is dedicated to building generic technologies Personal Content Services of huge content amounts to millions viewers. Negev members research and develop Service Management aspects (such as content recommendation, personal ad selection, etc.), Content Management aspects (video classification and tagging, content preparation etc.) and Content Delivery aspects (Online content adaptation, ad insertion, network resource optimization etc.).

Bio-Medical Photonics (BMP)

The BMP consortiums' develops **photonic based** generic technologies for diagnostic and therapeutic solutions for the bio medical field in general, and the gastrointestinal tract diseases in particular.

Innovative Spectrum Management Research & Technology (iSMART)

iSMART consortium develops technological solution which implements the Dynamic Spectrum Management (DSM) technology to increase rate and reach of the copper infrastructure.

Rapid Deployment of Broadband Communication for Rescue Forces (RESCUE)

Rescue concentrate in technologies for self-deployable, self-routing, self-healing and distributed core in mobile and deployable broad band wireless networks. The solutions foreseen next generation technologies include mobile Ad-hoc Relay/Mesh routing, Peer-to-Peer communications, SON (Self Organizing Network), Satellite backhauling and interoperability among various mobile wireless technologies.

Real-Time HDTV-Quality Video on the Open Internet Web (NET-HD)

The Net-HD consortium develops new technologies to increase the effective capacity of the internet network to provide HD video, multiply the existing volume by 1000 and without increasing the physical links.

Advanced Fiber Lasers (AFL)

The AFL Consortium develops generic technologies for production of advanced fiber-lasers. The consortium concentrates on the more unique MID-IR and UV wavelengths, as well as focusing on fiber-coupled optical components; pumping diodes; optical crystal manufacturing and optimization of systems incorporating fiber-lasers.

Nanotubes Empowerment Solutions (NES)

The NES consortium develops new game-changing in various technological fields based on the innovative use of nanotubes. The main applications are: Enhancement of mechanical properties, electrodes for electricity conduction and accumulation, optical layers, micro devices and sensors.

Cognetive Radio Network (CORNET)

CORNET Consortium provides generic solutions and building blocks based on cognitive radio networks technologies to get breakthrough in spectrum usage and spectrum utilizations.

Hyper Sensitive Photonics (HySP)

HySP consortium deals with technologies development of digital cameras, processes and methods of ultra-sensitive imaging arrays, Hyper Sensitive Photonics.

Next Generation Packet-Optical Networks (TERA SANTA)

The TERA SANTA consortium develops technologies and building blocks to realize the next generation of optical networks, which will provide a solution to the tremendous rise foreseen in the communication volumes. This vision will be materialized by using an OFDM 1 Tbps channel technology, while practicing a healthy network economy (operation and equipment layout costs compared with the network income), and achieve the front of the optical network technology of high volumes and rates.

D. Activities of Samuel Neaman Institute in the Field of Energy and Environment

Outstanding Academic Institute in the Field of Environment 2010

The Samuel Neaman Institute was awarded Outstanding Academic Institute in the Field of Environment according to the decision of the steering committee of the 14th annual "Cleantech" summit and exhibition for water technologies, renewable energy, green building, recycling and green transportation (June 2010). SNI was awarded in a salute evening for the cleantech industry in Israel. Leading this activity is **Dr. Ofira Ayalon**.

Energy Forum Meetings

The purpose of Energy Forum meetings is to maintain a professional infrastructure on specific energy related topics, and to allow multilateral discussions encouraging projects in the fields of renewable and energy conservation. The forum meetings serve as a platform for defining professional, applicable positions, to be used by relevant decision makers.

Energy Forum meetings are closed meetings, to which approximately 20 experts on the debated subject are invited.

Each meeting is concluded by a detailed report, presenting an updated overview of relevant activities in Israel and the world, technological and economic rationales regarding the discussed topic, and the positions of the various professionals invited to take part in the forum.

The reports are intended to promote rational and scientific based decision making on energy related topics, and serve as a working tool for the Ministry of Finance, the Ministry of National Infrastructure, the Ministry of Environmental Protection and more.

In 2010, four Energy Forum meetings were held:

a. Energy Forum #16 on Smart Grid (January 4th 2010)

Development and application of a smart grid for the supply of electricity, although it is in early stages of development, is one of the "hottest" topics in modern energy markets, and is prioritized and largely invested-in in developed countries. A smart grid delivers electricity from producers to consumers via a two-way digital technology, that enables control over appliances at the consumer's home and machines at factories in order to save energy, reduce costs and enhance reliability and transparency.

b. Energy Forum #17 on Natural Gas in Israel (March 1st 2010)

The gradual shift energy consumers make from coal and other fossil fuels' based energy, to natural gas based energy, will affect many disciplines: cost reduction, air pollution reduction, green house gas emissions restraining, competitive advantage for the Israeli market and more. The aspects and setbacks for the implementation of natural gas in Israel where discussed in the current forum session.

c. Energy Forum #18 on Solar Air Conditioning Systems in Israel (May 3rd 2010)

Israel is one of the largest air-conditioning users in the world, with over 280 days of sun per year, and air conditioning of commercial and public building of over 300 days per year. In light of the experience gained over the years with water heating solar systems, assessing technological and economical feasibility of the solar energy use for air conditioning systems may be wise. Success in this area may lead to substantial reduction of energy costs for the end user, while wide implementation of this

technology can mitigate greenhouse gas emissions, reduce Israel's dependence on fuel imports and suspend the need for new power stations.

d. Energy Forum #19 on Efficient Lighting in Israel (December 6th 2010)

Lighting systems are a significant energy-consumer in the Israeli market, in domestic, commercial, industrial and public sectors. Its energy consumption (approximately 10% of total electricity consumption), may reduced by simple, immediate, straightforward means. The raising awareness for the need to conserve energy and to mitigate emissions, puts lighting efficiency in a significant position to contribute to the efforts, resulting in meaningful economic and environmental outcomes.

Project leader: **Prof. Gershon Grossman**
Project assistant: **Tal Goldrath**

Water Forum Meetings

The Samuel Neaman Institute, in collaboration with The Water Authority and the Grand Water Research Institute at the Technion, have established the Water Forum at the Samuel Neaman Institute in 2009, hoping that this cooperation would lead to the creation of a new, effective, helpful and influential forum on the subject of outlining the water policy in Israel. The discussions in the Water Forum and the position papers drafted in this framework will form an academic/professional framework that will include the best experts in the academic and scientific institutions and the public/governmental organizations dealing with subjects related to the subject of water, forming an important stage in the examination, analysis and outlining of a long-term policy for the water system in Israel. Forum documentation is formatted to serve decision makers and policy shapers.

The first forum was held at the Technion on March 8th, 2010. Over 80 scientists, field experts and policy experts participated, and discussed the following subject – "Israeli water management master plan- management policy of the effluent system in Israel". Three main issues were discussed during the one-day seminar, in compliance with the Water Authority master plan frameworks:

- Effluent quality at the treatment plant exit and the principles of quality policies
- Grey water and home treatment facilities
- The future of the SHAFDAN and geographical spread of treatment plants

A full report of the lectures and discussions, including recommendations regarding the implementation of the seminar products and conclusions, has been produced.

