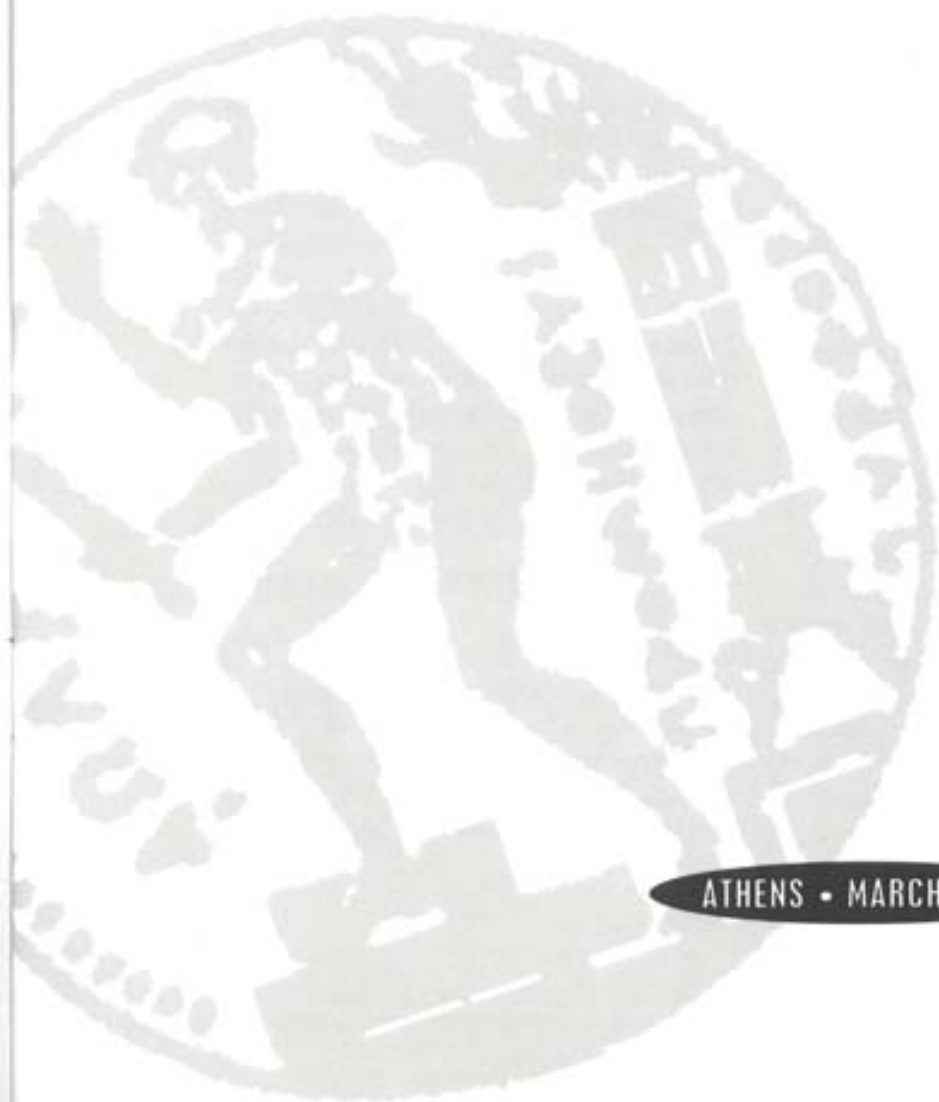




NATIONAL TECHNICAL UNIVERSITY OF ATHENS
COMMITTEE FOR RESEARCH

REPORT OF RESEARCH ACTIVITIES 1995



ATHENS • MARCH 1997

SPONSORED RESEARCH AT N.T.U.A IN 1995

NTUA STRUCTURE

National Technical University of Athens (N.T.U.A) is divided in nine academic departments, eight being for the engineering sciences, including architecture and one for the general sciences. The nine departments are divided in 33 divisions, which operate 99 laboratories.

The staff of the academic departments include: 569 members of the Teaching and Research Personnel (T.P.R), 136 members of Scientific Teaching Personnel (S.T.P) and 256 members of Administrative and Technical Personnel (A.T.P). Finally, the central administration employs 381 people. Thus, the total number of University employees is 1342.

N.T.U.A has two campuses. The old one is in downtown Athens, next to the archeological Museum and the new one, with a land area of 96 hectares and containing all the modern installations, in the Athens suburb of Zografos. All departments apart from Architecture and small parts of Civil, Electrical and Mechanical Engineering are located in the new Campus.

N.T.U.A operates many of its laboratories also as "service laboratories", which provide expert advice, tests and measurements and all services in general, within the frame of its technological competence, which can be useful for the development of the country.

RESEARCH AT N.T.U.A

As it has been mentioned in the 1993 report, N.T.U.A undertakes with increasing frequency scientific and research projects financed by the General Secretariat of Research and Technology, Ministries, the

Armed Forces, Public Corporations, Prefectures, Municipalities and the private sector from Greece and abroad. Sponsored research is being carried out on topics and with specifications provided or approved by an external sponsor.

Concerning research projects financed by the European Committee, N.T.U.A has a very satisfactory and with increasing magnitude participation, with a cash inflow of 15.7 million ECU for 1995 compared to 15 million ECU for 1994, and 14 million ECU for 1993.

In addition to sponsored research, academic research at N.T.U.A is carried out using the means which the University provides to its academic staff free of charge, on topics which are freely chosen by the faculty members, within the scientific areas of their Departments or Divisions. Such means include use of the laboratories and the computing facilities, assistance by technicians, secretaries and other auxiliary personnel, consumables and printing facilities. Moreover, under the supervision of the faculty members, the 1200 students of N.T.U.A, who complete every year the five year curriculum, spend six months working on their Diploma Thesis. Furthermore, there are currently 1600 doctoral candidates at N.T.U.A, of which 837 receive either research assistantships or scholarships, compared to the 8000 regular students.

The available funds of the "Special Account for Research" from the aforementioned activities are reinvested in a number of activities which are useful for the further development of the University. The most important of these activities include assistantships to doctoral candidates, upgrade of the central computer unit, extension of the new ISDN network, finance of research infrastructure and basic research in the Departments, development

and operation of the Technological and Cultural Park at Lavrion, cooperation with countries in the Mediterranean region, the Balkans and the New Independent States of the former Soviet Union.

In the yearly published detailed Greek Research Catalogue, the titles and the basic characteristics of all research projects, carried out at N.T.U.A in 1995 are listed. In addition, all other activities of N.T.U.A, which were enabled by the available funds are presented. The present summary includes only some statistical data from the aforementioned publication.

FINANCIAL ASPECTS

Cash inflows in the "Special Account for Research" of NTUA from the conduct of research projects and the provision of consulting and technological services is shown per year and for each main source of funding in Chart 1. The continuous rise of sponsored research at NTUA the past 5 years has brought the research budget for 1995 to 4.7 billion GRD, 0.2 billion GRD more than 1994.

The cash inflows, expressed in level of funding, and the number of projects for each source of funding are shown for 1995 in charts 2 and 3. It can be seen from these charts that the sources of funding cover a wide spectrum of both the public and the private sector. It is remarkable that whereas the majority of projects is sponsored by national sources, the greater amount of funding comes from the E.U.

