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TAKING EUROPE BY STORM...

The twelve countries of the European Union undertake pan-European research, technological-development and demonstration (RTD) projects through their highly successful series of four year Framework Programmes (FP). Countries contribute a fixed percentage of their GNP to a central fund which provides full support to academic partners and half-support to industrial partners in winning research projects, which are selected by panels of experts.

Competition is intense and only the very best are chosen.

In August 1996 Israel took the fateful and courageous (some called it foolhardy) step of joining FP4, Europe's Fourth FP. Israel's required annual contribution of $40 million was only a fraction of FP4's total $14.5 billion budget for 1995-1998; but it was almost twice the Israel Science Foundation's entire $22.7 million budget for that academic year! Worse, Israel had missed the first year and a half of FP4, when most partnerships had been formed. Israeli researchers tried to make up for lost time, submitting almost 900 proposals of which 369 were funded; a success rate higher than the European average. Israel recouped only $54 million of its $100 million total FP4 investment, but it gained valuable experience, expanded its network of contacts and, with typical Israeli pluck, began to plan for the $15 billion FP5 (1999-2002) competition.

"We were hopeful that Israel could compete in the international A-league," notes Prof. Paul Singer, ISF Chairman and the Israel academic community's liaison to the FP, "but the actual FP5 results surprised us all. Israel's contribution for this year was $34 million, but we received over $47 million in the June round of approvals (probably about $42 million in final contracts) and expect another $2-3 million from the October round.

In addition to having scientific or technological merit, FP5 projects must promote synergistic ("value-added") cooperation, economic development and social goals. Most proposals must include participants from at least three different countries, should involve both industrial and academic partners, and must fall within four broad-based "Thematic Programmes:

* Quality of Life and Living Resources (QOL, Life Sciences)
* User-Friendly Information Society (IST, Informatics)
* Sustainable Growth (GROWTH, Engineering Sciences)
* Energy, Environment and Sustainable Development (EESD)

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In addition, three smaller "Horizontal Programmes" respond to broader social needs, cutting across all research areas:

* International Role of EU Research (INCO)

* Encouraging Innovation and Small and Medium Enterprises (SME)

* Improving Human Research Potential (IHP)

The Israel academic community did particularly well in the last area, which promotes international research networking and thus top-quality basic research.

The overall structures and budgets of the programs, further subdivided into 23 "Key Actions," is presented on the next page. Israel is a full participant in all FP5 programs (except EURATOM atomic energy programs) and committees, although it is not represented at the political level on pan-European policy-setting bodies. Many Israeli scientists also serve on expert peer-review panel

In the Thematic Programmes, although only 14% (all numbers are approximate) of the proposals involving Israeli institutions were approved in the Life Sciences (QOL), compared to the 17% pan-European average, they were particularly large ones, garnering 1.6% of the total funds (compared to the overall 1.1% Israeli national contribution). In Informatics (IST),

Israel's highly respected Computer Sciences community broke all records, garnering $20 million or 2.4% of the total program's funds, over twice its financial contribution.

In Engineering (GROWTH), Israel did particularly well in Materials Sciences and Aeronautics. Israel Aircraft was selected for participation in five joint European ventures (5 in Growth, 4 in IST), receiving grants totaling over $3.5 million for R&D involving state-of-the-art aircraft development and technology. Although in GROWTH Israel got back only 80% of its 1.1% investment, the return to Israeli industry in access to new contacts, partners, distributors and markets far dwarf the grant awards themselves. Israel's approval ratings in Energy and Environment (EESD, 59% and 22% respectively) significantly exceeded the European average (40% and 17% respectively).

In the Horizontal Programmes, Israel's academic scientists garnered about $5.8 million, or about 1.6% of all FP5 Improving Human Research Potential funds. An additional $0.9 million was awarded to nine Israelis wanting to study or work abroad. Although hundreds of proposals were received in each area from all over Europe, Israeli projects ranked among the very highest in Mathematics, Physics and Engineering. Interestingly, both of the top-ranked Israeli Mathematics and Physics principal investigators are recent recipients of ISF Center of Excellence Awards, literally fulfilling that program's goal of creating foci of research excellence "able to compete on an international level." In all, 23 of Israel's 54 cooperative research proposals were funded, at a total of $4.1 million; and 13 of these 23 projects were headed by Israeli project coordinators.

Sixteen Europeans will be working as exchange fellows or postdocs in Israel ($60,000), and two Israeli research centers, one in Arid Lands Research (Ben-Gurion University) and one in Microelectronics (Weizmann Institute), won large research infrastructure awards ($1.2 million total).

