

A Word from the President

Whenever I sit down to write this report and reflect upon the past year, I am amazed at how much has transpired in one year. In Israel, one year is an extremely long time as so many things happen on a daily basis in this country. There are many issues I shall touch upon in the beginning of this report, issues dealing with Israeli affairs in general, but nonetheless, issues pertinent to the Technion. In the second and largest part of the report I shall deal with the Technion directly and attempt to provide you with a glimpse of what has been achieved, what we aim to achieve and other bits of information which I believe are relevant to all of you.

The major event in Technion's life this year was the National Faculty Strike which has left a very distinct and strong mark on the current academic year, but thankfully, it was eventually resolved and we have resumed the normal activities of the university. I shall review the strike in more detail further on in the report.

The Shochat Committee established to examine the status of higher education in Israel has concluded its deliberations and has finally provided Israel's government with its recommendations and final report. I shall review their recommendations in this report.

Another issue plaguing the Israeli academia in the past decade is what has become to be known as "brain drain". Fine young minds are choosing to leave Israel, settle abroad and work in the finest universities world-wide. This is an acute problem faced by the Israeli higher education system and the Israeli research community, especially given the fact that our most precious resource is the human one and we face the danger that it will slip away. I shall further elaborate on this issue later in the report.


As is already customary in Israel, on the political front we have also had an eventful year which I shall briefly summarize for you. The Winograd Commission has submitted its final report and I shall try and provide you a picture of what its final report concluded. The war that is being waged against

Israel on our border with the Gaza strip has very much shaped this past year. The terror experienced by civilians living on this border has been unparalleled and I shall of course touch upon this painful issue. Just before submitting this report, new serious allegations of fraud against Prime Minister Olmert were revealed and their possible political implications are not yet clear.

This year Israel is celebrating its 60th year. An important milestone, one which we are extremely proud of. The Technion has played a major role in the evolution of our beloved country and this will be acknowledged in this report. The Israeli economy has also made its share of positive headlines over the past year and the report will review it.

The Technion is, of course, the focus of this report. It has been an eventful year on all fronts and despite all difficulties this year saw many successes and important achievements in our strive for excellence, and I am sure you will enjoy reading about it in these pages. As I have mentioned many times, one of my great joys as president of our university is the interaction I am privileged to have with our Board of Governors members and our many friends and supporters world wide. This time of year is very special to me as many of you choose to visit us and celebrate with us the achievements of the past year and our vision for the future. I am looking forward to greeting each and every one of you on campus.

My warmest regards,

A handwritten signature in black ink that reads "Y. Apeloig". The signature is written in a cursive style with a long, sweeping underline that extends to the right.

Professor Yitzhak Apeloig

President

The National Scene

Israel Celebrates 60 years

This year Israel celebrates its 60th anniversary. An important milestone no doubt, made even more remarkable by the many achievements made in this small country in such a relatively short time. The country is gearing up to make this whole year a year of celebration of all the progress made over this time. The schools have special curriculums to commemorate this event; and the Knesset has established a special committee to orchestrate the celebrations. The Technion has chosen to commemorate this milestone by organizing a unique Nobel Laureates Symposium to mark sixty years of science in Israel. The Nobel symposium held on May 19, just a few days after our 60th Independence Day, featured 10 Nobel Laureates, including our own Prof. Avram Hershko and Prof. Aaron Ciechanover, who lectured, each in his field, a true celebration of science. This is the first time in Technion's history that ten Nobel Prize Laureates visited at the same time, a rare occasion in any university around the world. In my mind there is no better way to celebrate the many contributions of science and technology to the survival and evolution of Israel, especially given the fact that the Technion has played such a pivotal part in all that has been achieved.

Most of you are very much aware of the Technion's history; however, it gives me great pleasure to once again write about the special relationship, almost symbiosis, between the Technion and the State of Israel. When the Technion opened its gates in 1924 it was the only university in Israel and in fact, until the early 1970's, it was the only university in Israel teaching and researching in engineering. This fact means that the Technion who has educated nearly 80,000 graduates is responsible for the education of about 70% of Israeli engineers. The Technion is very much responsible for creating Israel's physical infrastructure, its industrial infrastructure and pioneered and established Israel's technology-based industries. Again, bear in mind that this

technology was crucial for the young country's survival. It meant the difference between triumph and defeat during the many wars and conflicts that followed its creation. The statistics are a testament to our amazing achievements as a university: 70% of Israeli NASDAQ companies have Technion graduates as founders, CEOs or CTOs. Israel, with 72 companies, has by far the highest number of companies traded on the NASDAQ after the USA. In order to remain a leading university and continue our unique role in Israel's evolution we constantly venture into new frontiers, cutting edge fields, which will maintain our lead into the future. Fields such as nanotechnology and nanoscience, life sciences and engineering, stem cells research, futuristic technologies in fields such as IT and communications, electronics, robotics, environment and alternative energy, security and many more.

I am confident that in 60 years, in 2068, we shall still be celebrating the many contributions of the Technion to the fortitude of Israel.

The Political Arena

The Winograd Commission

As I reported in my last report, after the Second Lebanon War there was a great deal of criticism toward the government, specifically, Prime Minister Ehud Olmert, the Defense Minister, Amir Peretz and the IDF Chief of Staff, Major General Dan Halutz. As a result Olmert established the Winograd Commission (chaired by retired Justice Eliyahu Winograd) to investigate and draw conclusions from the proceedings of the Second Lebanon War. I reported last year about the difficult interim report submitted by the Commission. As a result of the interim report, Amir Peretz and Dan Halutz stepped-down from their positions.

On January 2008, the Commission submitted its final report and conclusions. The Commission commented that their task was a difficult and complicated one as it entailed the examination of events in 34 days of fighting as well as the days and months prior to the war as the IDF pulled out of Lebanon in 2000. The report refrained from placing personal responsibilities

for the war but stressed that even though such a statement did not exist in the report it does not mean there are no personal responsibilities. The report went on to state that the Second Lebanon War was a missed opportunity for Israel. Israel initiated a long war, which ended without a clear military victory. A semi-military organization of a few thousand men resisted, for a few weeks, the strongest army in the Middle East, which enjoyed full air superiority and technological advantages. The barrage of rockets aimed at Israel's civilian population covering the entire North of the country, including Haifa, lasted throughout the war, and the IDF did not provide an effective response to it. The fabric of life under fire was seriously disrupted, and many civilians either left their home temporarily or spent their time in shelters. After a long period of using only standoff fire power and limited ground activities, Israel initiated a large scale ground offensive, very close to the Security Council resolution imposing a cease fire. This offensive did not result in military gains and was not completed. These facts had far-reaching implications for us, as well as for our enemies, our neighbors, and our friends in the region and around the world.

The final report, as mentioned, refrained from blaming individuals for the failures of the war, but it has resulted in a record-low (around 10%) public support of Ehud Olmert as the Prime Minister, as expressed in many public surveys. This has not changed since then. It has been a while since the report was published and no political fallouts have occurred and no major changes have taken place. All Israelis hope that the tactical lessons from the war have been learned and that if we find ourselves in such a situation again the mistakes of the past will not recur.

The War Waging in the South of Israel

In the past year there has been a real and worrying escalation in the Qassam attacks on the Southern city of Sderot and the settlements surrounding the Gaza Strip. The city has taken daily massive bombardments and the citizens of the city have been literally held hostage by this situation. Many left the embattled city and those who stayed behind are mostly the weaker populations.

In the surrounding settlements along the border with the Gaza Strip the farmers have abandoned any hope of working the land as Palestinian snipers try to shoot at them on a daily basis and it has become too dangerous.

Since Hamas has taken power in Gaza the situation has only worsened, but not only for the Israeli population surrounding Gaza. The Palestinian population is virtually being held hostage by the Hamas government as they are the ones who suffer the consequences of Hamas actions. The economic and humanitarian situation inside the Strip is difficult and there does not seem to be an end in sight. So far, the Israeli government has avoided reentering Gaza although it has been difficult at times because of the massive attacks taking place. The army is now settling for pinpoint expeditions into the Strip as well as air bombardments on what are known military targets.

At this point in time the missile attacks have spread to the Southern city of Ashkelon. This city is significantly bigger (population is 96,200) and more populated than Sderot (population of 18,200). So far there have been fewer attacks on Ashkelon, although recently a young mother and her two year old child have been wounded when a rocket hit a shopping center in Southern Ashkelon. Nevertheless, Hamas has shown that it has the capabilities of striking this city and perhaps even further North.

In January the Palestinian population, at the encouragement of Hamas, breached their border with Egypt and supplies, both military and civilian, began pouring in. It is clear that Hamas used this opportunity to rearm itself and take on longer range rockets as well, the kind that hit the city of Ashkelon. Fortunately, this breach has finally been closed by the Egyptian army who also saw the danger of such an open border with Hamas controlled Gaza strip.

At this point in time there is no solution to this situation and hopefully the coming year will see a calmer Southern front.

Despite Israel's hard efforts, there is still no solution for the problem of the captured, as our three soldiers are still in captivity, one of them is our student, Ehud Goldwasser.

The Political Scene

Prime Minister Ehud Olmert is now facing a new set of allegations against him which put his time in office in question. These new allegations involve the transfer of funds to Ehud Olmert while he was the Mayor of Jerusalem and later while he was the Minister of Industry, Trade and Labor. The funds allegedly were transferred to Ehud Olmert by American businessman Morris Talansky. Prime Minister Olmert has addressed the nation regarding this issue and proclaimed his innocence. However, he stated that if he will be indicted he shall immediately resign. The political implications of these new allegations will become clearer in the next weeks and we will know whether Israel is heading for new elections.

The Israeli Economy in 2007

International Monetary Fund (I.M.F.) experts rarely use superlatives. Yet they have recently praised the Israeli economy's "exceptional economic performance" in 2007, due to Israel's "responsible fiscal and budgetary policies". Israel's economy grew by 5.3%, recording the fourth straight year of 5% GDP growth and outpacing economic growth in the USA and in Europe by 2-3% each year. Per capita GDP rose by 3.5%, slightly higher than in 2006. Unemployment plunged to its lowest level in a decade, to 7.3%. In 2008 unemployment continued to fall, and in March fell to its lowest level in 20 years, at 6.5%.

Business sector GDP led the economic growth, rising by 6.1%. An expanding world economy, relatively stable security situation following the Second Lebanon War in the summer of 2006, and growth-supporting fiscal policy, helped the economy. There was a sharp rise in private consumption, together with a decline in the private saving rate. However, this was offset by a rise in public saving, measured by the government's budget deficit, which has fallen each year since 2003 and was eliminated completely in 2007. Government expenditure as a proportion of GDP reached its lowest level since the 1960's, and the ratio of public debt to GDP also fell, to 81%, its lowest

level for nearly 40 years. Stronger than expected growth in tax revenues, and booming import tariff revenues, helped cut the deficit. Most of the government's surplus income was diverted to debt reduction.

Partly as a consequence, Israel's conservative fiscal policies led the international credit rating firm Moody's to upgrade Israel's credit rating to A1, Israel's highest rating since 1948 and a level comparable to that of many of the leading economies of the world. Israel was also accepted as an OECD (Organization for Economic Cooperation and Development) member last year.

The government's fiscal restraint came with a price. "The fiscal improvements were attained at the price of the erosion of the extent and level of the public services," Bank of Israel noted, "and had a negative impact on the weaker segments of the population". The poverty level in Israel is among the highest in the Western world. However, inequality in income distribution fell in 2007, although only slightly, for the first time in several years.

Israel recorded its fifth consecutive surplus in the current account of the Balance of Payments, equal to \$5 billion or 3% of GDP, down from \$7.4 billion in 2006. This surplus was composed of a \$5.5 billion trade deficit in goods, a \$3.2 billion trade surplus in services, and capital transfers to Israel of \$7.3 billion. Israel's terms of trade -- the price of what Israel buys abroad, relative to the price of what it sells abroad -- worsened in 2007, reflecting higher world prices in fuel, food and raw materials. This cost Israel some \$5 billion in direct costs and contributed to dampening the growth of exports.

There was a marked slowing in the rate of expansion of high-tech exports, which account for more than half of Israel's total exports. At the same time there was a sharp rise in tourism, which recovered to its 2005 levels. Of Israel's total exports of goods and services, excluding diamonds, \$61 billion in 2007, \$15.4 billion came from high-tech industries and \$18.8 billion primarily from high-tech and other industries, such as software. Some 54% of Israeli industries are today export-oriented (i.e. gain at least 67% of their revenues from export earnings), compared with only 34% in 1995.

In 2007, the Shekel rose sharply against the dollar. The 9% appreciation of the shekel was added to the 8.2% appreciation in 2006. The falling dollar has hurt Israel's exporters by making the dollar price of Israeli export goods and services in competitive world markets much more expensive.

On March 13 of this year, the price of the dollar fell to NIS 3.40, the lowest since April 1997, as a sellers-only market developed. This led Stanley Fischer, Governor of the Bank of Israel, to intervene, for the first time in the last two decades and the Bank bought \$600 million in two days. Fischer then announced that the Bank would purchase some \$10 billion over the coming two years, to boost Israel's foreign exchange reserves. Partly as a result, the shekel-dollar exchange rate has since been fairly stable. Yet, as mentioned above, it is nearly 20% lower relative to the Shekel than it was two years ago!