The distribution of research projects in each academic department, in level of funding and number of projects, is shown in charts 4 and 5. From these charts it is obvious that a satisfactory distribution of projects exists for all engineering departments and that the Departments of Chemical Engineering, Electrical Engineering and Computer Science, Mechanical Engineering and Civil Engineering are sponsored to a higher degree.

The same as above distribution for the 32 divisions and the Department of Naval Architecture and Marine Engineering is shown in charts 6 and 7, whereas the budgets for the new projects commenced in 1995 are shown in chart 8. The large number of projects for the Department of Naval Architecture and Marine Engineering is mainly attributed to the provision of technological services to the industry. Regarding the level of funding, the divisions of Computer Engineering, Fluid Mechanics, Process Analysis and Plant Design, Materials Science and Engineering, and Water Resources - Hydraulic Engineering are leading the way.

The number of personnel employed for the needs of the sponsored research projects and the total remuneration throughout the period 1982-1995 are shown in charts 9 and 10. This personnel consists of University employees, who receive additional income for their services, as well as external (mostly young) researchers and graduate (mostly doctoral candidates) students. The several categories of this personnel and the distribution of their remuneration are shown in charts 11 and 12. It is noticeable that the percentage of the academic personnel employed for the needs of sponsored research has increased from 29% in 1992 to 55% in 1995. The involvement of the academic personnel in the conduct of research projects, with a total remuneration of 471 million GRD, results in a surplus-value for N.T.U.A of over 1000%. In chart 13, the number and the remuneration of researchers employed in each Department are presented. Finally, in chart 14, the total remuneration of the several categories of the personnel is compared to the other types of expenses of the "Special Account of Research".

SUMMARY

From the above analysis, it is concluded that N.T.U.A has been transformed to a new kind of "Research Technical University" and is on the way of becoming "Technology Resources Center" as well. The variety of topics of the research projects is really broad and underlines the ability of the University to conduct not only basic research but to get directly involved with the problems of the society, which can be treated by applied and/or technological research and/or provision of technological services.

It should be emphasized as well that the multiple use of the University facilities (basic research, applied and technological research, development and provision of services) is both very cost-effective and beneficial for the students of the Technical University.

Unfortunately, the list of research projects is mainly in Greek, but whoever wishes to find out more about the research activities or the technological services of N.T.U.A is welcome to contact:

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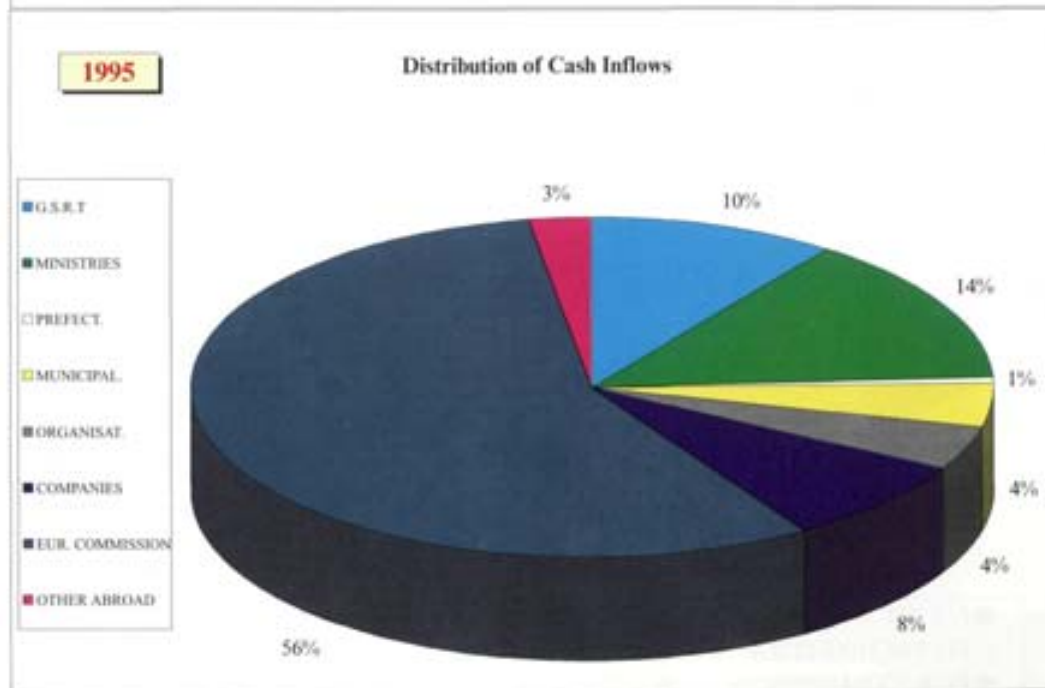
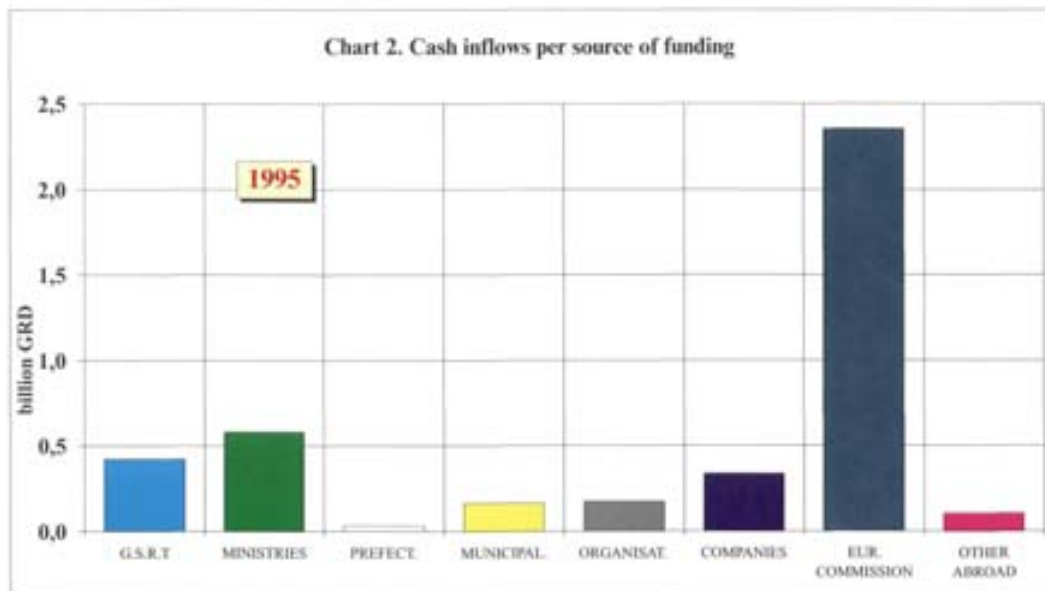
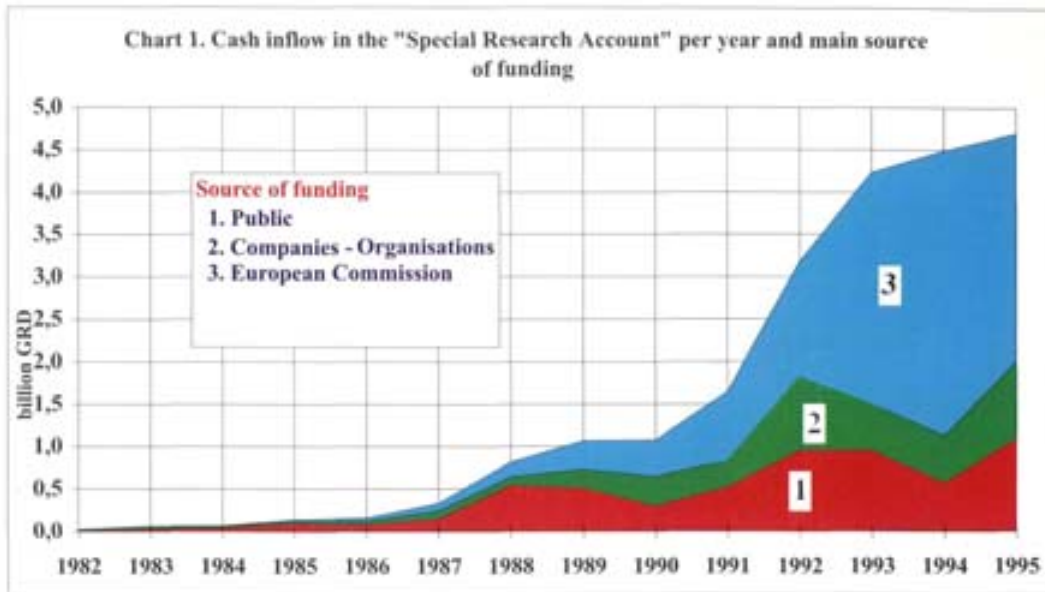
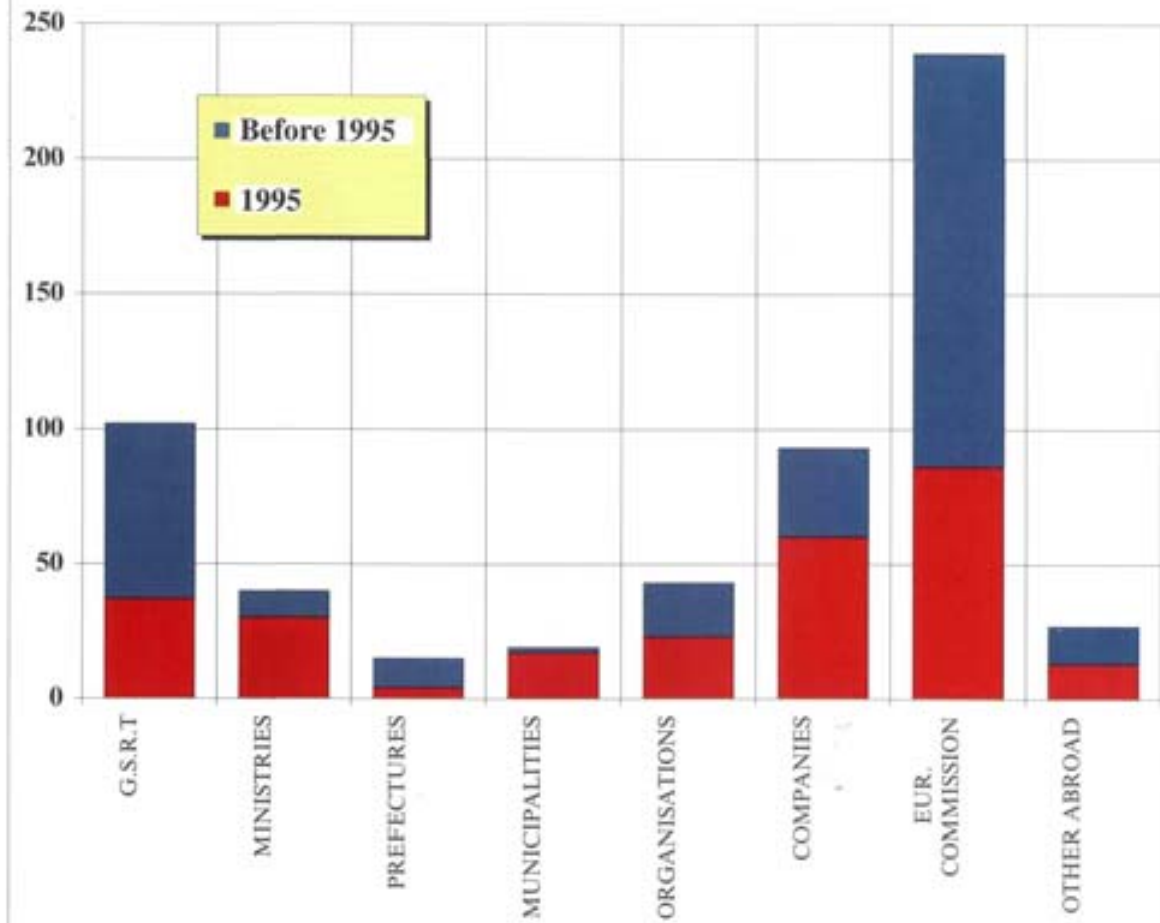
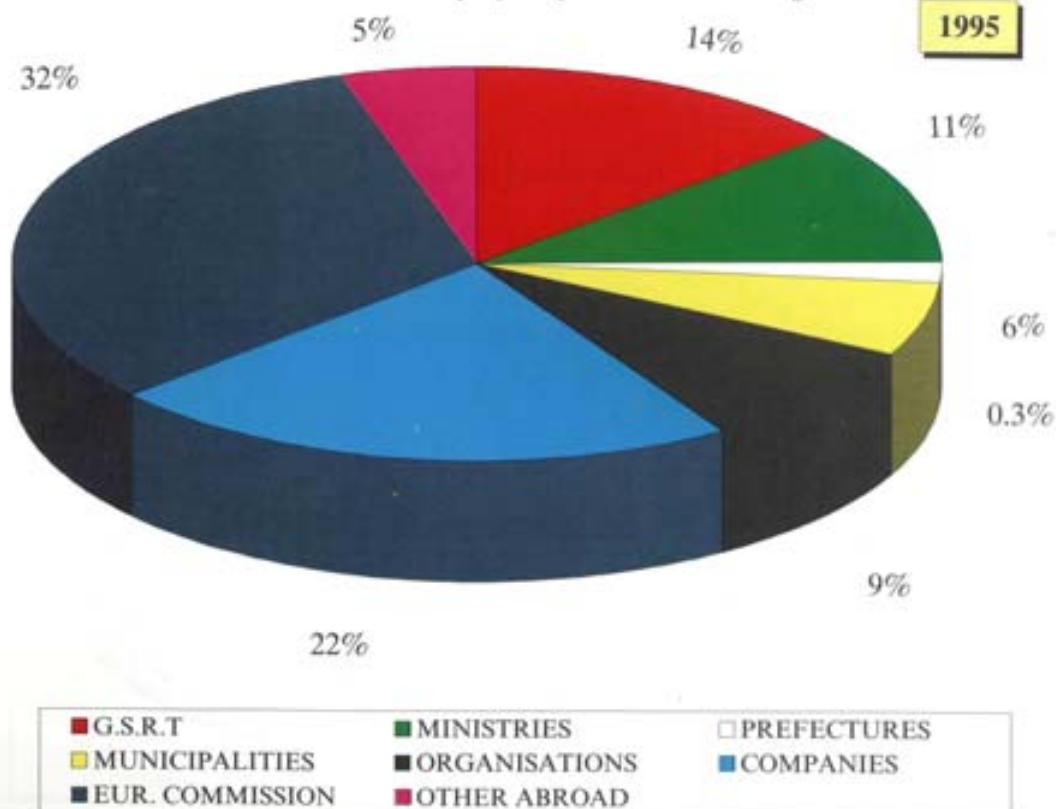


