

HISTORICAL VIEW AND CHALLENGES OF THE RESEARCH PLANS FOR CATALONIA

I Research Plan for Catalonia

In order to develop its own active R&D policy, the Government of the *Generalitat de Catalunya* elaborated in 1993 the I Research Plan for Catalonia. Science Globalization, standardisation and internationalization steer Catalonia to full integration into the most innovative trends.

The Catalan Government, since its creation, had manifested its interest in an operational R&D policy. According to this it creates in 1980 the CIRIT (Commission of the Research and the Technological Innovation). This concern is not fully developed as ruled by the Estatut d'Autonomia (Catalan standing compended rules) because the Spanish science law (Ley de Fomento y Coordinación general de

la investigación científica y técnica) of 1986 impedes a wide application with full autonomy by the Catalan government.

Transference of the universities to the Catalan Government (1985) and the creation of the Universities and Research Commission (CUR) in 1992 drove the Catalan system of science and technology to the I Research Plan for Catalonia.

The R&D map in Catalonia, including 7 universities with a contrasted capacity to agglutinate research funds and other institutions as IRTA (Institut de Recerca i Tecnologia Agroalimentaria) and some Spanish State institutions, was determinant in the will to establish a strong R&D policy contributing to coordinate all actions undertaken in the territory. At the

same time the objective of improving Catalan science competitiveness and optimizing interaction between public and private sectors to promote technology transfer composed the main objectives of the I Research Plan for Catalonia. A basic condition to offer high quality teaching in the universities is to implement a top level research.

One of the measures of the I Plan was the creation of two new bodies, the Scientific and Technological Assessment Council (CONACIT) and the Advisory and Monitoring Committee (CAS), in charge of monitoring and evaluation of all actions in the new framework.

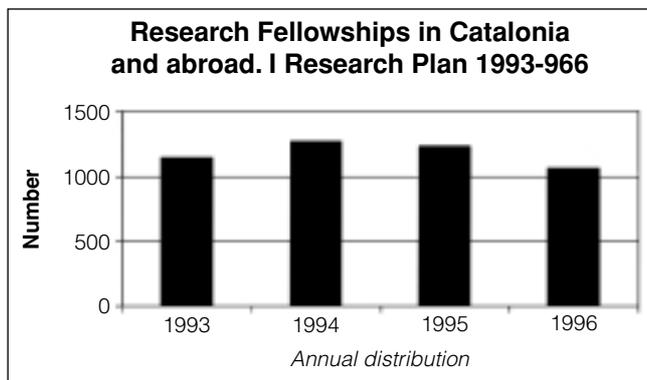
The Council and the Committee represented the interface between the evaluation trends of the 80's based on Peer Review (*a priori* evaluation) and the 90's when the *a posteriori* evaluation of programmes and results become equally important. These evaluative experiences will consolidate the base to implement the II Research Plan for Catalonia.

The I Research Plan programmes continued the old policy of grants and fellowships set up by the CIRIT since its beginning and introduced new actions like the support to Research Groups and the creation of Thematic Networks in order to vertebrate the Catalan System of Science and Technology.