The Consumer Price Index rose by 3.4% in 2007, but inflation accelerated during the second half of 2007, largely caused by world inflation. From November 2007 through January 2008 consumer prices (excluding housing) rose at an annual rate of 6.8%, compared with zero from mid-2006 to early 2007. In April 2008 alone, the consumer price rose by 1.5%.

In capital markets, Israel's general share-price index rose a strong 23.3% in 2007, up from 5.4% in 2006, but so far in 2008 has reflected the general world stock market decline.

For 2008 there are numerous "storm clouds" on the horizon. The Finance Ministry expects economic growth to slow to 3.5% or lower. Israel's largest bank reported large losses from investments in sub-prime mortgage assets, as the global financial crisis begins to reach Israel. The soaring price of oil and food in world markets, along with the marked slowdown in the US and European economies and the fall in the dollar to shekel exchange rate, are all impacting Israel's export-driven economy negatively. Partly as a result, the Ministry of Finance has announced that the government expenditures in 2009 will be cut substantially.

The Status of Higher Education

The National Faculty Strike

This past year saw the longest national strike of all university faculty in Israeli history. The strike, which lasted 89 days (!) and began on the first day the academic year was scheduled to begin (October 21, 2007), came to an end on January 18, 2008 after a breakthrough in negotiations between all the parties involved and on the verge of canceling the first semester.

Here is the background to the strike. From 1996 the academic faculty in all Israel's Universities were employed without a signed wage agreement. The faculty claimed that over these years their wages eroded by 35%, relatively to other relevant sectors in public service, because of lack of an agreement. The request of the Faculty Association was to correct their wages for all the years their income suffered due to this discrepancy and to create a mechanism which will protect their wages against such erosion in the future. The representatives of the Ministry of Finance (MOF) who control the salaries of all employees in universities rejected the demands of the faculty, claiming that the erosion in faculty wages since 1996 amounted to only 3%.

This strike has placed all university presidents in a very awkward position. On the one hand, the university presidents are formally the employers of all academic faculty; however, on the other hand, the presidents do not determine the wages for the faculty as those are determined exclusively by the Ministry of Finance. Furthermore, the university presidents in principle supported the faculty claim that their wages were eroded significantly and thought that they should be raised, in particular at the beginning level to avoid the dangerous "brain-drain" phenomena. This peculiar state of affairs meant that the university presidents could only serve as a mediating party in the negotiations. Our dilemma as presidents became very acute when after more than 2 months of intensive negotiations which did not lead to agreement we realized that the first semester, maybe even the entire academic year, was put in jeopardy. As Technion president, my foremost responsibility was to the university on **all** its parts and my main worry was the thousands of students

who stood to lose the semester, let alone the entire academic year! It was even difficult to imagine the damage to more than 120,000 students in the 7 Israel universities if the semester will be cancelled! The lives of 120,000 students will be put into complete chaos by cancelling the semester, and the damage to the universities and Israel would be unimaginable!

Under these circumstances the Council of University Presidents had no choice but to declare the semester canceled if an agreement between the Faculty Association and MOF was not reached by January 13, 2008. This declaration came after many attempts and hundreds of hours of meetings to bridge the gap between the faculty and the treasury. Further to this declaration, the Council of University Presidents decided that in order for the negotiations to be as effective as possible it was necessary to appeal to the Labor Court for assistance in this matter. The reason for approaching the Labor Court was to try and open another avenue for ending the standstill in negotiations by allowing the court to dictate a short timetable for concluding negotiations. The President of the Labor Court, Justice Stephen Adler, took matters into his own hands and convened both sides to schedule a timetable for negotiations to attempt to resolve the conflict. However, although the sides met several times, no agreement was reached. It should be understood that the Labor Court can not enforce an agreement; it can only facilitate the negotiations. At this point, with the January 13th deadline approaching, the Council of University Presidents decided to ask the National Labor Court for an injunction to compel the academic faculty to return to work in order to save the first semester. The National Labor Court, after long deliberations, decided to postpone the issuing of injunctions to the academic faculty by one week to allow additional negotiations. As a result, the University Presidents together with their respective Council Chairmen convened and decided to put more pressure on MOF by declaring that we will entirely close the universities, if an agreement is not reached by January 19, 2008, thus canceling the semester. On January 17, 2008 university presidents, the Academic Faculty Association; the Treasury, including the Finance Minister, Mr. Roni Bar-On; the Minister of Education,

Prof. Yuli Tamir and Mr. Ofer Eini, the Head of the National Labor Federation (Histadrut), convened for a session of marathon negotiations which continued non-stop for 24 hours. This marathon meeting finally resulted in a new wage agreement between the Treasury and the Council of Faculty Associations. This agreement promises an average of a 24% wage increase until December 2009. This amount is made up of a 14% addition due to wage erosion until the end of 2007, a 4.7% increase in accordance with the general agreement reached with all workers of the public sector, and a 5% increase for half of the seniority component for academic faculty.

This new wage agreement, although bringing a significant and long overdue wage increase to our faculty, is not without its shortcomings. The agreement is only valid for a short period of time, until the end of 2009, meaning that negotiations of a new wage agreement will have to resume in a year from now and this may bring new instability to universities. In addition, the new wage agreed, which to a large extent is based on seniority, will have a relatively small impact on wages for new academic faculty. More importantly, this agreement does not possess a mechanism to prevent wage erosion in the future and therefore it carries the seeds for possible new conflicts in the future.

The faculty strike was over on January 18, 2008 and the Technion made tremendous efforts to salvage the time left of the academic year. We held intensive deliberations with the student union to try and save the academic year with two principles in mind: academic level of studies will be maintained as in a regular year, while at the same time making all possible efforts to minimize the damage to students. It was decided that each semester will be shortened to 12 weeks instead of the usual 14 weeks. The academic year will last until mid-August 2008 and the exams will last until the end of September. Students received a package of additional tutorials and other academic assistance as well as financial incentives, such as, discounts and assistance for dormitories as well as special loans. I shall review the full impact of the strike on students later on in the report under the Undergraduate Students and Student Affairs sections.

The Shochat Committee for Examining the Higher Education System

In my last report I informed you of the establishment of the Shochat Committee. This committee charter was to recommend to the government how to reinvigorate the higher education system in Israel so that it can remain among the world's leaders. The Committee tackled four main issues:

- (1) Creating mechanisms which encourage high level academic research and teaching and implementing a merit-based wage pay scale for university faculty;
- (2) Suggesting a new tuition and student support policy;
- (3) Suggesting a research policy, including identifying new resources, and dealing with the "brain drain" of researchers leaving for better-funded institutions abroad;
- (4) Division of roles and functions between universities and colleges and a more balanced spread of academic institutions between the center of Israel and the peripheral areas.

In July 2007 the committee submitted its report of final recommendations to Prime Minister Ehud Olmert. The committee stated that over the next few years there are several actions which must be taken in order to secure the future of higher education in Israel. Budget cuts to higher education since 2001 have reached nearly NIS 1.4 billion and together with a loss of income due to lower tuition, the per-student expenditure on higher education has fallen 22% during that period. **The Shochat Committee recommends an increase of some NIS 2.5 billion to the annual higher education budget of NIS 8.3 billion** (this includes also income from tuition and other sources), **a 30% rise over the next 5-years beginning in the 2008/9 academic year.** Of the increase, NIS 1.5 billion will come from an increase in the nation's higher education budget (VATAT budget) and NIS 600 million from higher tuition, and NIS 150 million from the universities (self-income and donations).

The Committee recommended that tuition be raised from NIS 8,588 annually to NIS 14,800. However, a governmental loan scheme that would spread payments over 10 years is included in the recommendations and repayment would depend on the student reaching a gross salary of at least NIS

5,300 per month. If the former student does not reach this salary during the 10 years after he completes his studies, the loan becomes a grant.

A key parameter for determining the quality of education in universities is the ratio between the number of students and the number of lecturers. This ratio has suffered dramatically over the past few years due to severe budget cuts by the government decreasing significantly the number of new faculty that were hired and an increase in the number of students. *The committee determined that 600 new faculty members have to be recruited each year, over the next few years, in addition to replacing the academic lecturers retiring each year.* The committee further recommends that within some broad guidelines each university will be allowed to use its own discretion when it comes to attracting new faculty with salary items such as accommodations, advanced pay and advanced promotions, special grants for outstanding research etc.

As regards to funding for university *research*, the Shochat Committee has recommended that the National Science Fund should have its NIS 250 million yearly allocation *doubled*. In addition a new NIS 100 million yearly fund for medical research should be established, a NIS 15 million yearly fund will be set aside for research in the humanities and *NIS 200 million yearly to go toward "research infrastructure"*, including purchasing new expensive instrumentation for laboratories and strengthening the scientific libraries.

So far, despite the great pressure from the University Presidents, the government has not yet discussed the report. University Presidents are demanding that the government will adopt and implement the recommendations immediately, otherwise the next academic year is in danger.

We are hopeful that these recommendations will be implemented so that we could truly begin the work of helping the higher education system in Israel recover from the many cuts and slashes it has undergone over the past few years. If this will not happen we are facing a severe crisis.

The "Brain – Drain" in Israel

A major problem being faced by Israel universities and Israeli industry is the fact that many of our young and talented researchers choose to move abroad and work in foreign universities and companies, most of them in the USA. A report published by Israel's *Shalem Center* shows that from the year 2000 through to 2004 there was a sharp increase in the "brain drain" from Israel. In 2002, 0.9% of the researchers and professors left the country. In 2004, this rate rose to 1.7%. One reason for that is obvious: a proficient researcher in Israel can make between \$60,000 and \$70,000 a year, whereas a mediocre researcher on a not particularly prestigious US faculty, for example, can make \$120,000 a year. The second reason is the demand of new openings in academia as a result of several budget cuts by the government which forced the universities *to cut by roughly half the number of new faculty they are recruiting*. The third reason is the inferior research conditions in Israel universities compared to leading US universities. A recent study by Dr. Dan Ben-David (Tel-Aviv University) dealing with the Israeli "brain drain", was particularly troubling, to say the least. According to him, Israel is the leading country in the world when it comes to "brain drain" per capita. 25% of all Israeli academic staff is in the USA as opposed to only 12% of Canadian academic staff and only 4% of Europeans.

The "brain-drain" problem is becoming a serious one for the very reason why this country has made such strides over the past 60 years. Our most precious resource is the human one and if this "drain" does not stop we shall be facing a very serious problem in the coming years. The solution ties in to the whole system of higher education and its recovery. If we wish to attract these young men and women to stay and research here in Israel we must provide them with more attractive salaries, boost research infrastructure, provide them with better overall incentives, and give them real prospects for the future. *This makes the immediate adoption of the Shochat Committee recommendations very urgent and a must!*

My own declared vision has always been that we need to recruit as many young brilliant faculty members as possible and offer them attractive start-up packages in order to attract them to work at the Technion. We have had success in this field thanks to the generous assistance of our friends around the world who have provided us with the funds and financial assistance to create attractive start-up packages for these young men and women. However, due to lack of positions we have lost many excellent candidates to whom we could not offer positions and who stayed abroad.

The Technion

Major Academic Goals and Programs

I would like to begin this section by stating again the Technion Vision:

"A science and technology research university, among the world's top ten, dedicated to the creation of knowledge and the development of human capital and leadership, for the advancement of the State of Israel and all humanity."

This vision is the essence of our university. This vision is what we have in mind when we discuss our plans and goals. Over the years, in all my engagements abroad and in Israel, I have always declared my fundamental goals for the Technion and they have remained unchanged. We must follow them in order to achieve the above stated vision. These goals are what guide me and Technion management in our plans for the future of the Technion:

- Fostering academic excellence in research and teaching.
- Striving constantly to improve our international standing among the leading technological and scientific universities in the world.
- Recruiting the best faculty and students to Technion.
- Developing new fields at the frontiers of science and technology, particularly where the Technion enjoys an advantage.
- Expanding the scope of interdisciplinary and multidisciplinary cutting-edge research, especially in fields that are vital to promote Technion's academic excellence and are important for the State of Israel.

At this point I am proud to share that the Technion has proven itself once again a leading academic and scientific university. The Technion is ranked 25th on the list of the best technological-engineering universities in the world and 36th among the leading universities in the natural sciences. The world ranking was done by the British weekly "Times" in its special supplement on Higher Education, which analyzes the standing of institutions of

higher education in the world. This is a remarkable achievement for us and proves that we are investing in the right programs and we are certainly on the right path. Another important indication is the remarkable success of our young researchers in a European-Wide competition for excellence grants in which Technion came second only to Cambridge University. This is discussed in more detail later on.

I now wish to share with you some of the major programs which are ongoing at the Technion or that we are now beginning to formulate and establish. I would like to point out that these programs are all interdisciplinary programs which encompass several faculties and are campus wide. This is in keeping with the times as it is now realized that one of the major challenges facing universities in the 21st Century is to break the traditional “invisible wall” separating the various disciplines and to integrate them into a joint campus-wide effort to solve the scientific and technological challenges of the 21st Century. This is what we are aiming for with all the new programs. The Technion is an ideal “hot-house” for these multidisciplinary programs as we have the infrastructure in place as well as the right disciplines to make these programs successful and cutting-edge. I will review below the four major interdisciplinary programs: *Nanotechnology*, *The Life Sciences & Engineering Interdisciplinary Program*, *The Technion Autonomous Systems Program* and *the Technion Energy Program*.