Chart 3. Number of research projects per source of funding



% of new research projects per source of funding



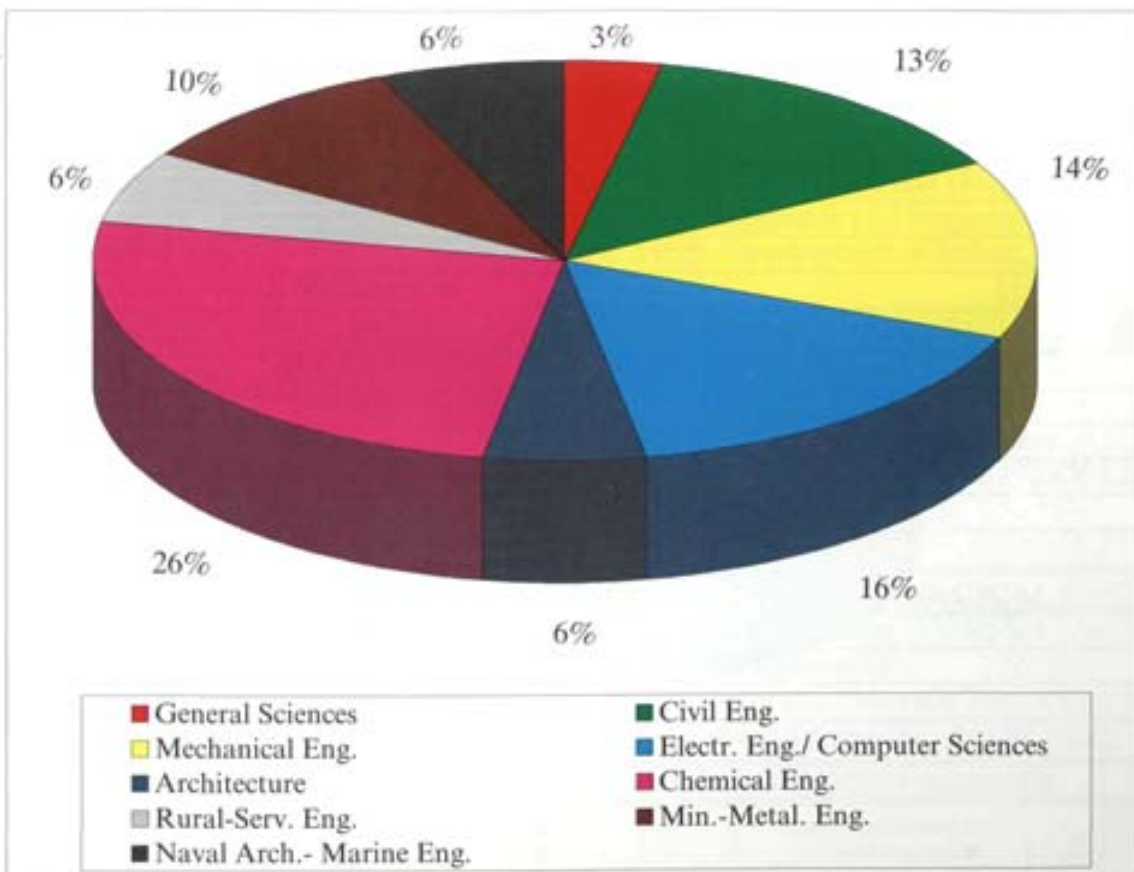
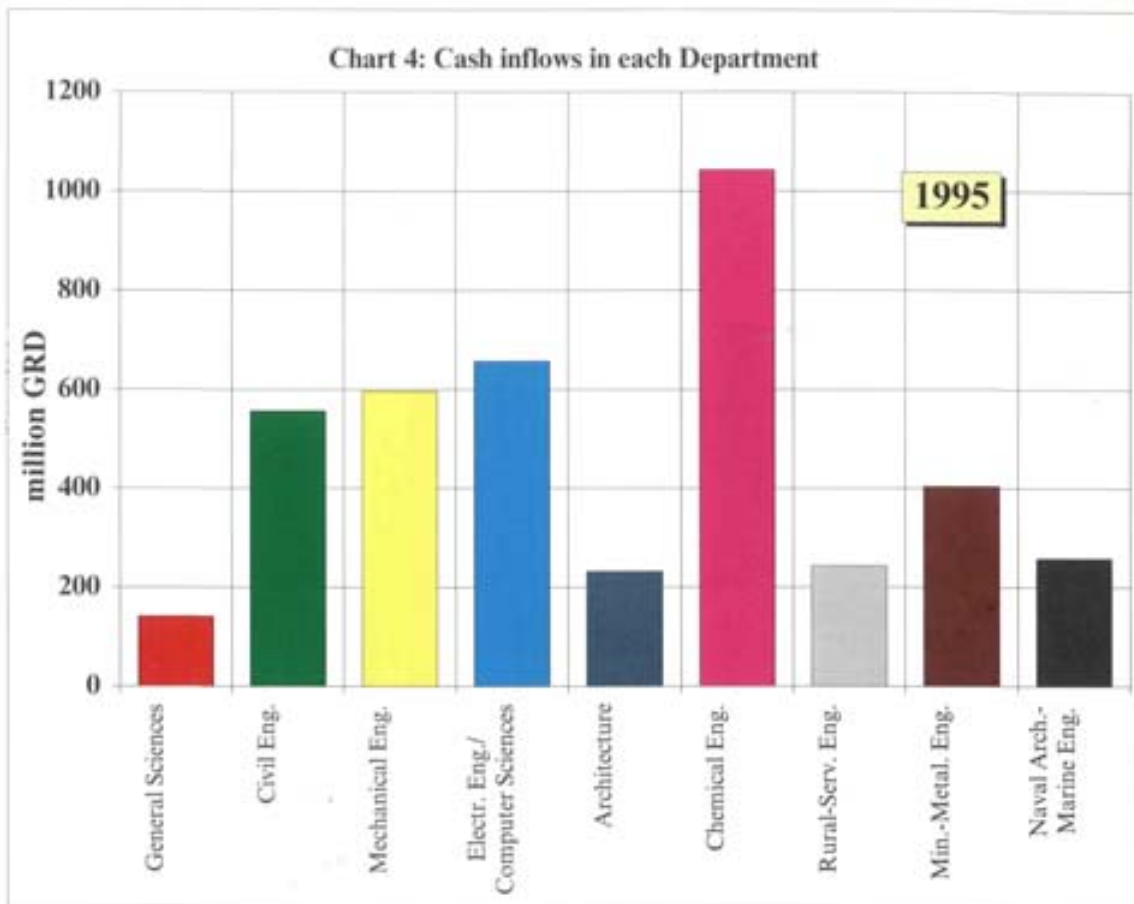
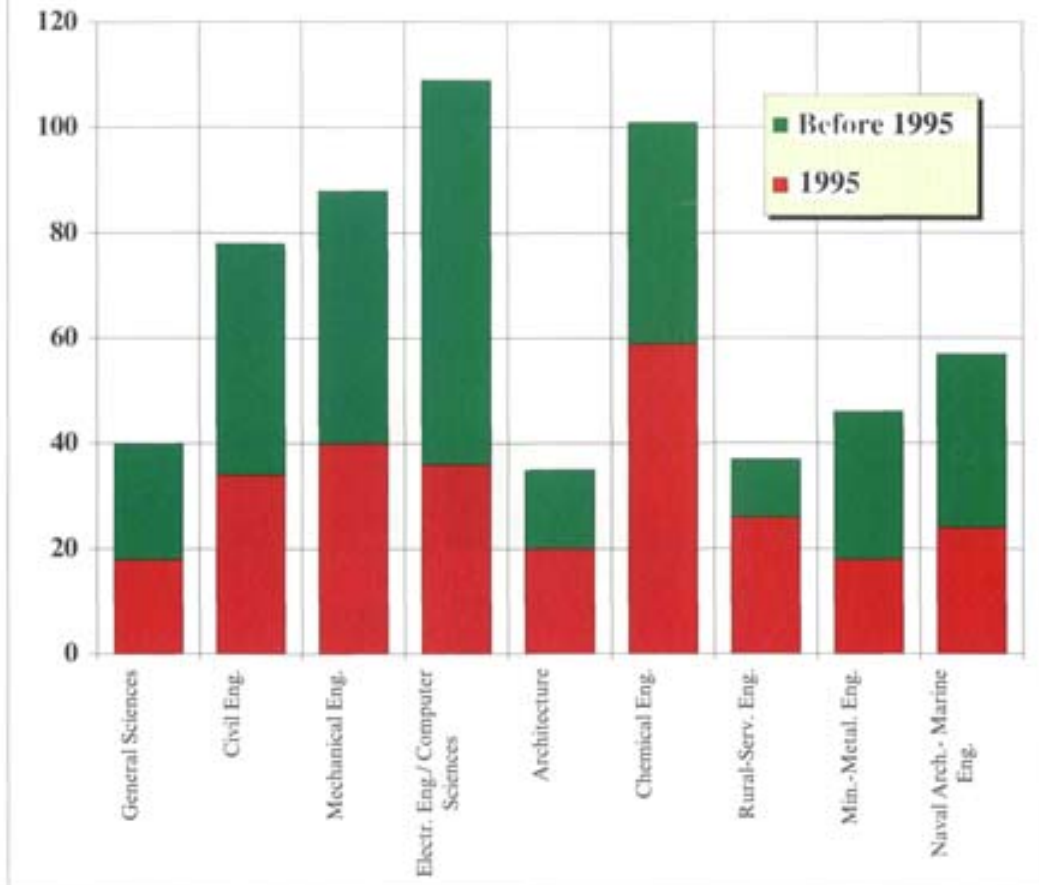