The steering committee of the first forum included Prof. Rafi Semiat from the Grand Water Research Institute, and Miki Zaide from the Water Authority.

Project leader: Prof. Avi Shaviv

Project assistant: Tal Goldrath

Voluntary Greenhouse Gas Registration and Reporting Scheme

This has been a joint project, co-funded by the Samuel Neaman Institute and the Ministry of Environmental Protection.

Israel has recently joined the OECD, and is on the verge of a new era. The change of status, from a developing country to a developed country, brings the need for change in the management of infrastructure and environment in Israel. As part of this change, the government has acknowledged the importance of mitigation of greenhouse gas emissions, despite the fact that Israel is currently not formally bound internationally to reduce its emissions.

Israel is now beginning to establish national greenhouse gas mitigation targets and relevant legislation to allow the various ministries to reach these targets within their authority.

To allow management and monitoring of the fulfillment of greenhouse gas mitigation targets, a national greenhouse gas emission registration and reporting scheme has been set up. The scheme, designed to serve industrial, commercial, financial and other organizations, has been activated in mid 2010, and the first reports will be received in the first half of 2011, reporting 2010 emissions.

The registration and reporting system has been designed by the Samuel Neaman Institute and the Ministry of Environmental Protection, in cooperation with many stakeholders. The goal the team has set was to develop a practical, user-friendly scheme, with detailed reporting guidelines, which will support organizations and companies from all sectors in the process of reporting and registering their greenhouse gas emissions inventory.

The registry's stated goals are:

- To enable reporting entities to promote efficiency by self-learning and internalizing efficiency-oriented processes, leading to emission reduction and to operative profits.
- To publically expose relevant information, allowing for deeper understanding of national emissions, and raising awareness for public action and
- To support government in future policy development - Reported data will deepen understanding of emission sources and mitigation potential

The Israeli registry protocol was developed according to needs and constraints of the diverse reporting entities, and according to understandings achieved in similar protocols worldwide. The registry protocol is meant to encourage balanced, verified reporting, meeting international standards.

Although joining the registry scheme is voluntary, once an entity has joined, it is required to report according to the detailed protocol requirements.

The registry scheme includes a detailed protocol, allowing reporting entities to analyze, quantify and report their annual emission inventory, according to their activity scope. An Excel file has been developed to enable simple, user-friendly reporting interface, according to available and easily accessible data, such as utility bills, fuel expenses and raw materials inventory. The reporting protocol, which is based on accepted international methods, will create a clear basis for future international reporting.

The project included numerous meetings of the steering committee, individual meetings with central companies in the Israeli industry, and two training and guidance sessions for companies which have joined the registry protocol.

Project Leader: **Dr. Ofira Ayalon**

Project team: **Tal Goldrath, Lev-On Group - California**

National Plan for Greenhouse Gas Mitigation

This has been a joint project, co-funded by the Samuel Neaman Institute and the Ministry of Environmental Protection.

During 2010, the Energy and Environment team at the Samuel Neaman Institute has served as an advisor and integrator to the Inter-ministerial Committee for the Mitigation of Greenhouse Gases, headed by Ministry of Finance director general, Mr. Haim Shani. The committee has been appointed by power of Government resolution 1504 from March 2010, to formulate a mitigation national plan, with a 20% emission reduction in the year 2020 compared to *business as usual*.

The committee has appointed 3 sub-committees – green building, energy efficiency, and transportation. The Energy and Environment team at the Samuel Neaman Institute has served as the integrator for the work of the sub-committees, including, among others, conducting a thorough literature review, advising, performing economic and technical evaluations and sensitivity analyses of costs and benefits from suggested measures, and writing sub-committees' final reports.

The government has adopted the mitigation plan suggested by the Inter-ministerial Committee in November 2010, just before the Cancun Climate Change Conference, allocating a budget of NIS 2.2 Billion for the years 2010-2020 for implementation.

In the framework of the national plan, a macro-economic study has been conducted by Dr. Ruslana Palatnik and Ms. Helena Faitelson from the NRERC (Natural Resource and Environmental Research Center) at University of Haifa.

The purpose of the study was to examine overall market costs resulting from adoption of greenhouse gas mitigation policy. A computerized economic model, generating a quantified estimation of changes in prices and quantities, as well as in market costs following the implementation of greenhouse gas mitigation measures. The model explicitly takes into consideration the inter-relations among the various market sectors and between market sectors and private and public consumption, investment and international trade.

In the framework of the committee's work, various energy efficiency projects and technologies were introduced in a designated workshop. Mr. Romano, Technion chief electrical engineer, reviewed the achievements of the energy efficiency program, which has been implemented in the Technion in the last few years.

Project Leader: **Dr. Ofira Ayalon,**
Project team: **Tal Goldrath, Michal Nachmany, Gadi Rosenthal – Kivun** Economic Consulting: **Lev-On Group – California, Dr. Ruslana Palatnik** and **Helena Faitelson - NRERC.**

National Energy Technologies Research and Development Survey

This survey has been recently completed by the energy and environment team at the Samuel Neaman Institute, for the National Council for Research and Development (NCRD). The survey maps various R&D efforts in Israeli academia and industry, in the following fields:

- Energy technology R&D – alternative energy sources; energy conservation; energy storage; energy for electricity, heat, transportation; energy efficiency, energy-conserving building, waste to energy etc.
- Energy policy, energy economics, climate change

These fields have been reviewed by analysis of academic publications, industrial and patent databases, and are expected to be utilized for the following purposes:

- Enabling strategic and economic decision-making regarding R&D directions
- Creating a database supporting local and international cooperation
- Creating a database for potential investors

Project Leader: **Dr. Ofira Ayalon**
Project team: **Michal Nachmany, Tal Goldrath, Dr. Daphne Getz, Vered Segal, Dr. Eran Leck, Yifat Baron**

Israeli Cleantech Industry

Since 2004, the Samuel Neaman Institute has been studying the cleantech industry in Israel. Research has led to the establishment of industrial research and development centers, especially in the fields of energy and water.

Climate change, the need for greenhouse gas mitigation and reduction of dependency on oil, as well as the need to preserve energy and water, all serve as catalysts for development of the cleantech industry in Israel. For further details, see under " "Israel 2028: Vision and Strategy for Economy and Society in a Global World".

National Policy for Packaging Waste Management

The study has been conducted for the Ministry of Environmental Protection.

The aim of this research was to examine policy alternatives for sustainable management of packaging waste in Israel. The work includes the definition of packaging types, weight estimation of packaging waste produced in Israel, a survey of packaging waste treatment methods in Europe and around the world, examination of legislation alternatives and a recommendation on the preferred regulation scheme for the state of Israel.

In order to set the basis for the law, we worked in close cooperation with all stake-holders like relevant Ministries (Finance, Interior, Industry, Trade and Labor), manufacturers association, the federation of Israeli Chamber of Commerce, Israel Antitrust Authority, local authorities, NGO's etc.

The suggested bill, which has been drafted as a result of this research, is awaiting final authorization in the Knesset, after passing first reading and the Economic Affairs committee.

