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# Sports Science in the Spanish National Research, Development and Innovation Plan. A historical overview

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## ABSTRACT

Ferro-Sánchez A, Floría-Martin P. Sports Science in the Spanish National Research, Development and Innovation Plan. A historical overview. *J. Hum. Sport Exerc.* Vol. 6, No. 3, pp. 554-572, 2011. The *I Plan Nacional de Investigación y Desarrollo (I+D)* (1989-1991) (*I National Research and Development Plan*) (R&D) created in 1988, included *Sports Research* as one of the 23 National Programmes of its Scientific Policy. However, from the *II Plan Nacional I+D* (1992-1995) (*II National R&D Plan*) to 2005, Sports Science was excluded from these Plans. Therefore, for a whole decade, Sports Science was not present in the National Programmes of Fundamental Research. Nevertheless, since 1995 different sectors sought to boost a scientific policy to back Sports Science and in 1998 published the *Libro Blanco de la I+D en el Deporte* (*White Book on Sports R&D*). In 2004, the Sports State Secretary of the Higher Sport Council (CSD), having analyzed the proposals of that book and other up-to-date proposals, suggested the Ministry of Education and Science to implement the call again. Then it was suggested a *Strategic Action on Sports and Physical Activity* (2005-2008) within the *V Plan Nacional Investigación, Desarrollo e innovación (I+D+i)* (2004-2007) (*V National Research, Development and Innovation Plan*) (R&D&i). Later on, in the *VI Plan Nacional I+D+i* (2008-2011) (*VI National R&D&i Plan*) the Health Institute Carlos III included a *Sub-programme on Health, Sports and Physical Activity* (2008-2011). The success of the Strategic Actions caused Sports Science to be incorporated into the *VI Plan Nacional I+D+i*, (2008-2011) supported by the Department Director of Social Sciences and Humanities, from the Sub-directorate General for Research Projects of the Ministry of Science and Innovation. A historical overview will allow us to better understand this achievement without overlooking developments in the past, and will help us appreciate the long way traveled in catching up with the rest of sciences. The participation of researchers in consecutive calls is essential in ensuring the ongoing presence of Sports Science in *National Programmes for Fundamental Research*. **Key words:** SPORTS SCIENCE, HISTORY, RESEARCH, SCIENTIFIC PROGRAMMES, SCIENTIFIC POLICY, PLAN NACIONAL I+D+i, NATIONAL R&D&I PLAN.

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## HISTORICAL OVERVIEW OF SPORTS SCIENCE IN NATIONAL SCIENTIFIC PROGRAMMES

### ***I Plan Nacional I+D (1988-1991)***

The *Plan Nacional I+D* (<http://www.micinn.es/>) was passed in February 1988 for the first time. The National Plan is a basic mechanism for promotion, coordination and planning used by the Spanish Science and Technology system. It was created by the *Ley de Fomento y Coordinación General de la Investigación Científica y Técnica* (Law on Promotion and General Coordination of Scientific and Technical Research) of April (1986) (Science Law) and must integrate all national programmes for research, development and innovation.

The *I Plan Nacional I+D* defined major goals in scientific research and technological development and multi-annual programmes. It arranged the activities to be carried out for fulfilling such goals into National Programmes, Sector Programmes and Autonomous Region Programmes.

The main tasks described at the beginning were:

- Programming and coordination of research and development (R&D) activities.
- Enhancing research efforts in areas with an already acceptable scientific standard and in potential ones of future interest.
- Raising private funds and stimulating companies' ability to innovate.
- Incorporating new human resources into the science and technology system.

To attain the goals set by the *National Plan*, a *Comisión Interministerial de Ciencia y Tecnología* (Inter-ministerial Commission for Science and Technology) (CICYT) was set up. Its duties were as follows:

- Harmonisation and coordination of the different scientific programmes.
- Planning and programming research activities in the organisations answerable to the *Administración General del Estado* (General State Administration).
- Follow up of the *Plan Nacional*.

In sum, the National Plan intended to make progress in R&D in two ways:

- By getting the Science and Technology system to live up to the standards of its industrial infrastructure.
- By catching up with the pace set by the European Economic Community in order to be competitive.

To that end, it was necessary to put together a *Scientific Policy* that would prompt all the elements in the system -including the private sector- and to adequately select the objectives for the construction of a strong Science-Technology-Industry axis (S-T-I).

To fulfil its goals, the National Plan relies on three players: the *Universities*, the *Organismos Públicos de Investigación* (Public Research Organisations) (OPIs) and the *Companies*, all three of them supported by the *Centro para el Desarrollo Tecnológico e Industrial* (Centre for Technological and Industrial Development) (CDTI) (<http://www.cdti.es>). The latter organisation supports companies for them to generate their own technology, thus raising their competitiveness in the market, and to use research results coming from R&D centres. More details on their duties and scope of action will be given later on.

The *I Plan Nacional I+D* created:

- 23 national programmes.
- Sector programmes, their expenses being met by ministerial departments and OPIs.
- Autonomous Region Programmes
- Other cross-cutting programmes:
  - *Programa Nacional de Formación de Personal Investigador (Researcher Training National Programme (FPI)).*
  - International Programmes.