Chart 5: Number of research projects in each Department



% of new research projects in each Department

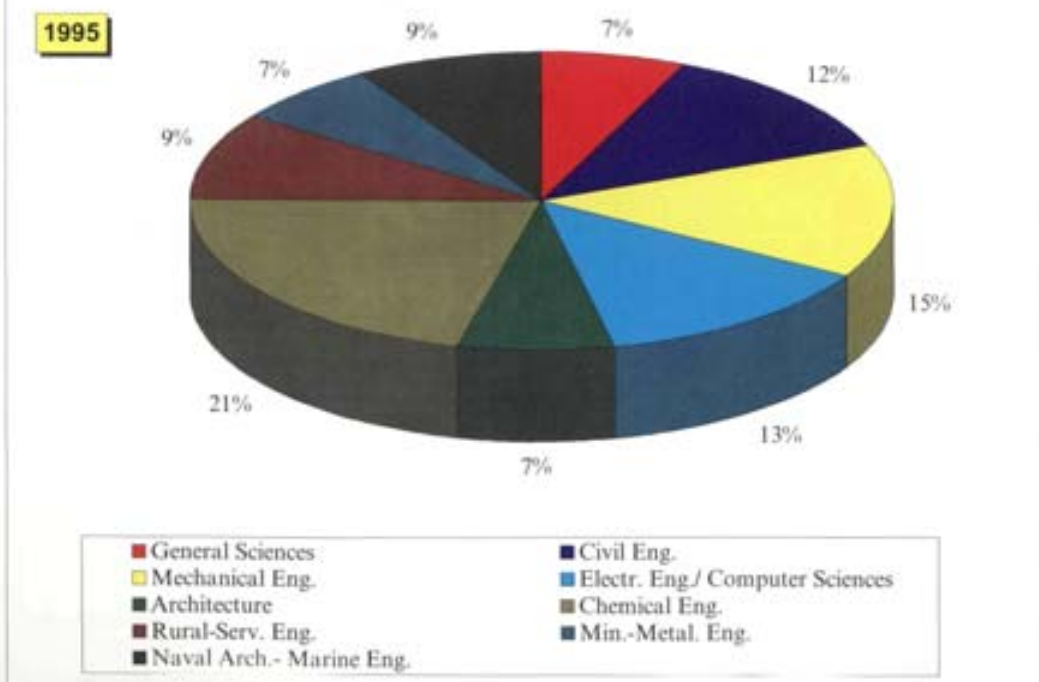
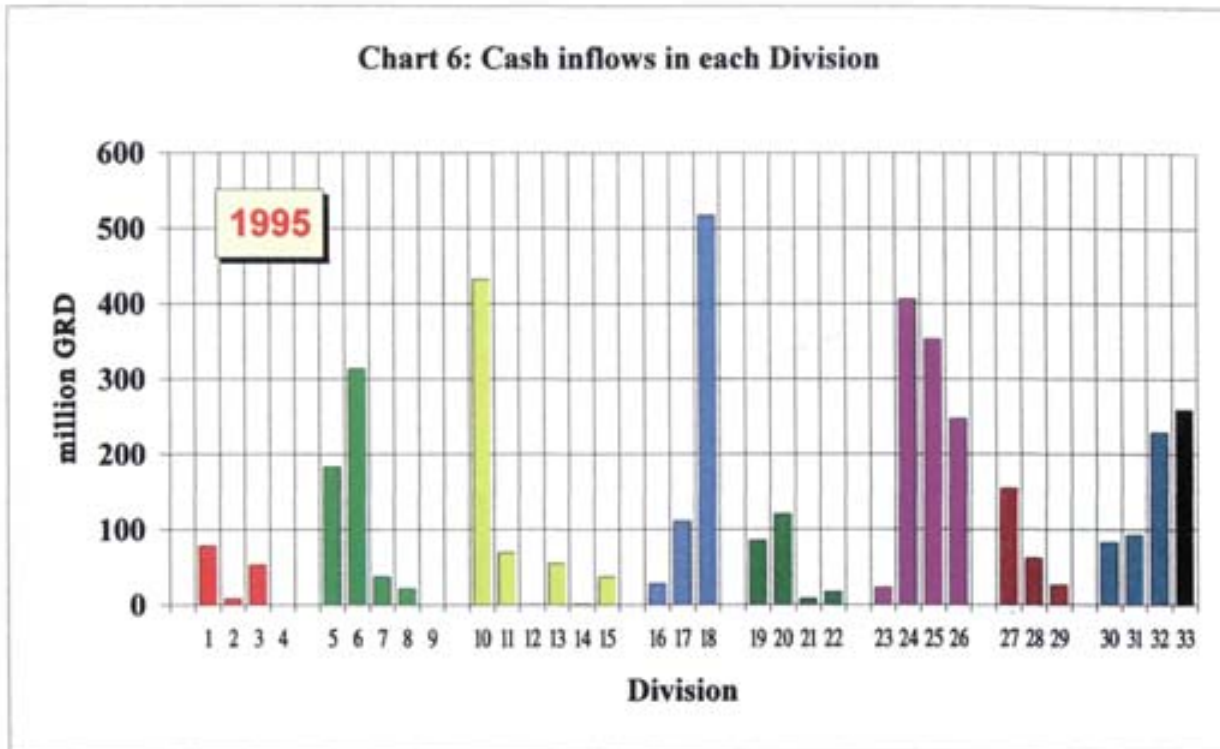