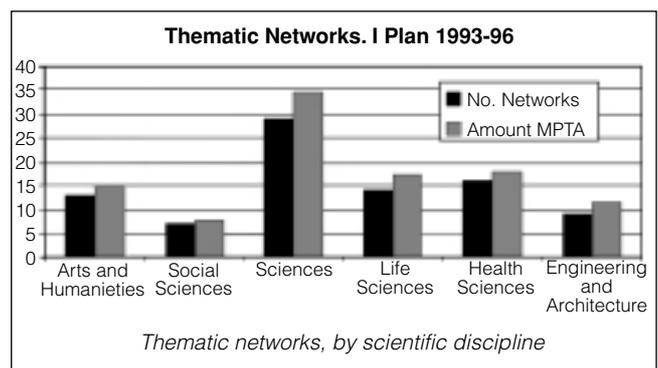
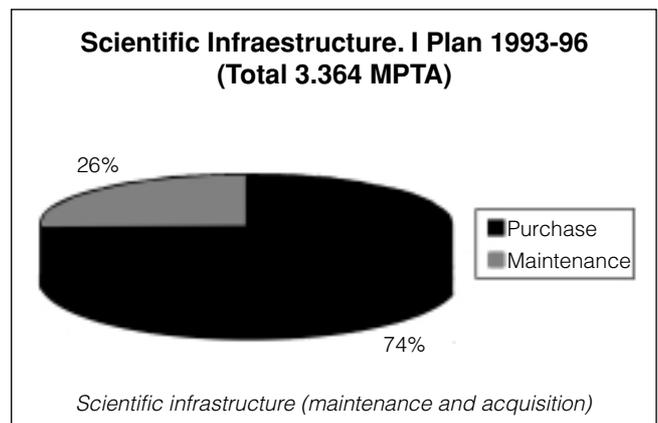
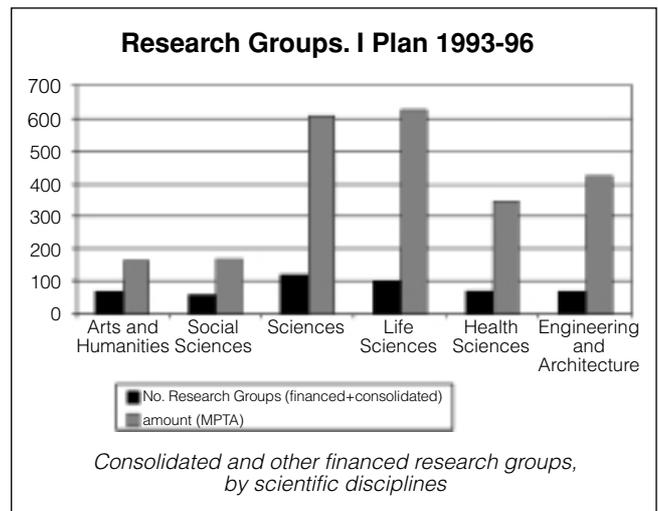
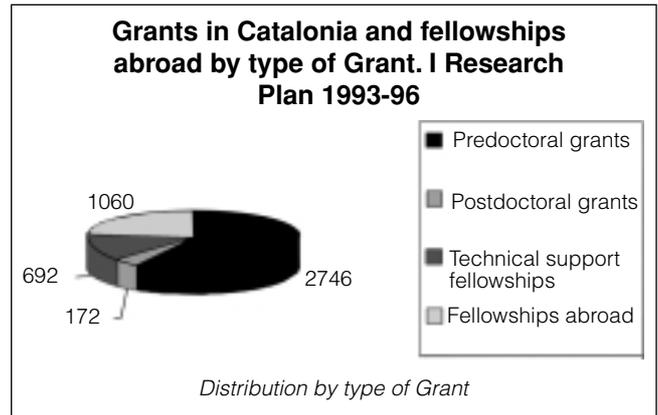
In the Plan, the Priority Areas Programme introduced by first time thematic objectives in R&D of the Catalan government, closely related to Departments (regional ministries) needs.

In it, development of a net of Centres of Reference and support to Large Facilities are not considered thematic priorities although they are of big interest for Catalan government. The most successful initiative in the programme was the creation of 4 Centres of Reference (CR), in Biotechnology, Food Technology, Linguistic Engineering and Advanced Production Technologies.

Results of the I Research Plan for Catalonia (1993-1996)



The evaluation of the I Research Plan for Catalonia has been undertaken by the CONACIT, focusing specially on the innovative part of *a posteriori* evaluation of its programmes. Resulting communications will be processed in brief by the CAS to construct a final document of global evaluation of the I Research Plan, to be presented to the Catalan government.