The structure needed for the implementation of the *I National Plan I+D* was as follows. The CICYT was responsible for the design, production, implementation and follow up of the *National Plan*, that is, for all its stages. The executive body was the Secretariat General of the Plan. The *Plan* was organised by the *Consejo General de la Ciencia y la Tecnología (General Council of Science and Technology)* and the *Consejo Asesor para la Ciencia y la Tecnología (Advisory Council for Science and Technology)*. The scientific-technical quality and feasibility of the projects and actions regulated by the *Plan* were supervised by the *Agencia Nacional de Evaluación y Prospectiva (National Agency of Evaluation and Prospecting) (ANEP)*, which was specifically set up upon the commissioning of the *Plan*. A Mixed Congress-Senate Committee consisting of 22 members of parliament and 16 senators were responsible for the supervision.

Figure 1 shows the organisation of the Spanish System for Science and Technology under the *I Plan Nacional I+D*.

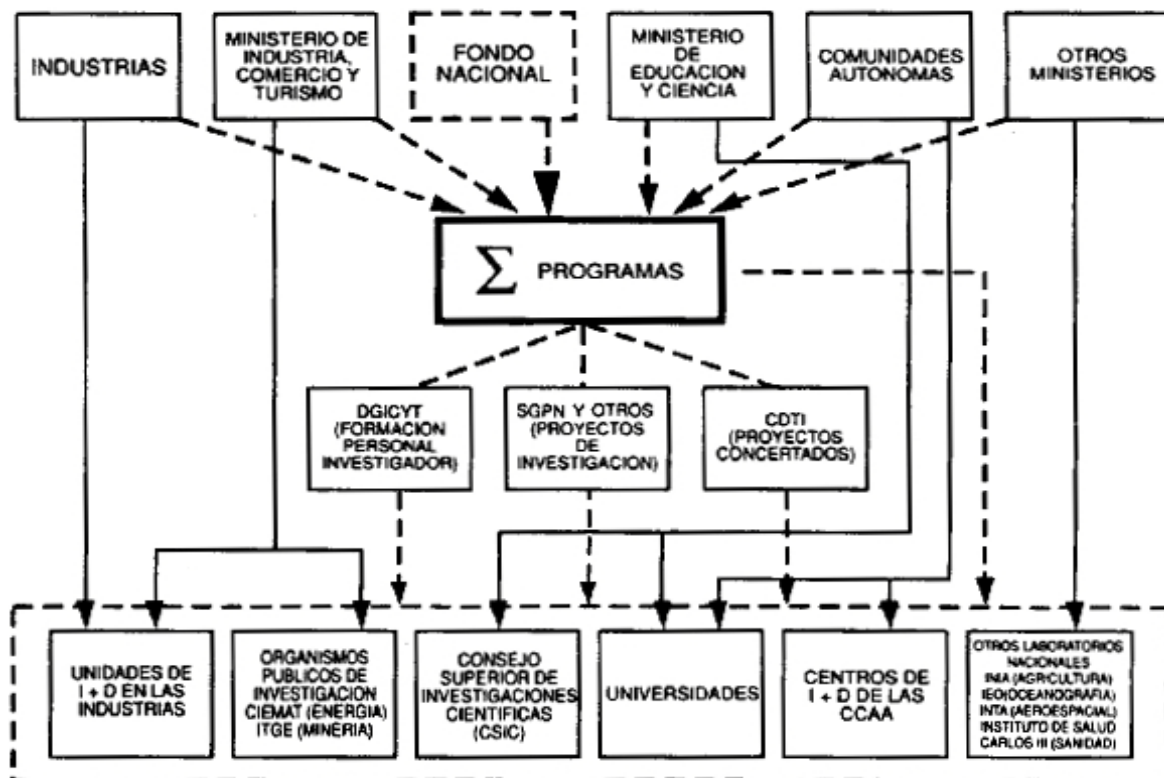


Figure 1. Spanish Science and Technology system (Report of the *I Plan Nacional I+D*, 1988-1991).

The *National, Sector and Autonomous Region Programmes* of the *I Plan Nacional I+D* are shown in the next Figure 2. Within the National Programmes, four main areas or programmes can be distinguished: Life Quality and Natural Resources, Production and Communication Technologies, Socio-cultural Programmes, and Horizontal and Special Programmes. Regarding Sector Programmes, the Programme for the General Promotion of Knowledge, and the Teacher and Researcher Training Programme are worthy of note. Both of them are schemes of the Education and Science Ministry. The budget allocated to this Plan was 56,970 million pesetas.

- **PROGRAMAS NACIONALES**
  - Calidad de Vida y Recursos Naturales
    - Biotecnología
    - I+D Farmacéuticos
    - Recursos Geológicos
    - Recursos Marinos y Acuicultura
    - Conservación del Patrimonio Natural y Procesos de Degradación Ambiental
    - Salud
    - Investigaciones sobre el Deporte
    - Investigación Agrícola
    - I+D Ganadero
    - Investigación sobre Sistemas y Recursos Forestales
  - Tecnologías de la Producción y de las Comunicaciones
    - Nuevos Materiales
    - Automatización Avanzada y Robótica
    - Tecnologías de la Información de las Comunicaciones
    - Investigación Espacial
    - Microelectrónica
  - Programas Socioculturales
    - Estudios Sociales y Culturales sobre América Latina
    - Problemas Sociales y Bienestar Social
    - Patrimonio Histórico
  - Programas Horizontales y Especiales
    - Formación de Personal Investigador
    - Investigación en la Antártida
    - Física de Altas Energías
    - Información para la Investigación Científica y el Desarrollo Tecnológico
    - Interconexión de Recursos Informáticos (IRIS)
- **PROGRAMAS DE COMUNIDADES AUTÓNOMAS**
  - Química Fina (Cataluña)
  - Nuevas Tecnologías para la Modernización de la Industria Tradicional (Comunidad Valenciana)
- **PROGRAMAS SECTORIALES**
  - Promoción General del Conocimiento (Ministerio de Educación y Ciencia)
  - Formación de Profesorado y Personal Investigador (Ministerio de Educación y Ciencia)

**Figure 2.** Programmes of the *I Plan Nacional I+D* (1988-1991) (original report).

Within the Life Quality and Natural Resources area, the **National Programme for Sports Research** was launched. The Plan covered some major action areas:

- Sports in education, recreation and hygiene.
- Sports and the limits of physical performance in individuals.