Nanotechnology

In its 3-year existence the *Russell Berrie Nanotechnology Institute (RBNI)*, the largest academic program ever in the history of the Technion with an overall investment of nearly \$100 million, has made impressive strides and has dramatically transformed the Technion. With over 115 faculty members and 300 graduate students and postdoctoral fellows from 13 faculties, nanotechnology has become a central part of campus life. In fact, the *RBNI* touches upon all aspects of campus life starting from new faculty recruitment, through setting up and funding campus wide infrastructure, initiating

educational programs, introducing and supporting new research directions, creating ties with industry and initiating collaboration with other leading academic institutions.

In December 2007, the *RBNI* underwent an international review committee by the International Nanoscience and Technology Advisory Board (INAB) appointed by the Israeli government to examine all the activities in Nanotechnology in Israel. INAB stated that the Russell Berrie Nanotechnology Institute at the Technion is *the leading institute in nanotechnology in Israel*.

The key findings regarding the Technion were as follows:

The *Russell Berrie Nanotechnology Institute* is based on a two circle model, consisting of an inner core of researchers and an exterior group conducting partial nanoscience-nanotechnology research. It consists of 115 faculty members, out of which 70 faculty members constitute the inner core, and an extensive central service and research facilities. The committee found that the Institute set-up is very effective and that the program is well led, organized and managed. In particular they have praised the outstanding leadership by the head of the center, Professor Uri Sivan. In addition, its vision is very well defined, characterized and implemented, and there are leading scientists involved in the program. There are extensive high-quality publications in leading journals. The planned focal areas of research are well based on major research fields. Acquisitions of equipment for the Institute are well planned. The "genesis" program for new ideas is original and should be pursued. The M.Sc. and Ph.D nanoscience-nanotechnology program is well planned, established and supported.

As you can see, the report was highly favorable and the Institute is well on the right track.

Since its inception, the RBNI has been led by Professor Uri Sivan (Faculty of Physics) who has done an outstanding job in leading the institute to its current stage and its many achievements.

The Life Sciences & Engineering Interdisciplinary Program

Last year I reported that we have taken serious steps towards positioning the Technion at the forefront of the life sciences after many years in which this field was considered not to be central to Technion development. The vehicle for making the change is *The Lorry I. Lokey Interdisciplinary Center for Life Sciences and Engineering*. This Center, created only a year ago, has made great strides this year in basing itself on campus and beginning its activities on all levels. The Center assembles all the existing resources available at the Technion regarding this field of research and catapults them into the reality of cutting-edge research. We are extremely fortunate that Distinguished Professor and Nobel Prize Laureate Aaron Ciechanover is enthusiastically and skillfully leading the Center and orchestrating its many activities. The funds currently devoted to this program stand at about \$50 million.

Construction of the *Emerson Life Sciences Building* is well underway. The Building will be a catalyst for interdisciplinary research and will rejuvenate many existing facilities. Modern, leading-edge laboratories will support emerging research demands. Common spaces for faculty and students will inspire dialogue and visionary collaborations. This will all lead to many new fundamental discoveries, budding seeds that will develop into new biotechnology and medical technology companies developing important applications for all mankind. The new Life Sciences Building will have a transformational impact on life sciences, research and education at the Technion, on related engineering research, and the Israeli biotechnology industry. The Infrastructure Unit, within the framework of *the Lorry I. Lokey Interdisciplinary Center for Life Sciences and Engineering*, will be created on the lower two floors of the Building. It will provide shared access to both the most sophisticated research tools available today, and a dedicated staff of professionals who will guide researchers in the use of this complex equipment. It will be available to all Technion researchers. By sharing resources, instead of requiring each individual laboratory to invest in heavy equipment and

specialized staff, the Life Sciences Infrastructure Unit will ensure that maximum benefit is derived from each investment. It will play a central role in enabling the Technion's outstanding researchers to find answers to the pressing questions of the 21st Century.

This year also saw the establishment of a multi-disciplinary research group known as the *Lorry I. Lokey Network Biology Research Group*. This group operates in the Fischbach Electrical Engineering Building which is conveniently located in the heart of the Technion campus. The Group's studies objective is to develop a general theory for modular biological networks. Activity to be carried out by the Network Biology Research Group will set the groundwork for a theory of modular networks, combining concepts, such as generalized random graph theory, population dynamics, the theory of neural networks and the theory of learning. The encompassing theory is expected to predict the different modes of assembly activity given the distribution of the composition and dynamics of its individual elements and their connectivity. This research group is very diverse, indeed highly multi-disciplinary and its members come from four faculties – Physics, Electrical Engineering, Chemical Engineering and Medicine. The members of the group are: Prof. Erez Braun (Physics), Dr. Na'ama Brenner (Chemical Engineering), Assoc. Prof. Yonina Eldar (Electrical Engineering), Assoc. Prof. Shimon Marom (Medicine), Assoc. Prof. Ron Meir (Electrical Engineering) and Assoc. Prof. Noam Ziv (Medicine). *This is the first time in Technion's history that such a heterogenic group is assembled in one place, bringing together these talented researchers from different disciplines and their Masters and PhD students to work together and interact on a daily basis. We have extremely high hopes for their achievements.*

As the Center continues to establish itself and begin full activity on all its fronts, I have no doubt that the discoveries and developments made will transform the campus in the field of the life sciences and on the long run will impact on Technion's position as a world leading university.

The Technion Autonomous Systems Program

The Technion is continually identifying new and exciting areas of research in order to remain at the very edge of the next frontiers of science. *The Technion Autonomous Systems Program (TASP)* is a new multi-disciplinary project that represents the next step towards the fusion of machines with sensors, computers and communication capabilities. The objective is to develop intelligent systems that can dynamically interact with the complexities of the real world and independently make their own decisions about how to act, even in groups, especially in unplanned, changing or unexpected situations. The Technion holds an enormous advantage in this type of research because of its excellence in the various disciplines of engineering and computer science.

The plan is to invest about \$25 million in this program, headed by Distinguished Professor Daniel Weihs. The effort to raise the needed funds has just begun. This Program is based upon interdisciplinary research and as such will be the scientific research umbrella for faculty members from many faculties. In fact, members from at least seven Technion faculties will be involved with this program: Aerospace Engineering, Biomedical Engineering, Computer Science, Civil and Environmental Engineering, Electrical Engineering, Mechanical Engineering and Industrial Engineering and Management. The potential advantages of Autonomous Systems are many: machines can free humans from jobs that are dangerous, dirty and even dull, and bring to these tasks superior physical strength, accuracy and complex decision making power.

The *Technion Autonomous Systems Program* will consist of five centers: *The Arlene & Arnold Goldstein Unmanned Aerial Vehicles (UAV) and Satellites*; *Unmanned Ground and Marine Systems*; *Medical Robots, Nanorobotics and Household and Industrial Robotics*. At this point in time the first major center, the *Arlene & Arnold Goldstein UAV and Satellites Center*, has been initiated and financed and it will soon begin its full activities and will undoubtedly have far reaching developments in such an important field for

Israel and the world. We are now making great efforts in finding resources for funding other sub-centers in the cadre of the program.

The Technion Energy Program

With the fast rising prices of oil that have reached all times high, there is no need, I believe, to explain the importance of research in the field of energy, in particular of alternative energy. The Technion will officially launch the new *Technion Energy Program* in a few months. The Technion is aiming for a high profile program, which will include a portfolio of projects involving many types of alternative energy research. The program will include a number of "Flagship" projects that represent activities in specific fields such as Solar Cells, Fuel Cells, Alternative Fuels, and more. We are thus planning an ambitious and aggressive program that will require a high level of support, roughly \$70 million over 5 years, to be effective. The plan is to raise the appropriate funding through gifts, governmental support and industrial cooperation. The establishment of a strong energy program will enable the Technion to attract the best new faculty in this field, and establish the infrastructure needed to carry out an ambitious energy-research program. With this budget level, we believe that the Technion will set the tone for energy research in Israel, and become highly visible on an international scale.

At this point in time we have assembled a team of 8 faculty members from various Technion faculties to write a proposal for this program. The head of this team is Prof. Gideon Grader from the Faculty of Chemical Engineering. An Advisory Board is also being established, with members who are active leaders of industry. We feel that such an advisory board is vital as its members can share a great deal of knowledge regarding current market needs and trends. The Program has also begun to collaborate with the National Renewable Energy Lab (NREL) which is the main US national laboratory working on renewable energy and which is directly funded by the American Department of Energy (DOE). We have established contacts with the NREL both on the scientific level and on the management level. We have prepared a detailed proposal for the

Technion-NREL collaboration, which contains some 12 separate projects. These projects are focused on two high-priority topics as defined by the DOE and Israeli Ministry of Infrastructure: photovoltaic, and electrical vehicle technologies. Our document is currently being reviewed by NREL.

Another developing collaboration in energy research is under the Umbrella program, which represents a collaboration which has been active for over 20 years, between the University of Aachen and the Julich Institute, and the Technion. The next Umbrella meeting, to be held at the Technion in December 2008, will be devoted to the topic of Energy.

Hopefully, in next year's report I shall be able to report that the Technion Energy Program is well on its way as it is such an important program both to the Technion, to the State of Israel and to the world.

The 2007/8 Academic Year

Administration Appointments

Central Management

On October 1, 2007 Prof. Aviv Rosen, the Senior Executive Vice President was replaced after six challenging yet very fruitful years in office, by Prof. Paul D. Feigin of the Faculty of Industrial Engineering and Management where he previously served as Dean for four years.

In July 2007, Dr. Israel German, the Executive Vice President and Director General, requested to be relieved of his duties due to personal reasons. Dr. German's leaving was accepted with regret. A replacement had to be appointed very quickly. Prof. Zvi Kohavi, formerly the Director of the TRDF, has accepted this challenging appointment and is now the Technion Executive Vice President and Director General. Prof. Kohavi brings with him many years

of administrative experience and we are fortunate to have him on our management team.

Continuing in office in Central Management are Prof. Moshe Sidi, the Executive Vice President for Academic Affairs; Prof. Moshe Eizenberg, the Executive Vice President for Research; and Prof. Peretz Lavie, Vice President for Resource Development and External Relations.

All four *Technion Deans* are continuing in office:

Prof. Allan Pinkus, Dean of the Undergraduate School.

Prof. Moshe Shpitalni, Dean of the Graduate School.

Prof. Shimon Haber, Dean of Students.

Prof. Shammai Speiser, Head, Continuing Education and External Studies.

Academic Units

The Following *Faculty Deans* have assumed office on January 1st, 2008:

Prof. Moris Eisen, Faculty of Chemistry

Prof. Ben-Zion Levi, Faculty of Biotechnology and Food Engineering

The following *Faculty Deans* are continuing in office:

Prof. Arnon Bentur, Faculty of Civil and Environmental Engineering

Prof. Israel Cidon, Faculty of Electrical Engineering

Prof. Yachin Cohen, Faculty of Chemical Engineering

Prof. Boaz Golany, Faculty of Industrial Engineering and Management

Prof. Joseph Mizrahi, Faculty of Biomedical Engineering

Prof. Ido Perlman, Faculty of Medicine

Prof. Omri Rand, Faculty of Aerospace Engineering

Prof. Charlotte Schapira, Department of Humanities and Arts

Prof. Oded Shmueli, Faculty of Computer Science

Prof. Yoram Reiter, Faculty of Biology

Prof. Emil Zolotoyabko, Department of Materials Engineering

Prof. Josef Avron, Faculty of Physics

Prof. Abraham Berman, Department of Education in Technology and Science

Prof. Yerach Doytsher, Faculty of Architecture and Town Planning

Prof. Michael Shapiro, Faculty of Mechanical Engineering

Prof. Baruch Solel, Faculty of Mathematics

Budget and Finance*

The Technion is in the final year of the 5-year plan (2003/4-2007/8) approved by the Planning and Budgeting Committee (VATAT). During the first four years the Technion had to apply severe cuts in its operating budget due to large government cutbacks in budget allocation for all universities in Israel. *According to this plan Technion must have a balanced budget at the end of the 2007/2008 academic year.*

The 5-year plan implements substantial cuts in all Technion expenditures, but also includes considerable increase in VATAT support, restoring about half of the government cutbacks which were incurred over the last years. The entire plan includes a cut of 237 personnel positions (including many senior academic positions) in the five years, in addition to the 116 positions already cut in 2002 and 2003, as well as substantial cuts in non-salary operating budget items. The cuts comprise an 18% (!) reduction in Technion's personnel positions since 2000.

* Due to fast changes in NIS/\$ exchange rate which has fallen by almost 20% in the last year (the NIS becoming stronger), we report the budget in NIS, occasionally converting it into dollars using an average exchange rate as follows:

October 2007: \$1US= 4.03 NIS; February 2008: \$1US= 3.60 NIS;

May 2008: \$1US= 3.44 NIS.

The Technion fulfilled its obligations and implemented the budget cuts according to the plan since 2003/4, despite the fact that VATAT's approval and transfer of the promised additional funds, was pending for more than 3 years. In May 2007, the Technion finally received VATAT's approval for the 5-year plan and with it, part of the additional funds promised as part of the plan, were finally transferred to the Technion.

The Technion budgets for the 2006/7 and 2007/8 academic years are discussed below under two categories:

(1) Operating budget, which covers all the regular operations of the Technion and of which 73% are devoted to staff emoluments and pension payments, 11% to operating expenses, 8% to student fellowships and aid, and 8% for maintenance. About 70% of the operating budget comes from VATAT and 30% come from self-income, a significant part of which comes from donations.