Project Leader: **Dr. Ofira Ayalon,**

Project team: **Michal Nachmany, Tal Goldrath, Gadi Rosenthal – Kivun Economic Consulting**

Green Campus

The Green Campus project in the Technion, promoted over the past decade by the Samuel Neaman Institute, aims to introduce and amplify environmental values to the Technion community. The goal of the project is to promote green environment in the campus, while raising environmental awareness of students and staff – an awareness that will also continue its impact off-campus, in the homes and workplaces of Israel's future engineers.

The project is run by the Green Campus Council, appointed by the president of the Technion, and composed of Faculty members, key personnel in Technion administration, head of Construction and Maintenance Division, Technion spokesman and more. Key partners are the Student Council representatives, which take on significant roles in the various initiatives and conduct ongoing environmental activities around campus.

Recently, Prof. Tali Tal, of the Department of Education in Technology and Science, has been appointed head of the Green Campus project.

Green Campus activities include education and awareness raising, resource saving (water, energy, waste recycling etc.), pollution prevention and more.

Main projects in 2010:

- Energy Saving Forum – led by the Construction and Maintenance Division, conducts energy efficiency and saving programs in the following faculties: Electrical Engineering, Physics, Computer Science, Civil and Environmental Engineering, Water Institute, Biology and the department of Education in Technology and Science. Another program has been operated in the student dormitories in the past 4 years – in all dorms which are equipped with air conditioners, smart, remote-access metering systems are installed, and students pay their monthly electricity bills. The meters are installed in 600 (of 1400) housing units and lead to estimated annual savings of NIS 2 million. This activity

has been introduced to Mr. Haim Shani, director general of the MOF, in the framework of the inter-ministerial committee for greenhouse gases mitigation.

- Green Day on campus – an awareness-raising, student environmental carnival
- "Give 'n' Take" market – to encourage 2nd hand culture, organized twice a year by student council
- Electric Vehicle project on campus – led by student council and approved by Technion Board of Governors. "Better Place" electric vehicle charging spots will be installed in campus in 2011.
- Waste treatment on campus and in the dormitories – collection of electrical and electronic waste, of bottles and beverage cans for deposit, operation of organic waste composters in the dormitories, in cooperation with Technion gardening services.
- Advising and encouraging faculty "Green Councils"- the first council operates at the Electrical Engineering faculty, advised by the SAMUEL NEAMAN INSTITUTE.
- Introducing the Green campus project to various guests
- A new Green Campus website will be re-launched in 2011 as a part of the Technion web portal

Green Campus project leader on behalf of the Samuel Neaman Institute

–**Tal Goldrath**

Collaboration with the Standards Institution of Israel

The energy and environment team takes part in various committees acting under the Standards Institution of Israel, defining and designing energy and environmental related standards. Among others –

- Technical committee 1206 - Products with environmental aspects - (committee member – Dr. Ofira Ayalon)
- Technical committee 2201 - Energy management systems (committee member – Tal Goldrath)

Participation in Knesset committee Sessions

The energy and environment team at the Samuel Neaman Institute regularly takes part in relevant Knesset committee Sessions; for example:

- 10.11.2010 State Control Committee – regarding the State Comptroller report on greenhouse gas mitigation
- 13.12.2010 Internal Affairs and Environment Committee – regarding the inter-ministerial committee report on greenhouse gas mitigation

E. Society, Health and National Resilience

Integrating the ultra-orthodox (Haredim) sector into the Israeli economy

This program is an outcome of one of the recommendations of "Israel 2028 – Vision and Strategy in the Global World." The report on the Israel 2028 Project stated that, in 2008, the Ultra-Orthodox population in Israel consisted of 637,000 people, which is 8.8% of the total Israeli population. Of these, 63.4% are under 20 years old. Furthermore, the Ultra-Orthodox family has, on average, more than seven children, in comparison with two children in the general Jewish population. The report forecasts that, if no drastic changes take place in the Ultra-Orthodox fertility rates, in 2028 the ultra-orthodox will account for more than a fifth of the Jewish population in Israel.

The participation rate in the labor market among the Ultra-Orthodox men is 41.5% (in comparison with 83% among the other Jewish men), and of the cohorts recruited to the IDF, almost 15% (of the men) "serve" in Yeshivas, because "their studies constitute their livelihood". At the same time, the rift and the alienation between most of the Israeli society and the ultra-orthodox sector are increasing, accompanied by expressions of anger and animosity on both sides.

The economic, security and social significance of these grave data is clear and obligates change. In light of this situation, Prof. Zehev Tadmor, the Chairperson of the Samuel Neaman Institute, has initiated a project designed to identify the steps that need to be taken in order to integrate the Ultra-Orthodox population in the Israeli society and economy.

The project was launched on July 26, 2009, at a convention at the Van-Leer Institute in Jerusalem. About a year and a half later (on January 15, 2010), Dr. Reuven Gal was recruited to head the project, after concluding his position as the head of the Civic-National Service Administration. The next stage was drafting a basic document – a "road map" – which constitutes the information basis, the conclusion and the recommendations for action in three major channels, which comprise 19 actions or tasks, to be executed by

various agencies. The "road map" was written and edited by Dr. Reuven Gal with the help of Ilia Zatkovetsky.

The three lines of action are as follows:

- Employment – that is, the actions required to integrate more and more Ultra-Orthodox into the labor market;
- Education and professional training – ways that could expand the general education of the Ultra-Orthodox public, in an effort to equip them with the required "tool kit" to find their place in the labor market.
- Change-introducing levers – the reinforcement and improvement of existing levers, such as military service, civic-national service, women's employment and fiscal incentives.

A consulting committee of 25-30 members from the government, academe, Ultra-Orthodox society and public representatives was established to assist the project. Also, a steering committee of seven members was established, which convenes on a regular basis to discuss the subject and set activity objectives.

As part of the project, two research compilations have been published up to now that deal with the subject of integrating the Ultra-Orthodox population, as well as two bulletins that provide an updated picture of the activity in this area. The project's team meets frequently with the decision-making rank (Bank of Israel, Prime Minister's Office, Ministry of Finance, Ministry of Industry, Commerce and Employment), with the academe, with the leaders of the Ultra-Orthodox public, and more. The project's document (the "road map") was presented and discussed in various forums, such as the Israel-Sderot Conference on Social Issues and the Israel 2021 Convention, as well as in the media. A study day is planned for June 2011, reviewing the work and goal attainment on the subject of the Ultra-Orthodox population. The project team submitted several applications to receive external funding for extensive and intensive research on this subject.

The project is headed by **Dr. Reuven Gal;** Research assistant: **Ilia Zatkovetsky;** Project coordinator: **Dr. Moshe Elad;**

The Martin and Dorothy Kellner Health Promotion Program

This is a community-based chronic disease prevention program targeted to impact positively on the known risk factors and thereby reducing the incidence, prevalence, and mortality from chronic diseases and consequently reducing the spiraling costs of health care, while promoting the health, productivity, and quality of life of the population. It is expected that a successful conclusion of the program will lead to a change in national health policies placing emphasis on disease prevention and health promotion.

The program will consist of a longitudinal field study in a medium-size Israeli town where an intensive and comprehensive program will be implemented on the individual, family, and community levels. The program falls in the realm of primary prevention which will focus on individuals at high risk for a physical disease, who have not yet been affected by the condition to be prevented. The objective of the field study is to demonstrate the effectiveness of the program in reducing high risk behavior such as smoking, obesity, poor nutrition habits, sedentary lifestyle and stress, in order to prevent such chronic diseases as high blood pressure diabetes, cancer, and cardiovascular diseases.