These two areas were made specific by means of the following priority lines:

- Social factors and physical activity-sports.
- Sports as a means of recovery and/or rehabilitation.
- Sports training. New methods.
- Sports infrastructures. Equipment and facilities.
- Problems related to high-performance sports.
- Detection and testing of illegal substances in sports.
- Sports physiology and medicine.

The overall budgets allocated to the Programme totalled 552 million pesetas, but the actual expenditure was much lower, about 199 million pesetas. In turn, a national survey on the transfer of research results showed that the research findings did not live up to the expectations. However, by the end of 1990, Spain had increased its R&D expenditure for all of the areas by 0.42 points (R+D expenditure/GDPx100) in comparison with 1983, which were good news and an optimistic figure, though in relation with reference countries like Germany, the difference (1.94 points) was most significant. These indicators showed that the National Plan at the end of its first implementation period had been effective. Yet, for Sport Research, the findings were not fully satisfactory, and so decisions were made which had a negative influence on the presence of our research's in the National Plan, as will be shown in the next section.

### **II Plan Nacional I+D (1992-1995)**

Under this National Plan, important decisions were made which directly influenced the *Sports Research Programme*:

*...Concerning the Pharmaceutical R&D Programme, we suggest to integrate all of its goals into the contents of health research and health technologies, thus making up a National Programme on Health and Pharmacy. Similarly, the Programme shall also cover a considerable number of the goals in the current Sports Research Programme... (Report of the II Plan Nacional I+D, 1992-1995).*

The *National Programme on Health and Pharmacy* covered three main areas: Health, Sports and Pharmacy. In turn, Sports covered five main priority lines:

- Sports physiology and medicine.
- Sports training.
- Detection of illegal substances.
- Sports as a means of recovery and rehabilitation.
- Social factors and sports practice.

Although research projects in the area of Sports Science were submitted to the call of this National Plan (Ferro, 2001, p. 22-23), they were not enough to justify their permanence. We were told that the lines presented had a limited practical scope and that only a few research groups and projects had the required quality. This was a serious backward step for research in Sports Science. Research activities were drastically reduced and the progress of knowledge was halted at a time when strong support was most needed.

By the end of 1995, a decision was made in the activity report in relation with the National Programme on Health and Pharmacy, dashing the hopes of many of us who had only started off in the cited Plan:

*... For all such reasons, as from 1995 a joint call covering the three programmes will be launched: projects might be submitted under this call depending on their thematic focus. Those complying with the priority areas and objectives will do so under the National Health Programme. Projects from non-priority areas or goals under the latter programme will be eligible under the Sector Programme of the Knowledge General Programme (those more basic and more distant from its biomedical application) or under the Sector Programme of the Health Research Fund (those nearer clinical and epidemiological research). Projects related with research in the clinical practice, public health and health services, and those that might be deemed convenient, will be addressed by a specific call of the Health Research Fund (Report of the II Plan Nacional, 1992-1995).*

It must be noted that at the time most universities -National Institutes of Physical Education- were undergoing integration into different Spanish universities and transformation into departments. There were very few laboratories and consolidated research groups, and most scientists did their work on their own and poorly supported by their institutions. University lecturers were consolidating their posts as educators and researchers by completing their PhD theses, a fundamental requirement to gain access to the lecturer status. It was in 1992 that the undergraduate studies of *Physical Activity and Sports Science* finally entered universities, the qualification being included in the official list of degrees. Our studies clearly lagged behind other sciences.

As will be shown next, during the following ten years, between 1995 and 2005, Sports Science stopped being present among the lines directly supported by the National Plan for the development of research projects. However, research in our field was decisively supported by the Higher Sports Council, as will be explained next, though with limited funds in comparison to those provided by the National Plan.

#### **Higher Sports Council (1994-to date)**

Since 1994 the CSD (<http://www.csd.gob.es>), through the *Centro Nacional de Investigación y Ciencias del Deporte (Research and Sports Science National Centre) (CNICD)*, later renamed *Centro de Alto Rendimiento y de Investigación en Ciencias del Deporte (High Performance and Research on Sports Science Centre) (CARICD)*, decided to foster public and competitive calls for the development of research projects of priority interest for National Sports. Such calls were decisive for the continuity of research in Sports Science outside the National Plan, for the creation of new research groups and the consolidation of existing ones, and for the allocation of funds to small laboratory infrastructures. Even though these calls had been held previously, it was as from the mentioned year that a decision was made to change the nature of the call and adapt it to the format of the National Plan. New elements were introduced, such as peer review using experts in the different thematic areas in parallel to the assessment of the project by the ANEP, which also conducted peer assessment with anonymous evaluators. The first one was the *Resolution of 15 November 1994. Boletín Oficial del Estado (BOE) (Official Journal) of 14-12-1994 (1994)*.



