

**ANNUAL REPORT 2009**  
**Samuel Neaman Institute**



Samuel Neaman Institute  
For Advanced Studies in Science and Technology



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 public 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.

Mailing address: Samuel Neaman Institute, Technion City, Haifa 32000, Israel

Phone: 972-4-8292329

Fax: 972-4-8231889

e-mail: [info@neaman.org.il](mailto:info@neaman.org.il)

Website : <http://www.neaman.org.il/Neaman/>



## **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**

This year we have entered the second decade of the 21<sup>st</sup> century and the Samuel Neaman Institute is celebrating a third of a century of activities and contributions to national policy making. This is, therefore, an opportune time to look back and ask ourselves some critical questions. Was our work meaningful ? Did we bring about changes in national policies ? Have we met our mission and discharged our duty ? Have we made a difference ? These are relevant and not trivial questions for any policy think tank, ours included, for several reasons. First of all policy changes take time, new ideas have to be absorbed into the fabric of the decision making community, they reach maturity only after multiple inputs and the process is permeated with political interests and circumstances. Yet, there are also cases where the impact is immediate and direct. We have experienced both. Here are some selected examples:

- In the late 1970s a major neighborhood renovation project was launched all across Israel to reduce the socio-economic gap and provide housing to those who can't afford it. The project was jointly funded by the Government and the Jewish Agency. After a few years into the project the Jewish Agency requested the Neman Institute to independently evaluate its effectiveness. The evaluation resulted in pinpointing the major flaw in the project: namely that renovation without creation of suitable job opportunities in the area cannot succeed in the long term.
- Another major project in the 1980s was to develop a methodology for managing Israel's water resources. Unfortunately, at that time the methodology wasn't adopted by the authorities. But, now when we are facing a major water crisis the

Neuman methodology resurfaces and serves as the foundation for current policy studies.

- In the 1990s the Institute formulated the model and template for the R&D cluster program initiative MAGNET for the Ministry of Trade and Industry. The model was immediately adopted by the ministry and forms to the present day the backbone of the governmental industrial R&D support.
- A major policy study the Institute did in the early 2000s is a comprehensive analysis of the Israeli chemical industry. The project was funded by the Ministry of Trade and Industry, the Manufacturer Associations and the Institute. The study demonstrated the huge growth potential of this industry provided both the Government and the industry adopt the recommendation. Though the policy proposed was not directly adopted as a whole, there is a clear spillover of the recommendations into practice. This includes the current interest and focus on 'cleantech' industries that have been recommended as very promising new venue for the industry.
- Jointly with the Ministry of Foreign Affairs the Institute analyzed the enfolding modern trends in public diplomacy and developed a template for the Ministry to target the public policies focused to specific audiences. The Ministry has adopted the recommendations.
- Recently the Institute was instrumental in developing the "Israel 2028 -Vision and Strategy for Economy and Society in a Global World" which is the most comprehensive national strategic plan. In 2008 it was submitted to the Ulmert Government and was about to be adopted as the national strategy. However political developments brought about a change in governments before it was put in action. Currently several 2028 follow up projects are carried out by the institute, such as integrating innovation into traditional industries and the other in developing a national program to integrate ultra-orthodox men into the workforce.

- The Institute has established over the years three influential discussion forums: in energy policies, water policies and higher education policies, which have gained excellent reputation and earned the respect by the policy makers.
- In addition over the years and innumerable projects commissioned by governmental agencies we became the leading Institute in the country in environmental policies and we are recognized as the national center in compiling and developing science & technology and human resource indicators.

These few selected studies carried out by the Institute suffice to demonstrate the breadth of the studies and answer, I believe, affirmatively the questions posed: yes we did make important contributions to national public policies and we do have an impact.

Prof. Zehev Tadmor

Samuel Neaman Institute, Chairman



## **Director**

### **Prof. Moshe Moshe**

In last year's Annual Report I had to relate to the Institute's financial difficulties, even before I was able to report about our productive work. The global economic crisis was felt in the budget of our Institute and I was forced to take the drastic measures of significant firing of staff and dramatic salary cuts. We have indeed managed to cross this stormy water safely. The Institute's deficit budget was balanced in 2009 and it seems that we will do even better in 2010.

It was not only the above mentioned measures that were helpful but also the wonderful success of our researchers in obtaining new external research contracts in unprecedented total sums. The reputation of the institute, its credibility and abilities were in our favor. This helped in terms not only of balancing the Institute's budget but also of breaking new ground; the work taking place at present in the Neaman Institute is extensive, thus enhancing the influence of our activity among state decision makers in a wide range of topics.

As a research institute for public policy involved in a wide variety of subjects in the field of economic, social and scientific-technological development in Israel, our research activity deals with the infrastructures that determine our national resilience: (a) the **human capital infrastructure** - policy studies in the field of higher education, society and health; (b) **the physical infrastructure** - policy studies in the field of transportation, quality of the environment and energy; and (c) **the science, technology and industry infrastructures** - surveys and studies on the subject of

scientific, technological and economic resilience. The projects undertaken by the Neaman Institute convey also the interrelatedness of these subjects.

The Neaman Institute formulated a program that constitutes one of our major frameworks - "The Vision and Strategy Plan for the State of Israel". The plan deals with all the three above-mentioned areas: the field of physical infrastructures of the state of Israel and the quality of the environment, human capital and higher education, leveraging traditional industries and the influence of globalization. This frame of activity constitutes a continuance of the program "Israel 2028: Economic-Social Vision and Strategy in a Global World. This is a national plan that, among other things, sets as its goal the purpose of doubling the GDP per capita in Israel within the next 20 years, including all the implications regarding society at large. This plan is the result of an initiative taken by U.S. - Israel Science and Technology Commission, which also funded the work that was done for the most part by the researchers of the Neaman Institute. The program was set by a public committee, headed by Eli Hurvitz and managed by David Brodet. A considerable part of the program "Vision and Strategy for the State of Israel" is led by Dr. Gilead Fortuna with the participation of many researchers.

A cluster of interesting studies on the subjects of science, technology, industry, economy and human capital is conducted by a group of researchers and information specialists, headed by Dr. Daphne Getz. These studies include the examination of indices for science and technology in Israel, examining the innovative system in Israel, evaluating the "Magnetron" program and appraising the Rothschild Fellowships Program. The group also conducted a research and development survey in Israel, studying the production of Israeli patents and comparing them on an international basis as well as conducting a research output survey comparing the quality of research with that of the rest of the world. It also examined the citations of articles written by Israeli researchers. Another important and extensive project is mapping national research infrastructures. Most of these studies are conducted at the request of, and with the cooperation and funding of the National Council for R&D through the Ministry of Science. Also, the group headed by Dr. Getz conducted studies that survey and evaluate the nanotechnology program, some as part of the programs of the

European Community. The scope of funding as the result of cooperation agreements with Dr. Getz's group amounts to the impressive sum of about 3 million NIS.

The BioNorth activity continued in 2009 and was presented in workshops held on the subject of bioscience and medicine. The workshops serve as an important meeting place for researchers from the academy and industries in the field of biotech in the northern part of Israel. Also, BioNorth maintains an active and updated website, which serves as another meeting place for researchers from Israel and abroad. The activity takes place in collaboration with the Technion, RAMBAM Medical Center, Rapaport Institute and Haifa's Economic Fund, and we are currently in the final stages of harnessing the Industrialists Association and Haifa University to this activity.

One of the most influential and remarkable programs, which also has considerable presence in the press, radio, television and internet as well as among professionals and government offices, is the activity of the Neaman Institute on the subjects of energy and the environment. The conclusions of the study on the subject of the future of the Dead Sea were quite prominent in the report of the State Comptroller. The Energy Forum, which holds several workshops a year, manages to attract the best experts in Israel and policy makers in the various fields of energy.

The research group in the field of environment and energy won the tender to execute a survey of mapping technologies in the field of energy. Also, the group conducts studies and surveys on a variety of subjects, such as improving the efficiency of use of energy, working on the subject of a national master plan and project outline for energy infrastructures - "TAMA 41", the waste separation project, Israel's alignment with the post-Kyoto Agreements and reducing greenhouse gases. As part of the activity in the field of environment, the Samuel Neaman Institute holds workshops within the framework of the expert forum on waste. The Institute is also a participant in the "Green Campus" project run at the Technion.

In 2009, the environment group study at the Samuel Neaman Institute, led by Dr. Ofira Ayalon, completed an important part of a joint venture with the Ministry for the Protection of the Environment, which includes the operation of a national program that records and reports the emission of greenhouse gases by companies, organizations and even by the IDF. As part of this venture and in particular the work

of the Samuel Neaman Institute staff, a code for the Israeli economy was adapted, based on the realization that "if it can be measured or calculated - it can be managed." As is well known, the President of Israel undertook at the Copenhagen Conference in 2009 to meet the objective of reducing 20% of the greenhouse gases emission in Israel over the next decade, in comparison with the emissions envisioned in the scenario of 'business as usual'. The new code, drafted in 2009, is a significant and operative landmark in improving the quality of the environment. This is another excellent example of the influence that the work of the Samuel Neaman Institute has on the decision-making system in Israel.

The Martin and Dorothy Kellner health promotion program became more established this year and defined its plans. The program deals with encouraging the Israeli population to lead a healthy lifestyle and began with a pilot project in Tirat Carmel. Two volumes were written, detailing the future line of action for this important project.

The project "People Israel," which is conducted within the framework of the Samuel Neaman Institute, continued with the development of its website, gaining popularity and considerable exposure in the media.

An interesting activity began in 2009, at the initiative of Prof. Zehev Tadmor, on the subject of incorporating the ultra-orthodox population in the Israeli economy and society. Today, a "road map" is planned for the activity of the Samuel Neaman Institute on this important subject. The activity is led by a new senior researcher who joined the institute recently, Dr. Reuven Gal.

A new agreement signed with the Ministry of Absorption this year concerned examining the success of the assistance plan that finances the salaries of immigrants in order to facilitate their penetration into the labor market. An empirical examination is under way and its conclusions will be delivered to policy makers in 2010.

The forum to accelerate the integration of the Arab population in Israel's economy and businesses, which is a joint initiative of the Samuel Neaman Institute, the Economic Development Authority of the Arab, Druze and Circassian Sectors and the Jewish-

Arab Center for Economic Development, is currently searching for an appropriate path of action to continue its last year's activity.

The researchers of the Samuel Neaman Institute participated and contributed this year to the panels of the Israel Business Conference organized by the business newspaper *Globes* held in December 2009. In this conference, various projects of the institute were presented. The major subjects in which the Samuel Neaman Institute participated include the program "Israel 2028," higher education, infrastructures, and the panel on the protection of the environment.

In 2009, discussions began regarding the upgrading of the Samuel Neaman Institute's website, which is frequently visited. The publications of the Samuel Neaman Institute have a wide readership and are often quoted in the press. Highly visible are, as already mentioned, the policy studies of the institute on the subject of the environmental issues.

The work of the Samuel Neaman Institute in recent years has involved members of the academic staff of the Technion and other academic institutions and persons from the industry who are interested in national policy studies and related issues that are researched by the institute.

Prof. Moshe Moshe

Samuel Neaman Institute, Director

# Research activity at the Samuel Neaman Institute

## - Contents -

### **A. National Policy Program: Vision and Strategy for the State of Israel**

General.....	14
A Program to form a Strategy for the Innovation Policies in the State of Israel.....	16
A Strategy for National Infrastructure in Israel for the Year 2050.....	18
Israel's Policy on Developing Transport Infrastructure.....	20
Green Aviation - Preliminary Review of Literature.....	21
National Policy on Cooperation in Business and Science vis-à-vis East Asian Countries.....	22
National Policy Projects for the Chemical Industry.....	23
Other Projects at Samuel Neaman Institute on Innovation and the Global Crisis.....	24

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

Higher Education Forum.....	25
Projects on the Subject of the Higher Education Policy in Israel - Accessibility, Quality and Excellence with Limited Resources.....	26
A Project about Teaching Geometry in a Cultural and Social Context.....	29

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

Evaluating the "Rothschild Fellowships" Program.....	30
Evaluating the MAGNETON Program.....	31
PRIME: Euro- CV.....	32
PRIME : Nanodistrict2 .....	32

Evaluating the Space Industry's Impact on Israeli Economy.....	33
Indices for Science and Technology in Israel.....	34
R&D Outputs in Israel 1990-2008:Israeli Patents with an International Comparison.	36
R&D Outputs of in Israel 1990-2008: Israel's Scientific Publications in an International Perspective .....	37
Mapping of Israel National Infrastructures .....	38
Evaluating the NOFAR Program.....	39
Evaluating the Activity Results of the Russell Berrie Nanotechnology Institute .....	40
The Information Centers of MAGNET Consortiums .....	41
Intellectual Property in the Government Sector.....	43
A Policy for Levering Stem Cells Research Through Intellectual Property.....	44

## **D. The Activities of Samuel Neaman Institute in the Field of Energy and the Environmental Quality**

The Samuel Neaman Energy Forum .....	45
Enlarging the Water Supply in Israel Through Non Revenue (NRW) Reduction and Prevention of Sewage Leakage.....	49
Energy R&D and Technologies Mapping.....	50
Greenhouse Preparation Gasses Emissions Registry .....	51
Preparation of Israel to Post-Kyoto Discussions and GHG Emissions Reduction....	52
Preparation of Background Material and A Draft For Packaging Waste Law In Israel .....	54
Energy Efficiency in the Milking Center of Ein Harod Ihud.....	55
The Technion Green Campus Project .....	56
Academic Articles .....	57

Environmental Quality -Study Days, Seminars and Conferences in 2009.....	57
--	----

## **E. Society, Health and National Resilience**

The Martin and Dorothy Kellner Health Promotion Program.....	59
The Water Forum at the Samuel Neaman Institute.....	60
Evaluation of the Program 'Assistance of New Immigrants' Salary - Employment Advancement .....	62
Adopting of Technological Innovation and ICT for Agriculture and Sustainable Rural Viability.....	64
BioNorth.....	66
Architectural Education in Israel as a means of Advancing Sustainable Planning....	68
People-Israel Project: A Guide to the Israeli Society.....	70
Accelerating the Integration of the Arab Population in the Israeli Economy and Businesses.....	73
Integrating the Ultra-Orthodox (Haredim) Sector into the Israeli Economy.....	74

## **F. General**

Study Days, Seminars and Conferences Taking Place in 2009 .....	76
Conventions & Articles that Appeared in International Journals.....	80
The Samuel Neaman Institute Website.....	82
List of Publications for 2009 .....	84
The Samuel Neaman Institute Staff .....	86

## **A. National Policy Program:**

### **Vision And Strategy for the State of Israel**

#### **General**

This frame of activity constitutes a continuance of the program "Israel 2028: Vision and Strategy For Economy and Society in a Global World", which, within the activity of Samuel Neaman Institute, includes an information bank, an ideological infrastructure and concrete-applicative suggestions for the short and long term.