Over the past two years the first stage of the program has been completed in which the intervention program has been prepared in great detail by a team of experts. The preparation phase included among others: the formulation of the comprehensive intervention programs, selection of the communities (for intervention and for control), ethnographic studies, formulation of the questionnaires to be used for the baseline survey, media studies, telephone surveys, focus groups, documentations for submission to the Helsinki Committee (which must approve any research on human subjects) etc.

The preparation stage of the program has been assembled into a 1200 page two volumes book presenting the theoretical background, the result from the field studies, the methodological aspect of the program, the intervention protocols, budget and

timeline, and a battery of questionnaires designed to establish the baseline and outcome measures.

Director of the Program in 2010 : **Prof. Manfred S. Green**

Project team : **Nehama Aviran, Prof. Oz Almog, Shiran Bord, Prof. Gerald Brook, Lilach Berkovitz, Dr. Anat Gesser-Edelsburg, Dr. Gary Ginsberg, Dr. George Ghrayeb, Dr. Rachel Dahan, Dr. Michael J. Dolgin, Riki Tesler, Dr. Naama Constantini, Dr. Shira Zelber-Sagi, Dr. Ciporah S. Tadmor**

Technological Innovation and its Adoption for Agriculture, Education and Sustainable Rural Viability.

Leader of this project: Dr. Ehud Gelb

A. Invited lecturer and participant

- 11.2010 - Facilitator and lecturer in a workshop hosted by the Vietnamese Ministry of Science in collaboration with the Israeli Ministry of Foreign Affairs. The workshop was focused on *"Development and Application of Information and Communication Technologies (**ICT**) for Agriculture and Rural Development"*. The workshop was geared to convene a group of agents of change within the framework of a national Vietnamese priority to promote Agriculture and Rural Development as experienced in and related to Israel;
- 12.2010 - Invited Keynote. *"Is ICT Adoption still an Important Issue? (Dairy - An innovation case study)"* for the 1st Dairy Conference, in Nairobi Kenya. Conference proceedings, workgroup recommendations and an outline for future activities are detailed by the conference site: ***edairyconference.co.ke;***
- 8.2010 A lecture/poster at the 28th International Horticultural Congress in Lisbon: *"ICT Adoption Constraints in Horticulture from the Viewpoint of International Researchers"*, with N. Taragola;

- 6.2010 Invited lecture for the 9th IFSA* European Symposium in Wageningen, Holland: " *Adoption for Distance Learning – a Challenge for Convention* " with Gal and Wolfson.

B. Electronic book – the e–Book titled *"ICT in Agriculture: Perspectives of Technological Innovation" has completed it's fifth year in circulation - see* **http://departments.agri.huji.ac.il/economics/gelb-main.html.** The e-Book is sponsored by the Neaman Institute, EFITA* and the Hebrew University Center for Agricultural Economic Research. It was accessed in 2010 331287 times, 38% more than it was accessed in 2009 which in turn was double the 2008 rate. This public domain initiative introduces, promotes and shares insights, commonalities and constraints of ICT development and adoption for agriculture, education and the rural sector within a two decades long perspective. The e-book remains available on UNESCO's Open Training Platform.

C. Research partner in the follow up study "Reinforcement of the Israeli Classical Industries" to implement the recommendations of the SNI's report "Israel 2008-2028 – Vision and Strategy"*. Participation focused on evaluation of Israel's Agriculture's successes as a case study in leveraging innovation, agricultural production and export.

***EFITA – European Federation for Information Technology in Agriculture**

***IFSA – International Farming Systems Association**

Developing a Northern Biotechnologies Cluster in Israel

BioNorth

The S. Neaman Institute is leading an initiative to establish a **'Northern Biotechnologies Cluster in Israel'** incorporating all companies, incubators, start-ups and academy researchers in the north of Israel. The rationale for this initiative is that biotechnology has become the fastest growing industrial sector in Israel and worldwide, and is reshaping science, especially life science, medicine, food and agriculture. The decision to lead this initiative was taken after a survey conducted by the S. Neaman Institute indicated that biotechnology industries are usually develop the best as 'clusters' in the vicinity of academic institutes and successful biotechnology researchers.

In order to promote this initiative, the S. Neaman Institute has organized meetings of leading scientists in the area, including scientists from the academy as well as leading personnel from companies located in the North. The main goal of those meetings was to bring together all forces involved, enabling them to develop close professional relations and to promote communication for a better impact on Israel's economy.

As a result of those meetings a "Biotechnology Communication and Information Network" was established, and the www.bionorth.org.il went on air on April 2004.

That website has been developed and up-dated daily since then bringing together efforts of five different organizations which have contributed to the site:

1) The Haifa Economic Corporation Ltd;
2) The Technion, Israel Institute of Technology;
3) The Rappaport Institute for Research in the Medical Sciences;
4) Rambam Health Care Campus;
5) S. Neaman Institute for National Policy Research;

During the last year (2010) another organization joined the initiative:

6) The Haifa & Northern branch of the Industrialists Association;

The **www.bionorth.org.il** is designed to serve as an "Interactive Live Network" for all forces involved in biotechnology fields in this region, and to promote communication and synergy among its participants, encourage development in biotechnology sciences, and make a positive impact on the economy of Northern Israel.

In addition to the BioNorth web-site a series of seminars on focused topics of interest started at the end of 2006 and have been conducted since then.
Those meetings involve investigators and leading researchers from academy and industry.

The first symposium was held at Neaman Institute on December 28th, 2006 on the subject of: **'Novel technologies for improving food quality & safety'**.
The second symposium was carried out at on February 1st. 2007. The title of this second symposium was: '**Biological Wastewater Treatment'**.
The third seminar was held on March 29th, 2007. It was **"The 2nd Annual BHLSI (Boston Haifa Life Science Initiative) Seminar".**

19 different meetings (all together) have been held during the last three years. More than 1000 people attended those meetings enabling investigators and leading researchers from academy and industry to meet and discuss mutual subjects of interest.
The last 5 seminars held during the year of 2010 were:

- 21.01.2010 – 'Novel Developments in Stem Cells technologies';
- 07.04.2010 – 'Enzyme Evolution and Metagenomics';
- 03.06.2010 – 'Novel Tissue Engineering Developments';
- 04.11.2010 – 'Structure and Characterization of Proteins';
- 29.12.2010 – 'Plant Tissue Culture for Medical Purposes';

The next seminar was held on March 31ST, 2011 on the subject of 'Neuro-Technology and Engineering'.

The purpose of those meetings is to present different researches, developments, as well as experiences learned in the academy and industry, by bringing together scientists

from academy with leading researchers from industry, to discuss mutual subjects of interest in-order to promote communication and synergism among them.

On January 11th 2011 the BioNorth Steering Committee, chaired by Prof' Yuval Shoham from the Faculty of Biotechnology and Food Engineering has decided to prolong The project for another year.