(2) Development budget which comes almost entirely from donations and gifts. The development budget is used to develop and upgrade the infrastructure, to recruit new faculty and to provide them with the required equipment, and to create new research centers and programs. Development projects are managed as multi-year projects.

The 2006/2007 Budget Year

Operating Budget

The budget year 2006/7 has concluded with an operating budget deficit of NIS 90 million. With the approval of the 5-year plan, VATAT has approved a special additional allocation to Technion of NIS 68 million and a permission to withdraw the rest of the deficit from the "VATAT reserve fund" held by the Technion; thus, in effect, balancing the 2006/7 budget.

Development Expenditure

In 2006/7 the Technion invested (cash and obligations) an amount of NIS 204 million (\$48.7 million) in development projects. As mentioned above, all

the significant development projects on campus are due to gifts. Among others are the Nanotechnology program, the new Biotechnology Building, the Student Union Building, the Asher Space Research Institute, the Emerson Life Sciences Building, Renovation of Laboratories in the Schulich Faculty of Chemistry, the Lorry Lokey Life Sciences and Engineering program, Lorry Lokey Park, a new Experimental life science facility and several projects at the Faculty of Medicine.

The Table below lists our investments in development projects (in NIS) divided into four major categories, both in 2005/6 and in 2006/7. Note the significant increase in investments in projects in 2006/7.

Project Type	Investment in Projects	
	2005/6	2006/7
New Buildings & Renovations	61.9	125.2
Multi-disciplinary Research Centers	63.0	61.9
Laboratories & Equipment	20.3	16.5
Infrastructure & Landscape	1.1	0.6
Total (NIS)	146.3	204.2

Investments

Technion's investment portfolio includes Technion pension funds that are invested within the framework of the overall investment pool. The investment policy is set by a public committee of experts which meets several times a year. The value of the portfolio on September 30, 2007 was NIS 3,826 million (\$953 million). This is a significant increase from last year's portfolio of NIS 3400 million (\$791 million), resulting from both new gifts as well as a successful investment policy. About 65.5% of the portfolio was in Israeli index-linked investments, 16.1% in Israeli shares, 12.8% in foreign exchange linked investments and 5.6% in liquid assets.

The 2007/2008 Budget Year

Operating Budget

In the 2007/8 budget the Technion continues to implement the budget cuts according to the VATAT 5-year plan. The budget framework is a *balanced* NIS 967.5 million, i.e., *without a deficit for the first time in the last seven years*. This is a major achievement in view of the very large Technion deficit of nearly NIS 130 million at the beginning of the 5-year plan. Balancing the budget this year was possible as a result of a special allocation from VATAT, approved as a part of the 5-year plan, in the amount of NIS 56 million and additional allocations granted by VATAT in March 2008 in the amount of NIS 25 million, bringing the total this year to NIS 81 million. The NIS 25 million grant should cover, among other things, part of the pension payments to the Bosmat retired employees. Bosmat (the professional high school which belonged to Technion) was closed on July 2007 and all its pension expenses will be covered by the Technion from now on, as all its employees were Technion employees.

Another important factor that helped us to balance the budget was an increase in the self-income supported by gifts directed to operating budget in particular from the American Technion Society.

The 3-month-long strike by the senior academic staff in the beginning of the academic year caused some unexpected additional expenses necessary to support students and additional payments to instructors due to the lengthening of the academic year. We estimate these additional expenses to be NIS 6 million. The financial consequences of the new wage agreement with the faculty are also not clear at this time.

Pension Payments and the New Pension Plan

Pension payments to all Technion employees are made from the operating budget. In 2006/7 pension payments amounted to NIS 130.8 million, 14.0% of the operating budget and this year they are expected to rise to NIS 145 million,

or 15.1% of the operating budget. The significant rise this year is a result of the closure of Bosmat. Pension payments and their percentage of the operating budget are expected to increase for the next 10 years when they will slowly decrease. Such a high percentage of the operating budget that is devoted to pension payments places a serious burden on the operating budget and Technion's future plans.

As was pointed out in previous reports, starting from January 1, 2004 all new Technion employees, both faculty and administrative staff, have an external pension fund and when they reach pension it will not burden Technion's operating budget. This will have, in the future a very positive, long-term effect on Technion's financial stability.

Academic Affairs

The Council of Higher Education Quality Assessment Process

The Israeli system of higher education has undergone an extensive transformation over the last decade due to the establishment of many colleges and the proliferation of many academic programs. Following the example of many countries, the Council of Higher Education (CHE) has decided to establish a unit responsible for the important task of assessing and assuring the quality of higher education. The Technion, that has already started a regular outside evaluation process of all its academic units and programs 40 years ago, welcomes this move.

The approach adopted by the CHE involves selecting programs to be assessed and all higher learning institutions teaching this program will be assessed simultaneously. The emphasis of the evaluation is on teaching and the quality of the academic degree offered. The quality of research is usually not evaluated.

The evaluation process consists of three stages:

- (a) Preparation of a Self-Evaluation Report by each institution. This report should involve an examination of various aspects such as: how does the academic unit define its identity? What are the aims and goals of the program? What is being done in order to achieve those aims and goals? There is a detailed questionnaire that defines the items to be included in the report.
- (b) Evaluation by an external committee, appointed by the Council, including an on-site visit to each institution and a meeting with the heads of the institution and the academic unit evaluated. The committee produces an Evaluation Report for each institution.
- (c) A discussion by the CHE and resolutions (including their publication) in a public domain site in light of the Evaluation Reports and the responses of the institutions to these reports.

In response to this new assessment process the Technion has established a procedure for preparing the Self-Evaluation Report and for the consideration of, and the response to the Evaluation Report findings. It calls for the Evaluation Report to be deliberated within the relevant Faculty committees, which will then suggest a reply. The report and reply will then be discussed in a management meeting in the presence of the corresponding Faculty Dean, and then will be reported to the Senate Steering Committee and the Senate. Of course, the management and the Faculty Dean are responsible for implementing the Evaluation report recommendations.

So far, this procedure has been applied to the evaluation of the following faculties: Computer Science, Electrical Engineering, Medicine, Physics, and the MBA program. Several other programs are currently under review: Economics, Mechanical Engineering, Industrial Design, Behavioural Science, Biology, Chemical Engineering and Architecture.

In the evaluation programs that have been completed, the Council of Higher Education has issued a summary report relating to all the programs evaluated. *The Technion's programs received excellent to very good marks in all of these summary reports.*

The points raised by the reports vary from one program to another; the issue of the student to faculty ratio and the workload on teaching assistants and faculty members were raised in most programs and the evaluation committees called upon the government to increase their allocation to the universities, which will allow them to improve the situation.

I would like to mention that this Council of Higher Education assessment process is different from the Technion's periodic evaluation, which has been operating for more than four decades and assesses every Faculty once every 7-10 years. While the Technion evaluation process emphasizes both the research and the teaching programs, and the overall standing of the Faculty and graduate degrees, with a committee made mainly of leading foreign faculty members, the Council of Higher Education process emphasizes the syllabus and the educational part of the program, and the committee members are mostly Israelis. Also, our evaluation committees stay on campus for an entire week while those of the CHE are on campus for only a few hours and it is therefore clear that our evaluation process is much more extensive. We plan to continue with our own independent evaluation process also in the future.

The Campaign to Attract Top Students to the Technion

This year the Technion has invested significant efforts and funds in a campaign aimed at attracting first rate top candidates to apply for admission to the Technion. The main target of the effort was students from Tel Aviv and the center of the country. The slogan of the campaign can be translated as follows: *“The Technion. Only the Technion!”* The campaign concentrated mainly on internet banners and promotions and on radio announcements reaching a peak just before the Open Day for new candidates. Compared to the previous year, the campaign tripled the number of visitors to the Open Day, which reached 3,000 participants, and as a result there has been an overall increase in the number of qualified applicants. This result should be compared to other universities, which have witnessed this year an overall decrease in the number of applicants. The follow-up involves employing various methods, including

direct communication with successful applicants in order to encourage them to accept the place offered them at the Technion.

Other publicity activities are focused on highlighting the variety of student social events and life on and around campus. The Mayor is trying to position Haifa as a *student town*, with two universities and several colleges, and a wide range of entertainment and leisure facilities. Together, we are trying to improve transportation to and from the Technion campus so that students can also take full advantage of city's entertainment and recreation centers.

Starting the next academic year we have opened a new electronic option for the new applicants to check on line whether they will be eligible for scholarships and dormitory. This new unique process of pre-checking (before actually admittance) eases the whole process of decision making for the new students and we hope will attract them to the Technion.

The other important aspect of attracting excellent students requires ensuring that the student learning experience at the Technion is a decidedly positive one. Everyone knows and accepts that the Technion has high academic standards, and that earning a Technion degree involves dedication and hard work. Nevertheless, there is room for further motivating students, especially engineering students, by exposing them early in their studies to "real-world" issues and challenges, and by showing them how their first year basic science courses are important to their professional development. Together with a newly appointed Assistant Senior Vice President for the Promotion of Teaching, Professor Daniel Lewin from the Faculty of Chemical Engineering, a comprehensive program to deal with these issues is being planned. We will launch this new program in the next academic year.

The Faculty

The toll of the Technion financial situation on the recruitment of new faculty members has been significant in recent years. In 2006/7 only 10 new faculty members joined the Technion. This year (2007/8) the situation is much

better as we were able to recruit 22 new faculty members that joined 14 departments.

As a result of the severe budget cuts by the government, we were forced to drop the total number of full-time faculty members from 615 in 2000/1 to 574 in 2004/5 and to only 552 this year (2007/8). This number of faculty members is similar to that in the middle of the 1970's when the number of students at the Technion was only 60% of what it is today. Needless to say, this increase in the number of students versus the number of faculty is damaging to Technion's academic goals. It is clear that the Technion reached the "red-line" in terms of the number of faculty members, and this number should increase significantly over the next years. *This is one of our main missions in the next years.*

A Table that shows the recruitment to the Technion in the years 2001/2 – 2007/8 is shown below. The Table reveals that 25% of the current Technion faculty joined us since the beginning of this millennium.

Academic Year	Senior Academic Staff*	Clinicians	Total Recruitment
2001/2	27	6	33
2002/3	15	18	33
2003/4	24	14	38
2004/5	24	20	44
2005/6	21	20	41
2006/7	10	11	21
2007/8	22	18	40
TOTAL	143	107	250

*without clinicians

With the help of special programs such as nanotechnology or the life sciences and engineering program, the number of faculty members that are recruited can be slightly increased. We also hope that the government will

adopt the recommendations of the Shochat Committee which implies significant additional resources to the universities, especially for recruiting new faculty, and that will allow the Technion to increase the number of talented young faculty members that we can recruit. In addition, we are developing new fund- raising programs, such as the Career Advancement Chair, which will allow us to recruit more faculty members and reverse the trend of recent years, increasing back the number of faculty to around 600 over the next five years.

A very bright angle in the recruitment of the last years and this year in particular is the excellent crop of brilliant young faculty members that joined us. Most of them had attractive offers from other universities or industry abroad and in Israel. It took significant effort on behalf of the department deans and the Technion management, as well as substantial resources, to attract these brilliant minds to the Technion. *The leaders in Science and Technology Program* initiated and supported by Mr. Henry Taub, and the recently funded *Shillman Career Advancement Chair* played an important role in making this a reality.

The success of our young faculty members is clear from the fact that each year several of them are awarded various prizes and distinctions, including the prestigious Allon Fellowship. Last year the two that received the Allon Fellowship were *Dr. Debbie Lindell* from the Faculty of Biology, who also holds the Shillman Career Development Chair, and *Dr. Avner Rothschild* from the Faculty of Materials Engineering. This year Dr. Rothschild also won the prestigious Wolf Fund Krill Prize. Dr. Rothschild's research interests are in nanotechnology, in particular in design and characterization of functional nano-materials for energy conversion and environmental applications.

This year there are four recipients of the Allon Fellowship from the Technion. These are Dr. Kinneret Keren from the Faculty of Physics, *Dr. Tamar Ziegler* from the Faculty of Mathematics (both of whom joined the Technion this year), *Dr. Itai Yanai* from the Faculty of Biology and *Dr. Yuval Shaked* from the Faculty of Medicine (both of whom will join the Technion in October 2008). Let me introduce them to you briefly.

Dr. Keren completed her Ph.D. studies at the Technion, spent her post-doctoral period at Stanford, and her research interests are at the interface of physics and biology. Her work integrates cutting-edge nanotechnologies to solve problems at the forefront of cell biology. Dr. Keren also won several prestigious grants and was selected by the Technology Review Magazine, MIT's magazine of innovation, as one of the 100 most promising young scientists in the world.

Dr. Ziegler Completed her Ph.D. studies at the Hebrew University of Jerusalem and spent her post-doctoral period at Ohio State University, at the Institute of Advanced Study in Princeton and at the University of Michigan. Her research interests are in the combination of the ergodic theory with combinatorial number theory.

Dr. Itai Yanai completed his Ph.D. studies at Boston University and spent his post-doctoral period at the Weizmann Institute, at Heidelberg EMBL and at Harvard University. His research interests are in developmental biology and complex biological systems and mechanisms. He was recruited within the framework of the Lorry Lokey Life Sciences and Engineering Interdisciplinary Center.