"Israel 2028" is a national program that has targeted its goal to doubling the GDP per capita in Israel within the next 20 years, and deals with all that is implied for the Israel society at large. This plan is the result of an initiative taken by U.S. - Israel Science and Technology Commission, which also funded the work that was done for the most part by the researchers of the Neaman Institute. The program was set by a public committee, headed by Eli Hurvitz and managed by David Brodet. Many have worked on this program for more than two years, more than half of the work being done at the Samuel Neaman Institute at the Technion. The program was submitted during the first half of 2008 to the then Prime Minister Mr. Ehud Olmert, who presented it to the government plenum; it was accepted with sweeping support. The program was also presented by the general manager of the Prime Minister's office at the general manager's forum, and was supported there too. The program "Israel 2028" sets clear goals in a wide range of subjects in the areas of the physical infrastructures of Israel, the protection of the environment, human capital, higher education, leveraging traditional industries and the influence of globalization on the economy.

To implement this program, however, it has to become an operative program that will allow the execution of the ideas presented in it. Thus, the follow-up program at the Neaman Institute on the vision of 2028 deals with turning the vision into reality. The program presents a wide basis on which to promote substantial subjects of vision and strategy that could determine the national resilience of Israel and which are at the core of the Samuel Neaman Institute's purpose. It is highly important to preserve the momentum and therefore we intend to combine forces in the thinking processes with government offices and other state and private organizations that are interested in

promoting this program by preparing an information bank and ideological infrastructure and suggesting an implementation program for the long term. As part of the effort to execute the program "Vision and Strategy for Israel" in practice, the Samuel Neaman Institute initiated several projects, designed to prepare, together with government offices, a perennial implementation program.

Within the framework of this program, a series of efforts are being made in relation to the vision of "Israel 2028", designed to allow collaboration with the government for effective implementation.

As part of these efforts to market and advance implementation, we have to find partners in the government that will adopt the program for execution and will be willing to participate in its funding. During 2009, efforts were made by the Samuel Neaman Institute, with internal funding, to make progress in the following policy research areas:

- a. Integrating the ultra-orthodox sector in the Israeli economy
- b. Accelerating the integration of the Arab population in the Israeli economy
- c. Introducing an informed policy for infrastructure development to meet the 2028 objectives
- d. An innovative policy for the hi-tech sector
- e. Leveraging academic and industrial knowledge to build a new science-based industry
- f. Upgrading and empowering the traditional industries with the purpose of solving two elementary problems presented by the "Israel 2028" program:
  - Building an innovative and globally competitive industry
  - Decreasing the gap between the hi-tech sector and traditional industries that will solve the problem of a "dual economy".

Towards the end of 2009, an agreement was reached with the U.S. – Israel Science and Technology Commission (USISTF) concerning a program for 2009-2010, "the policy of innovation" that would be entirely financed by the Commission.

## **A Program to Form a Strategy for the Innovation Policy in the State Of Israel**

The program began in 2009 and will continue throughout 2010, focusing on the business and industry sections in the following three planes:

1. Enhancing and accelerating the upgrading of traditional industries and services, mainly by assimilating technological and business innovation while emphasizing the development of competitive skills in the global world.
2. Leveraging scientific and technological abilities and the innovation culture for the development of leading global science-based industries in directions in which we enjoy a comparative advantage that facilitates the attainment of long term global leadership.
3. Coping with the present hi-tech crisis with the purpose of developing a program that will create stability and sustainability and will preserve the contribution of this industry to Israel over time.

On each plane, the work teams will present several possible lines of action to achieve these goals. The advantages and disadvantages of each possible line of action will be analyzed and operative recommendations will be introduced for the government's judgment.

A steering committee headed by the Chief Scientist will accompany and guide the program and will convene quarterly. Work will be done by three teams.

The teams include people from the academy, industry, finances and the government. The Commission will finance the program for the next year and it is managed by a project manager appointed for this subject, Dr. Gilead Fortuna.

We intend to interview many of the participants and leaders in the economy and consolidate a practical national approach for implementation.

An added value of the work will be an objective analysis of the up-to-date findings and that it will offer a variety of tools that complement and/or are compatible with the existing tools to execute the policy on the subjects into practice, for the government

and Knesset's committee's judgment and consideration. We asked for and received the endorsement of the Chief Scientist and secured his willingness to guide the program and to help and encourage of the Industry, Trade and Labor Minister.

During 2009, we began to build the teams and the following actions were taken at the Samuel Neaman Institute:

1. A lecture before the MBA forum at the Industry and Management Faculty in the Technion.
2. Globes 2009 Conference (December 2009) - participation in a panel about Israel's policy on Health IT as an example of one of the subjects in which Israel has a comparative advantage in terms of developing a knowledge enriched industry that combines the health and the ICT disciplines.
3. Active participation in the Caesarea Conference and presenting an expression of opinion on the subjects of Israel's strategy in alignment with the vision of "Israel 2028".
4. Meetings and discussions about innovation analysis with the forum of the Milken Institute associates in Israel; presentation, discussion and brainstorming in an effort to combine knowledge and researchers from other international research institutes.
5. Meetings to present the innovation policy of Israel to RAND and Milken in the USA, particularly to the senior staff of these leading institutes, in an effort to secure their collaboration in implementations policies.

The project staff during 2009 included Prof. Zehev Tadmor, Prof. Moshe Moshe, Prof. Yehuda Hayuth, Prof. Miriam Erez, Prof. Daniel Peled, Prof. Arnon Bentur, Prof. Shlomo Maital, Zeev Bonen, Moshe Elad and Dorin Almog-Sudai

Project manager: Dr. Gilead Fortuna

## **A Strategy for National Infrastructure in Israel for the Year 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 location options open for the long term, 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. This 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.

Strategic planning of infrastructure development is vital because, as mentioned, of the long time involved in planning, in the process of receiving the required permits, in financing and in execution and the need to identify and maintain options for continued development in the long run. 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.

A partial list of such steps are given below according to the following infrastructure subjects:

- **General:** The establishment or authorization of a government organization that will be in charge of a comprehensive national view of the systems of physical infrastructure, solving conflicting interests and setting priorities.
- **Surface transportation:** Immediate 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 travelling by private cars, mainly in metropolitan areas, along with long distance passenger and freight trains in high demand routes.
- **Sea and airports:** planning and developing additional terminals according to demand forecasts and Israel's geo-strategic position, in light of Israel's dependency on its international trade.
- **Energy:** National strategic planning that will include principal recommendations regarding the location of power stations, supply networks and the mix of energy types for the production of electricity. Setting incentives to encourage investments in production capacity and supporting projects of renewable energy.
- **Water:** Policy and technology to reduce and improve water use and increase the quality of wastewater treatment. Promoting technologies and accelerating the production of water desalination. Strategic planning of water supply for the eastern and western avenues of Israel.
- **Training engineering personnel for the infrastructure industry:** Providing solutions for the urgent need and expected shortage of engineers and technicians in the construction and infrastructure industry. Increasing the infrastructure for training professional manpower, encouraging and attracting suitable personnel to this industry.

This project is headed by Prof. Yehuda Hayuth.

The leaders of the research teams include Prof. Doron Balasha and Mr. Gideon Hashimshoni, Prof. Yehiel Rosenfeld, Prof. Gershon Grossman, Dr. Ofira Ayalon and Accountant Adam Buchman, Advisor: prof. Arnon Bentur

Project coordinator: Moshe Elad

## **Israel's Policy on Developing Transport Infrastructure**

This research focuses on preparing a policy document on the subject of a master plan for transport for the National Council for Economy at the Prime Minister's Office, aiming at assisting in the development of a policy to be determined by the government on the subject of road transport development in Israel, roads and rails.

The subjects to be examined include a varied series such as a methodology to evaluate transport projects along with testing and weighing the cost and benefits of rail projects at the level of a single line and analysis of a full rail network.

From another aspect, the study examines transport trends abroad, with an emphasis on rail solutions. The countries considered will be as similar to Israel as possible in various aspects such as size, population, motorization level, congestion, etc. In parallel, an analysis of the transport situation in Israel will be conducted, given a 'business as usual' scenario and also with alternative scenario involving massive investment in transport infrastructure.

The research examines the expected impact of efficient connections between the center and the periphery on residence and employment patterns in peripheral areas. In addition, specific consideration will be given to the subject of a rail connection between Eilat and its port and the center of Israel.

The research team includes Prof. Yehuda Hayuth (PI), Prof. Doron Balasha and  
Eng. Gideon Hashimshoni

Advisor: Prof. Shlomo Maital

## **Green Aviation - Preliminary Review of Literature**

The review of "Green Aviation" will be conducted at the request of the Civil Aviation Authority of Israel at the Ministry of Transport.

The goal of this review is to identify the relevant and related subjects, discussed and researched in the field defined as "Green Aviation." The review will classify the subjects according to key areas. The review will focus on developments related to environmental issues in aviation.

Following the completion of the review and findings analysis, subjects that might be relevant to Israel and to the attention of the Civil Aviation Authority will be presented. The subjects to be examined include, among other things: Alternative Fuels, EU Emissions Trading, Fuel Efficiency, Air Quality and Sustainability, Emission Policy Options, Aircraft Noise, Green Airports and Maintenance in Airports.

Research Team: Prof. Yehuda Hayuth (PI), Dr. Ofira Ayalon, Dr. Daphne Getz and Orly Nathan

# **National Policy on Cooperation in Business and Science**

## **Vis-À-Vis East Asian Countries**

This project dealt in 2009 with three issues:

- a. Completing the project of Israel-India scientific-technologic cooperation which started in 2006 and ended in 2009. The report will be published at the beginning of 2010. In 2009, a highly respected delegation of the higher education system from India was invited for a visit at the Samuel Neaman Institute and the Technion. They participated in a seminar about industry-academy cooperation delivered by Dr. Gilead Fortuna in India last year on behalf of the Samuel Neaman Institute.
- b. Coordination with MATIMOP about a support program for the policy of technological and industrial cooperation with East Asia, mainly with India and China. Because of delays due to completing the innovation policy, we postponed the beginning of the project, to be financed by MATIMOP; however, the option still exists and will be probably realized during 2010.
- c. Dr. Gilead Fortuna participated and lectured about Israel's options and policy in East Asia in three different conferences about China during the year.
  - A conference on the life sciences policies and industry in China, at which Dr. Gilead Fortuna gave the main lecture, on the subject of pharmaceutical activity in China and the options for Israeli companies in cooperation and sales.
  - A conference that dealt with counseling the Israeli industry, based on personal experience and accumulated knowledge in managing businesses in China. This is a guest lecture about business activity for a broad forum of Israeli industry that was requested by the management of Bank Hapoalim, headed by the Chairman of Bank Hapoalim and the CEO of Poalim Capital Markets.
  - A conference constituted a large meeting of businessmen from Haifa and Shanghai, as twin cities, with the participation of the Chinese ambassador in Israel and his staff, aimed at creating partnerships and business opportunities for

joint ventures. At this conference, Dr. Fortuna presented the motivations and the means to promote joint Israel-China ventures in research, development and production.