II Research Plan for Catalonia (1997-2000)

Before starting the elaboration of the II Research Plan for Catalonia, some problems and difficulties inhibiting the harmonic growth of the system of science and technology in Catalonia and its international comparison were identified:

1. Low level of expense in the ratio R&D/VAB
2. Insufficient implication of private sector in the system of science and technology
3. Saturation of employment possibilities of young researchers in the public sector and lack of commitment by this sector in that respect

According to this analysis the objectives of the II Research Plan for Catalonia complement the ones expressed in the I Research Plan, fundamentally the increase of the cost-effectiveness of the public resources dedicated to R&D in order to create a high scientific and technological environment attractive to top companies, originating high technology spin-off enterprises. Promotion of utility of research and technological innovation in all areas of society as a means for progress and competitiveness, and the increase of the participation of the industrial sectors, especially SMEs in the system of science and technology, also are expressed as objectives of the II Plan.

Research is considered partially useless when its results do not target society.

A methodology for a better future planning of R&D is required in the next Research Plans on the base of evaluation and monitoring results.

The II Research Plan is structured according to matrix with 7 vertical areas of management (that is, high priority areas) and 2 general horizontal programmes. The areas of management include a generic area: the General Progress of Knowledge that stimulates research in any field of knowledge, and the following six specific areas:

- Culture and Society
- Health and Quality of Life
- Environment and Natural Resources
- Agriculture and Food Technologies
- Industrial Technologies
- Town and Country Planning, Public Works' and Construction Technologies

The seven areas are developed by way of the two horizontal programmes:

- The Programme for the General Promotion of Research
- The Programme for the Development and Transfer of Technology

The Programme for the General Promotion of Research continues the line of development of the old Programme (with the same name) in the I Research Plan, but emphasises the role of the Thematic networks. It's also worthwhile to

consider the new subprogramme of International Cooperation that agglutinates all actions related to agreements established between Generalitat and various regions and institutions of higher education and research around the world.

The second of these horizontal programmes refers especially to those areas with a high technological content, through new actions in collaboration with the net of Centres of Technology Transfer (CTTs).

Three emblematic projects are drawn as the leaders of the policy of the Research Plan to improve the scientific and technological framework in Catalonia.

The first one is the development of a network of innovation centres. CIRIT and CIDEM (Centre of innovation and enterprise development) collaborate to promote a new kind of innovation centre within the universities from the basis of infrastructure and qualified researchers. They will be oriented to market needs to become economically emancipated, and companies should find their technological problems solved. They all will be identified with a common quality mark to reinforce their corporate image.

Another big project for the Catalan system of science and technology is the scientific and technological park of Pedralbes, which will be fully operational in 2008. This large facility will contain R&D cores of very high quality, encouraging the emergence of top tech spin off companies associated to new products, it also will undertake joint projects with already existing enterprises. Public funds from European Union, Spanish State and Generalitat will share the cost.

The third pivot of the Catalan policy will be a new pool of actions to support the Research Groups of excellence with technical staff. This has been identified as a lack in the Catalan R&D system that harms the productivity of the scientists.

Conclusions

Consolidation of Science Policy in Catalonia through the basis of the two Research Plans for Catalonia may contribute to draw a new panorama at two different levels:

In the international comparison, the GDP and R&D activities locate Catalonia closed to European mean. However it would be worthy to reach a better position taking advantage of the chances offered by the Vth Framework Programme of UE, like the INCO Programme, which might allow through its *Subprogramme of Coordination between member countries* the initiatives of «regional» governments.

Internally in Catalonia, the Research Plans present an initial position to analyse public policies concerning R&D. 300.000 Million PTA for the public sector (Source INE, 1995) and approximately the same figure for private sector maintain a ratio public/private similar to that encountered in other UE countries.

However the construction of a fine and solid system of science and technology needs support and commitment of the whole society. The Catalan system seems to be quantitative

small but with a high qualitative level. This special feature is anchored in the short trajectory initiated only 20 years ago. As a consequence, Catalan society has not assumed yet the role of science and technology as a main actor in social, cultural and economic development.

Middle and long term future actions proposed by the Catalan government to improve the system of science and technology are in the same direction that those of the other developed

countries. These actions will project Catalonia to integrate in the global competitive future, in good conditions, and to challenge the social benefit of scientific and cultural events.

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