Dr. Yuval Shaked completed his studies at the Hebrew University of Jerusalem and spent his post-doctoral period at Toronto University. His research interests lie in studying novel drugs for the treatment of cancer.

Our *Leaders in Science and Technology Program*, founded by Henry Taub, which helps us recruit four to five new faculty members a year since 2002, continue to serve as a valuable instrument enabling the recruitment of young outstanding faculty members and provide them with the required infrastructure and equipment. Dr. Lindell from the faculty of Biology and Dr. Keren from the Faculty of Physics, who later won the Allon Fellowship, were recruited under this program. Two additional excellent young faculty members who were recruited this year under this program are: Associate Professor *Tsachy Weissman*, from the Faculty of Electrical Engineering who received his Ph.D. from the Technion, and became an Assistant Professor at Stanford. He is a world expert in information theory. And Dr. *Yosef Jabareen*, from the Faculty

of Architecture and Town Planning who received his Ph.D. from the Technion and spent his post-doctoral period at MIT. Dr. Jabareen won the Maof Fellowship that is aimed to encourage the recruitment of faculty members from minority groups, such as Arabs and Druze, within Israel.

Another important national prize for young faculty members is the Wolf Fund Krill Prize for Excellence in Scientific Research and it was awarded this year to *Dr. Jeff Steinhauer* from the Faculty of Physics who joined the Technion a couple of years ago. His research interests are vortices, Josephson phenomena and excitations in Bose-Einstein condensate.

Another important indicator of the high quality of our new faculty members became available recently. In January 2007 the European Union launched its 7th Framework Program for R&D and as part of this framework, an all-European competition between young faculty members (up to 9 years after their PhD) for large research grants (1 million Euros on average), was issued. Out of 10,000 young researchers in Europe who competed in the program, **seven** young Technion researchers won a sum total of 8 million Euros. *This is the highest number of wins in Israel, and places the Technion in the second place out of all the European universities (second only to Cambridge University).* This is another testament to the high quality of young faculty members at the Technion.

The outstanding quality of the new faculty that we recruit provides the necessary strong basis for Technion excellence and leadership and makes us confident in the future of our great institution.

Another bright angle in this year's recruitment is that 8 out of the 22 new faculty members (36%) are women. During the past five years 28 out of the 107 new faculty members (26%) were women and the total number of women faculty members at the Technion today is 95 out of the total of 552 faculty members (17%), the highest in Technion's history and quite a high percentage in comparison to other technologically-oriented universities similar to Technion. This trend has to be continued and we are taking steps towards this goal. A board committee, headed by Council member Mrs. Ruth Alon,

continues to examine the issue and has already made some recommendations that were adopted by the management.

Undergraduate & Graduate Studies and Other Academic Programs

Undergraduate Studies

The National Faculty Strike certainly took its toll on the undergraduate students at the Technion as most of their academic work load depends upon the frontal lessons given by the striking faculty members. I shall discuss the effects of the strike in more detail under the Student Affairs section of this report. In this section it suffices to mention that as a result of the strike, the academic year was extended until August 13th and despite the difficulties, the high academic standards of the courses and other academic assignments were not compromised.

The number of candidates this year has increased by 4% in 2008 in comparison to 2007. Despite this increase the number of students beginning their studies has decreased by 3%. The reason for this gap is the National Faculty Strike which put the whole semester in jeopardy and resulted in students cancelling their registration. Until the strike we were confident that this year will show a significant increase in the number of beginning students.

The following faculties had over 200 candidates to consider: Computer Sciences (a 30% increase from last year), Industrial Engineering and Management (20% increase) and Civil Engineering (70% increase).

In the number of students beginning their studies we saw a significant increase in some of the large Faculties, such as the Computer Sciences (18%), Mechanical Engineering (6%), and Industrial Engineering and Management (3%). There was also an increase in the Faculties of Chemical Engineering, Mathematics, Chemistry, the track of Electrical Engineering-Physics, and in the program of Environmental Engineering.

The number of beginning students decreased in the Faculties of Electrical Engineering (15%), Aerospace Engineering (16%) and Biology (17%).

The Technion budgetary constraints forced us to decrease the number of study groups, thus making each of the existing groups much larger. This is true in both overall Technion classes and Faculty classes. This is bad academically, and a new program, headed by Professor Daniel Lewin, to tackle this issue, was devised and it will be implemented next year. It will require significant financial resources but we have decided to go ahead with the program.

The number of study rooms which used to burden us is no longer a problem because of a number of large classes built over the last few years (the Taub and the Rabin Buildings).

We are continuing with our efforts to improve the quality of teaching as it is a high priority for the Technion. The Center for Promotion of Teaching continues to do excellent work in providing workshops for faculty members. There were two workshops held for new faculty members as well as feedback for more seasoned faculty members who requested it. The Center also held five workshops for teaching auxiliaries in which 350 new teaching assistants participated. The Center for Promotion of Teaching and the Department for Education in Technology and Science established a new Teaching Forum whose purpose is to promote debate amongst faculty members regarding teaching and education. The purpose of the Forum is to feed off ideas from shared thinking in the hope of improving the teaching process.

The following table shows the number of undergraduate students in the various faculties and their division between engineering and non-engineering disciplines. This year the data which I bring is regrettably only partial and is accurate only as of April 1, 2008. This is due to the delay in the start of the spring semester to mid-May. At this time we can only *estimate* the number of students who will start their studies in this semester. I usually include in my report the spring semester which at this time of the year is already in its midst.

Total Undergraduates and New Admissions Students

Year	<i>Total Number of Students</i>			<i>Admissions</i>		
	2005/6	2006/7	2007/8	2005/6	2006/7	2007/8
Engineering	6,322	6,383	6,167 ^a	1,366	1,437	1,495 ^a
Non-engineering	2,368	2,352	2,324 ^a	599	659	610 ^a
Total	8,690	8,735	8,521^a	1,965	2,096	2,105^a

Undergraduate Students by Faculty in 2007/08^a

Engineering Faculties:

• Aerospace Engineering	323
• Architecture & Town Planning	492
• Biomedical Engineering	256
• Biotechnology & Food Engineering	325
• Chemical Engineering	347
• Civil & Environmental Engineering (incl. Mapping and Geo-Informatics & Agricultural Eng.)	733
• Computer Sciences – Engineering and 4-year program	400 ^b
• Electrical Engineering	1477
• Industrial Engineering and Management	878
• Materials Engineering (jointly with Physics or Chemistry)	249
• Mechanical Engineering	717

Total Engineering: 6,197

Non-Engineering Faculties:

• Biology	328
• Chemistry	144
• Computer Science (3-year program)	620 ^b
• Economics and Management	102
• Education in Technology and Science	172
• Mathematics	173
• Medicine	630 ^c
• Physics	205
• General Undergrad. Option	52

Total Non-Engineering: 2,324

Grand Total: 8, 521

^a An accurate number of students is not available due to the delay in the opening of the second semester

^b Estimated

^c Including 344 MD 4th-6th year students

The Irwin and Joan Jacobs Graduate School

The National Faculty Strike did not affect the graduate students as it did the undergraduate students. The reason for this is that graduate students concentrate more on research and this was not affected by the strike as laboratories continued to operate regularly and faculty members continued with their research.

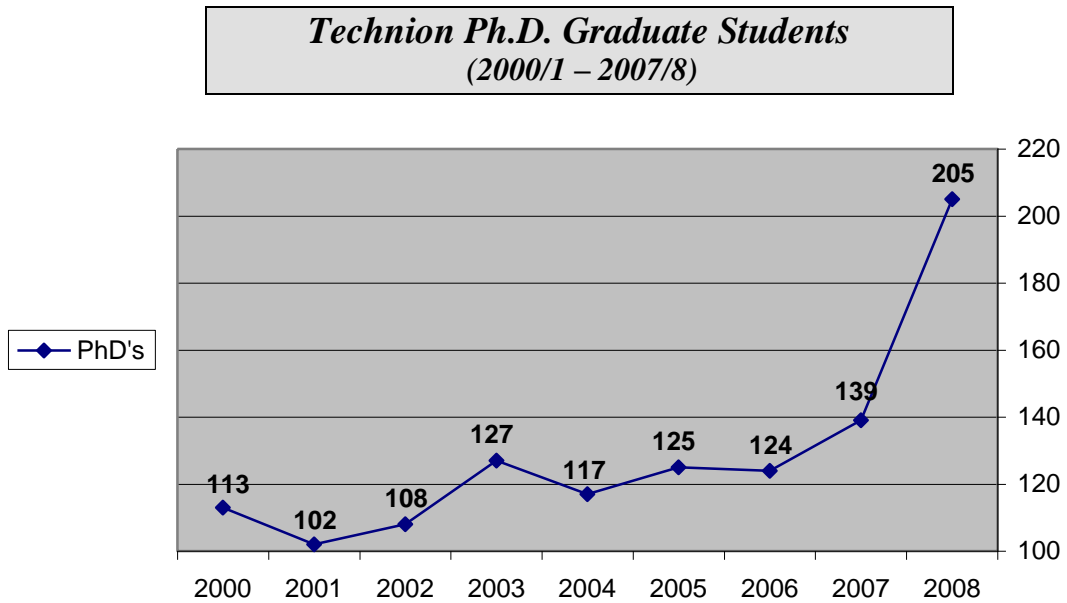
At the end of the winter semester in mid April 2008, the number of graduate students stood at 3,249 students, 886 of which are doctorate students (27%) and 2,347 are Masters students (72%) – 1,736 (74%) of them studying towards an M.Sc. with thesis. This number actually marks a slight decrease from last year's numbers which stood at 3,408 students in total. The decrease in the number of doctorate students is due to an unusually large number of graduating students last year on the one hand and late enrollment of new candidates due to the national faculty strike. However, this year there is a marked increase in the number of graduate students who are on a direct track to their doctorate degree – 243 students in comparison to 208 students last year.

In the upcoming graduation ceremonies the Technion will be awarding 743 Masters Degrees (372 Masters with thesis, 188 Masters without thesis, 72 who are on the “direct” track to doctorate and 111 are MBA graduates). Most importantly, we have *a record number of doctorate degree graduates – 205!*

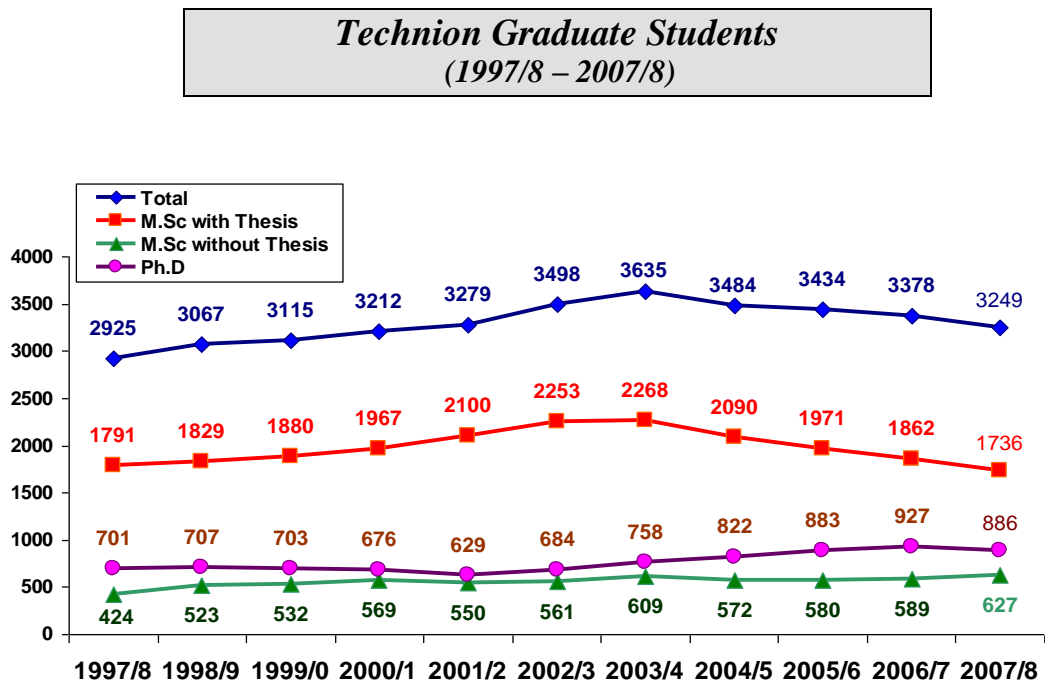
In the previous year the Technion awarded 717 Masters Degrees and 139 Doctorate degrees. The high number of graduating doctoral students is the result of an increase in the total number of doctoral students at the Technion and an increase in the portion enrolled in the “direct doctoral track” (52 in 2008, 36 in 2007), which shortens their study time. However, this increase is also a result of circumstantial random reasons such as the Second Lebanon War which delayed some of the graduations from 2007 to 2008.

The graph in the next page shows the progression in the number of Ph.D. graduates of the Technion since 2000. The picture is clear – there is a steady increase and in 2008 the number of Ph.D.s graduating the Technion is double the

number it was in the year 2000. This is in line with Technion's vision and it is a trend that should be continued.



The graph below shows the progression in the total number of M.Sc. and Ph.D. students for the last 11 years.