Project head: Dr. Gilead Fortuna

## **National Policy Project for the Chemical Industry**

A project concerning national policy for the chemical industry was recently completed at the Samuel Neaman Institute and was published in a broad forum at the Globes Conference and in meetings with the industry. During 2009, Dr. Gilead Fortuna was asked to review, as an opening lecture at the annual conference of the Chemical Engineering Society, the contribution of the chemical industry to the Israeli economy and its potential.

We have updated the 2007 original industry data for the last two years and compared them with the forecast. The positive forecasts were actually realized in practice.

In light of the work on the vision of “Israel 2028”, and viewing the chemical industry as part of the general Israel industrial system, we compared the contribution of the chemical industry with that of the hi-tech industry and other traditional industries. Our conclusion was that the chemical industry should continue to be encouraged and enhanced and it is recommended that the implementation of this work and its economic consequences be further followed and monitored, both as an independent industry and as part of the total vision of the industrial strategy for Israel.

Project head: Dr. Gilead Fortuna

Project associate: Reuven Wax, former CEO of Machtshim

## **Other Projects at Samuel Neaman Institute on Innovation and the Global Crisis**

In 2009, Prof. Shlomo Maital completed writing a book about the global crisis [1]. The work on the Hebrew version of his book *Innovation Management* has also ended [2].

Together with Prof. D. V. R. Seshadri, Prof. Maital wrote an article about the way in which innovative organizations can lever the global crisis to gain a competitive and business advantage. The article was submitted to Vikalpa, the Journal for Decision-Makers [3].

A report was made for the "Israel 2028" project, managed by Dr. Gilead Fortuna, about the guiding principles for modernization in "traditional" industries. [4]

Prof. Maital, together with Dr. Yudan Rofe and Prof. Daniel Gat, organized a conference on the subject of TOD - Transportation-Oriented Development. The subject of the conference: Advantages from integrating urban planning with transportation (especially rail).

During the year, Prof. Maital continued to write a column in the magazine *Jerusalem Report*, called Marketplace [5]. Also, he continued to write his blog on subjects related to innovation and the global crisis [6].

[1] S. Maital & D.V.R. Seshadri. Global Risk/Global Opportunity: Ten Essential Tools for Tracking Minds, Markets and Money. SAGE: June 2010.

[2] S. Maital & D.V.R. Seshadri. ניהול היזמות והחדשנות. Magnus Publishing (Hebrew University), June 2010.

[3] S. Maital & D.V.R. Seshadri. "Innovating During Global Recession - Transforming Risk into Opportunity." Submitted to Vikalpa: The Journal for Decision-Makers, April 2009.

[4] S. Maital. "Modernizing Traditional Industries: Best Practice Benchmarks for Israel 2028 - Six Principles in Search of an (Industrial) Policy", S. Neaman Institute,

draft, 2009.

[5] S. Maital. "Marketplace" column, Jerusalem Report (English-language fortnightly).

[6] S. Maital. Blog - Global Crisis and Innovation, [http: www.wordpress.com/tinnovation](http://www.wordpress.com/tinnovation)

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

### **Higher Education Forum**

The Samuel Neaman Institute, in collaboration with the Basha'ar Association and Fulbright's U.S.-Israel Educational Foundation (USIEF) holds about five to six meetings annually on subjects related to higher education in Israel. The following five meetings took place in 2009:

**Meeting no. 11** took place on January 30, 2009, on the subject of "**Tuition and Assistance Systems.**"

Lecturer: **Dr. Liora Meridor**, a member of the Schochat Committee that examined the higher education system and Chairperson of the sub-committee to determine assistance systems and tuition.

**Meeting no. 12** took place on March 17, 2009, Discussion session on the subject of "**The Future of Higher Education in Israel**"

**Moderator:** **Prof. Moshe Moshe**, Director of the Samuel Neaman Institute

**Participants:** **Prof. Shosh Arad**, President of Rupin College and Chairman of the Committee of College Presidents (VARAM), **Prof. Paul Feigin**, Executive Vice President - Technion, **Prof. Zvi Galil**, President of Tel-Aviv University, **Prof. Hagit Messer-Yaron**, President of the Open University, **Prof. Mordechai (Moti) Shechter**, Haifa University and former President of Tel Hai Academic College, **Prof. Zehev Tadmor** Chairman of the Samuel Neaman Institute and former President of the Technion. **Prof. Manuel Trajtenberg**, former Head of the National Economic Council and Chairman of the Planning and Budgeting Committee (VATAT)

**Meeting no. 13** took place on May 8, 2009, on the subject of "**Higher Education in the Arab Sector**".

Speaker: Prof. **Fuad Fares**, Haifa University, member of MALAG (CHE - Council for Higher Education).

Followed by a general discussion, participants included guest Prof. Avishay Braverman, Israeli Minister of Minority Affairs

**Meeting no. 14** took place on November 13, 2009, on the subject of "**The Model of Higher Education in California - Evaluations and Directions.**"

Lecturer: **Prof. Sheldon Rothblatt**, University of California at Berkeley USA.

**Meeting no. 15** took place on December 25, 2009, on the subject "**The Higher Education Policy in Israel.**"

Speaker: **Prof. Manuel Trajtenberg**, Chairman of the Planning and Budgeting Committee (PBC/VATAT)

Responding: **Prof. Shosh Arad**, President of Rupin College and Chairman of the Committee of College Presidents (VARAM) . **Prof. Aaron Ben-Ze'ev**, President of Haifa University and Chairman of the Committee of University Presidents (VERA)

The meeting started with a review of the role of the PBC in Israel's higher education system by **Prof. Ami Volansky**, Tel-Aviv University and followed by a brainstorming session with all participants

## **Project on the Subject of the Higher Education Policy in Israel - Accessibility, Quality and Excellence with Limited Resources**

The goal of Prof. Uri Kirsch's project is to discuss a series of questions, issues and difficulties that arise on the way to realizing the goals of higher education, and to propose primary recommendations to solve them. These issues plague higher education systems in many countries. Yet, there are differences in historic background, in social and cultural subjects, and so on. The higher education system in Israel has some unique problems and difficulties, some being existential in nature,

making the need for adequate solutions all the more important; solutions that were proposed until now were found to be unsatisfactory. The following are some of the subjects included in the project.

Unprecedented reforms took place during the 20<sup>th</sup> century, turning the higher education system from a selective-elitist system into one that is populated by the masses. A major challenge for the system at the present is to advance a higher education that ensures universal accessibility, high quality teaching and research excellence at a global level, while making a rational utilization of limited resources.

**Research excellence at a global level.** International reviews indicate some impressive outcomes related to Israel's research excellence; however, the present achievements are the fruits of past investments. An in-depth examination points to gravely inadequate processes taking place at the present, which will be felt only in several years and may lead to further deterioration.

**High quality teaching.** Maintaining high standards of teaching requires increasing the number of academic staff members and investing in teaching infrastructures that involve additional resources. All these form a necessary, but not a sufficient, condition for advancing high quality teaching. The challenge is to maintain high quality teaching with limited resources. International committees to evaluate the quality of teaching pointed to a variety of problems, deficiencies and even severe failures in some of the examined institutions and fields. These subjects require fast and focused remedies.

**Higher education accessibility.** Israel has several remarkable achievements on the subject of accessibility, but much more has to be done, particularly among minority and ultra-orthodox populations.

**Regulation of the higher education system.** The regulatory organizations (MALAG, VATAT) have monitored only several research universities when they were established. Over the years, the system has developed and many other previously nonexistent activities were added. Despite the changes that occurred in the work procedures of the regulatory organizations in an effort to adapt them to the changes occurring in the system, these changes did not prove to be successful. In the present

state, these organizations do not fulfill their role effectively and therefore a comprehensive reform is needed, regarding the contents that these organizations have to monitor as well as the organizational aspects. This requires in-depth thinking for decision making and proper implementation.

**Stratification of the higher education system.** The common solution in Israel and abroad regarding subjects related to accessibility, academic quality and limited resources is to stratify the higher education system in several layers. The stratification existing in Israel (universities and colleges) is not implemented correctly and fresh thinking is needed.

**Research universities.** In recent years, there is a feeling that there are different issues and problems for which adequate solutions have not been reached. These include issues related to governance, management and the character of the university. The increase in external demands requires fresh thinking about accountability and transparency of the institutions.

**Academic colleges.** Academic colleges play a major role in the community and in broadening accessibility to higher education. However, it seems that there is no consensus regarding their development directions. The different approaches require intensive discussion about the position of the colleges in the higher education system.

**Rational Utilization of limited resources.** Recently, a decrease occurred in the income components of the institutions and the basic questions are how to increase them and how to divide them properly. The reductions in public expenditure on higher education resulted in cutting the academic staff and an increase in the number of students. While many countries are increasing their investments in higher education and taking actions directed at raising tuition, Israel is cutting its budgets and reducing tuition. To achieve universal accessibility, high teaching quality and research excellence at a global level, a policy of rational usage of resources is needed as well as the setting of priorities while taking national goals into consideration. In addition, proper management and functioning of the institutions, as well as proper measure of regulation, are required.

This project is headed by Prof. Uri Kirsch.

## **A Project about Teaching Geometry in a Cultural and Social Context**

This program is intended for teaching students and teaching cadets.

In this project, new aspects in the teaching of geometry that involve different cultures are learned. The study content concerns the development of different cultures, some of which are historic, such as the Greek, Pharaohonic, 11<sup>th</sup> century Arabic, Gothic and Mediaeval, and some religious, such as the Judaic, Christian, Islamic cultures, and their ornaments.

The goal of this program is to promote education for peace by changing people's perception and encouraging acceptance of other, different people.

The study content includes learning about other people while becoming involved in their different culture and in the development of this culture over generations, just as the student's own culture developed.

The aim is to create a perceptual change and pave the way for a shared life in a modern, multi-cultural, society.

This project is headed by Prof. Daud Bashuti

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

### **Evaluating the "Rothschild Fellowship" Program**

The Rothschild post-doctoral fellowships were established in 1979 with the aim of enabling Israeli PhDs to spend a post-doctoral period of study abroad. The program is considered to be one of the most prestigious fellowships available for Israeli scholars.

The main goal of the research was to evaluate the impact of the program on the candidates' careers and to assess their chances of pursuing academic careers in leading universities and research institutions in Israel. The research population included 359 candidates who applied to the program between 1996 and 2005. Three groups are included in the analysis: candidates who received the fellowship (Rothschild fellows), candidates whose application was turned down by the evaluation committee and candidates who chose to decline the fellowship.

The research methodologies included an evaluation survey and a bibliometric output analysis, based on the publication analysis of 269 researchers. The bibliometric examination showed that the quantity and quality of academic citations of all three groups were significantly higher than the Israeli and the global average in most academic fields. The evaluation survey encompassed 216 Rothschild candidates. The findings of the survey showed that Rothschild fellows achieved greater success in attaining tenured track positions (in Israel and abroad) than candidates whose application was turned down by the evaluation committee.

Research staff: Dr. Daphne Getz, Dr. Eran Leck, Vered Segal, Yair Even-Zohar, Orly Nathan, Tsipy Buchnik and Bella Zalmanovich

## **Evaluation of the MAGNETON Program**

The evaluation of the Magneton program is a research initiated and funded by both the Samuel Neaman Institute and the MAGNET management. The research was performed during 2008-2009.

The main research goal was to examine the outputs of the Magneton projects and their success while focusing on the characteristics of the projects, academic researchers and industry head of projects and to evaluate the factors impacting the projects' successes and failures in the past few years.

The Israeli Chief Scientist's bureau conducts several programs which aim to promote technology transfer from academia to industry. The Magneton is one of the important and unique programs, in which a research group from the academy and an industrial company are working jointly for the transfer of the knowledge/ technology, that was developed in the academy into a tool for the use of the industrial company.

The research was based on a preliminary research conducted by the S. Neaman Institute.

The methodology selected for this research is based on an evaluation survey and interviews conducted with the parties involved in Magneton projects: researchers from academy and head of projects from the industry who participated in 72 Magneton projects that have completed their activities during 2004-2007. The survey included data collection on the participants' characteristics, project characteristics, participants' modes of operation and program success indicators.

The research findings were integrated into summary report which provides the program managers and policy makers a broad picture regarding the program effectiveness and suggested ways for its improvement.

Project team: Dr. Daphne Getz, Vered Segal and Dr. Eran Leck

## **PRIME : Euro-CV**

The Euro CV project was part of the PRIME network of excellence that examined the use of new indicators for science, technology and innovation (ENID). The PRIME network operated within the EU's Framework Program for Research and Technological Development (FP6). The Euro-CV project was the first collective and coordinated European effort to explore the potential of electronic CV's data as an indicator for researcher's mobility and productivity. For this purpose, several selected CVs databases were analyzed and the CV's based indicators were used to study researcher's mobility patterns and the mobility effects on the researcher's careers and scientific productivity.

The S. Neaman task in this project was methodological evaluation of electronic CV's databases according to the following criteria: database coverage, database access, data quality, strengths and limitations in using the CV's data. Also a review on Israeli researcher's databases was written and included in the project final report that was published during 2009.