Chart 6: Cash inflows in each Division



GENERAL SCIENCES	ARCHITECTURE
1. Physics	19. Architectural Design
2. Mathematics	20. City and Regional Planning
3. Mechanics	21. Arch. Language, Communication, Design
4. Humanistic - Social Sciences	22. Architectural Technology
CIVIL ENG.	CHEMICAL ENG.
5. Structural Eng.	23. Chemical Sciences
6. Water Resources - Hydraulic Eng.	24. Process Analysis - Plant Design
7. Transportation - Planning Eng.	25. Material Science and Engineering
8. Geotechnical Eng.	26. Synth.-Development of Indust. Processes
9. Construction - Project Management	
MECHANICAL ENG.	RURAL - SURVEY ENG.
10. Fluid Mechanics	27. Topography
11. Thermal Eng.	28. Geography - Regional Planning
12. Nuclear Eng.	29. Rural Technology - Development
13. Mechanical Design - Systems Control	
14. Manufacturing Technology	
15. Industrial Manag. - Operational Control	
ELECTR. ENG.-COMPUTER SCI.	MINING-METALLURGICAL ENG.
16. Electroscience	30. Geological Sciences
17. Power Eng.	31. Mining Engineering
18. Computer Eng.	32. Metallurgy and Materials Technology
	NAVAL ARCH.-MARINE ENG.
	33. Naval Arch.-Marine Engineering

Chart 7: Number of new research projects in each Division

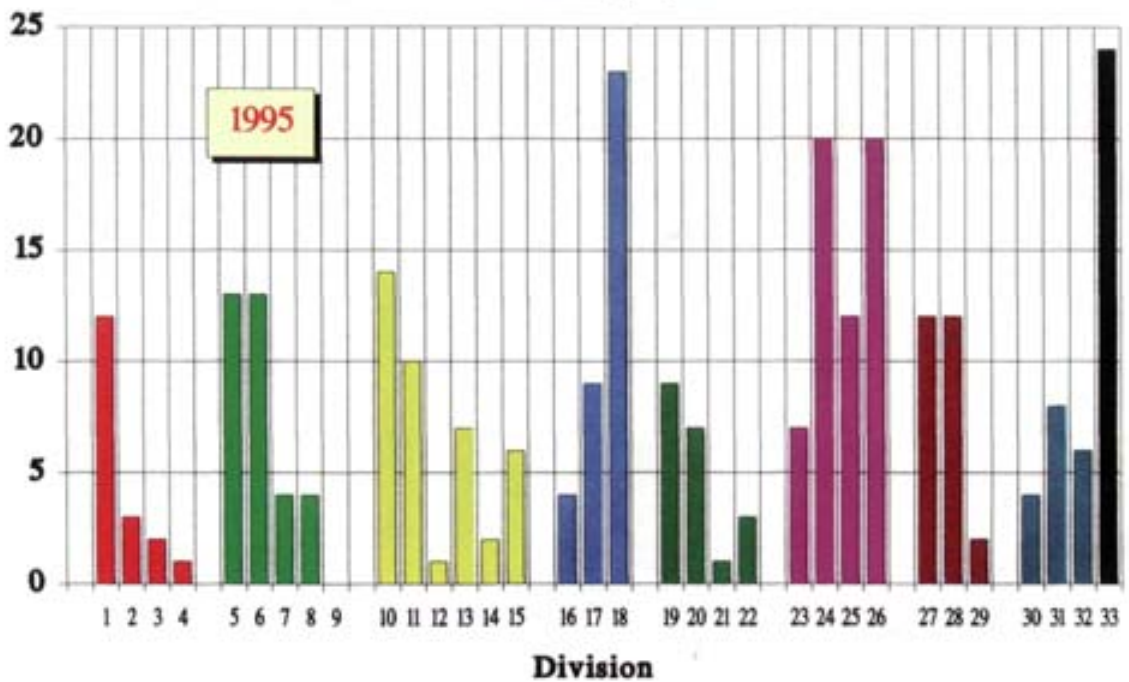
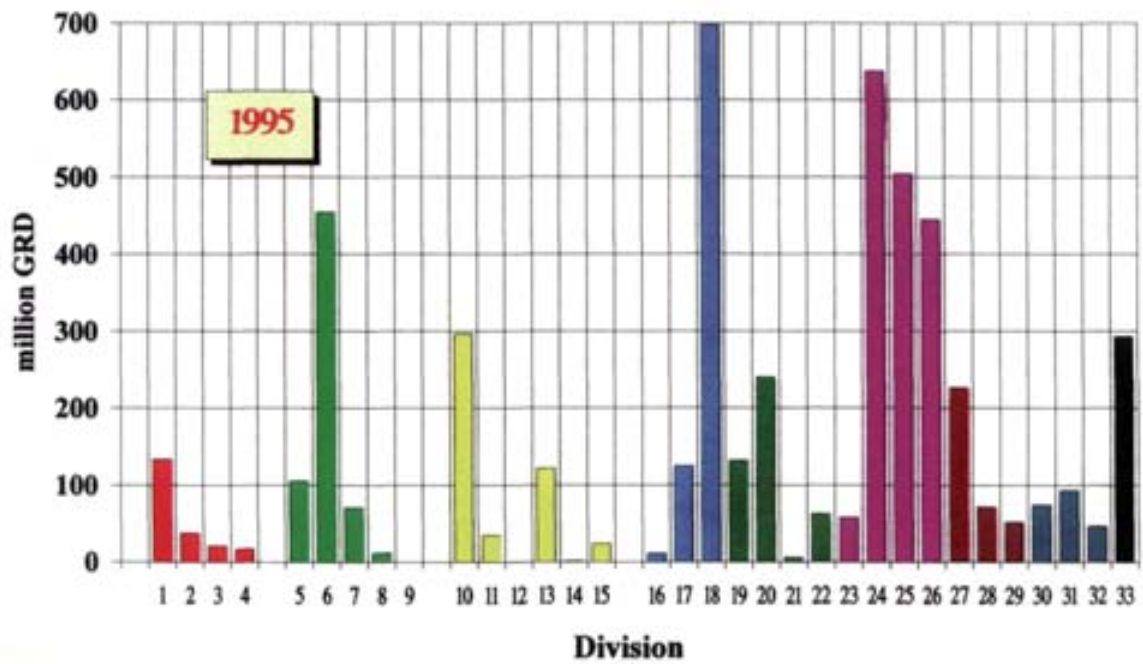