As part of our effort to improve our Ph.D. program, this year it was decided that each doctoral student is eligible for at least one travel scholarship for the purpose of presenting their research in conferences, especially those held abroad. We believe that this is very important for their overall education. This program is supported from gifts but we aim at creating an endowment that will support it in perpetuity.

The Senate has approved a *bi-institutional doctorate degree*. This is a significant decision which allows the Technion to attract excellent graduate students from abroad and cooperate with colleagues from other leading universities in their tutorship. This program has the potential to improve research, increase the number of graduates on campus, allow for a more cosmopolitan campus and expose our graduates to the global world.

This year, the Technion received authorization from the Council of Higher Education to open several new study tracks:

- Two Masters (without thesis) tracks for Architecture and Town Planning: One is directed towards first degree holders who are not architects, and the second to first degree holders in architecture.
- A Masters program (without thesis) in Civil Engineering in Quality Assurance and Reliability.

The Senate approved the following new programs:

- Two new Masters (without thesis) tracks in Industrial Engineering and Management: (a) operations management and (b) quality assurance and reliability.
- M.Sc. in Polymer Engineering and a Ph.D. in Polymer Engineering.

This year during our annual Board of Governors meetings, we will celebrate the official festive naming of the *Irwin and Joan Jacobs Graduate School*.

The number of post-doctorate students at the Technion increased from 122 last year to 132 this year. 88 of them are from Israel, 18 from India, 5 from China, 4 from Germany, 3 from USA, 2 from Italy, Netherlands, Chile, Poland

and the Czech Republic and 1 from Korea, Greece, France and Australia. To improve the competitiveness of the Technion, the maximum post doctoral fellowship has been increased to NIS 10,000 per month.

Pre-University Education

The Center for Pre-University Education has several and diverse types of activities under its “umbrella”. All of the programs in this unit are supported by donations from a variety of philanthropic organizations and private donors.

Pre-Academic– Preparatory Programs

During the year around 1,600 students take part in the many programs offered by the unit. The programs that are offered by the unit are diverse and include:

1. A Preparatory Course for Discharged Soldiers and New Immigrants

The program lasts 10 months and it opens twice a year for admissions. The teaching staff includes 30 experienced and dedicated teachers. Most of the students are veterans of the IDF who finished their army service. The subjects taught are Mathematics, Physics, English and Scientific Writing. Around 65% of the students in the program will later qualify to be admitted to the Technion or other universities.

2. Pre – Entry Courses

These courses are meant for students already admitted to the Technion and their purpose is to strengthen the knowledge of students thus making it easier for them during their first year of studies. The courses are in Mathematics and Physics. There are also special courses for certain faculties, such as the Graphic Skills Prerequisite Course, which helps prepare students towards their entrance exams to the Faculty of Architecture and Town Planning.

Another course held in the unit is one aimed at Arab students who were admitted to the Technion. This course numbers around 40 students and its

purpose is to strengthen the knowledge of Arab students in subjects such as Mathematics, Physics and English.

3. *A Pre-Preparatory Course for the Atidim Project*

The purpose of the course is to strengthen the knowledge of these students prior to the beginning of the preparatory program. This has proven to be important in view of their weak school background knowledge. This year 70 of Ethiopian origin, Druze and periphery students participated in this course.

4. *A Special Program for the Preparation of Arab students for Higher Education*

The purpose is to prepare these students for higher education and their workload demands. The students participating in this program come from low socio-economic background but have achieved good grades in Mathematics, English and other scientific subjects in high-school.

In 2007, 55 students participated in the program. The program supports the full tuition and living expenses of the students, and guarantees full financial support also during their Technion studies if admitted to Technion

5. *A special Program Aimed at Students from the Jewish Ultra-Orthodox Sector*

The purpose of this unique new program is to train students from the Jewish Ultra-Orthodox sector of the population. The challenge is huge because these students have no background in science and mathematics, and therefore cannot attend the regular preparatory classes. The Program aims to integrate these students at the Technion and other higher learning institutions in Israel. In 2007 this program had 30 students. The program lasted for 4 months as a pre-entry program and an additional 10 months as a preparatory program which taught Mathematics, Physics, English and Scientific Writing. It also concentrated on helping the students acquire study techniques. The program will end in August 2008 and we will then be able to judge the success of this interesting experiment.

The Harry and Lou Stern Youth Activities Unit

The purpose of this unit is to make science and technology more accessible and attractive to children and youths by offering them a range of activities suited for their age group. The activities are mainly aimed at children in junior high school and high school. The activities are held in the morning during science and technology days and in the afternoons as part of after school programs. Each year there are more children participating in these programs. This year 8,000 pupils participated in 200 days of activities. This year we have launched our new laboratories, which significantly exceeded our scientific abilities.

Some of the special programs for younger populations are detailed here.

SciTech 2007

This International Summer Research Camp was held for the 15th time. During this program the students participate in ongoing research at the Technion under the supervision of faculty members and research students. At the end of the period the students present their results in a special binder.

This year we had 64 participants (24 girls and 40 boys) from the USA, Canada, Bulgaria, Hungary, Poland, England, Italy and Israel.

TeLeM - Technion Lessons in Mathematics

The TeLeM program aims to encourage mathematically talented children in grades 6 to 10 to develop these talents and complete their mathematics matriculation studies at the highest, 5 credit-points level. Special mathematics classes have been established for suitable children in ten selected high-schools throughout the North of Israel. Training workshops are given regularly to mathematics teachers who participate in the program. This is the 8th year for this program's activities. Today there are 800 pupils participating in the program.

The "Equal Opportunity" Project Sponsored by the Landa Foundation

There were special workshops held for Arab youths in subjects such as Chemistry, Physics, Biotechnology, Mathematics, Computers and Aviation

Sciences. Many pupils from all over the North of Israel participated in this project.

Continuing Education and External Studies

The Unit for Continuing Education and External Studies specializes in organizing and developing advanced study programs for university graduates in the exact sciences in general and for engineers in particular. It also caters to high-ranking professionals in different fields of engineering, architecture, medicine and administration through conferences, specially designed courses, advanced courses and special study sessions in collaboration with various Technion Faculties. The unit's goals are to promote, update, and enrich the knowledge of engineers, scientists, doctors, academics, and other professional populations in accordance to the needs and trends of the marketplace and industry. All of the Unit's programs are under the supervision of an academic council made up of various Technion professors representing many fields of study and different faculties.

The Unit operates out of three centers: the Technion campus, the Tel-Aviv center and the Jerusalem Center. It offers accessibility from all of Israel so as to reach academics in other parts of the country. There is lack of space in the Tel-Aviv Center, and therefore, the Technion started a search for a bigger site in Tel-Aviv so as to provide for the growing demand.

There are currently 2,916 students studying in the unit and 325 faculty and staff are involved in its activities.

The following are some of the programs offered in this academic year:

- *MBA* with emphasis on High-Tech companies.
- *M.E.* in: systems engineering; biomedical engineering; civil engineering with emphasis on managing construction projects; biotechnology and food engineering; real-estate; and environmental engineering.
- *M.Sc.* in architecture with emphasis on conservation.
- *M.E.E.* in electrical engineering – a program offered through Intel.

- *Management Studies* in: human resources; project management; quality assurance engineering; logistical systems management; coaching and more.
- *Real Estate Studies* in: land assessing and property management; planning and construction law; construction project management.
- *Interior Design Studies* in landscape design and curating art exhibits.
- *Computer Studies* in: software development; software testing; network administration and management; data protection and more.
- *Tailor fitted programs* for various companies such as the Israel Electric Corporation, Intel, RAFAEL, Elbit, Cellcom and more.

Student Affairs

The National Faculty Strike and its Implications on our Students

As expected, the national faculty strike has had, and still continues to have, great impact on the Technion students. The strike itself lasted 90 days and as an immediate result the Fall semester started only on January 20th, 2008 and ended on April 10th, 2008. The Spring semester will start on May 18th, 2008 and will last until August 13th, 2008 – the latest date in Technion’s history(!). Even so, the length of both semesters was shortened by 1-2 weeks. As a result, both the academic and financial burden on the students has increased significantly. The summer vacation, which students traditionally use to create sufficient income to see them through the next academic year, has been shortened dramatically, essentially disappeared, while their stay in the dormitories has been prolonged. As a result, the need for academic and financial assistance has increased significantly.

When the strike ended the management decided to reach out to the students and to do whatever we could to help the students overcome the difficulties resulting from the strike. The Technion management decided to increase the budget for tutorials and workshops providing academic assistance, and reducing by one-third the dormitories rental fee for the additional months added to this year's academic schedule. In addition, the amount of the maximum scholarship awarded for this year was increased by 40%, while the minimal scholarship was increased by approximately 200%. The amount available for student loans for the next two years was increased by 50% and the remittance period has been increased. The Student Union welcomed this new package of benefits, and as a result, the academic year was resumed in good faith, allowing the students to dedicate all their time and energy to their studies.

General Overview of Other Activities

The Dean of Students handles non-academic issues and addresses the needs of undergraduate and graduate students. There are six professional units in the Office of the Dean of Students that provide a variety of services to support and advance our students. On the average these units serve about half of the student population.

The Beatrice Weston Unit for Student Advancement offers advice and counseling to students who have difficulty studying due to adjustment issues, attention deficit, and learning disabilities. It also helps with career guidance, and assists students with physical disability or family related difficulties.

The Personal Aid Unit offers help and guidance to students in financial distress.

The Professional Employment and IAESTE Unit provides professional and career guidance to students and graduates. The unit organizes job fairs, career focus days, workshops for resume writing and job interviewing. The unit also helps to place students who wish to go for technical training abroad over the summer months.

The Phillip and Francis Fried Counseling Center offers a professional team of skilled clinical counselors, therapists, social workers and a psychiatrist for the benefit of the student population. A program for expanding the center has been created and is waiting for a donor for adoption.

The Unit for Social and Cultural Activities works in collaboration with the Technion Student Association to provide social and cultural activities.

The Student Housing Unit offers housing solutions to about 3,600 students. We continue our long-term project to upgrade old dormitories. The next huge step forward, is the addition of 220 apartments for married couples and families within the newly planned *Graduate Village*: work will start in a few months.

The Student Union Building – the Building is undergoing a complete renovation as well as expansion. It will be completed in a few months. The new building will change significantly the life quality of student on campus.

Special and Ongoing Projects

Scholarships - In consideration of demonstrated need, in the current academic year, financial assistance scholarships, all sponsored by donations, were awarded to 1350 undergraduate students, i.e., approximately 16% of the undergraduate population. The minimal amount for a financial aid scholarship was increased by 200% and now covers 25% of tuition fees. In addition, due to improved procedures, starting this year, financial aid scholarships for veteran students are awarded two months earlier than in previous years.

Additional financial aid is provided by many external non-profit private organizations and foundations. These organizations have actually increased their grants for Technion students for this academic year.

Loans - Technion student loans in the sum amount of NIS 10,000, offered at preferred interest rates, were awarded to about 300 undergraduate students. In addition, numerous Magbit Foundation loans in the amount of \$2,000 each were awarded, with student-tailored remittance conditions effective after graduation.

In addition, as a result of the faculty strike, it was decided to make available to any interested student a two year preferred loan of up to NIS 30,000.

New Immigrants - Approximately 200 students received personal counseling related to personal or financial difficulties. The majority of these students were new immigrants who came to Israel without their families and encountered difficulties in meeting academic requirements and tasks in addition to the expected adjustment difficulties.

Students of Ethnic Minorities - A special project is underway to help ease the absorption and adjustment process of first-year students from ethnic minorities. The goal of the project is to reduce first-year dropout rates among these populations and increase their chances to excel. In the current academic year, 340 students were assisted by this project.

Professional Employment and IAESTE - This year two job fairs were held in winter, hosting 55 different companies. These job fairs are among the largest in the country, reflecting the Technion's leading position as a major human resource provider for the high-tech industry. In addition, fifteen career focus days for recruiting and interviewing were held by leading companies related to various fields of study of each faculty.

Social, Cultural and Sport Activities - The new *Emerson Family Fitness Center* opened its gates this year. This state-of-the-art fitness center features the most sophisticated equipment and the most up-to date fitness architecture. It has been realized that such a center is vital for students, especially given their academic workload and the pressures that come with it.

A new student club for leisure activities has opened in the Eastern Village, and it includes a library. The activities of the resident's photography center have been extended, and a museum on the history of the camera is being established there. A new, free-of-charge, shuttle service that circles the campus has been added for the benefit of the students. An additional small supermarket opened in the Eastern Village. Beginning in the Spring semester, a cinema will offer movies in the Segoe Building.

Community projects - More than 200,000 hours of community work were contributed by approximately 1,700 undergraduate students, i.e., about 20% of the student population. The community-related activities were associated with various frameworks such as *Perach*, assisting in hospitals, and the program for Promoting Human Resource in Technology. In this program, Technion students reach out to about 400 junior high- and high-school students from lower socio-economic groups and peripheral areas, and help them with their science and technology related studies.

The *MATA* initiative, a collaborative effort shared by the Haifa Municipality, the Ministry of Education and the Technion, sends 60 students to provide assistance in mathematics to students in grades 4 and 5 from various Haifa schools.

A project in which 80 Technion students provide mentoring and private lessons in sciences to Haifa students in grades 9-12 is a joint collaboration of the Technion, the Students Association and the Ministry of Science.