Project Leader: **Dr. Abraham Rotem**

Architectural Education in Israel as a Means of Advancing Sustainable Planning

Examining ways (content and methods) for an educated integration of the subjects of sustainability and quality of the environment in the architectural studio in schools of architecture in Israel.

Background: A preliminary study indicates that sustainability and quality of the environment are not leading subjects in the architectural studio in schools of architecture in Israel, despite broad consensus between the studio teachers that they are important. Theoretical knowledge and its implementation on the subjects of sustainability and quality of the environment in an architectural context exist in the academe and in current practice. Its integration is vital at the fundamental level of the architect's profile.

Workshops on the integration of sustainability as a leading subject in the architectural studio, are held by the Faculty of Architecture and Town Planning at the Technion and in collaboration with the Samuel Neaman Institute. The themes for the workshops are decided in accordance to the study outlines of the architectural studio sillaby in the various years.

Workshops participants: (1) Experts from the architectural practice; (2) Experts from the academe; (3) The active group – studio teachers especially committed and involved in the workshops, and (4) The studio teachers.

The experts from the architectural practice, the experts from the academe and the active group of studio teachers draft position papers before each meeting. The papers are distributed among the participants of the three groups before the workshop.

Following each workshop, a summary that outlines recommended content and methods of integrating sustainability and quality of the environment in the architectural studio is drafted. These documents will be produced as pamphlets on behalf of the Samuel Neaman Institute.

The subjects of the workshop that took place in 2010 were:

1. Beginnings in Architectural Education (1st year studio)
2. Dwelling and Housing (2nd and 3rd year studio)
3. Structures, details and technology (all years)
4. Urban design, open spaces and urban landscape – (2nd, 3rd and 4th year studio)
5. Interior design - (2nd, 3rd and 4th year studio)
6. Complex structures (3rd, 4th and 5th year)

The project is headed by **Prof. Iris Aravot** and **Prof. Guedi Capeluto**

Project coordinator: **Dorin Almog Sudai**

People-Israel Project – A Guide to the Israeli Society

www.peopleil.org

Background

Many scholarly and non-scholarly texts have been written about Israeli society. But no single guide or database, whether hard copy or electronic, provides complete information on all of Israel's major social phenomena, subgroups, cultures and lifestyles with all (or most) of their respective social characteristics. Furthermore, we believe that society should be documented, portrayed and taught creatively - through regular texts, but also by audio-visual means that have the ability to convey complex reality more vividly.

We decided to take up this challenge and have developed a creative multimedia Internet site with the hope that in offering significant culture knowledge the site will help bring people together. The in-depth treatment afforded to each "tribe" in the database is intended to convey the symbolic message that every culture and lifestyle is of equal social standing and that the country's identity is a social blend.

Each week, many new articles and photographs are added to the site. The site, with its innovative and friendly design, is open to the general public. It attracts thousands of visitors each week, and receives enthusiastic feedback from its ever-growing audience.

Our major goals

- To establish and maintain a comprehensive and up-to-date Internet guide – open to the public – about people and groups in Israeli society.
- To document and preserve Israeli ethnography for future generations.
- To provide organizations and individuals with valuable, user-friendly and creative information (text, photos, video-clips) on Israel's diverse cultures.
- To develop an innovative sociological tool that will help businesses, governments and populations function efficiently and sensitively in a multicultural society.
- To reduce prejudice and stereotyping in Israeli society, and to promote peace,

tolerance and understanding among groups with different cultures and lifestyles.

- To develop a new educational-technological-informational-social model for multicultural societies across the globe.

Our long-term vision is to reproduce this model in countries around the world so as to create a global social guide that will promote tolerance and help document and preserve human culture.

Achievements for 2010

1. UNESCO (the United Nations Educational, Scientific and Cultural Organization) has recognized the *People-Israel* website as an innovate development in the study of multiculturalism and is helping develop and spread the site as a model for additional countries. This year, at the end of a long process that included getting approval from the UNESCO Secretariat in Paris and from the University of Haifa administration, we were authorized to set up The Center for ICT Research and Learning of Cultural Diversity on the Internet.
2. We developed a new concept for the website homepage, involving new graphic design as well as the introduction of features that facilitate bringing visual materials to center stage. The new homepage includes a platform to display new and constantly changing photographic exhibitions, all highly professional, and a platform to showcase new articles.
3. We developed an innovative technological tool that enables photographers to create their own photo albums to be displayed on the site (after final approval by the site admin). This tool has led to a major savings in time and human resources. We also significantly increased the pool of photographers who work with us. Among the talented photographers we discovered through this tool are two ultra-Orthodox men, an Arab, an immigrant from the Former Soviet Union, an Ethiopian, a religious woman and others.
4. The new tool also enables us to locate collectors and to exhibit photographs of their collections under the heading of "Israeliana". For example, in honor of the 150th anniversary of the birth of Herzl, a number of photo exhibitions about Herzl were placed on the site by the late Hayim Shtayer, the distinguished collector, teacher and designer.

5. We developed another technological tool that can be used to sort photo albums by topic or by photographer.

6. To limit the number of people operating the site and to make it more accessible to potential contributors of articles, we developed a technological tool that enables authors to prepare their articles on their own personal computers. When the article is ready, the author sends a publication request, and after the article is approved, it is automatically published on the site. This reduces much of the "grunt work," among other reasons because it enables the author to edit, correct and update the article independently.

7. The site continues to grow, not only in the number of the articles and the size of the photo corpus, with its breathtaking galleries, but also in the rate of growth. As of the beginning of January 2011, the site included around 440 articles on a variety of topics, an increase of 60 articles compared to the previous year. Another 20 articles are in the pipeline. Furthermore, 26 "Israeliana" albums and 119 albums of ethnographic photos have been added, with another 30 albums in the pipeline.

8. The increase in the number of articles and photos along with the major impact of this project explain the rapid increase in the number of visitors to the site: around 1000 per day, representing an increase of 25% compared to the previous year.

9. Recently we have noted a significant increase in demand for the original photos on the site – a service that had been dormant for some time. The photos are given to consumers free of charge. Contrary to our expectations, it seems that purchasing photos from Internet sites is not an accepted practice today.

10. We started a group on Facebook, which already has over 500 members. This group, which has taken the place of the updates we began sending out last year, has grown at a dizzying rate. We also publicize new articles and photo albums on Twitter.

11. The highlight of our scientific-ethnographic efforts this year was the project on Communities and Synagogues in Israel. We collected a list of around 100 synagogues across Israel, each with a special story to tell.

    Each week the site features a gallery about a different synagogue. The project has been received enthusiastically, and three leading communications media have already published comprehensive articles about it.

12. Our first training project, run as a pilot with the senior staff of the IDF Command and Staff College, finished in September 2010. The conclusions drawn from this successful project will be applied in the next course, planned for next year.

13. Immediately after the UNESCO chair was approved, we opened an all-university virtual course for outstanding students titled *People-Israel* Staff. Of the 80 applications we received, we chose a group of 15 students from various departments.

14. In the fall semester of the 2009/10 academic year, a graduate seminar on Cultural Diversity in Education Systems through the Internet was offered in the Faculty of Education at the University of Haifa. The course - based on *People-Israel* - was taught by Dr. Tamar Almog. The seminar will be offered again in the spring semester of the 2010/11 academic year.