Chart 8: Budget for new research projects in each Division



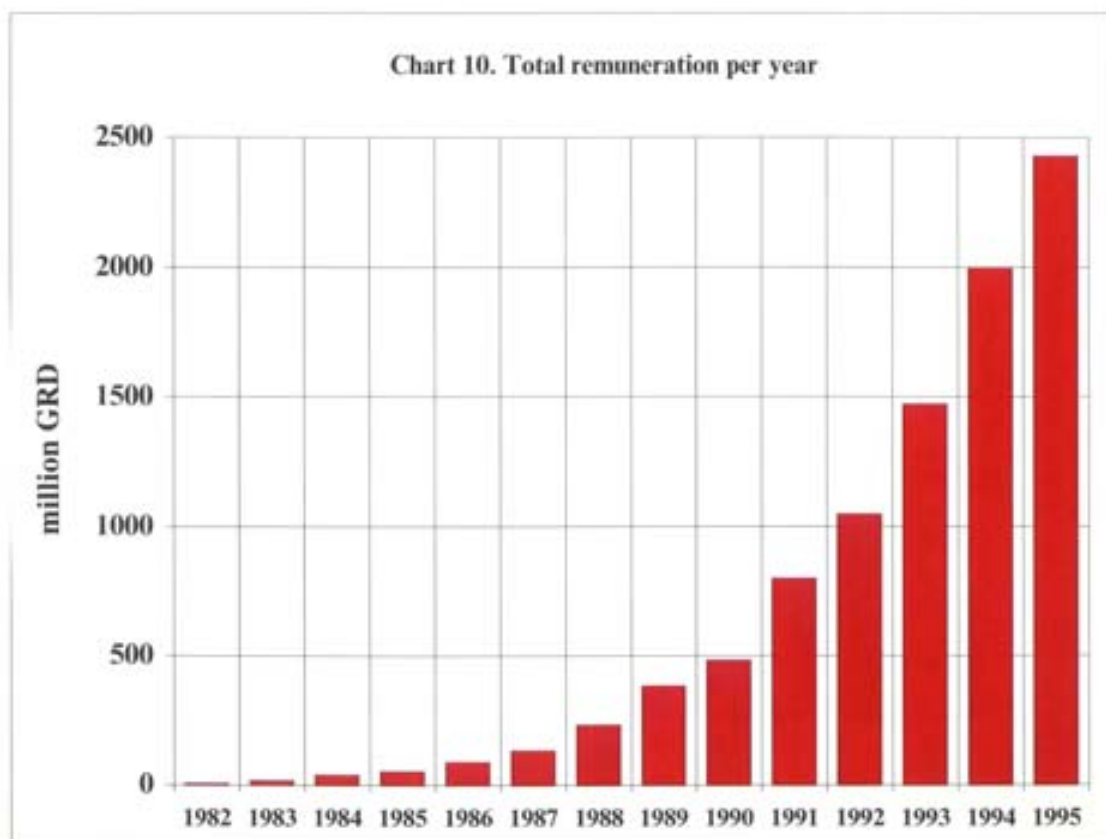
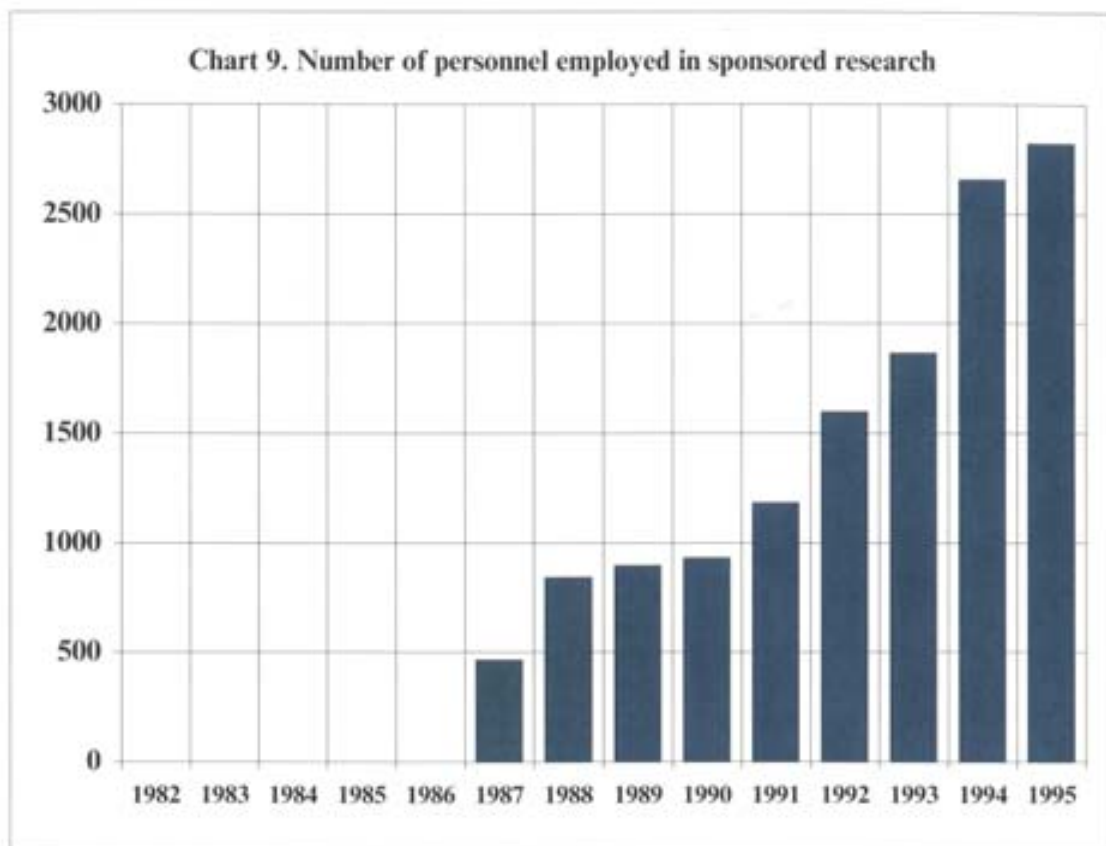