There were two CSD call types:

- Support to public universities and organisations for the development of projects in five lines:

Section I. Scientific support, technological development and generation of knowledge applied to high-performance in sports.

Section II: Studies and reports on subjects of priority interest in sports.

Section III: Grants for PhD theses or to participate in sports studies.

Section IV: Postgraduate studies.

Section V: Science dissemination activities.

- Support to non-profit organisations for scientific events, publications and studies of priority interest in Sports Science:

Section I. Organisation of scientific dissemination meetings favouring exchanges and dissemination of ideas and knowledge by means of conferences, seminars and other scientific actions held in Spain.

Section II. Scientific research journals, technical or humanistic journals in the area of sports, or publications including the proceedings and conclusions of scientific meetings.

Section III. Development of studies and work in areas of priority interest for the Higher Sport Council.

The CARICD (CSD) also launched an **Editorial Plan** via the scientific journal *Investigaciones en Ciencias del Deporte, serie ICD (Researches in Sports Science, ICD Serie)* (Figure 3). This journal included scientific papers, many of them being the outcome of research funded by the CSD calls, and contributions by prominent Spanish scientists. At the time there were very few prestigious, nationally influential science dissemination journals. The journal contributed to spreading research results and laid the foundations for quality publications. CARICD also organised numerous courses jointly with universities, conferences, and scientific events.





**Figure 3.** Some volumes of *Scientific journal Investigaciones en Ciencias del Deporte, serie ICD* (Researches in Sports Science, ICD Serie).

### III Plan Nacional I+D (1996-1999)

As concluded in the 1995 Report, the National Plan included a single *National Health Programme*. Therefore, researchers in the area of Sports Science had three options for submitting their projects, as stated in the Report:

- *Programa Nacional de Salud (National Health Programme) (PNS).*
- *Programa de Promoción General de Conocimiento (Programme for the General Promotion of Knowledge) (PGC).*
- *Fondo de Investigación Sanitaria. (Health Research Fund) (FIS).*

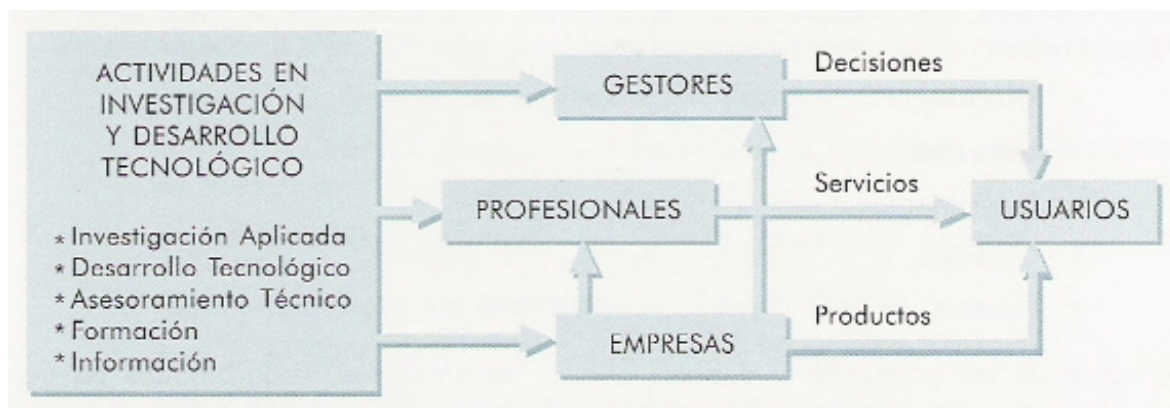
As can be noticed, none of them was specific to Sports Science or Sports Research, and so the National Plan no longer covered our scientific areas; only those areas closer to the medical field could fit in with the topics addressed by the *III Plan Nacional*.

Nevertheless, strong support was given to research projects in Sports by an initiative under the III National Plan in a Sports-unspecific call:

- *Proyecto Integrado de Tecnología Deportiva (Integrated Project for Sports Technology) (PITDE)*. Being aware of the problems with the National Plan, the Higher Sports Council and the Biomechanics Institute of Valencia applied for an Integrated Project in the sports area that succeeded in obtaining funding from the Inter-ministerial Commission for Science and Technology.
- Integrated Project: A set of R&D actions aimed at improving a specific productive sector in one or more strategic areas of the Science-Technology-Industry-Market (S-T-I-M) system.
- Aim of an integrated project: Development of new quality products, processes or services with a high added value and competitive advantages as a direct consequence of the innovation factors arising from the project.

The goals of the *III Plan Nacional I+D* were focused on the development of technology for the exploitation of results by the industry and the productive sector. The project sought to boost the relationship between Universities, Technological Institutes, Public Research Organisations and Companies/Industry-Market in the area of sports. Three expert panels were held in order to have the opinions of all the stakeholders in the S-T-I-M axis (Figure 4):

- Professionals, scientists, sports technicians, and those involved in research and/or service supply in the sporting area.
- Sports managers (decision makers).
- Companies receiving and/or participating in research projects with the above parties, receiving the knowledge and technology for exploiting them and generating high added-value products that can compete in the international and national markets.
- Users and athletes -either professional or amateur- ultimately benefiting from technology research and development for sports practice.