15. An increasing number of researchers, students and organizations, among them institutes, newspapers and radio and television stations, are turning to *People-Israel* for help in obtaining information on Israeli society, in fields such as economics and consumerism, ethnic groups, family, education, leisure activities and others as well. For example, a new series on fashion and dress in Israel is currently being filmed for Israel's Channel One. The producers are using the site for information, and this will be noted in the credits. We are also getting increased media exposure through quotes and references on the Internet, on radio and television and in the print media. A new link will soon be added to our homepage: "Us in the Media". This link will open a page providing information about coverage of *People-Israel* in the media.

The project is headed by **Prof. Oz Almog** and **Dr. Tamar Almog**

Affordable Housing: Developing policy, awareness and pilot projects

Background:

Housing prices are rising beyond the means of many Israelis, particularly in the job-rich areas of the country. Very high housing prices expand social gaps, by increasing the wealth of those who own their own homes and creating 'concentrations of poverty' with poorer services and less chances for social mobility. This project works to develop new policies to promote affordable housing and social mixed neighborhoods in Israel. We draw on the experiences of other developed countries in creating new tools of regulatory planning and financial innovations, and seek to adapt and transmit these policies for use in Israel. Israeli housing policy used many similar instruments in the early years of the State. Today, however, national government policy alone is not sufficient: government policies require cooperation by local authorities, the private sector and civil society.

Project objectives and activities:

Training and skills: the project works to train key actors in public sector, civil society, and the private sector. Activities in the six month period from 08/2010 - 01/2011 included:

- International guest lectures: The project hosted three international guest speakers: Richard Baron, award-winning developer of large-scale affordable housing projects spoke with a professional audience at the Technion; Eytan Benyamin, president of a New York City based development company, was the keynote speaker at a conference on affordable housing for young families that we co-sponsored with the Municipality of Tirat Carmel; and Alan Mallach, the foremost international scholar of inclusionary housing policies, gave us an intensive week of his time, including seven different workshops, site visits, and high-level meetings with the senior leadership of the Israel Lands Authority, District Planners, the Coalition for Affordable Housing, Tel Aviv and Herzliyya municipal planners and Mayors.
- Workshops: We organized and delivered workshops for young people's organizations (three workshop sessions, in cooperation with SHATIL), community

workers (through the National Association of Community Organizers), and environmental planners (with the Society for Protection of Nature in Israel.

- Presentations and briefings: we presented topic briefings on affordable housing to eight Mayors at Merhav's annual two-day 'Mayor's Institute'; held a private briefing for Tzippi Livneh and her staff; participated in Knesset committee meetings and gave lectures at conferences, including at Haifa U, Bezalel, Sapir College, IDC, Tel Aviv University and Hebrew University.

Policy and regulations: The project is working to advance national legislation on affordable housing. During the latter half of 2010 we worked intensively with the Coalition for Affordable Housing to respond to the proposed planning reform and to draft new national legislation. We have now begun a new partnership with the Center for Local Government, as their advisor in drafting and promoting national level legislation on affordable housing.

Pilot projects: 'Bricks and mortar' pilot projects can be the best way to explain the potential of affordable housing regulations. We helped national welfare-rights organization 'YEDID' to obtain funding for a one-year feasibility study of a pilot project in Haifa, and are now working closely with the newly-hired project director to carry out the feasibility study, in cooperation with the Haifa University Legal Clinic and the municipal welfare agency. In Jaffa, we submitted our final research report on strategies for affordable housing for the Arab population, and continue to work with local civil society and the Mishlama', the municipal administrative arm for Jaffa, to implement the recommendations.

The project has helped to generate a significant media 'buzz', much of which can be accessed at http://israelaffordablehousing.blogspot.com/. A short documentary film produced by the project for the Coalition for Affordable Housing, 'From Bottom to Top: Affordable Housing in Israel' can be found at http://www.youtube.com/user/SocialTV#p/a/u/0/3WNa6OW_p0E.

The project is managed by **Dr. Emily Silverman,** in cooperation with urban planner **Hagit Naaly Yosef** and **Prof. Naomi Carmon.**

F. General

Seminars, Workshops and Conferences during 2010

Higher Education Forum Meetings :

Higher Education Forum No. 16 – 28.5.2010

Subject: **"Higher Education in the United States"**

Lecturer: **Prof. Molly Corbett Broad –** President, American Council of Education

Higher Education Forum No. 17 – 11.6.2010

Subject: **"Management Methods in Universities"**

Lecturers: **Eitan Raf and Prof. Zvi Ziegler**

Workshop on **" The Question of Concentration in the Israeli Private Sector"** – December 30, 2010

The mission of the workshop was to explore the allocation of the financial assets of the Israeli public . Two subjects were discussed at the workshop: (a) "The question of control of holding companies over financial institutions", chaired by Mr. Guy Rolnik (The Marker). Panelists: Prof. Amir Barnea, Mr. Daniel Doron, Adv. Yehuda Talmon, Prof. David Levhari and Mr. Ami Zadik . (b) "The question of pyramidal structure and the discrepancy between capital and control – advantages and disadvantages", chaired by. Dr. Shlomit Zuta. Panelists: Prof. Glen Yago, Prof. Yishay Yafeh, Mr. Konstantin Kosenko, Adv. Dror Strum and Mr. David Boaz. After the presentation and discussion of the panelists, the audience participated in the discussion. The video can be viewed on our SNI web site.

A Conference on "TOD" (Transit Oriented Development):

An SNI Conference on "TOD (Transit Oriented Development) - Urban Planning Around Accessible Rail Transit, was held on March 9, 2010. The aim of the conference was to focus on development of railway stations in city centers instead of the outskirts. Prof. Peter Katz was the keynote speaker. Mr. Zvi Gringold, the Mayor of Ofakim, presented a development program based on "TOD". Prof. Daniel Gat spoke on "National Benefits of Transit Oriented Districts for Israel". Dr. Yodan Rofe spoke on "Urban planning and Design Aspects of TOD" . Prof. Yehuda Hayuth chaired the panel on "TOD – An Emerging Innovation in Urban Planning and Real Estate". Prof. (emer.) Shlomo Maital spoke on this subject and organized the conference with the assistance of Dr. Moshe Elad.

A workshop on: "Joy-Metry" a joyful Experience of Studying Geometry in Cultural Context – 14.6.2010

Lecturers**: Prof. Igor Verner** and **Prof. Daoud Bshouty**

Architectural Education in Israel as a means of Advancing Sustainable Planning Meetings :

Meeting no. 3 - " Structures, details and technology " **- 17.3.10**
Lecturers in this meeting: Dr. Yossi Kori and Dr. Ariel Tibi

Meeting no. 4 - " Urban design, open spaces and urban landscape " **- 28.4.10**
Lecturers in this meeting: Prof. A. Rosenberg , Prof. Evyatar Erell, Prof. Iris Aravot.

Meeting no. 5 - " Complex structures " **- 23.6.10**
Lecturers in this meeting: Arch. Ruth Lahav and Dr. Abraham Yazioro.