Project Leader: Dr. Daphne Getz

Project team: Bella Zalmanovich, Tsipy Buchnik

## **PRIME: Nanodistrict2**

The Samuel Neaman Institute participated in the European Nanodistrict2 Project as part of the PRIME program. The project focuses on the dynamics of the development of the nanotechnology field in academic research and in research institutes as well as on the development of industry based on nanotechnologies in different sectors.

As part of the project, the Samuel Neaman Institute team conducted comprehensive case studies of three Israeli companies, which were chosen to serve as an example for other case studies by the other parties. Also, another case study of the activity of the

MAGNET Consortium NFM (Nano Functional Materials) was carried out, and its influence on the development of the Israeli nano-industry was evaluated.

A document describing the characteristics of the nano industry in Israel was prepared, and a database of companies that are active in the field of nanotechnology in Israel was established.

Project team: Dr. Daphne Getz, Larisa Eidelman and Yair Even-Zohar

## **Evaluation the Space Industry's Impact on Israeli Economy**

This project was operating under the auspices of the S. Neaman Institute and MAFAT during 2007-9. The project goal was to map out the interconnections between Israel's academy, national defense system and industry in light of the country's growth in space industry and in space technology R&D. In the framework of this project, an attempt was made to evaluate the impact of space industry on Israeli economy by collecting, analyzing and presenting data on the industry, human resources training and R&D in this field.

The project was summarized in 6 reports:

- Report no.1- The scientific position of Israel in comparison to other countries in space-related fields of science, according to bibliometric data
- Report no. 2 - Data on the space industry in Israel and worldwide
- Report no. 3- Indicators of space-related activities in Israel
- Report no. 4 - A review of possible business models in the space industry
- Report no.5- Presents data assembled by interviewing Israeli space industry leaders. The report presents the Israeli Space Industry SWOT (Strengths, Weaknesses, Opportunities, and Threats).

- Report no. 6 - Presents a survey of space policy and strategy in several countries. Space market analysis and the position of the Israeli space industry in the world space market are addressed in this report.

During 2009, the four reports were assembled into one document and sent to Israeli space industry leaders. In November 2009, the main findings of this project were presented by Dr. Daphne Getz at the Tel-Aviv Workshop for Science, Technology and Security at a special seat entitled: Space in Israel: crisis or opportunity.

**Project team:** Dr. Daphne Getz, Arkady Katsman, Bella Zalmanovich, Vered Segal, Yair Even-Zohar, Deganit Paikovsky

## **Indices for Science and Technology in Israel**

In recent years the Samuel Neaman Institute identified the need to establish an infrastructure for advancing a systematic and ongoing process of forming a national policy on research, technology and innovation.

Establishing a database of comparable and updated indices was the first stage in the program initiated by the Samuel Neaman Institute, aimed at helping policy makers map and evaluate Israeli R&D activities, the skills, and the scientific infrastructures and their financing over the years, and at enabling making international comparisons. Within this framework, two publications on the subject of "Indices for science, technology and innovation in Israel: A comparable database" were published.

The first publication in this series appeared in 2005. It included three chapters: national expenditure on civil R&D, human resources in science and technology, and outputs in science and technology. It was written in a format similar to that of the papers 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, 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 is planned for 2010. This publication will update all the data that appeared in the 2007 publication and will add two new chapters: Globalization and R&D by areas.

The goal of the present work, financed by the Samuel Neaman Institute and the National Council for R&D, is to continue to provide updated data and indices as well as to develop new indices on the subjects of science, technology and innovation. The indices and data about Israel will be compared with those of other countries, being compatible in their definitions and data collection methods with international standards.

The database and the indices are not the final product, but a starting point for discussions and brainstorming by experts and policy makers. They will contribute to our ability to analyze and understand the processes and the influences of decisions regarding policy in the fields of science, technology and innovation. The comparability of the activity indices and its effects on a time axis in Israel, in comparison with the development of identical indices in other countries, will contribute to the consolidation and updating of an informed policy.

Researchers: Dr. Daphne Getz, Prof. Dan Peled, Tsipy Buchnik and Ilia Zatzovetsky

## **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 consider the number of patents and patent applications, examining trends over the years and the relation between the patent owners and inventors, patent slicing by technological classifications, identifying the geographical location of innovation, examining cooperation between sectors (industry, hospitals, government and academic research institutes) and between Israel and other countries.

The study includes a literature 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 analysis will take place according to the methodology and recommendations of the OECD guide, which are presented in the literature review. The study is a joint venture of the Samuel Neaman Institute, the Science Ministry and the R&D National Council.

Research staff: Dr. Daphne Getz, Dr. Eran Leck, Yair Even-Zohar and Orly Nathan

## **R&D Outputs in Israel 1990-2008: 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 analyse the status of research in Israel in comparison with selected countries and institutions using bibliometric indices.

The national bibliometric information infrastructure established for this project will allow an in-depth look at the research output (scientific papers) published by authors in Israeli institutions.

The project will include bibliometric analysis of the Israeli research output and evaluation of its quality and quantity in 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 staff: Dr. Daphne Getz, Dr. Eran Leck, Prof. Gideon Czapski, Yair Even-Zohar and Bella Zalmanovich

## **Mapping of Israel National Research Infrastructures**

Neaman institute won the tender, of the National council for civil research & development (MOLMOP) through the ministry of technology and science, to perform a project of mapping the Israeli National Research Infrastructures (NRI).

The project goal is to map the existing national research infrastructures and to define future needs of Israeli researchers in upgrading and establishment of new research infrastructures.

National research infrastructure is a facility in which, research equipment, data bases or archives are installed and enable to perform world level technological scientific researchers. The infrastructure has a very high cost and it is open for the use of the Israeli scientific community.

The project will focus on the following subjects:

1. Mapping the existing national research infrastructures - we will focus on government, public and private institutes which hold R&D units and have facility which suite the NRI definition, including: research institutes, industrial companies, hospitals etc. Within the research framework we will examine research infrastructures in which there are activities in the following fields: technology, quality of environment, energy, natural sciences, life sciences, exact sciences, medicine, humanities and social sciences.
2. Evaluation of future needs for national research infrastructures- we will gather knowledge and data regarding the need of upgrading existing infrastructures and establishment of new research infrastructures.
3. Review the subject in other countries which are similar to Israel on several aspects and examination of their policy in protecting their NRI's in a suitable level to their research needs.

The research findings will assist the Molmop and the government in defining the policy for NRI's development and support which will enable to present the Israeli R&D in high level that suit the country, society and economy needs.

Research team : Dr. Daphne Gets, Dr. Dan Kaufman, Dr. Nir Ben-Aharon, Vered Segal, Bella Zalmanovich, Ella Barazani, Golan Tamir and Dorin Almog-Sudai

## **Evaluating the NOFAR Program**

The evaluation of the NOFAR program is an ongoing research jointly funded by the Samuel Neaman Institute and MAGNET management.

The NOFAR program was established as an upshot of the recommendations of the Monitor Report. The report suggested setting up a specialized foundation for "the support of academic inventions with commercial potential in the biotechnology and nanotechnology fields". The main goal of the NOFAR program is to build a bridge between basic academic research and applied research in the initial concept stage. The program enables researchers in the academia to conduct applied research that could not be supported by basic research foundations. The program is aimed at bringing the concept or invention developed in the academy to a level of maturity that will enable the industry to decide whether it is willing to further invest in its development.

The main goals of the research are to analyze the contribution of the various partners involved in NOFAR projects and to evaluate the factors impacting the projects' successes and failures in the past few years. The methodology selected for this research is based on an evaluation survey and interviews conducted with the parties involved in NOFAR projects: researchers from universities, representatives from the industry, evaluators, and representatives from the technology transfer offices. The empiric data collected in this study will be used for the formalization of recommendations that could assist policy makers in improving the program.

Research team: Dr. Daphne Getz, Dr. Eran Leck, Vered Segal and Iris Eyal

## **Evaluating the Activity Results of the Russell Berrie Nanotechnology Institute**

The goal of the project was to investigate closely the development of the field of nanotechnology at the Technion based on the activity of the Russell Berrie Nanotechnology Institute. The Russell Berrie Nanotechnology Institute at the Technion is the result of the joint effort of three parties: The Russell Berrie Fund, the Israeli Government - through the National Infrastructures for R&D Forum (TELEM), and the Technion, who jointly raised a total budget of about 90 million dollars for five years. The activity of the Russell Berrie Nanotechnology Institute is examined over time, in an effort to evaluate the results and the impact of the researchers' activity in the institute. The results of the activities of the researchers in the institute were evaluated via a comprehensive survey conducted among the active institute researchers and executed by the Samuel Neaman Institute in 2007 for the first time. A summary of the results of this survey appears in a report on the Samuel Neaman Institute website.

Another survey was conducted in 2009 and the analysis of the survey results as well of the bibliometric findings will enable us to identify the trends over time. A questionnaire developed to fulfill the goals of this survey will examine the influences and effects of the extensive investment in equipment, manpower, projects and different programs on the development of the nanotechnology field in the Technion and in Israel. A summary report of the survey results and the bibliometric analysis of publications and patents on the subject of nanotechnology will be submitted to Russell Berrie Nanotechnology Institute during 2010.

Research team: Dr. Daphne Getz, Larisa Eidelman and Yair Even-Zohar

## **The 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 fulfill the needs of knowledge management and to supply information services to consortia that operate within the MAGNET program. The information centers are based on a computerized system, planned according to the requirements of the staff of the Samuel Neaman Institute in collaboration with the consortia.

For the past seventeen 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 sixteen 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 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 2009, the Samuel Neaman Institute operated ten information centers for MAGNET consortia. In 2010, four consortia will complete their research period and we will 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 database 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 announcements, and secured forums for holding unstructured discussions between the consortium's members.
  
4. **Consortia's open websites:** building websites for consortia that are interested in publishing their activity around the world, including: NFM, BMP, MOEMS, 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: Ela Barazani, Orly Nathan, Bella Zalmanovich, Liora Har-Even, Iris Eyal, Ayelet Rave and Yair Even-Zohar

Chief Information Officer : Golan Tamir

**Information centers for consortia operated by Samuel Neaman Institute in 2009:**

The 4G mobile network (REMON), broadband short range wireless communication (ISRC), the 4<sup>th</sup> generating imaging machines (IMG4), next generation personalized video content services (NEGEV), bio-medical photonics (BMP), innovative spectrum management research & technology (ISMART), rapid deployment of broadband

communication for rescue forces (RESCUE), real-time HDTV-quality video on the open internet web (NET-HD), advanced fiber laser (AFL), Nanotubes Empowerment Solutions (NES).

Manager: Dr. Daphne Getz; Coordinator: Yosef Linhart

Information specialists: Orly Nathan, Ella Barazani, Bella Zalmanovich,

Liora Har-Even, Iris Eyal, Ayelet Rave and Yair Even-Zohar

## **Intellectual Property in the Government Sector**

The goal of the study is to create an infrastructure for forming a policy on the subject of intellectual property rights to knowledge that constitutes a product of R&D activity funded by the government. The commercialization of R&D products through intellectual property raises significant dilemmas regarding the nature of the public investment in R&D. A systematic examination of such dilemmas is necessary in order to establish a basis for a comprehensive national policy.

In this study, the R&D activity objectives, financed by the government, will be examined and compared with those of selected countries. We will examine whether the commercialization of knowledge is in agreement with the nature and objectives of the governmental R&D, while focusing on its social and economic consequences.

The results of a survey reflecting the common work rules and the current state of affairs regarding intellectual property rights that are a product of research activity that is financed by the government will be presented through the Chief Scientist and through government research institutes. This survey will also include a comparative picture vis-à-vis several selected countries from the OECD.

A separate analysis will be devoted to government hospitals, forming a unique model of R&D management.

Research Staff: Dr. Daphne Getz, Larisa Eidelman and Yair Even-Zohar

This is a joint study by Samuel Neaman Institute and Haifa University

The project team at Haifa University: Prof. Niva Elkin-Koren and Sharon Bar-Ziv

## **A Policy on Leveraging Stem Cells Research Through Intellectual Property**

The goal of the research is to create an infrastructure for designing a policy concerning research, development and knowledge transfer in the field of stem cells. This policy was intended to encourage scientific innovation as well as help leverage Israel's position as a leader in this field in the global arena. Stem cell research is currently positioned at the forefront of biotechnological research and its success brings to the fore a variety of unique issues in the legal and ethics areas, which are different and which different countries in the world have different approaches.

The study will present the current state of affairs of the practice in the different research institutes in Israel regarding the management of intellectual property rights to stem cell knowledge and its commercialization and will also suggest an outline for a commercialization policy of the research products that will be in agreement with the legal and economic reality in Israel and in the world, while taking varied and sometimes conflicting public interests into consideration.

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

The study will combine empirical work to map and analyze the scientific activity in Israel in the stem cell field in the academy and industry and will also include an analysis of the R&D policy in the stem cell area, the legal arena and various alternatives to commercialized research in the field of stem cells in Israel.

The study will also include a bibliometric analysis that will examine the quality and quantity of Israel's scientific and research output in the stem cell area in comparison with that of other selected countries and of other research areas.

The legal analysis will be based on the analysis of agreements, legal documents and the common law, research of comparative law, literature review and a comparative analysis with other selected countries.