Of the 640 proposals Israeli researchers submitted during this first year of FP5 (compared to 370 in all of 1996-98), 365 were from academia, 184 were from industry and 90 were from other institutions, such as hospitals and nonacademic research institutes. About 28% of the academic proposals, and 24% of the industrial and other proposals, were approved for funding. Industrial projects were considerably more successful than in previous rounds; and their average grant size was significantly larger (about $470,000) than in the other sectors ($200,000-$220,000). Thus, of the $47 million in FP5 funds approved for Israel, academia and industry each received a roughly equal, $21 million share. Only about $5 million went to other institutions.

There was considerable variation in sectoral distributions among the Thematic Programmes. Thus, universities received about $5.2 million of the $7.5 million in QOL grants (hospitals and other research institutions received almost all the rest). In contrast, industry accounted for about $16.5 million of the $20 million received in IST, and the $6.8 million of GROWTH funds were almost evenly split ($3.8 million industry, $3 million academia). Academia accounted for $1.8 million of the $2.8 million received in Energy and $1.5 million of the $3.0 million received in Environment.

Reflecting the broad political and economic ramifications of Israel's participation in FP5, the Israeli Treasury provides 50% in matching funds for this program. The Israeli academic community, through the Planning and Budgeting Committee (VATAT) of the Council for Higher Education, provides 25%. The Ministry of Industry and Trade provides 20% and the Ministry of Science, 5%. Thus, the $8.5 million directly contributed by VATAT actually came back as $21 million in new research funds for Israeli universities. Israeli participation in FP5 is promoted and coordinated by a Government-appointed, 5-person FPS Steering Committee, headed by Dr. Orna Berry, Chief Scientist of the MIT, and co-chaired by Prof. Paul Singer, as a representative of VATAT and the Israel Academy (the MOS, Foreign Ministry and Treasury are also represented). The acting arm of this committee, the Israel Directorate for European Research and Development (ISERD), can be reached at Tel: 03-5118118, Fax: 03-5170020, or via its internet website (www.iserd.org.il). Information can also be obtained directly from the EU/FP5 at www.cordis.lu/FP5/.

"In our last article in The Forum (Winter 1998)," notes Prof. Singer, "we said that we wanted to 'double our annual prop-osal submission rate, maintain our high success rate, and achieve a better balance between industrial and academic research.' We have met or exceeded all these targets and, in the process, we have shown that Israel can compete inter-nationally at the highest level. We have earned our place as a partner in European R&D, in a way that should benefit us all."

BREAKDOWN OF FP5 PROGRAMMES AND BUDGET BY KEY ACTION (KA)

Programmes and Key Actions	Budget	Percentage
Quality of Life & Management of Living Resources-QOL	**2,413**	**16%**
KA 1: Food, nutrition and health	290	
KA 2: Control of infectious diseases	300	
KA 3: The "cell factory"	400	
KA 4: Environment and health	160	
KA 5: Sustainable agriculture, fisheries, forestry	520	
KA 6: The ageing population and disabilities	190	
Generic Research & Research Infrastructures	553	
User-friendly Information Society-IST	**3,600**	**24%**
KA 7: Systems and services for the citizen	646	
KA 8: New methods of work and electronic commerce	547	
KA 9: Multimedia content and tools	564	
KA 10: Essential technologies and infrastructures	1,363	
Generic Research & Research Infrastructures	480	
Competitive & Sustainable Growth-GROWTH	**2,705**	**18%**
KA 11: Innovative products, processes and organization	731	
KA 12: Sustainable mobility and intermodality	371	
KA 13: Land transport and marine technologies	320	
KA 14: New perspectives for aeronautics	700	
Generic Research & Research Infrastructures	583	
Energy, Environment & Sustainable Development-EESD	**2,125**	**14%**
KA 15: Sustainable management and quality of water	254	
KA 16: Global change, climate and biodiversity	301	
KA 17: Sustainable marine ecosystems	170	
KA 18: The city of tomorrow and cultural heritage	170	
KA 19: Cleaner energy systems including renewables	479	
KA 20: Economic and efficient energy	547	
Generic Research & Research Infrastructures	204	
Research & Training in Nuclear Energy-FP5 EURATOM	**979**	**7%**
Generic Research & Research Infrastructures	49	
International Role of Community Research-INCO 2	**475**	**3%**
Promoting Innovation & Participation of SMEs-	**363**	**2%**
Improving Human Research Potential & Socio-economic Base-	**1,280**	**9%**
KA 23: Improving the socio-economic base	165	
Joint Research Centre (EC and Euratom)	**1,020**	**7%**
TOTAL FP5 BUDGET	**14,960**	

Budgets in Millions of Euro (1 Euro=1.06 U.S. Dollars).
Israel does not participate in EURATOM Programmes (KA 21, 22).