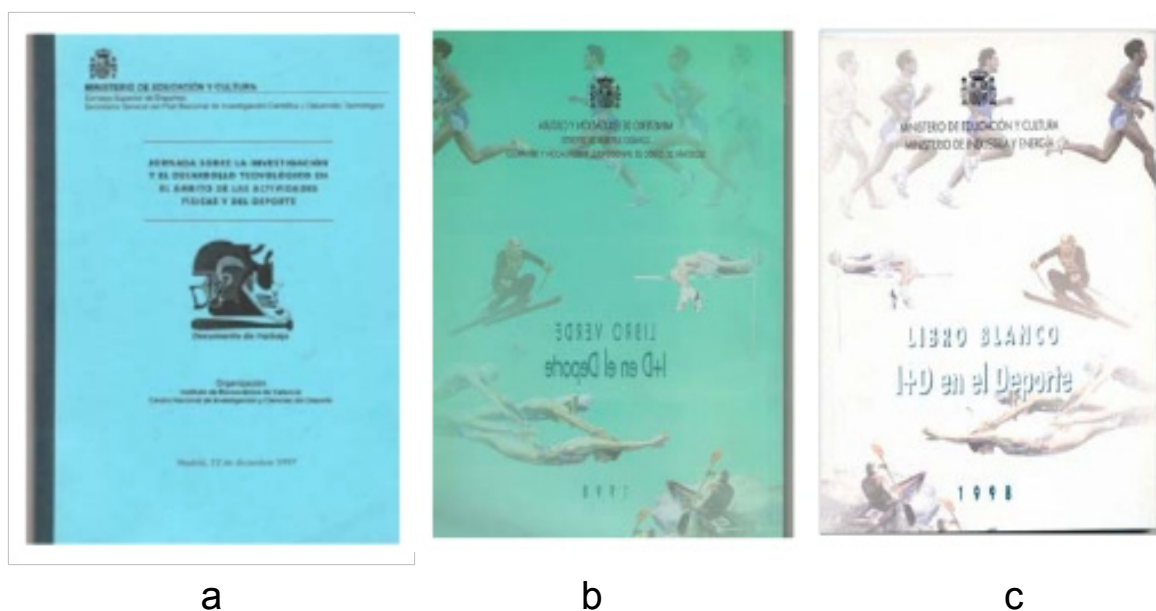


**Figure 4.** Expert panels suggested by the *Libro Blanco, I+D en el Deporte (1998)* (original report).

Based on the expert panels and subsequent meetings held by a considerably large group of people from different sectors, a guide on the drawbacks and opportunities identified was prepared. Basically, all shortages in technological research and development within the scope of the professionals, managers and companies which led to poor development in our area were pinpointed. Similarly, priority lines and opportunities in technological research and development unconsidered or little addressed in the area of sports were detected with a view to boosting our scientific domain again. On the one hand, by demonstrating the need for support from a National Plan and, on the other, making it more visible.

The conclusions drawn in the discussions were included in three documents (Figure 5), which were successively published after perusal and evaluation by all participating experts:

- *Jornada sobre la Investigación y el Desarrollo Tecnológico en el ámbito de las Actividades Físicas y Deportivas (Session on Technological Research and Development in the area of Physical and Sporting Activities) (1997).*
- *Libro Verde de la I+D en el Deporte (Green Book on Sport R&D) (1998).*
- *Libro Blanco de la I+D en el Deporte (White Book on Sport R&D) (1998).*



**Figure 5.** a) Book on the *Jornada sobre la Investigación y el Desarrollo Tecnológico en el ámbito de las Actividades Físicas y Deportivas* (1997); b) Ramiro, J.; Vera, P.; Sánchez Bañuelos, F.; Hernández Vázquez, J.L.; García Ferrando, M. (1998). *Libro Verde, I+D en el Deporte*. Madrid: Consejo Superior de Deportes y c) Ramiro, J.; Sánchez Bañuelos, F.; García Ferrando, M.; Hernández Vázquez, J.L. y Vera, P. (1998). *Libro Blanco, I+D en el Deporte*. Madrid: Consejo Superior de Deportes.

The *Libro Blanco, I+D en el Deporte* included solid arguments for asking the Ministry to support Sports Science from the National Programmes because, among other aspects, it was comprehensive and represented all lines and all groups and stakeholders in the Science-Technology-Industry system, which is the main goal of scientific policies. This relationship ensured the applicability of research, formerly criticised and the reinforcement of the research groups by means of coordinated actions aimed at sharing material and human resources.

However, from all such proposals, only a *Programa de Investigación de Transferencia de Tecnología a Empresas de I+D (Research Programme for Technological Transfer to R&D Companies) (PROFIT)* was consolidated. The remaining initiatives were not taken to the practice for budgetary problems. No alternative proposals were put forward by any other groups, apart from those included in the aforementioned book and so, several really important years were wasted in the development of our discipline, absent from the National Plan, while the rest of sciences kept growing and catching up with their European counterparts.

#### **IV Plan Nacional I+D+i (2000-2003)**

This new Plan pays special attention to technological innovation and the transfer and dissemination of results. Hence the name, R&D&i: research, development and innovation. The main goals of the new Plan that conditioned its structure were:

- Strengthening of R&D groups.
- Reinforcing innovative companies.
- Complementary nature of participation modalities.
- Support to the articulation of the agents responsible for R&D&I.
- Efficient fund allocation.
- Compatible modalities.
- Quality and competitiveness.

The three main areas of the National Plan consisted of the following programmes:

- *Non-oriented Basic Research Area.*
- *Scientific-Technological Areas.*
- *Sector Areas.*

Research on Sports would then be considered within a *Sector Area*, together with Tourism and Leisure. The aim of this initiative was to give the promotion of tourism (accounting for 10.6% of the GDP and revenue worth 4.4 billion pesetas) –a major source of national income- the added value of Sports and Leisure to further boost the sector.