Meeting no. 6 - " Six concise workshops " **- 24.11.10**
Summary of the six meetings that took place during 2009 – 2010

BioNorth Workshops :

Bio-North workshop on – **'Stem Cell Research'** - 21.01.2010
Lecturers: Prof J. Itskovitz-Eldor , Prof. S. Levenberg, Prof. L. Gepstein (replaced by Dr. O. Caspi) , Dr. F. Grynspan . & Dr. D. Fiorentini

Bio-North workshop on –**'Enzyme Evolution and Metagenomics'**- 07.04.2010
Lecturers: Prof. D. S. Tawfik, Prof. O. Beja, Prof. Y. Shoham, Dr. A. Fishman, Dr. S. Gengrinovitch

BioNorth workshop on **–'Tissue Engineering'-** 3.06.2010
Lecturers: Prof. M. Machluf, Prof. H. Bianco-Peled, Dr. K. Shapira, Dr. F. Grynspan

BioNorth workshop on –**'Proteins Structure & Characterization'** - 04.11.2010
Lecturers: Prof. N. Adir, Prof. Y. Mandel-Gutfreund, Prof. Y. Shoham, Dr. K. Inbar

BioNorth workshop on **'Plant Tissue Culture for Pharmaceutical Purposes'** - 29.12.2010
Lecturers: Dr. E. Hayat, Dr. E. Levinson , Prof. A. Aharoni,, Dr. Y. Shaaltiel, Prof. E. Lev.

Water Forum meeting:

The first forum was held at the Technion on March 8th, 2010. Over 80 scientists, field experts and policy experts participated, and discussed the following subject – "Israeli water management master plan- management policy of the effluent system in Israel". The steering committee of the meeting included Prof. Avi Shaviv (chairman), Prof. Raphael Semiat - the director of the Grand Water Research Institute and Mr. Michael Zaida - the Water Authority;

Energy Forum Meetings :

Energy Forum #16 : Smart Grid - January 4th 2010

Energy Forum #17: Natural Gas in Israel - March 1st 2010

Energy Forum #18 on Solar Air Conditioning Systems in Israel - May 3rd 2010

Energy Forum #19 on Efficient Lighting in Israel December - 6th 2010

Samuel Neaman Annual Lecture:

The 8th Samuel Neaman Annual Lecture - 6.1.2011

Speaker: **The author Amos Oz**

Subject: His book - **"A Tale of Love and Darkness"**

Environmental Quality - Study Days, Seminars and Conferences

Streams and Fish ponds Conference

Tel Aviv, May 6th 2010

Organized by the Samuel Neaman Institute in collaboration with the Ministry of Environmental Protection, the Ministry of Agriculture and Rural Development, "Zalul" and the Israeli Fish Breeders Association

Voluntary Greenhouse Gas Registry Training session

Tel Aviv, June 14th 2010
Haifa, December 27th 2010

Two training and guidance sessions were held, for interested companies and for companies which have joined the registry protocol.

The Registry Protocol was introduced in detail and registration promoted, by Tal Goldrath, Dr. Ofira Ayalon and the Lev-On Group.

Introducing the Voluntary Greenhouse Gas Registry

The Israel Society of Ecology and Environmental Sciences 2010 Annual Conference
Beer Sheva, December 27th 2010

Tal Goldrath has introduced the Voluntary registry, its rationale and advantages to the Israeli market and to the reporting entities and the reporting methodology.

IDF conference – getting ready for implementation of Clean Air Act
July 22nd, 2010

The conference was organized by the Technological and Logistics Directorate, Environmental Protection Administration, at the IDF.

Over 60 officers and non-commissioned officers, active in the field of environmental protection, attended the conference, which was aimed to inform of the IDF's commitments and liabilities in the framework of the new Clean Air Act, to enter into force early 2011.

Dr. Miriam Lev-On and Dr. Perry Lev-On gave a talk on the Voluntary Greenhouse Gas Registry, comparing it to the American military reporting scheme.

Science, Technology and Society Workshop Series
Sde Boker, 29-30 December 2010

Tal Goldrath has participated in the workshop "Israel and Climate Change – Science, Policy and Public opinion", as a member in the panel "Policy and Politics of Climate Change in Israel".

Recycling in The Netherlands – Towards implementation of Packaging Waste Law in Israel
Ramat Gan, 23rd June 2010

Michal Nachmany presented "Introduction to the Israeli Packaging Law – Opportunities and Challenges", in light of the policy paper produced by the Samuel Neaman Institute on packaging waste treatment in Israel. Michal Nachmany has also participated in an expert panel with the CEO of Nedvang, the Dutch foundation for treatment of packaging waste.

Israel-France Dialogue on Sustainable Energy
Jerusalem, 4-5 July 2010

A two day seminar on sustainable energy alternatives was held in July at the Jerusalem Institute for Israel Studies.

The seminar was organized by The Environmental Policy Center in collaboration with the Samuel Neaman Institute and the French NGO "Passages/Adapes". Various global and national issues were discussed in an effort to improve the definition of principles for the shaping of energy policy, to broaden the alternative set, and to examine the effectiveness of various policy tools.

Dr. Ofira Ayalon, who collaborated on the preparation of the workshop, lectured on the role of governments in promoting low carbon technologies. Dr. Gilead Fortuna presented the cleantech industry in Israel- " "Israel 2028: Vision and Strategy for Economy and Society in a Global World".

Foreign Guest Lectures at the Samuel Neaman Institute:

"Effective Higher Education Leadership in an Entrepreneurial Environment"
Lecturer: Prof. Molly Corbett Broad, President of American Council on Education (ACE) - 26.5.2010

"A Quantitative History of Empires", Lecturer: Prof. Jesse H. Ausubel, Director Program for the Human Environment, Rockefeller University, USA - 21.12.2010

Active participation in Conferences Overseas

Prof. Zehev Tadmor: "Israel 2028" , at the Israel Venture Network in NYC - August 31, 2010

Dr. Perry Lev-On and Dr. Miriam Lev-On, The Lev-On Group, California - CADER (Communities for Advanced Distributed Energy Resources) Conference 2010, California, 28-29 April 2010

"Integrating the Players in Community Energy" - Perry & Miriam Lev-On, Directors, LEVON Group, Emerging Community Energy Systems in Israel

Prof. Miriam Erez Presented the paper:

Prof. Miriam Erez Rotstein, A., and Erez, M. "Effects of Means Efficacy and Core Self-Evaluations on the Improvement of Immigrants' Employment Status", at the Annual Meeting of the Society for Industrial and Organizational Psychology, Atlanta, USA, April 07-10-2010

Dr. Reuven Gal spoke at the following conferences:

The 21st Annual National Service-Learning Conference, San Jose, California, USA. (March 24-27, 2010). Presentation: "Service-Learning in the Ultra-Orthodox Communities in Israel".

IANYS 9th Global Conference on National Youth Service, Library of Alexandria, Alexandria, Egypt (25-28 October 2010). Presentation: "Ultra-Orthodox Youth in National Civic Service in Israel".

"People-Israel" was presented at an international scientific conference:

Almog Oz, Almog Tamar. "ICT Learning of Architecture and Housing Culture – Israel as a Case Study". Caadria 2010 – New Frontiers, Chinese University of Hong Kong, Hong Kong, April 2010.