Research Staff: Dr. Daphne Getz, Larisa Eidelman, Vered Segal and Yair Even-Zohar

This is a joint study by Samuel Neaman Institute and Haifa University

The project team at Haifa University: Prof. Niva Elkin-Koren, Dr. Yael Bergman-Eshet, Sharon Bar-Ziv and Talya Ponchek.

## **D. The Activities of Samuel Neaman Institute in the Field of Energy and Environmental Quality**

### **The Samuel Neaman Energy Forum**

In 2006, the S. Neaman Institute initiated the SNI Energy Forum, led by Prof. Gershon Grossman and coordinated by Dr. Ofira Ayalon, with the aim of creating a professional platform for discussions related to the field of energy in Israel.

The forum is broad in its scope and provides a meeting place for sharing ideas and promoting projects in the fields of alternative energy, energy savings and energy conservation. Through the activities of the forum, ideas are developed and professional policy determined by relevant entities in the field and by decision makers from the various governmental agencies.

After each forum meeting, a report is published to summarize the highlights of the discussion, provide relevant information regarding activities in Israel and abroad, and a summary of the open discussion conducted in the forum meeting and operational conclusions.

The reports are designated for decision makers and any other public organization, aiming to bring the state of Israel to recognize the contribution potential to the Israeli energy market. The energy forum reports are recognized as an important tool in the hands of experts from the Ministry of Finance, Ministry of Infrastructures and the Ministry of Environmental Protection.

Project Leader: Prof. Gershon Grossman; Project Coordinator: Dr. Ofira Ayalon  
Forum research assistant: Tal Goldrath, Michal Nachmany

During 2009 three forum meetings were held:

#### **I. Solar Power Plants in Israel, 9.2.2009**

Solar electricity production technologies, based either on thermal conversion or Photovoltaic (PV) conversion, have reached technological maturity level that enables their application in large scales. Although some of these technologies were initially developed by Israeli companies, they are not yet being implemented in Israel. Power plants based on solar technologies are working around the world, especially in California and Spain, and a lot can be learned from the experience there. Solar electricity prices, either thermal or PV, are still too high to compete with conventional electricity, and incentives need to be applied to enhance these renewable and green technologies penetration into the electricity market.

Most of the forum's participants believe that in spite of the current high price, solar power plants have many advantages here in Israel. Clear advantages are improvement in local air quality in moving to a cleaner energy, reduction of greenhouse gases emissions, national security of supply and more independence from imported fuels. Beyond the obvious, a local industry development and a creation of new green jobs is another positive effect that must be taken into account while building and during the full life operation of these solar power plants.

The various considerations and means to promote solar energy in Israel are reviewed in the full report.

## **II. Electric and hybrid vehicles, 1.6.2009**

The development of vehicles that are not dependent on fossil fuels is an issue addressed with top priority in many parts of the world. They are an effective and effective tool for prevention of air pollution, reduction of pollutants and greenhouse gasses emissions.

The term "Electric Vehicle" refers to four main types:

The Hybrid Electric Vehicle (HEV), powered by an electric motor and an internal combustion engine, already seen on Israeli roads; PHEV – Plug-In Hybrid Electric Vehicle, with the same two propulsion systems, that allows in addition charging directly from electricity grid; EV - Electric with only an electrical motor; and EV-FC - Electric Vehicle powered by Fuel Cells. All four types employ regenerative braking - transforming braking energy to electric power stored in the battery, thereby saving a significant amount of energy.

Hybrid cars are already widely used in Israel, and thanks to the "green taxes" reform some of the economical barriers for their import have been removed. The electrical vehicle must be encouraged, while expecting further developments, both in electric motors and in internal combustion engine technologies.

The various considerations and means of promoting EV are reviewed in the full report.

## **III. Energetic efficiency in municipalities in Israel, 26.10.2009**

“The Earth Summit”, the United Nations Conference on Environment and Development, which was held in Rio de Janiero in 1992, undoubtedly increased awareness for the international environmental crisis. One thing to bear in mind is “Think globally, act locally” and indeed, the “Local Agenda 21” document sets the vision for sustainable development in the 21<sup>st</sup> century.

When thinking locally, we realize that local authorities consume energy for street lighting, air-conditioning and lightning of public buildings, fuels for its vehicle fleet, fuels for heavy mechanical equipment etc. The annual energy consumption of local authorities in Israel is estimated at 2-3 billion kWh.

Increasing energetic efficiency in municipalities creates several important benefits– it allows great budget savings, reduces pollution and greenhouse gas emissions and sets a personal example for leading environmental awareness and energy efficiency measures for the community and the entire public.

The discussion held in the framework of the 15<sup>th</sup> Energy Forum raised the various issues regarding opportunities and barriers for promoting energy efficiency in the municipalities.

## **Enlarging Water Supply in Israel Through Non Revenue Water (NRW) Reduction and Prevention of Sewage Leakage**

The report requested by the National Inquiry Committee, aiming to investigate the water crisis in Israel.

The report indicates the loss of fresh water from water distribution and leakage in the order of 64 million cubic meters per year, and leakage of sewage water of estimated 100 million cubic meters per year. The study did not include water losses by the rural sector.

The document contains data regarding the municipal water consumption in Israel and the sewage generated by this water consumption. This study pointed and addressed potential water savings that require better management and investments in the water and sewage infrastructures.

The review in this work shows that using existing technological means can "save" up to 30 million cubic meters of water, and assuming water costs of 0.5\$ per cubic meter, the benefit can be estimated at 15 million \$ per year.

It is important to remark that implementing, even partly, the suggested solutions can be done in a short period of time.

The document received a lot of media attention, and a full session at the WATEC 2009 international symposium was dedicated to the issue of water losses reduction in local authorities throughout the world. See detail in "conferences" chapter.

Head of the project: Dr. Ofira Ayalon

Research Assistants: Yifaat Baron and Efrat Elimelech

## **Energy R&D and Technologies Mapping**

The study was required by the Israel National Board of Research and Development in the Ministry of Science and Technology.

Research includes questionnaires and personal interviews with executive vice presidents for research in all research Universities and Colleges in Israel. Through them we are hoping to address all research labs engaged in the field, mapping their fields of work, the number of researchers and employees, research infrastructure, scope and maturity level of the research.

Data will be used to establish a database regarding centers of expertise in the field of energy through academia and industry, and the definition of 'expert centers' in Israel, evaluating them and comparing them to similar centers in the world.

Head of the project: Dr. Ofira Ayalon

Project team: Michal Nachmany, Dr. Daphne Getz and Vered Segal

## **Greenhouse Gasses Emissions Registry**

This is a joined venture study with the Ministry of Environmental Protection

In the near future, Israel will be facing a need to set national goals for greenhouse gasses (GHG) emissions reduction and legislation that will provide the governmental offices the tools for achieving these goals. In order to enable supervision and follow up, a national voluntary registry is defined, for the reporting and registering of GHG emissions.

*For the government* - data will be used as a tool for better understanding on emissions sources, and the reduction potential available while developing policy measures;

*For reporting organizations* - participation in the reporting process will provide a learning tool for quantifying emissions and assimilation of reduction potential;

*For the public* - revealing of relevant data through public reports will allow better understanding and encourage commitment.

The regulation and methods formats were prepared by the SNI team and the Ministry of Environmental Protection, in cooperation with leading organizations in Israel. The team's goal was to develop a registry with reporting instructions in order to support organizations and companies from all sectors of the Israeli economy in their registering and reporting process.

The Israeli registry was developed in order to address all organizations' needs and in accordance with registries applied throughout the world. The registry will support a balanced and verified reporting method, accepted in all international standards.

The Israeli registry can be joined voluntarily by companies and organizations, but upon joining, companies are obligated to adopt all methods and to act according to its instructions.

The registry is a starting point for characterization, quantification and annual reporting of GHG emissions, which reflect the company's activity. Quantification methods will also set the base for a clear and agreed baseline for reduction calculations in the future.

Head of the project: Dr. Ofira Ayalon

Project team: Tal Goldrath, the LEVON Group, California

## **Preparation of Israel to Post-Kyoto Discussions and GHG Emissions Reduction**

This is a joined venture study with the Ministry of Environmental Protection

The goal of this project was to provide the Ministry of Environmental Protection with a tool for negotiations in Israel and in the international arena after the COP 15, held on December 2009 at Copenhagen, and, in addition, a development of an operational and economic plan for GHG emission reduction - in view of regulations, inter-governmental cooperation and other leading stake-holders in Israel.

The work includes an analysis of barriers and market failures in respect to emissions reduction scenarios, with negative net costs (meaning benefits are higher than costs). An international review that examines regulations alternatives, analysis of macro economical influences (including a dynamic model that will examine the influence of several policy measures for emissions reduction on the Israeli market), presenting measures alternatives for the estimation and follow up on emissions reduction (emissions per capita, emissions normalized per GDP etc.), in view of the working plan prepared by the group. The working paper will allow Israel to reach the goal set

by the president, Mr. Shimon Peres, during the world summit in Copenhagen: reduction of 20% from the increase of emissions projected by 2020.

Head of the project: Dr. Ofira Ayalon

Project team: Tal Goldrath, Michal Nachmany- SNI,

Dr. Ruslana Palatnik, Helena Faitelson- the natural and environmental resources management center, Haifa University; Kivun LTD; the LEVON group, California;

Yaron Arnon

## **Preparation of Background Material and a Draft for Packaging Waste Law in Israel**

Research conducted for the Ministry of Environmental Protection.

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 work in close cooperation with all stakeholders 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 Ministry is preparing a draft of the law to be discussed in the Knesset within a few months.

Head of the project: Dr. Ofira Ayalon

Research team: Tal Goldrath, Michal Nachmany- SNI and Kivun LTD

# **Energy Efficiency in the Milking Center of Ein Harod Ihud**

Research conducted for the Ministry of Agriculture

The goal of this project was to examine means for the reduction of energy use or lowering energy costs in milking centers, and to propose measures that will include energy savings based on electricity and fuel consumption with a possible addition of solar energy, while meeting economical benefit criteria.

Work included a comprehensive literature survey regarding similar systems around the world, characterization of the milking center (cowshed and pen) in Ein Harod Ihud, characterization of measurements and control tools required in the Ein Harod Ihud milking center, equipment installation and data collection and calculations regarding electricity and fuel consumption in the milking center. Estimations had been made regarding the energy use reduction potential of the systems.

During the second research year, measurements have been conducted to verify estimations' validity. The energy consumption and reduction potential were recalculated, and alternatives were presented and studied. Furthermore, benefits of GHG emissions reduction were evaluated and the applicability of this project on other milking centers was discussed.

Head of the project: Dr. Ofira Ayalon

project team: Eliezer Fruchter - Scitherm LTD, Levon Group, California and staff from the green kibbutz of Ein Harod Ihud

## **The Technion Green Campus Project**

The Green Campus project at the Technion, led by the S. Neaman Institute, is intended to introduce values of environmental quality and protection. The project began in May 2000 with the goal of not only talking about the environment, but also of doing something about it. The Technion, as a leading research center serves as a model for other academic institutes in Israel for the implementation of the "Green Campus" agenda.

The management staff of the project includes representatives from the student association, who take a full part in its activities and initiatives; the Green Campus council, appointed by the President of the Technion, comprises of representatives from the academic faculties and key Technion's management personnel- managers in the administrative and maintenance department, the Technion's spokesperson, and more.

The Green Campus project's activities are in the areas of education and raising environmental awareness, conservation of resources (water, energy, recycling, etc.), pollution prevention and more.

Main activities during 2008 were:

1. A successful scale-up of the electricity savings project, implemented by the maintenance department of the Technion, reaching 4 new faculties.
2. The student association conducted a pilot on water saving - and proved feasibility which led to installation of water saving equipment at the students' dormitories.
3. Students' association events at the campus - green day festival, flee market, students' challenges competition and more.
4. Hosting of visitors from all over Israel and demonstration of the green campus project applications and importance

5. Accelerating activities within the campus by establishing "green committees" in the faculties (a first committee working at the electrical engineering faculty, is accompanied by SNI).

Head of the project: Tal Goldrath

## **Academic Articles**

**Ofira Ayalon, Tal Goldrath, Gad Rosenthal and Michal Grossman, 2009.** "Reduction of plastic carrier bag use: An analysis of alternatives in Israel". Waste Management. Volume 29 (7), p. 2025-2032.

**Ofira Ayalon, 2009.** "Sustainable Green Rural Municipalities- The Path Towards an Environmental and Energy Friendly Rural Community in Israel". In: Mason, M. and Mor A. (Eds.): Renewable Energy in the Middle East: Enhancing Security through Regional Cooperation. Springer Science: Berlin. P. 111-124.

## **Environmental Quality - Study Days, Seminars and Conferences in 2009**

### **17.2.09 The Israeli water system policy**

Organized by the Kinnereth Academic College in the Valley of Jezreel, Samuel Neaman Institute, the Grand Water Research Institute at the Technion and the David Bornblum Chair.