Chart 11. Number and categories of personnel employed in research projects

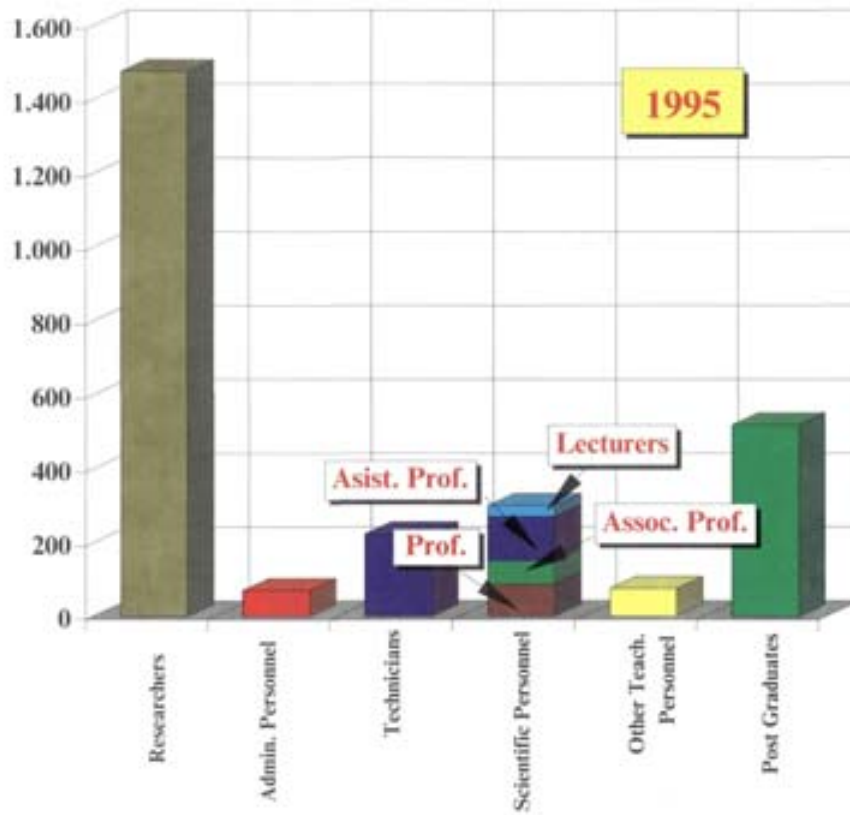


Chart 12. Distribution of remuneration for each category

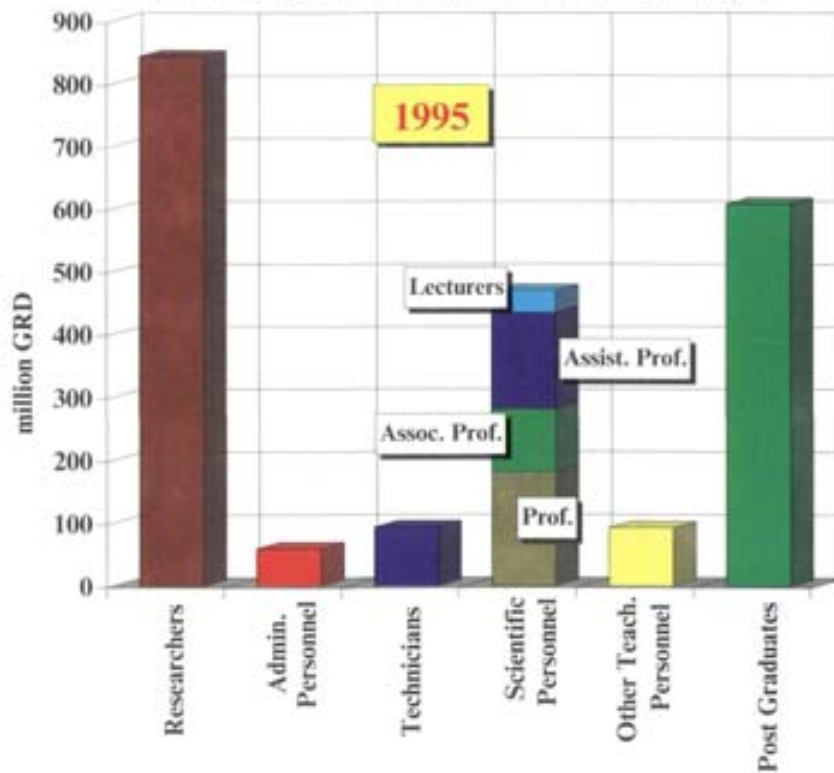


Chart 13. Number and remuneration (in million GRD) of researchers for each Department

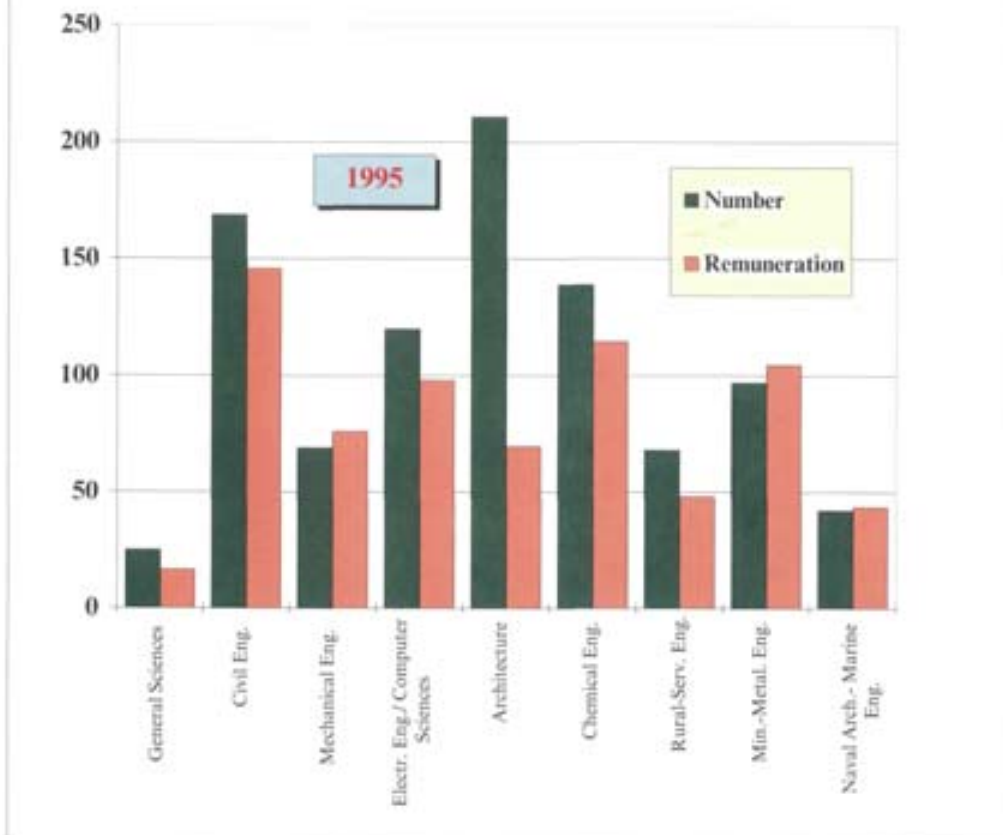


Chart 14. Expenses related to research projects