Dr. Ehud Gelb lectured and contributed to the following activities:

- In June, 2010, Dr. Gelb gave an invited lecture at the 9th IFSA* European Symposium, Wageningen, the Netherlands, on "Adoption of Distance Learning: a Challenge to Convention", together with Gal Wolfson.
- In August 2010, a poster presentation was given at the 28th International Horticultural Congress in Lisbon, on the subject of "ICT Adoption Constraints in Horticulture from the Viewpoint of International Researchers" by Dr. Gelb together with N. Taragola.
- In November 2010, Dr. Gelb gave a lecture and led a workshop commissioned by the Science Ministry of Vietnam in collaboration with the Israel Foreign Office, on the subject of "Development and Application of Information and Communication Technologies (ICT) for Agriculture and Rural Development".
- In December 2010, Dr. Gelb was invited to the founding convention of the Dairy Industry in Nairobi, Kenya, where he lectured on: "Is ICT Adoption still an Important Issue?" (Dairy - An innovation case study).

Active Participation in Israeli Conferences

Dr. Reuven Gal spoke at the following conferences:

- Israel-Sderot Conference on Social Issues (09-10.11.2010) : Dr. Gal chaired the panel - "Integrating the Haredi community into the Labor market".
- Israel Democracy Institute (13.10.2010): "The Haredi community in a Changing Society: Education, Employment and Military Service". Dr. Gal participated at the panel: "National Civil Service"

Conference on the subject of Physical Infrastructures :

Prof. Yehuda Hayuth chaired the session: " European aviation trends and integration of Israeli aviation into the European region", at the conference: :"Future Aims and Directions for Civil Aviation in Israel" , The Fisher Institute for Air and Space Strategic Studies (Israel Air-Force Center, Herzliya, 17.11.2010)

Orly Nathan spoke at Magnet BMP consortium annual conference – 12.4.2010 On Databases, Search Engines, and Patent Scope database .

The Samuel Neaman Institute website

WWW.NEAMAN.ORG.IL

This website is international, serving both as an information center about anything related to policy studies in Israel and as a home for the Samuel Neaman Institute's activities. The website allows its visitors to read and download all of the Institute's publications since 1987, and to view the different activities that the Samuel Neaman Institute is leading, in video format among others. Registration for the conferences organized and led by the Samuel Neaman Institute can also be done on the site. The website appears in Hebrew and English and is updated regularly, thus exposing the Samuel Neaman Institute to the media.

The Samuel Neaman Institute site is divided into five major categories thus enabling visitors to easily find any required information. The categories on the website are: • science, technology, economics and industry • university, education and human capital • national planning, infrastructure and environment • social and health policies • information centers.

The ten leading publications of last year are:

Name of publication	Total downloads
Differences in the quality of education between universities and colleges: Examination through their value in the labor market	12593
"Where there is no vision the people perish": Super goals for Israel and their derivatives	12200
Privatization in Higher Education: Proceedings of the international conference	10020
“Two Seas Canal” - Is it a real aim or some kind of a preconceived solution to an unspecified target?	6573
Israel 2028 - Economic-social vision and strategy in a global world	5181
Indices for science, technology and innovation in Israel: A comparable data infrastructure	4989
National Environmental Priorities of Israel – solid and hazardous waste	4415
Public diplomacy in Israel - "The Neaman Document" (published in Hebrew)	3738

Green House Gases emissions registry in Israel – accounting and reporting protocol	3221
Evaluation of a Plan to Establish a Wind Farm in the Mediterranean Sea. Final Research Report	3123

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 these articles.

In 2010, about 212,000 visitors visited our website, and downloaded about 170,076 publications, press news items, and recorded events (that is, more than 500 visitors a day, on average).

Among the visitors to the Samuel Neaman Institute website one can find leading figures from the economy, decision makers, leading researchers from Israel and abroad, and more.

Chief Information Officer: **Golan Tamir**

List of Publications for 2010

(Can be downloaded from the SNI web site WWW.NEAMAN.ORG.IL)

Title	Authors
Terrorism Risk and their impact on tourism	Benjamin Bental, Sharon Teitler-Regev
Is Job Stability at the Beginning of One's Career Good for Job Stability Later On?	Aviad Tur-Sinai, Dmitri Romanov
National Policy Program: Vision And Strategy for the State of Israel	
Solar Air conditioning Systems in Israel - Summary and recommendation of the SNI 18th energy forum	Gershon Grossman, Tal Goldrath
Natural Gas in Israel -Summary and recommendation of the SNI 17th energy forum	Gershon Grossman, Tal Goldrath
Smart grid -Summary and recommendation of the SNI 16th energy forum	Gershon Grossman, Tal Goldrath
Higher education policy in Israel - accessibility, quality and excellence with limited resources	Uri Kirsch

A Survey Analysis of University-Technology Transfer in Israel: Evaluation of Projects and Determinants of Success	Shlomo Maital, Ofer Meseri
Science , Technology and Innovation Indicators in Israel: An International Comparison (Third edition)	Daphne Getz, Dan Peled, Tsipy Buchnik, Ilia Zatkovetsky, Yair Even-Zohar
The Israeli water Management master plan-management policy of the effluent system in Israel – full report of the SNI water forum	Avi Shaviv, Miki Zaide, Tal Goldrath
Innovation in Israel 2010Implementation of "Israel 2028" plan Workshop # 3: Cleantech in Israel 2010	Gilad Fortuna, Elad Shaviv, Moshe Elad, Dorin Almog-Sudai
Traditional industries' innovation survey in Israel	Dan Peled, Meir Ben Chaim, Geri Laufer
ANNUAL REPORT 2009 Samuel Neaman Institute	Neaman Institute
Innovation in Israel 2010- Israel 2028 Implementation program Summary of workshop # 1 March 2010	Gilad Fortuna, Elad Shaviv, Dorin Almog-Sudai, Moshe Elad, Yael Lavi
Funding of Higher Education	Meir Zadok
Trust in the institutions and pride in Israel's achievements in the first decade of 2000	Eppie Yaar, Yasmin Alkalay

Innovation in Israel 2010- Israel 2028 Implementation program	Gilad Fortuna, Elad Shaviv, Dorin Almog-Sudai, Moshe Elad, Yael Lavi
Estimated supply and demand of manpower in the infrastructure engineering	Adam Buchman, Yehiel Rozenfeld
The Israeli water Management master plan-management policy of the effluent system in Israel -Summary and recommendation of the SNI 1st water forum	Avi Shaviv, Miki Zaide, Tal Goldrath
Vouchers for new immigrants as tools for the job market	Miriam Erez, Anat Rotstein
Policy recommendations for treatment of packaging waste in Israel	Ofira Ayalon, Michal Nachmany, Tal Goldrath, Gad Rosental, Idan Dorfman, Michal Grossman, Mordechai Shechter
Lessons derived from Agriculture and Rural development -applicable for Leveraging Classical Industries	Ehud Gelb
Evaluation of the Rothschild Fellowships Program	Daphne Getz, Eran Leck, Orly Nathan-Shats, Yair Even-Zohar, Tsipy Buchnik, Vered Segal
"Road Map" - A National Program to Promote the Integration of the Ultra-Orthodox Population in the Israeli Economy.	Reuven Gal, Ilia Zatkovetsky

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