### **17-19.2.09 The Eilat-Eilat Second Conference on Renewable Energies**

Ofira Ayalon, the Lev-On Group, California, Zenovar Consultants, Jonathan Spencer and Efrat Elimelech: Israel's position in the global bioethanol market.

**18.5.09 The Netherlands Embassy Conference: Advanced Managerial Approaches and Water Technology**

Yifat Baron and Ofira Ayalon presented the study findings: "Increasing the water supply in Israel by reducing wasted water and preventing sewage leakage".

**27.5.09 The Environmental Policy Conference on the Water System organized by the Society for the Protection of Nature in Israel**

The conference was held in collaboration with the Jerusalem Municipality, Tel Aviv University and the Hebrew University, the Israeli Water Association, the Grand Water Research Institute at the Technion, the Samuel Neaman Institute and Israel Nature and Parks Authority.

**17-19.11.09 WATEC - The Second International Water Technologies, Renewable Energy and Environment Conference**

Organizing the conference and leading a session on the subject of reducing wasted water in local authorities in the world.

**13-14.12.09 The Israel Business Conference**

Dr. Eilon participated in a round table on the subject of advancing the Cleantech industry in Israel.

**20.12.09 The Bank Association Workshop on the Environmental quality**

Ofira Ayalon: A voluntary registration system of greenhouse gas emission.

**21.12.09 Waste as a Resource, the ORT Braude College Conference**

Ofira Ayalon: Waste as an energy resource, Israel's position in the global bioethanol market.

Also, Dr. Ayalon served in the academic steering committee of the conference **Sustainable Development of Energy, Water and Environmental Systems** held in Dubrovnik, Croatia.

## **E. Society, Health and National Resilience**

### **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 : 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

## **The Water Forum at the Samuel Neaman Institute**

Israel's water is one of the major problems of our state and the region at large. The Samuel Neaman Institute, together with researchers from the Technion, has been involved for many years in conducting influential policy studies on this subject. The Water Authority and the Grand Water Research Institute at the Technion, together with the Samuel Neaman Institute 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 Water Forum at the Samuel Neaman Institute will constitute a platform for discussing and analyzing major subjects that are important in the extensive activity of the Water Authority toward the preparation of a master plan for the water system. The discussions in the Water Forum and the position papers drafted in this framework will form an academic/professional frame 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.

The following points were determined to characterize the activity of the Water Forum at the Samuel Neaman Institute:

- (1) The forum will serve as a platform for brainstorming to create and examine new ideas and subjects in the field of water strategy and policy.
- (2) The subjects to be discussed in the forum meetings will be determined by the head of the forum and the steering committee.
- (3) The forum will strive to become involved in the early stages of preparing strategy programs that treat the water policy of Israel.
- (4) The forum will hold a critical and evaluative discussion of drafts and position papers prepared by the Water Authority.
- (5) The forum will strive to consolidate professional views regarding the major issues being discussed and recommendations about the water system policy.

Participation in the Water Forum meetings at the Samuel Neaman Institute at the Technion will be by invitation only and experts from the academy, industry and government will be invited according to the subject under discussion. The number of conventions per year will be discussed again when the forum has gained some activity experience. Minutes of the meeting will be written at the end of each convention, to be distributed as a document of the Samuel Neaman Institute and the Grand Water Research Institute after coordination with and approval of the steering committee members.

At present, the parties participating in this project are committed to holding the two first meetings; after these have been held and their outcomes evaluated, a decision will be made about the continued activity of the Water Forum and the number of meetings per year.

Prof. Avi Shaviv, the Head of the Unit for Environment, Water and Agriculture Engineering at the Technion is the head of the Water Forum in the Samuel Neaman

Institute. Prof. Shaviv will be a member of the steering committee that will accompany the forum.

The composition of the steering committee: Michael Zaida - in charge of strategic planning, the Water Authority; Prof. Moshe Moshe - the general manager of Samuel Neaman Institute at the Technion; Prof. Raphael Smith - the director of the Grand Water Research Institute at the Technion and Prof. Uri Shamir - the Technion and the Water Authority.

## **Evaluation of the Program**

### **Assistance of New Immigrants Salary - Employment Advancement**

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 research main goals are:

1. To identify the factors which influence the immigrants' employment at the conclusion of the period of assistance and in the course of time.
2. To examine the program influence on the employment of new immigrants.
3. To formalize recommendations that could assist policy makers in improving the program.

The research procedure:

- During May-July 2009 ten structured interviews were conducted with four regional employment directors, two employers and four immigrants. These interviews served for learning about the program and as a basis for the development of the research questionnaires.
- The Ministry of Immigrants and absorption provided us details of 652 immigrants who participated in the program during 2006-2008 and their employers.
- We collected data from the employers regarding the immigrants' current employment status.
- The immigrants sample comprises 35% of the immigrants' research population and their employers. We took into consideration the number of immigrants who participated in the program from each region and the number of immigrants that were employed in each working place.
- Two questionnaires were developed, for the immigrants and for the employers. The immigrants questionnaire consisting of 54 items assessing demographic data, personality characteristics (core self evaluation, culture adaptation profile, satisfaction), the work place characteristics (general characteristics, leader-member exchange, social support). The relation between the ministry of immigrants and absorption and the work places and the employment status of the immigrants at the conclusion of the period of assistance. The employers' questionnaire consisting of 27 items which assess general information about the company, the background which immigrants need to have in order to work in the company, the recruitment and training process of immigrants in the company, the relation between the company and the ministry of immigrants and absorption and the program impact on immigrants employment and satisfaction.
- The immigrants' questionnaire was translated into Russian. We started to deliver the questionnaires in January 2010. It was sent to all employers through computerized software and we are calling each immigrant in order to set up the best way to deliver him the questionnaire.

- The data collection phase will continue until end of March 2010, and then we will start to analyze the data and write the summary report.

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

Head of Research team: Prof. Miriam Erez

Research team : Vered Segal, Miriam Asotskaya, Alla Tsuper

## **Adoption of Technological Innovation and ICT for Agriculture and Sustainable Rural Viability**

The Cross-Theme Session: “Constraint Commonalities of Technological Innovation Adoption” was convened during the 2009 EFITA/JIAC conference. It followed a plethora of presentations focused on ICT developments and applications ([www.efita.eu](http://www.efita.eu)). The session attempted to decipher ICT development and adoption constraint commonalities as guidelines to explain “why significant ICT potential benefits for agriculture and rural development remain unrealized”. Cause and blame are often assigned to soaring ICT development and equipment costs, distorted policies, investment in “wrong priorities”, squandering scarce Human Capital and inadequate end user proficiencies. Cross evaluation of constraint commonalities can go a long way to rectify this situation - at least by avoiding repetition of past mistakes.

The key session-highlighted constraint commonalities are categorized for convenience into four ICT development and adoption entities - Research, Extension, End users (“Farmers”) and Service providers. The insights are governed by an *a-priori* assumption of a free and full four-way flow of information – in itself a major innovation. In addition recognition that since innovation complexity increases with development sophistication “in house” ICT competence of all four must match at least that of relevant agents of change and their strategic horizons.

**Invited keynote: Symposium on Applications of Agricultural Informatics**

The Taiwanese Council of Agriculture (**COA**) is in the process implementing a main effort to develop the Taiwanese Agricultural sector as part of a long term strategy to ensure the sustained viability of rural communities. In addition a spillover expectation is commercialization of the methodology elicited from this effort.

**Summary of the EFITA/JIAC plenary session** E. Gelb, H. Auernhammer,  
P. Wagner, S. Blackmore

The Cross-Theme Session: “Constraint Commonalities of Technological Innovation Adoption” was convened during the 2009 EFITA/JIAC conference. It followed a plethora of presentations focused on ICT developments and applications ([www.efita.eu](http://www.efita.eu)). The session attempted to decipher ICT development and adoption constraint commonalities as guidelines to explain “why significant ICT potential benefits for agriculture and rural development remain unrealized”.

## 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 develop well 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 determine the best organizational structure for the Northern Cluster.

As a result of those meetings a “Biotechnology Communication and Information Network” was established, and the [www.bionorth.org.il](http://www.bionorth.org.il) went on air on April 2004.

That website has been developing and up-date 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 Advanced Studies in Science and Technology;

During the last year (2009) two more important organization have joined the initiative:

- 6) Haifa University and its Carmel Ltd. Implementations company;

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

The [www.bionorth.org.il](http://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 last five workshops / seminars held during 2009 were:

- 22.1.2009 – ‘Novel Developments of Bio-Sensors’;
- 16.3.2009 – ‘BHLSI 4<sup>th</sup> Annual seminar’;
- 29.6.2009 – ‘Novel Bio-Energy Developments’;
- 27.10.2009 – ‘Food & Water Safety and Detection’;
- 25.11.2009 – ‘Novel Research on Cholesterol and Cardio-Vascular disease’;

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 7<sup>th</sup> 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 and even to broaden its activities.

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 environmental quality in the architectural studio in schools of architecture in Israel.

Background: A preliminary study indicates that sustainability and environmental quality are not major/leading subjects in the architectural studio in schools of architecture in Israel, despite broad consensus between the studio teachers about their importance. Theoretical knowledge and its implementation on the subjects of sustainability and environmental quality in an architectural context exist in the academy and in current practice. This integration is vital at the fundamental level of the architect's profile.

Workshops on this subject are held by the Faculty of Architecture and Town Planning at the Technion and in collaboration with the Samuel Neaman Institute. The subjects for the workshops are decided in agreement with the study outlines of the architectural studio.

Workshops participants: (1) Experts from the architectural practice; (2) Experts from the academy; (3) Studio teachers, an active group, and (4) The studio teachers.

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

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

The workshop subjects include (1-3 workshops took place in 2009, the other workshops will take place in 2010):

1. General view and beginnings. The subjects of sustainability and environmental quality as basic architectural values.
2. Residences - the most important subjects in planning a residential environment.
3. Constructional systems and shells - suitable for all the architectural studios.
4. Internal design - suitable for internal design studio.
5. Urban design - suitable for studio in urban design (second, third and fourth year).
6. Complex structures - suitable for studio in the third year and higher.

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

Project coordinator: Dorin Almog Sudai

# **People-Israel project - A Guide to the Israeli Society**

**[www.peopleil.org](http://www.peopleil.org)**

## **Background**

Many books and articles have been written about the Israeli society, but no publication has appeared until now that includes comprehensive and updated information about the major phenomena, sub-group, cultures and lifestyles that comprise the Israeli mosaic. Moreover, most of the publications in this field are meager in terms of visual aids (most of them do not include pictures), affecting the readers' ability to understand a living and complex reality and enjoy their reading.

Due to this scarcity and the immense scientific and pedagogical potential inherent in using the internet, we decided to face the challenge and develop an internet portal that is a comprehensive guide to the Israeli society. It is our belief that by providing rich, varied and reliable information, along with analyses and comprehensive interpretation of different phenomena in the Israeli society, we are able not only to contribute to the distribution of information about the Israeli society, but also to eliminate prejudice and stereotypes in the Israeli public, encourage tolerance towards others and enhance the legitimacy of the richness embedded in variety.

## **Major goals**

1. To develop and maintain a comprehensive and updated website, open to the broad public, about people and groups in the Israeli society.
2. To document and preserve ethnographic information about Israel for the future generations.
3. To allow organizations and private people accessible and friendly information about the Israeli society.
4. To develop an innovative sociological tool that will allow private and public organizations and institutions to improve their work (due to better knowledge of the Israeli "client").
5. To develop a new educational model for multi-cultural societies in a global world.

6. To eliminate prejudice and stereotypes in the Israeli society and to encourage understanding and tolerance between groups having different lifestyles.

### **Achievements during 2009**

- The information on the website has been enriched in different ways and it includes today about 380 articles about different Israeli phenomena and thousands of ethnographic pictures.
- We developed technological tools that allow us to create photo albums and upload video clips to the website. This is perhaps the reason for the rapid increase in the number of visitors at the website (~800 a day).
- A new program was developed, allowing us to create bi-lingual (Hebrew-English) newsletters. Five newsletters were already sent to about 7000 addressees worldwide (each newsletter is devoted to a unique Israeli phenomenon).
- We created a preliminary home page in English for the English version of people-Israel.
- Five articles from the guide were translated into English.
- The process of developing a new technology will be finished soon for the English version of the photo albums.
- An application was made to UNESCO to fund a chair for studying and researching cultural variance through ICT (currently in final approval proceedings). The chair was approved by the standing committee of Haifa University.
- An MA seminar at the Education Faculty in Haifa University was developed under the heading: "Education Systems in Israel from a Virtual Perspective." The seminar was delivered by Dr. Tamar Almog during the winter semester of the 2009/10 school year and was mostly based on materials from *People Israel*.
- The *People Israel* project was presented at an international conference:

Almog Tamar, Almog Oz. "People Israel: An Innovative Online Guide of the Israeli Diverse Society". *International Conference on Ubiquitous Learning*, Northeastern University, Boston, USA, December 2009.