Three strategic actions relied on this sector area but only in the field of technological development and transfer of results to the industry through projects for the promotion of Technical Research (PROFIT), in partnership with the companies:

- Diversification and improvement of tourist products.
- Increase in quality and safety in tourism and sports.
- Sports material and equipment (design of new materials and equipment).

But this *Sector Area*, however, did not cater for research projects in Sports Science. Even so, the 2003 report makes reference to the CSD as the organisation managing actions in the National Plan as part of its Scientific Policy:

...Concerning contributions by other ministries as managers of actions under the National Plan, reference must be made to the Health Institute Carlos III, of the Ministry of Health and Consumption (which also operates as a Public Research Organisation, together with its foundations on Cancer Research, Cardiovascular Research and Cooperation and International Health); to the Directorate General for Universities and the Higher Sport Council of the Ministry of Education, Culture and Sports; to the State Secretariat and Sub-secretariat for Infrastructures, of the Ministry of Public Works; the Women's Institute and the Institute on Migrations and Social Services of the Ministry of Labour and Social Affairs, and to the Regional Department of National Parks of the Ministry of the Environment.

The recognition of the involvement of the CSD in National Plan actions would bring along positive consequences for Sports Science, as we shall see next.

#### **V Plan Nacional I+D+i (2004-2007)**

Through the initiative of the Secretary of State for Sport, the Higher Sports Council –aware of the need to rely on a policy of support to Sports Science research- firmly supported its participation in the National Plan. In the second year of the *V Plan Nacional* (2004-2007), the Ministry of Education and Science, through the Directorate General for Research of the Higher Sports Council, developed a **Strategic Action on Sports and Physical Activity 2005-2007 (2005)** and created an **Area of Scientific-Technical Management**. As from that year, CSD actions started being included in the National Plan as activities of managing units answerable to the Ministry, as pointed out in the previous section.

This Strategic Action was intended to:

*“Foster research and development activities aimed at creating knowledge and making technical progress which can contribute to generating and improving products, processes and services that can in turn give rise to a substantial increase in people’s quality of life and, in a broad way, in the benefits derived from the practice of physical and sporting activities, especially those connected with the preservation and improvement of health”.*

Three thematic axes with a number of associated priority lines were supported:

1. Sports facilities, materials and equipment:
  - a. Sports facilities.
  - b. Materials and equipment for sports facilities.
  - c. Play grounds.
  - d. Sports clothing.
  - e. Implements.
  - f. Equipment and technology for sports training.
  - g. Nutrition.

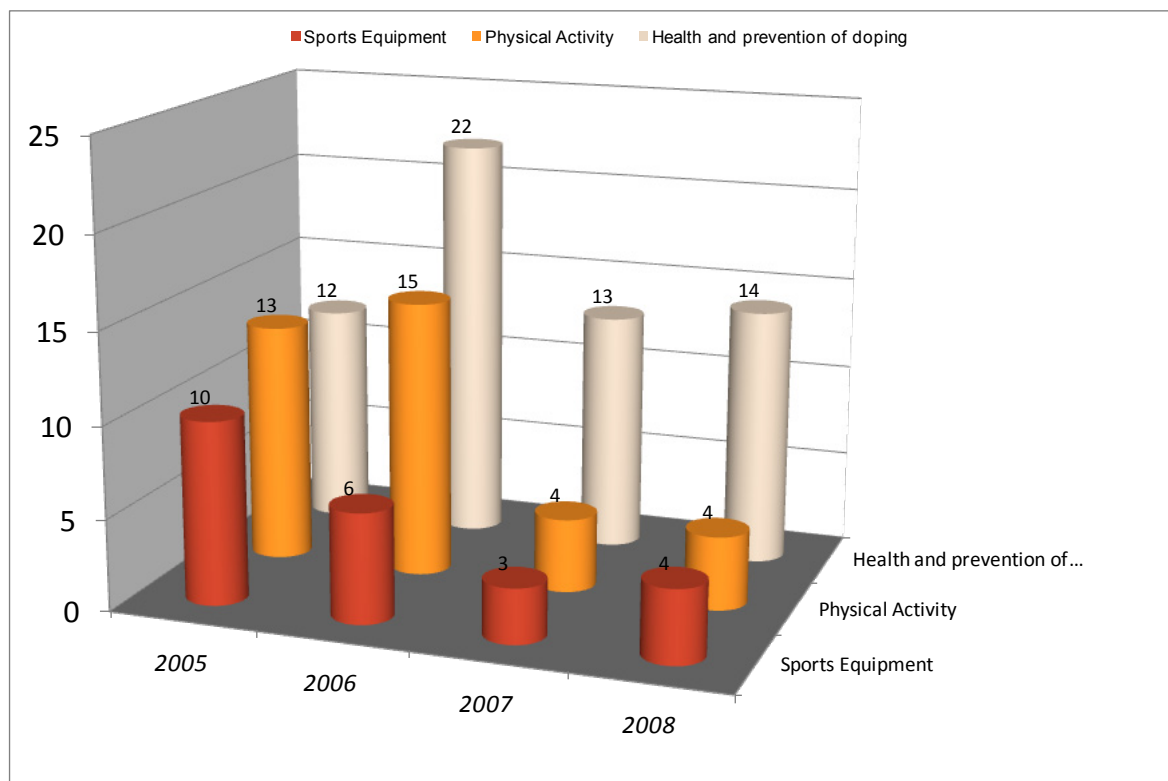


2. Physical activity and sports practice.
  - a. Sociology of sports.
  - b. Sports planning and management.
  - c. Physical activity and sports as an educational means.
  - d. Environmental impact of sports activities.
  - e. Sports training and competition.
  - f. Scouting and sports curriculum.
  