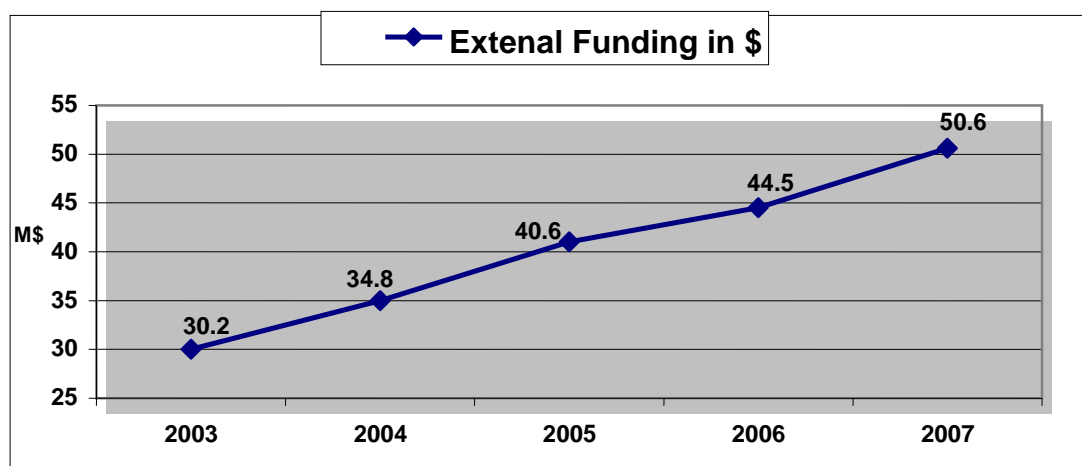
A new agreement has been signed with a private entrepreneur for a project in which Technion students will reside in Neve Yoseph, a low income neighborhood in Haifa, and be involved in the community center there. Talks are now under way to set up a similar project in the Hadar neighborhood of Haifa.

Research

Funded Research

The research contracts signed by the Research Authority for the year 2007 amounted to \$ 50.6 million, thus continuing the impressive increase witnessed in the last five years: \$30.2 million in 2003, \$34.8 million in 2004, \$40.6 million in 2005, and \$44.5 million in 2006. ***This marks an impressive increase of \$ 20.4 million (67%) in the last five years.*** Also the share of the Technion within the overall research in Israel (as measured by VATAT) has increased steadily from 12.9% in 2003 to 16.9 % in 2007. We hope that this increase will continue into the coming years.

The graph below illustrates the increase in external funding at the Technion since 2003.



In January 2007 the European Union launched its 50 billion Euro 7th Framework Program for R&D and as part of this framework the Technion's researchers have already been approved 29 projects in the total amount of 11.8 million Euros. In an all-European competition between young researchers out of nearly 10,000 young researchers in Europe who applied for the grants, only 300 gained the grants and among them there were seven young Technion researchers who won a sum total of 8 million Euros. This is the highest number among

Israel's universities, and places the Technion in the second place out of all the European universities (second only to Cambridge University). This impressive high number of Technion researchers who won these competitive grants shows the remarkable high of quality of Technion young faculty members.

In 2007, we continued to promote research interaction with industry and as a result there was an increase in the sums involved in this relationship increasing: from \$2.8 million in 2002 to \$6.3 million in 2007.

In addition to the above mentioned external funding we have also received contributions from foundations and individual donors to support specific projects or individual researchers or for setting up research infrastructure. These contributions amounted to \$17 million in 2007. We also raised \$1.9 million for the purpose of equipping laboratories for new faculty members. Additional \$3.4 million were received from the Ministry of Immigrant Absorption for ongoing programs for the absorption of new immigrants at the Technion.

Over the past year we have also allocated, using internal funds, approximately \$2 million for the purpose of encouraging research activities by faculty members, in particular for new faculty members. In addition, we allocated a sum of \$2.2 million through Chairs. \$16.5 million were allocated to finance fellowships for graduate students engaged in research.

The total amount allocated directly to research in 2007 including external funding, contributions from donations, internal funding and graduate fellowships (but excluding faculty and technicians and administrative staff salaries) stood at ***\$94 million*** compared to \$82 million in 2006.

Some Research Highlights of the Past Year

- The Nano Bible – For the first time ever, the full text of the Hebrew Old Testament has been stored on an area smaller than a pinhead. This was achieved using state-of-the-art technology and instrumentation within the Russell Berrie Nanotechnology Institute. Prof. Uri Sivan, Director of

RBNI, conceived this idea and his doctoral student, Ohad Zohar, implemented the project.

- A prize winning research project of students Nitai Hanani and Hagay Weisbrod from the Technion's Faculty of Biomedical Engineering has emerged as the start-up company *Pneumedicare*. The company is developing an innovative device to monitor lung ventilation in mechanically ventilated patients, particularly among premature babies. The noninvasive device continuously monitors air distribution in the lungs and warns of any early stage changes in lung ventilation before the life-threatening deterioration due to a decreased blood oxygenation.
- Dr. Pini Gurfil of the Faculty of Aerospace Engineering and doctoral student Yossi Cori of the Faculty of Architecture and Town Planning developed an innovative method of supplying electricity based on large helium balloons coated with solar cells. The cable bringing the helium to the balloon also brings the electricity to the ground, after the cells convert sunlight into electricity. The Technion researchers, who have registered a patent for their method, hope that it will be competitive with existing energy sources.
- Technion scientists have developed a biological computer, composed entirely of DNA molecules and enzymes. For the first time the output of a molecular computation process has resulted in a visible property of an organism; in this study it was the color of bacteria colony, either blue or white. This research was carried out Prof. Yuval Shoham of the Faculty of Biotechnology and Food Engineering and Prof. Ehud Keinan of the Schulich Faculty of Chemistry together with their graduate students. This work highlights the opportunity of exploiting bimolecular computing devices for future diagnosis and disease control in a living organism.
- Technion researchers in the Rappaport Faculty of Medicine have discovered a new mutation that causes hereditary blindness in Yemenite Jews. Retinitis Pigmentosa is a hereditary eye disease that causes gradual deterioration of the retina leading the patient to gradually lose peripheral

vision, eventually to the point of blindness. The disease is the most common cause of hereditary retina deterioration and is widespread in the world. One in 3,500 people has it. Over the last few years, the group collected DNA samples from many families in which the disease has appeared. Among them were large families of Yemenite origin. The group identified the mutation in a gene called CERK and gathered samples from additional Yemenite families and identified seven families in which the disease is caused by the same mutation in this gene. The Technion researchers explain that a person will get the disease only if he/she inherits the mutation from both parents. A person carrying only one gene mutation and another normal gene, although a carrier will be healthy. Identification of this new mutation will enable identification of carriers and provision of genetic counseling to Yemenite families at risk.

- Researchers at *the Russell Berrie Nanotechnology Institute*, in cooperation with researchers from the Scripps Research Institute in California, have succeeded in developing a method for chemical synthesis of spherical molecule containers, by mimicking the protein structure of most of the known viruses. They derived the inspiration for this research from looking at the amazing structure of spherical viruses. The way in which viruses build their spherical envelope is the most economical and efficient because it uses the minimal number of building blocks. An especially promising use of the molecular sphere is the future possibility of using them for immunization against diseases. This would eliminate the need and risk of receiving vaccinations of weakened real viruses.
- Socio-economic status significantly influences the chances of drivers being involved in road accidents – the lower one's status the higher the probability of involvement. This was the finding of comprehensive research conducted by Prof. David Mahalel, the head of the Technion's Transportation Research Institute, and doctoral student Roni Factor, and Prof. Gad Yairof from the Hebrew University. The research also found that cultural factors also influence involvement in road accidents. The

probability of a Muslim Arab driver being injured in a traffic accident over a period of nine years is 1.98%, for a Druze 1.80%, for a Christian Arab 1.11% and for a Jewish driver 0.75%. Education is also a factor. The chances of a less-educated driver being injured in a road accident are greater than those of a college-educated driver. This research enables identifying socially dangerous situations and understanding which populations are more likely to be involved in accidents in different situations. The idea is to enable use of the data in education and enforcement, so that the sociological aspect will contribute to reducing road accidents.

- Technion researchers headed by Prof. Moussa Youdim of the Technion's Rappaport Faculty of Medicine, in cooperation with the National Institute of Health (NIH) in the US, have succeeded in building a model that simulates Parkinson's disease in goldfish. This model has attracted considerable attention over the past 15 years as a system to search for anti-Parkinson drugs. The researchers have proven that a drug for treating Parkinson's disease can work on fish and other organisms. This is a fast and simple model that can assist with developing new drugs.
- Technion researchers from the Faculty of Civil and Environmental Engineering and the Grand Water Research Institute have developed an innovative post-treatment process for treating desalinated water following the membrane separation step. The goal is to supply drinking water that, in addition to meeting Israeli and international standards for concentrations of calcium and other required chemicals, also contains magnesium ions in the concentration recommended by the World Health Organization (WHO), in a low-cost and environmentally friendly way. The basic idea of this process is to transfer to drinking water magnesium ions from the seawater stream which feeds the desalination plant. All desalination plants in Israel use the reverse osmosis method, in which the water passes through membranes, which almost completely separate the salts from the water. This product water does not contain calcium and

magnesium, which are essential minerals for human and plant health. In order to overcome these deficiencies, the water undergoes complementary treatment, in which calcium and other chemicals are added to chemically stabilize the water.

- A group of Technion researchers from the Faculty Aerospace Engineering, supervised by Prof. Omri Rand, brought home top honors for winning the undergraduate project, *Waterspout*, a no-pilot helicopter launched from a submarine. The group won the Annual AHS/Industry/NASA Student Design Competition.
- Prof. Moshe Shoham with Dr. Nir Schwald – a Technion alumnus of the lab, and Oded Salomon, a research engineer in the Faculty of Mechanical Engineering's Kahn Medical Robotics Laboratory, invented the world's smallest autonomous robot. The robot is designed to travel through bloodstream and deliver drugs; its diameter is only one millimeter.

Technion Research & Development Foundation (TRDF)

Since my last report, Prof. Zvi Kohavi has been appointed the Executive Vice President and Director General due to Dr. Israel German's resignation over the past summer. Prof. Moshe Eizenberg, the Executive Vice President for Research has assumed Prof. Kohavi's responsibilities as the Managing Director of the TRDF.

The TRDF undertakes four types of activities:

- The Research Authority which handles the Technion sponsored research;
- The Unit that deals with the commercialization of intellectual property and patents which are developed at the Technion;

- The Unit for External studies and Continuing Education;
- Two Service Units which cater to different branches of the economy.

In 2007, the forecasted operational loss of the TRDF (excluding pension payments) will stand at NIS 26 million. This loss is derived mostly from the NIS 23 million in payments to some 370 employees of the TRDF who have retired. Without the pension payments and the one time large payment for the ERP system, the TRDF shows this year *a surplus of NIS 3-8 million. This is the first time in the last 15 years that TRDF shows a surplus in its operating budget.* These improved financial results are mainly due to severe saving steps which included the closing down of the testing laboratory about two years ago and the increased research activity on the one hand, and a marked increase in income from Technion's intellectual property and inventions on the other.

The Service Units

The construction testing laboratory that caused ongoing financial loss was closed down a year and a half ago. The process of closure went on very smoothly with the assistance and cooperation of the employees' union.

The Israel Institute of Metals: The Metals Institute has several activities such as the corrosion laboratories, metallurgy, foundry technology laboratory, steel quality testing etc. About 40% of the institute's income is derived from funded research from industry, the government and the European Union, and about 60% of its income comes from testing for industry. In 2007, the institute's turnover stood at NIS 17 million and its operating profit stood at NIS 3 million.

The Land Systems Unit: In 2007 the Ministry of Defense has increased the budgets allocated to this unit. As a result, the operating loss of the unit has decreased. We hope that the financial situation of the unit will continue to improve in 2008.

Business Development and Commercialization of Intellectual Property

This unit is headed by Mr. Benjamin Sofer. In 2007 this issue has received special attention. The increased activity in this area has manifested itself in several ways:

- Income from commercialization – In the past year the TRDF income from commercialization totaled approximately \$7 million (including the share of the researchers). This marks an increase of 140% in relation to 2006. The main source of this income is in the royalties from the sales of Rasagaline.
- Patent applications – over the past year, the TRDF has processed 94 Invention Disclosure forms submitted by Technion researchers. This number shows stability in comparison to 2006 and doubling of such forms in comparison with 2005. These submissions show an increased awareness to potential commercialization of their research amongst faculty members on campus.
- Establishment of Companies – in 2007 the TRDF was directly involved in the set-up of 7 new companies in various fields (including medical equipment, alternative energy, embryonic stem cells and more). In addition, the TRDF was a “silent partner” in the set-up of 5 additional companies (3 of which are in the Technion incubator). The TRDF has holdings in all these companies.
- Licensing Agreements – in 2007 10 licensing agreements were signed in order to commercialize technologies developed by Technion researchers. This does not include funded research by industry.

This year the TRDF continued its efforts to improve intellectual property at the Technion through investment of several designated funds established by donors (Mitchell Fund, Horowitz Fund, Gurwin Fund). This year the TRDF invested a total of \$1.5 million in 16 different projects. These funds are allocated for the support and promotion of projects with substantial marketable and commercial potential.