- A second bi-lingual album, of about 200 chrome pages, was published. The album includes texts and pictures under the heading: "*The Israeli House – Building and Residence Styles in Israel.*" The album was published by an initiative of the Council for a Beautiful Israel. It was actually produced by the staff of *People Israel*, who include Prof. Oz Almog, Dr. Tamar Almog and the editor David Paz (the credits to the producers, authors, website and Samuel Neaman Institute appear on the album's front page). The text is based on articles appearing in *People Israel*. About half of the pictures in the album were taken by Prof. Oz Almog and about a half was contributed by various professional photographers from around the country. All the texts and the pictures will soon appear on the internet guide.
- A scientific article that is based on a study done within the framework of the project *People-Israel* has been published:

Zalcborg Sima, Almog Oz. "Dress and Appearance among Women in Israel's National Religious Community". *Sociological Papers*, 2009.

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

## **Accelerating the Integration of the Arab Population in the Israeli Economy and Businesses**

The national importance and the urgency of accelerating the Arab citizens' integration into Israel's economy is increasing in Israel. A variety of state, business and voluntary organizations are dealing with this subject. For this purpose, we intend to hold a series of discussions with the major organizations dealing with the economic/business aspect of the subject, since this area is of great importance, the controversy about it is relatively limited, and it allows realizable objectives to be set, whose contributions can be evaluated and measured.

This is a broad subject that has many facets. In a reality in which a great number of steps are taking place at the same time, it is important to develop a comprehensive and full picture of the activities of the different organizations, the manner in which they work and communicate with each other, and their interface points. Developing such a picture and its discussion will increase the effectiveness of dealing with this subject by improving the coordination between the participants, advancing the ability to develop joint actions and identifying new fields of activity.

Thus, the need to hold brainstorming and thinking meetings on this subject was identified. About thirty people are regularly invited to the discussions, the representatives of the leading organizations in their field. The program was built in a way that enables professional discussion, sharing of views between the participants, discussion and suggesting recommendations for further actions.

It is hoped that at the end of the process we will achieve a detailed and defined program to accelerate the integration of the Arab sector into the Israeli economy.

Participants: Prof. Zeev Hirsch, Prof. Shlomo Maital, Dr. Yosef Jabareen

Project coordinator: Moshe Elad

## **Integrating the Ultra -Orthodox (Haredim) Sector into the Israeli Economy**

The first steps in this program were taken only in 2009. A conference on the subject was held at the Van Leer Jerusalem Institute on July 26, 2009, with the participation of the Samuel Neaman Institute, which also conducted a literature review on the subject. The "road map" for the activities of the Samuel Neaman Institute on this subject was written by Dr. Reuven Gal.

The most serious findings of the "Israel 2028" project include those that relate to the ultra-orthodox sector. In 2008, the ultra-orthodox population consisted of 637,000 people, which is 8.8% of the total Israeli population. Of these, 63.4% are under 20 years old. An ultra-orthodox family has, on average, more than seven children, in comparison with two children in the general Jewish population. According to the "Israel 2028" report, 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. According to the studies of the economist Dr. Eli Berman, the ultra-orthodox society is doubled every 16 years. The problem lies not only in these demographic data but in their economic, social and security implications. The participation rate in the labor market among the ultra-orthodox men is 24.6% (in comparison with 66.7% among the other Jewish men). Of the cohorts recruited to the IDF, almost 15% (of the men) "serve" in Yeshivas, because "their studies constitute their livelihood". Socially, 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 solution for this bad scenario is that, alongside their religious lifestyle, the ultra-orthodox will join the labor market, serve in the army and become integrated into the general society, as has been the case for many years with the ultra-orthodox Jews in London, Brussels and New York. However, it is doubtful whether such changes can take place by themselves in the ultra-orthodox sector. There is certainly no legitimate leadership today among the ultra-orthodox public that could lead such a change. The self-evident conclusion is that since the ultra-orthodox public will not initiate the

change, the state, that is, the Israeli government, has to make tough decisions regarding this public, in terms of financing, education, service and employment.

A national program to solve the problem has to have several major objectives that can not only be realized but also quantified and evaluated: (1) the first objective is the entry of the ultra-orthodox sector into the labor market (general or sectorial) on a massive scale, both men and women. A significant contribution by the Samuel Neaman Institute could be to provide a clear definition of separate objectives for men and women, including a division into different ranges of time and separate consideration of the types of ultra-orthodox populations in Israel. (2) The second objective is to introduce general education into the ultra-orthodox sector, examining methods and tracks for advancing general education (elements from the core studies) for younger ultra-orthodox boys, not within the framework of the Yeshiva. This could be done by offering it as an additional track to the public that is interested in it, as a free choice not by forcing it on the rabbinical and ultra-orthodox political establishment. (3) The third objective is a significant change in the standard of living and norms in the ultra-orthodox sector. The standard of living of any sector is derived, as we all know, from the level of income and from the number of family members. (4) The fourth objective is to reduce the load of the sector on the public and increase its productivity. These four objectives are naturally interrelated.

This project is headed by Dr. Reuven Gal, Prof. Moshe Moshe and Prof. Zehev Tadmor  
Project coordinator: Moshe Elad

## **E. General**

### **Seminars, Workshops and Conferences during 2009**

#### **Samuel Neaman Annual Lectures:**

##### **The 6<sup>th</sup> Samuel Neaman Annual Lecture - 17.3.2009**

Speaker: **David Brodet** - former director general of the Ministry of Finance  
Chairman of the Board of Ben Gurion University of the Negev

Subject: **"Israel 2028" program - vision and strategy for Israel**

##### **The 7<sup>th</sup> Samuel Neaman Annual Lecture - 18.11.2009**

Speaker : **Prof. Manuel Trajtenberg** - former Head of the National Economic  
Council and Chairman of VATAT (PBC)

Subject: **" Three viewpoints on the global economic crisis"**

#### **Higher Education Forum Meetings :**

**Meeting no. 11** - January 30, 2009, on the subject **"Tuition and Assistance  
Systems."**

Speaker : **Dr. Liora Meridor,**

**Meeting no. 12** - March 17, 2009, Discussion session on the subject **"The Future  
of Higher Education in Israel"**

**Prof. Shosh Arad, Prof. Paul Feigin, Prof. Hagit Messer-Yaron, Prof. Moshe  
Moshe, Prof. Mordechai (Moti) Shechter, Prof. Zehev Tadmor, Prof. Manuel  
Trajtenberg**

**Meeting no. 13** - May 8, 2009, on the subject "**Higher Education in the Arab Sector**".

Speaker: Prof. **Fuad Fares**, Followed by a general discussion, participants included guest Prof. **Avishay Braverman**,

**Meeting no. 14** - November 13, 2009, on the subject "**The Model of Higher Education in California - Evaluations and Directions.**"

Speaker: **Prof. Sheldon Rothblatt**, University of California at Berkeley USA.

**Meeting no. 15** - December 25, 2009, on the subject "**The Higher Education Policy in Israel.**"

Speaker: **Prof. Manuel Trajtenberg**,

Responding: **Prof. Shosh Arad**, **Prof. Aaron Ben-Ze'ev**,

The meeting started with a review of the role of the PBC in Israel's higher education system by **Prof. Ami Volansky**, and followed by a brainstorming session with all participants

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

**Meeting no. 1 - Introduction and Beginnings: Sustainability and Environmental Quality as Basic Architectural Values. - 18.11.2009**

Lecturers in this meeting: Prof. Edna Shaviv and Arch. Tagit Klimor

**Meeting no. 2 - Residence - 23.12.2009**

Lecturers in this meeting: Arch. Itay Peleg and Arch. Ronit Biton

## **BioNorth Workshops :**

BioNorth workshop on Biological sensors - 22.01.2009

### **BHLSI 4<sup>th</sup> Annual Haifa BioSeminar, Together with BioNorth - 16.03.2009**

Upping Growth Strategies During Down Times: Top Trends and Tools for Success in the Life Sciences Industry.

Bio-North workshop on Bio-Energy developments - 29.06.2009

BioNorth workshop on the quality of food and water in Israel - 27.10.2009

BioNorth workshop on cholesterol, cardio-vascular diseases - 25.11.2009

### **Or Yarok Workshop - reducing the number of road accidents - 29.10.2009**

The subject of the workshop: "New approaches in road safety research and their implementation." The workshop discussed the promotion of improved road safety, achieving effective outcomes in reducing the number of accidents and their severity.

## **Energy Forum Meetings :**

Energy Forum no. 13 : Solar power stations - 9.2.2009

Energy Forum no. 14 : Electric and Hybrid Vehicles - 01.06.2009

Energy Forum no. 15: Energy effectiveness in the Municipalities- 26.10.2009

**A voluntary system for reporting on greenhouse gases emission in Israel - 14.09.2009**

A system for reporting and registration of greenhouse gases was planned by the staff of the Ministry of Environmental Protection and the Samuel Neaman Institute at the Technion in collaboration with a broad work team of stakeholders. The goal of the teamwork was to develop an operation mechanism and guidelines for reporting so as to be of help to organizations and companies from all the economy sectors in Israel, in their process of reporting and registering their greenhouse gases emissions.

The document consists of eight chapters that provide background for each of the discussed subjects as well as accurate guidelines for the preparation, reporting and registration of emissions.

**A green vision for a blue resource - 27.05.2009**

The Jerusalem Convention in cooperation with the Society for the Protection of Nature in Israel and Jerusalem Municipality.

The conference discussed the urgent need to form a new perception of water usage and water management.

**Accelerating the integration of the Arab population in Israel's economy and business - 20.04.2009**

The forum discussed the need to form long-term strategies to integrate the Arab population in Israel's economy.

**Gender, employment and education: Issues in employment and education among Arab women - 09.06.2009**

A conference on the subject of "Gender, employment and education: Issues in employment and education among Arab women" in collaboration with Sachnin College for Training Teaching Personnel, the Samuel Neaman Institute and the Technion.

## **Conventions & Articles that Appeared in International Journals**

**Ofira Ayalon, Tal Goldrath, Gad Rosenthal and Michal Grossman**, 2009. "Reduction of plastic carrier bag use: An analysis of alternatives in Israel". Waste Management. Volume 29 (7), p. 2025-2032.

**Ofira Ayalon**, 2009. "Sustainable Green Rural Municipalities- The Path Towards an Environmental and Energy Friendly Rural Community in Israel". In: Mason, M. and Mor A. (Eds.): Renewable Energy in the Middle East: Enhancing Security through Regional Cooperation. Springer Science: Berlin. P. 111-124.

**Almog Tamar, Almog Oz**. "People Israel: An Innovative Online Guide of the Israeli Diverse Society". *International Conference on Ubiquitous Learning*, Northeastern University, Boston, USA, December 2009.

**Zalcborg Sima, Almog Oz**. "Dress and Appearance among Women in Israel's National Religious Community". *Sociological Papers*, 2009.

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

- CGIAR Science Forum, Wageningen, 6.2009. Preparing five background reviews on teleprocessing and the adoption of technological advancement in agriculture as background material. A major participant in a discussion on an outline for global food security as a major effort of IBRD, FAO and CGIAR;
- COST Foresight 2030, Bruges, 7.2009. A guest participant for preparing an outline "food safety" for the European Union for the year 2030. See [www.cost.esf.org/events](http://www.cost.esf.org/events)

- Joint International Agricultural Conference (EFITA) 7.2009. Initiation, preparing background material and organizing a conference theme on the subject: Adopting joint lessons from the past in adopting teleprocessing and innovative technologies in accurate agriculture, agricultural research and instruction. See: <http://www.jiac2009.nl>
- Symposium on Applications of Agricultural Informatics, 11.2009. A guest lecturer as part of a major governmental effort to develop the rural land in Taiwan and consolidate a system for product commercialization;
- ICM4ARD consultation ICRISAT, Hyderabad, 12.2009. Regional "Asian" counseling to summarize teleprocessing activity for agricultural research in continuance of the above Science Forum. See
- [www.egfar.org/egfar/website/new/eventpage?contentId=2936&languageId=0](http://www.egfar.org/egfar/website/new/eventpage?contentId=2936&languageId=0)

**E.Gelb, B. Gal, D. Wolfson** Extension Information and Communication Technologies (ICT) for Agricultural : "An Israeli Case Study" 2009 in Saravanan, R., (2008), (Ed.) Agricultural Extension: Worldwide Innovations, New India Publishing Agency (NIPA), <http://www.saravananraj.net/education.htm#5>

## The Samuel Neaman Institute Website - [www.neaman.org.il](http://www.neaman.org.il)

The institute's website is an international website, serving both as an information center on science and technology in Israel and as a home for the Samuel Neaman Institute's activities. The website allows all of the Institute's publications since 1987 to be read and downloaded for free, and also 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 – so that visitors can 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	14576
"Where there is no vision the people perish": Super goals for Israel and their derivatives	13437
Public diplomacy in Israel - "The Neaman Document" (published in English)	6849
Israel 2028 - Economic-social vision and strategy in a global world	5080
Privatization in Higher Education: Proceedings of the international conference	4428
Indices for science, technology and innovation in Israel: A comparable data infrastructure	3707
Under the red line - about the water crisis in Israel	2951

Public diplomacy in Israel - "The Neaman Document" (published in Hebrew)	2786
Evaluating the influence of the space industry on Israel's economy	2660

Recently, we added a page on Facebook <http://www.facebook.com/pages/mwsd-smwl-nmn/112893555404365?ref=ts> where people can read publications by senior researchers of the Samuel Neaman Institute and respond to these articles. The recent article "States as symbols: America is improving! Israel = North Korea and Iran?!" was published by Prof. Shlomo Maital.