3. Doping control and health prevention in Sports and Physical Activity.
  - a. Analytical doping control. Development of new methodologies and improvement of current effectiveness.
  - b. Justification and therapeutic exemptions.
  - c. Doping prevention.
  - d. Development of alternative methods to doping. Nutritional supplements.
  - e. Protection of athlete's health.
  - f. Health in physical activity.

The way to participate under this call was by means of joint projects, i.e. projects involving several centres and with a common subject, though each partner provided specific and/or complementary contributions. To sum up, each axis was devoted to the development of:

1. R&D projects with participation by an *Ente Promotor Observador (Observer Promoting Organism) (EPO)*.  
Aim: To transfer and encourage knowledge and technology in the involved industrial sectors.
  
2. Coordination of several centres in order to set up Thematic-Scientific-Technical networks.  
Aim: To facilitate exchanges and the transfer of knowledge between groups of agents in the science-technology-company system, promoting cooperation between them and focused on *Strategic Actions* goals.
  
3. Knowledge production.  
Aim: To carry out projects that can pool efforts in key lines in knowledge production.

The yearly funding received during the action can be seen in Figure 6. Since that year, Sports Science had been included into the National Plan again but not in a stable way.



**Figure 6.** Distribution of funds by thematic axis in calls 2005, 2006, 2007 and 2008 of the V y VI Plan Nacional I+D+i.

#### **VI Plan Nacional I+D+i (2008-2011) – Year 2008**

The **Estrategia Nacional para la Ciencia y la Tecnología, (National Strategy for Science and Technology) (ENCYT)** was designed in 2007. It consisted of basic principles and a number of mid-term goals to be fulfilled (2007-2015) and operated as a mechanism for the articulation and integration of the main principles that were to rule the R&D&i policies and programmes. The ENCYT was prepared with participation from the State General Administration, the Autonomous Regions, scientists, the social agents, etc. These are the basic principles:

- Making R&D&i available to citizens, social welfare and sustainable development, and in full equality with women.
- Making R&D&i a factor for the improvement of entrepreneurial activity.
- Recognising and promoting R&D as an essential element for the generation of new knowledge.

With the recently created ENCYT, the National Plan further fostered the transfer of knowledge on to the productive sector and company innovation. The goals of the *VI Plan Nacional 2008-2011* were identified by taking into account the basic principles and objectives covered by the ENCYT, which defined the design of its instruments and national programmes. For each strategic goal in the ENCYT, a number of specific objectives were described in the *VI Plan Nacional, 2008-2011*:



- Positioning Spain on the cutting edge of knowledge.
- Promoting a highly competitive entrepreneurial fabric.
- Developing a comprehensive policy of science, technology and innovation; involving the regions in the science and technology system.
- Making progress in the international scene as the basis for a qualitative shift in the system.
- Ensuring a favourable environment for investment in R&D&i.
- Spreading a scientific and technological culture in society.

The *VI Plan Nacional I+D+i* included actions targeted at institutions and organisations (in addition to researchers and research groups) which -with greater responsibility, evaluation and accountability- sought to contribute to raising competition for resources on the basis of excellence and merit. With this approach, the *VI Plan Nacional* was structured into four differentiated lines:

- Area 1. Generation of scientific and technological knowledge and abilities.
- Area 2. Promotion of cooperation in R&D.
- Area 3. Sector-based Technological Development and Innovation.
- Area 4. Strategic actions.

In Area 4, the *Strategic Action on Health* included a line of Complementary Actions for Reinforcement. This line in turn included an **Action Sub-programme on Health, Sports and Physical Activity** (Ferro, 2009). Via a Resolution dated 12<sup>th</sup> March 2008, the Health Institute Carlos III called the sub-programme within the *VI Plan Nacional, 2008-2011* (2008). This sub-programme faded away within the Strategic Action, sports research in the National Plan going almost unnoticed again. Another evidence of the waning role in the Plan was the lower overall funding, which was not enough to finance research initiatives by Spanish groups. Besides, permanence in the programme was temporary.

The priority goals and thematic axes supported by this sub-programme were the same as those in the preceding *Strategic Action on Sports and Physical Activity*. Only small changes were introduced in the participation modalities, as it was possible to submit individual projects. And the managing body in this case was the *Sub-directorate General for Evaluation and Promotion of Research*.

#### ***VI Plan Nacional I+D+i (2008-2011). From 2009 to date.***

Within the *VI Plan Nacional I+D+i*, initiatives and interest were launched by the *Department Director for Social Sciences and Humanities of the Ministry of Science and Innovation*. The success of the Strategic Actions concerning the number of projects submitted, the quality of the scientific work and the relevance of the research groups caused that proposals were put forward from the *Management Area of Sports Sciences* in order to boost research in our discipline and an application was filed for Sports Sciences to be included into the National Plan, like the rest of sciences. At the end of 2008, the request was approved by the *Directorate General for Research*, who decided to allocate financial resources to the area within the framework of the calls (Ferro, 2009).