Often the technological potential of academic research is not fully utilized as there is a gap between scientific research and the viable stage of a product that is attractive to industry. This gap creates difficulties in finding attractive channels for commercialization of this know-how or it leads to signing of contracts with industry that are not advantageous for the Technion and the knowledge holders. The Technion has been fortunate, and with the help of the Horowitz Foundation, the Mitchell Fund and the Gurwin Family Foundation we have been able to bridge this gap. The funds given by these foundations go towards the acceleration of development of basic research and ensuring that the sharing of knowledge with industry will be done in better financial terms for the Technion and the researchers. We are using the funds to build prototypes, to do market research and for registering patents. The individual grants are between \$35,000 – \$170,000 a year and are given after the approval of a review committee.

Amongst the companies created by the Technion through the TRDF in the past, two companies stood out this year:

Regentis: finished its stay at the Technion incubator and raised \$7 million from Medica Ventures and Vital-Life. This company which focuses on Orthopedics is considered one of the most promising start-up companies in Israel.

Mazor: This company is also an alumnus of the Technion incubator and this year it raised \$10 million in the Tel-Aviv Stock Exchange. This public investment insures the continued success of this company in reaching its technological and commercial goals.

The Alfred Mann Institute (AMIT)

AMIT was established at the Technion in December 2006 as a product-development institute whose mission is to support the commercialization of innovative biomedical technologies created by Technion researchers. AMIT is based on Mr. Alfred Mann's \$100 million endowment and operates on the common control of the Technion, the Alfred E. Mann Foundation for Biomedical Engineering in the USA.

AMIT has a multidisciplinary core team of employees and consultants which is led by Dr. Zeev Gilkis, formerly an investment manager in Converse Investments and Director of several Board of Directors of start-up companies. Promising projects are brought to the approval of the AMIT Board of Directors which gathers twice a year. So far, four BOD meetings have taken place. The major portion of AMIT activity is devoted to screening new potential projects and to operating and managing the five projects listed below that are currently running:

- Self-propelled catheter for gastrointestinal imaging is the first project adopted by AMIT in January 2007.
- A biomimetic surgical tissue adhesive which is under development since June 2007.
- An experimental cardio protective drug which is under development since June 2007.
- An anti-cancer drug project which was recently approved.
- A cancer diagnosis system based on breath samples also recently approved.

Almost 100 different projects reached AMIT since it exists, most of which arrived through the Technion Technology Transfer Office with whom AMIT has a great collaborative relationship. The majority of projects that turn to AMIT undergo a preliminary assessment to determine the level of potential interest. A large portion of the projects continues to more comprehensive evaluation processes. Among the aspects being addressed are scientific issues, clinical need, market size, intellectual property, competitive landscape, regulatory status, reimbursement status and other technology and business aspects.

The ultimate goal of AMIT is the successful commercialization of its developed products. Most of the activities in the next couple of years will focus on pre-clinical and clinical work, accompanied by dialogue with health authorities such as the FDA. This will be followed by the commercialization of the first AMIT product within a few years.

The pace in which AMIT has developed and the results already achieved are very impressive and they were applauded by Mr. Mann and the other board members during last AMIT board meeting in Miami in March 2008.

Prizes, Honors and Professional Appointments

- Seven young scientists from the Technion are on the European Union's list of 300 most promising scientists. They each received grants averaging 1 million Euros per researcher. This is the highest number of scientists from a single Israeli academic institute to make the prestigious list and to win large research grants. The researchers are: *Dr. Debbie Lindell* from the Faculty of Biology, *Assoc. Prof. Eldar Fischer* from the Faculty of Computer Science, *Assoc. Prof. Shahar Mendelson* from the Faculty of Mathematics, *Dr. Aharon Blank* from the Faculty of Chemistry, *Dr. Kinneret Keren* from the Faculty of Physics, *Dr. Issac Keslassy* from the Faculty of Electrical Engineering and *Dr. Shy Shoham*.
- *Dr. Dvir Yelin* of the Faculty of Biomedical Engineering and *Dr. Kinneret Keren* of the Faculty of Physics have been awarded a very large research grant from the Israel Science Foundation (in the amount of \$0.8 – \$1.3 million). The grant is given for the purpose of absorbing brilliant young scientists from abroad in integrated technological programs.
- *Dr. Hossam Haick* from the Faculty of Chemical Engineering and *Dr. Shulamit Levenberg* from the Faculty of Biomedical Engineering have both been awarded the Israel-France Foundation Prize for Excellence in Science. The Prize was awarded in a festive ceremony in Paris.

- Distinguished *Prof. and Nobel Prize Laureate Aaron Ciechanover* has been elected a Foreign Associate of the National Academy of Sciences in the US, member of the American Academy of Arts & Sciences and a member of the American Institute of Medicine.
- *Prof. Aharon Ben-Tal* was awarded the prestigious EURO Gold Medal which is the highest distinction of Operations Research within Europe. Prof. Ben-Tal is the first Israeli scientist to receive this honor.
- *Prof. Yaakov Oshman* and *Prof. Aviv Rosen* were both appointed as Fellows of the American Institute of Aeronautics and Astronautics. This appointment is given to individuals who have made remarkable and important contributions in this field.
- *Prof. Eyal Kushilevitz* from the Faculty of Computer Science, in collaboration with his doctoral student, received an award on behalf of the Society for Industrial and Applied Mathematics for an outstanding article they published titled "Cryptography in NCO".
- *Prof. Samuel Frydman* was appointed as Distinguished Visiting Fellow of the British Royal Academy of Engineering.
- *Prof. Emeritus Josef Singer* has received the Engineering Science Book Award on behalf of the Aeronautics for his book "Buckling Experiments".
- *Prof. Joseph Mizrahi* of the Faculty of Biomedical Engineering has been appointed to the College of Fellows of the American Institute for Medical and Biological Engineering.
- *Prof. Mordechai Segev* from the Faculty of Physics received the Quantum Electronic Award of the EPS (European Physics Society). This is the most prestigious European in Optics/ Laser/ Quantum Electronics. Prof. Segev also won the Landau Prize in the field of Optics.

Physical Development

In the past year we have continued to pursue new construction projects as well as continue to maintain and upgrade existing buildings. There has been a great deal of emphasis placed on safety of buildings. There has been a campus-wide effort to place great emphasis on energy conservation. Due to the success of the Pilot program in this area in the Faculty of Electrical Engineering (a 16% average conservation) the project was expanded to include the Faculties of Physics, Computer Sciences and Civil Engineering.

In all new construction projects we have taken measures to ensure that buildings will be as “green” as possible so that they will be as energy efficient as possible and also save on the consumption of water. All new buildings are planned in such a way that maintenance is easy and safety comes first. All these new buildings are fitted with a building computerized monitoring system that will save on maintenance costs and will help control all systems efficiently.

We are continuing with the project of making the campus as accessible as possible for individuals with disabilities.

We are continuing with the “Green Campus” project with emphasis on conserving the beautiful Carmel flora that is found on campus, conserving water, energy and improving campus cleanliness.

Below, I review the main development projects recently completed, those under construction and those in advanced planning stage.

Projects Completed in 2007

- The Fischbach Building: the Neural and Biological Networks laboratories within the Lorry I. Lokey Interdisciplinary Center for Life Sciences and Engineering.
- The Emerson Family Fitness Center.
- Center for Pre-University Education: renovation of the restaurant and the offices.

- Department of Education in Technology and Science: completion of stage C (faculty offices).
- *Book and the Written Word* Sculpture at Kislak Park.
- Adapting campus buildings for the disabled: Mechanical Engineering, Industrial Engineering and Management and the Sports Center.
- Faculty of Biology: renovation of research laboratories.
- The Ullman building – renovation of offices.

Projects under Construction

- Student Union Building – addition of three new wings and complete renovation, covering a total of 8,000 m².
- The Louis & Beth Stein Biotechnology Complex – new wings of laboratories and offices, covering a total of 2,900 m².
- The Asher Space Research Institute – new building covering a total of 1,350 m².
- Schulich Faculty of Chemistry – Renovation of laboratories, offices and public areas.
- Steven and Rita Emerson Life Sciences Building, covering a total of 10,500 m² including parking space (8,800 m² without parking).
- Life Sciences Experimental Research Facility, covering an area of 1,500 m²
- The Jacobs Plaza.
- Samuel Neaman Institute – Completion of roof floor.
- Ullman Building - Undergraduate Studies – renovation of offices and new area for registration and student recruitment offices.
- Faculty of Biomedical Engineering –two new research laboratories in the framework of the Lorry I. Lokey Interdisciplinary Center for Life Sciences and Engineering and renovation of additional research laboratory.
- Rappaport Faculty of Medicine – new research laboratories and renovation of existing laboratories on the fourth floor.
- Faculty of Biology – renovation of three research laboratories.

- Faculty of Architecture and Town Planning – renovation of the library.
- The Faculty of Mechanical Engineering – renovation of research laboratory and offices.
- Coler – California Visitor Center – Nobel Prize Laureate's exhibition Room.
- The Alfred Mann Institute – renovation of a second floor covering an area of 500 m², of which 250 m² is in process of renovation.
- The Faculty of Biotechnology and Food Engineering – an animal room and renovation of laboratory.
- The Lorry Lokey Park.
- Adapting campus buildings for the disabled: Teaching floors at the Rappaport Faculty of Medicine.

Projects in the Planning Stage

- The Graduate Village – a major construction project with 220 apartments involving an estimated investment of \$35 million.
- The Faculty for Chemical Engineering – renovation of Nanotechnology laboratories.
- Southern fence – completion of the fencing project of the entire campus.
- Faculty of Medicine – upgrade of the experimental surgery unit.
- Ullman Building - Undergraduate studies – renovation of Dean's offices, tuition offices and information center.
- The Sherman Forum – renovation and expansion.
- The Faculty of Mechanical Engineering – a new building to meet the new needs of the Faculty.
- The Faculty of Biology – renovation of research laboratories.
- The Sohnis Garden – Entrance to the Emerson Life Sciences Building.
- The Calatrava Kinetic Obelisk

Public Affairs

While the 2006/7 academic year set an astounding record of \$250 million for fundraising around the world, the current year also promises to end with strong results, despite the current economic difficulties worldwide and in particular in the USA.

Fundraising over the past academic year (October 2006 - October 2007) for earmarked projects totaled over \$75 million in commitments. This year was also marked by the opening of a new Technion Society in the Netherlands.

This year was a year of much activity. PARD's Projects Unit prepared over 100 new projects for support this year. A total of 120 projects were adopted during the course of 2007. Examples of major projects supported include facilities within the *J. Steven and Rita Emerson Life Sciences Building*; buildings and apartments in the new Graduate Student Village; the new *Autonomous Systems Program*; programs within the Center for Pre-University Education; and continued support of high priority graduate student fellowships (\$20 million alone for this project this year).

Over the course of the year, PARD's Alumni Liaison Office organized ten reunions for different faculties bringing eight hundred alumni to the campus. These reunions are held in coordination with the Israel Technion Society so that alumni are encouraged to become donors to the Technion. The Alumni Liaison Office also made a special effort to locate alumni who have moved or relocated, successfully identifying no fewer than 3,000 such graduates.

The Technion is pleased to send written reports to its generous donors on the allocation and use of their gifts. This year, PARD sent out over 600 individual reports to donors in Israel and around the world plus more than 2,000 hand-written personal letters by graduate fellowship and undergraduate scholarship recipients.

This is the fifth year in a row that the Technion continues to be the most cited research university in the Israeli media. Over 100 news-releases on innovative research and activity were released to the press resulting in nearly

600 publicized items. PARD continues to produce an attractive magazine in Hebrew, “Ha-Technion” that highlights new research and activity and is circulated three times a year among 60,000 alumni and friends of the Technion in Israel. The magazine also appears on the Technion website and is widely featured on Israel’s most popular internet site – Ynet.co.il

The Technion’s English-language “Focus” magazine is produced three times a year for a wide overseas audience and now with a new look in honor of Israel’s sixtieth anniversary. Like “Ha-Technion”, Focus is also available on the Technion’s website. PARD’s Public Affairs department is also preparing a new all-purpose image film on the Technion (“Technion: Back to the Future”) for showing both on campus and abroad as well as a major new exhibit and interactive theater on the Nobel-prize winning research of Professors Ciechanover and Hershko to be on display at the Coler-California Visitors Center. This unit also produced 40 videos on projects and ceremonies for individual donors.

The Technion’s Coler-California Visitors Center hosted 7,500 visitors during the course of 2007. PARD also organized high-level visits by visiting academic, corporate, government, and non-profit groups from around the world. Such activities included the historic visit of Nobel Laureate Professor Rita Levi-Montalcini of Rome in March 2008 who was accompanied by a distinguished group of Italian scholars and scientists and leaders of the Italian Technion Society.

On May 19, 2008, the Technion hosted an unprecedented full-day symposium with ten distinguished Nobel Laureates from Israel and around the world which was very well attended and was also broadcasted live via a special internet site and was watched by many around the world.

As I write this report, the Technion is playing host to several high-level visitors and missions arriving to celebrate Israel's 60th year of independence. Recent visitors have included Mrs. Edith Cresson, former Prime Minister of France. And shortly before and following the Board meeting, the Technion will host an unprecedented mission of nine presidents of Canada's leading

research universities. These distinguished guests are a sample among the hundreds of high-profile individuals, groups, and missions from governments and associations from around the world who visited our campus during the past year to learn of the Technion's activities in teaching and research.