Our page on Facebook shows also our recent publications, future events and news from the press.

Last year, about 271,000 visitors visited our website, and downloaded about 120,000 publications (that is, 700 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 the world and more.

## List of Publications for 2009

<b>Heading</b>	<b>Authors</b>
Financing the higher education system and scientific research in Israel	Meir Zadok
Electric and hybrid vehicles - summary and recommendations of the Energy Forum discussion no. 14, Samuel Neaman Institute	Gershon Grossman, Tal Goldrath, Ofira Ayalon
Solar power stations in Israel - summary and recommendations of the Energy Forum discussion no. 13, Samuel Neaman Institute	Gershon Grossman, Tal Goldrath, Ofira Ayalon
Energy in the water system - summary and recommendations of the Energy Forum discussion no. 12, Samuel Neaman Institute	Gershon Grossman, Tal Goldrath, Ofira Ayalon
Adjustment processes and consumer behavior under conditions of security uncertainty	Aviad Tur-Sinay
Increasing the water supply in Israel by reducing waste water and preventing sewage leakage	Ofira Ayalon, Yifat Baron, Efrat Elimelech
The policy on supporting venture capital: Moving from a financial approach to an evolutionary-system approach (STE-WP-42)	Gil Avnimelech, Alesandro Rosilo, Morris Teubal
Reduction of plastic carrier bag use: An analysis of alternatives in Israel - an article in Waste Management	Ofira Ayalon, Gad Rosenthal, Tal Goldrath, Michal Grossman

A vision for a democratic, liberal, modern and Jewish state	Zehev Tadmor
Technological and scientific manpower in Israel: Selected subjects - abstract	Daphne Getz, Tsipy Buchnik, Bella Zalmanovich
Technological and scientific manpower in Israel: Selected subjects (part B)	Daphne Getz, Tsipy Buchnik, Bella Zalmanovich
Evaluating the influence of the space industry on Israel's economy	Daphne Getz, Arkadi Katzman, Bella Zalmanovich, Dganit Paikovsky, Vered Segal, Yair Even-Zohar
Improving the use of energy at the milking facility of Ein Harod Ikhud kibbutz	Ofira Ayalon, Yifat Baron, Efrat Elimelech, Eliezer Fruchter, Miriam Lev-On, Yokhai Kimkhi, Miki Yonati, Nadav Raz
Choosing a masculine specialization: Women Surgeons	Pazit Savion-Maram
Public diplomacy in Israel - a joint project by Samuel Neaman Institute at the Technion and the Israeli Foreign Affairs Office	Dov Shin'ar, Arie Na'or, Anat First, Roy Davidson, Liran Alper, Lea Mendelzis, Na'ama Ma'oz, Haim Hagai, Sagit Ya'akobovic, Moshe Elad, Meir Shlomo
A system for the registration of greenhouse gases emissions in Israel - operation protocol and report guidelines	Ofira Ayalon, Miriam Lev-On, Perry Lev-On, Tal Goldrath
Evaluation of Israel R&D Plan - "Magnetron"- Summary report	Daphne Getz, Vered Segal, Eran Leck

# The Samuel Neaman Institute Staff

## Board of Directors

### **Prof. Zehev Tadmor**

Chairman of The Samuel Neaman Institute

Former Technion President

Distinguished Professor (Emeritus)

### **Prof. Arnon Bentur**

Dean of the Faculty for Civil and  
Environmental Engineering,  
Technion

### **Prof. Paul Feigin**

Senior Vice President  
Prof. of Industrial Engineering and  
Management, Technion

### **Prof. Alex Keynan**

Biology Professor (Emeritus),  
Hebrew University

### **Prof. Oded Shmueli**

Vice President for Research  
Computer Science Professor, Technion

---

### **Prof. Moshe Moshe**

Director

Physics Professor, Technion

## Advisory Committee

**Prof. Moshe Eisenberg**

Materials Engineering  
Technion

**Dr. Yona Ettinger**

Former Director of the U.S. - Israel  
Bi-National Fund for Science

**Prof. Ofer Bina**

Faculty of Medicine, Technion

**Prof. Itzhak Ben-Israel**

Head of Security Studies Program  
Tel Aviv University

**Mr. David Brodet**

Brodet Consulting Company LTD  
Chairman of the Board of Governors of  
the Ben Gurion University  
Former Director General - Ministry of  
Finance

**Dr. Orna Berry**

Venture Partner in Gemini Israel Funds  
The former Chief Scientist at the Industry,  
Trade and Labor Ministry

**Mr. Uzia Galil**

Chairman and CEO of Uzia Initiative &  
Management Ltd.;  
Former Chairman of the Board of  
Governors of the Technion

**Prof. Michal Green**

Civil and Environmental Engineering,  
Technion

**Prof. Uzi de-Haan**

Professor, Industrial Engineering and  
Management, Technion

**Prof. Yeshayahu Talmon**

Chemical Engineering, Technion

**Adv. Alex Samuel**

Yaacov Salomon, Lipschutz & Co.,

**Prof. Israel Cidon**

Professor, Electrical Engineering,  
Technion

## Research Fellows, Project Managers and Project Coordinators

### **Prof. (Eme) Yoram Avnimelech**

Senior Research Fellow  
[agyoram@technion.ac.il](mailto:agyoram@technion.ac.il)

### **Dr. Ofira Ayalon**

Senior Research Fellow and  
Environmental Projects Coordinator  
[ofira@sni.technion.ac.il](mailto:ofira@sni.technion.ac.il)

### **Prof. Oz Almog**

Senior Research Fellow  
Head of People Israel Project  
[oalmog@univ.haifa.ac.il](mailto:oalmog@univ.haifa.ac.il)

### **Dr. Tamar Almog**

Senior Research Fellow  
Head of People Israel Project  
[talmog@univ.haifa.ac.il](mailto:talmog@univ.haifa.ac.il)

### **Mr. Moshe Elad**

Project Coordinator  
[elad@sni.technion.ac.il](mailto:elad@sni.technion.ac.il)

### **Prof. Miriam Erez**

Israel Prize Laureate on the Study of  
Administration Sciences  
Senior Research Fellow  
[merez@ie.technion.ac.il](mailto:merez@ie.technion.ac.il)

### **Prof. Jerald Brook**

Senior Researcher  
[shage@netvision.net.il](mailto:shage@netvision.net.il)

### **Dr. Ehud Gelb**

Senior Researcher  
[gelb@agri.huji.ac.il](mailto:gelb@agri.huji.ac.il)

### **Dr. Yosef Jabareen**

Senior Researcher  
[jabareen@mit.edu](mailto:jabareen@mit.edu)

### **Dr. Daphne Getz**

Senior Research Fellow  
Manager of the Data Center of Samuel  
Neaman Institute  
[daphne@sni.technion.ac.il](mailto:daphne@sni.technion.ac.il)

### **Prof. Gershon Grossman**

Senior Research Fellow  
Head of SNI Energy Forum  
[grossmng@technion.ac.il](mailto:grossmng@technion.ac.il)

### **Prof. Manfred Green**

Senior Research Fellow  
Head of the Kellner Project  
[manfred.s.green@gmail.com](mailto:manfred.s.green@gmail.com)

**Prof. Michal Green**  
Senior Research Fellow  
[agmgreen@technion.ac.il](mailto:agmgreen@technion.ac.il)

**Dr. Michael Dolgin**  
Senior Researcher  
[mdolgin@netvision.net.il](mailto:mdolgin@netvision.net.il)

**Dr. Shira Zelber-Sagi**  
Senior Researcher  
[zelbersagi@bezeqint.net](mailto:zelbersagi@bezeqint.net)

**Prof Yehuda Hayuth**  
Senior Research Fellow  
Head of National Infrastructure Project  
[yeuhda@sni.technion.ac.il](mailto:yeuhda@sni.technion.ac.il)

**Dr. Eran Leck**  
Researcher  
[leck@sni.technion.ac.il](mailto:leck@sni.technion.ac.il)

**Joseph Linhart**  
Consortium Program Coordinator  
[lyosef@sni.technion.ac.il](mailto:lyosef@sni.technion.ac.il)

**Prof. Shlomo Maital**  
Senior Research Fellow  
[smaital@tx.technion.ac.il](mailto:smaital@tx.technion.ac.il)

**Prof. Bilha Manheim**  
Israel Prize Laureate in the study of  
Sociology  
Senior Research Fellow  
[bilham@ie.technion.ac.il](mailto:bilham@ie.technion.ac.il)

**Dr. Gilead Fortuna**  
Senior Research Fellow  
Head of the Project "Vision and Strategy  
for Israel"  
[gfortuna@sni.technion.ac.il](mailto:gfortuna@sni.technion.ac.il)

**Prof. Dan Peled**  
Senior Research Fellow  
Head of the Economy and National  
Security Forum  
[dpeled@econ.haifa.ac.il](mailto:dpeled@econ.haifa.ac.il)

**Dr. Amnon Frenkel**  
Senior Researcher  
[amnonf@technion.ac.il](mailto:amnonf@technion.ac.il)

**Dr. Abraham Rotem**  
Researcher  
[rotem@sni.technion.ac.il](mailto:rotem@sni.technion.ac.il)

**Prof. Uri Kirsch**

Senior Researcher

[kirsch@tx.technion.ac.il](mailto:kirsch@tx.technion.ac.il)

**Prof. Gideon Czapski**

Senior Research Fellow

[czapski@vms.huji.ac.il](mailto:czapski@vms.huji.ac.il)

**Prof. Morris Teubal**

Senior Research Fellow

[teubal@netvision.net.il](mailto:teubal@netvision.net.il)

## **Information Specialists and Research Assistants**

**Larisa Eidelman**

[larisa@sni.technion.ac.il](mailto:larisa@sni.technion.ac.il)

**Yair Even Zohar**

[yair@sni.technion.ac.il](mailto:yair@sni.technion.ac.il)

**Iris Eyal**

[iris@sni.technion.ac.il](mailto:iris@sni.technion.ac.il)

**Ayelet Rave**

[ayelet@sni.technion.ac.il](mailto:ayelet@sni.technion.ac.il)

**Ella Barazani**

[ella@sni.technion.ac.il](mailto:ella@sni.technion.ac.il)

**Tsipy Buchnik**

[zipi@sni.technion.ac.il](mailto:zipi@sni.technion.ac.il)

**Liora Hareven**

[liora@sni.technion.ac.il](mailto:liora@sni.technion.ac.il)

**Tal Goldrath**

[tal@sni.technion.ac.il](mailto:tal@sni.technion.ac.il)

**Michal Nachmany**

[michal@sni.technion.ac.il](mailto:michal@sni.technion.ac.il)

**Ilia Zatzovetsky**

[ilia@sni.technion.ac.il](mailto:ilia@sni.technion.ac.il)

**Bella Zalmanovich**

[bella@sni.technion.ac.il](mailto:bella@sni.technion.ac.il)

**Vered Segal**

[vered@sni.technion.ac.il](mailto:vered@sni.technion.ac.il)

**Orly Nathan**

[orly@sni.technion.ac.il](mailto:orly@sni.technion.ac.il)

## **Administrative Staff**

### **Dorin Almog - Sudai**

Research Coordinator

[dorin@sni.technion.ac.il](mailto:dorin@sni.technion.ac.il)

### **Yehiel Bracha**

IT Staff

[yehielb@sni.technion.ac.il](mailto:yehielb@sni.technion.ac.il)

### **Israel Meiri**

Accountant

[israel@sni.technion.ac.il](mailto:israel@sni.technion.ac.il)

### **Uri Sahar**

Head of Facilities

[uri@sni.technion.ac.il](mailto:uri@sni.technion.ac.il)

### **Yelena Rubinstein**

Housekeeping

### **Omer Weisberg**

IT Staff

[omer@sni.technion.ac.il](mailto:omer@sni.technion.ac.il)

### **Rebecca Best**

Head of the Office

[rebecca@sni.technion.ac.il](mailto:rebecca@sni.technion.ac.il)

### **Drora Einziger**

Secretary

[drora@sni.technion.ac.il](mailto:drora@sni.technion.ac.il)

### **Sima Nadler**

Bookkeeping

[sima@sni.technion.ac.il](mailto:sima@sni.technion.ac.il)

### **Debby Kaufman**

In Charge of Business Development

[debby@sni.technion.ac.il](mailto:debby@sni.technion.ac.il)

### **Golan Tamir**

CIO (Chief Information Officer)

[golan@sni.technion.ac.il](mailto:golan@sni.technion.ac.il)



**Samuel Neaman Institute**

For Advanced Studies in Science and Technology

**Technion - Israel Institute of Technology**

Haifa 32000, Israel

Tel : 04-8292329, Fax : 04-8231889

[www.neaman.org.il](http://www.neaman.org.il)