Following the Resolution of 26 December 2008 jointly issued by the *State Secretariat for Higher Education and the State Secretariat for Research*, BOE (*Official Journal*), 31-12-2008 (2008) the call for the **National Programme for Fundamental Research Projects** was published, including three Sub-programmes:

- **Sub-programme for Non-oriented Fundamental Research Projects.**
  - “Experimental or theoretical projects aimed at obtaining new fundamental scientific or technical knowledge and contributing to making progress in their area”.
  - **Aim:** Promotion of quality research, consolidation of stable, larger, more dedicated research groups, promotion of multidisciplinary research, and support to joint projects, and continuation of the funding line targeted at young researcher groups.
- **Sub-programme for Fundamental Research Projects focused on transferring knowledge to companies (TRACE).**

This subprogramme regulated projects with a focus on collaboration between university research groups, research and technological centres, other organisations and companies, with a view to transferring knowledge from such groups on to the productive sector.

- **Sub-programme for Complementary Actions to Non-oriented Fundamental Research Projects.**
  - “Dissemination actions targeted at society in general and, in particular, the academic and business sectors, for the dissemination of scientific and technological research results as well as public policy instruments for the promotion of such activities...”

#### Modalities:

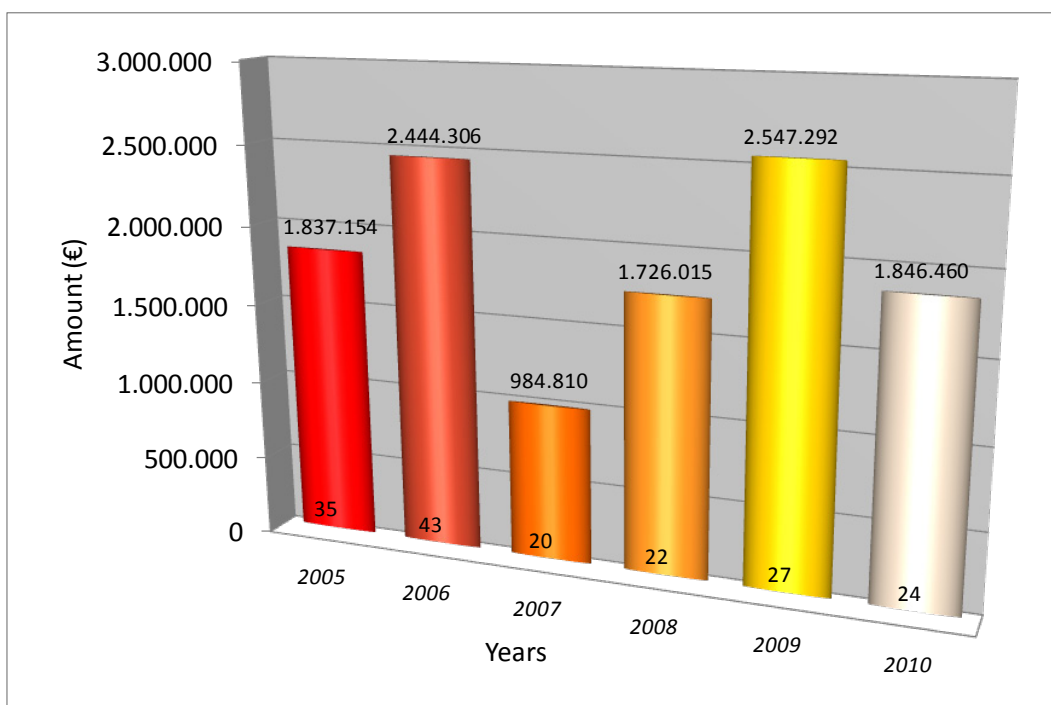
- Modality A: Organisation of scientific-technical conferences, seminars, and sessions.
- Modality B: Coordinated scientific-technical actions.
- Modality C: Activities in oceanographic research ships.
- Modality D: Participation of Spanish research teams in the EU R&D&I Framework Programme.
- Modality E: Scientific-technological policy actions.
- Modality F: Projects under Sub-programme EXPLORA-Ingenio 2010.

The novelty of this call was the implementation, in the computer application, of different *Thematic Management Areas* in line with existing *Scientific-Technical Management Areas in the Ministry*, parallel to those of the ANEP. Apparently, the computer application allows researchers to choose the areas, thus orienting their projects towards those more affine with their contents, this ensuring an adequate evaluation, since the ANEP does not have areas for all disciplines. Concerning our discipline, a **Thematic Management Area for Sports Science** was created for all the sub-programmes in the Call, with six potential thematic axes to guide sports scientists and scientists from the other sciences through the research initiatives in our field:

- Axis I. Sports facilities, materials and equipment.
- Axis II. Physical Education.
- Axis III. Promotion, Management, Recreation and Practice of Physical Activity and Sports.
- Axis IV. Sports training and Competition Sports.
- Axis V. Physical activity, Sports and Health.

- Axis VI. Doping prevention and control in sports.

An evidence of the current weight of Sports Science in the National Plan is the fact that funding for the 2009 Call came to 2,547,292 €, a much higher figure than that of previous years. Likewise, 27 research projects out of 72 were financed. In the 2010 Call, funding totalled 1,890,000€, in spite of the economic crisis, 24 projects out of 68 being funded (Figure 7).



**Figure 7.** Funding and number of selected projects in Sports Science in the calls of the V and VI Planes Nacionales I+D+i.

Two more calls have been held since 2009, the *Resolution of 26 December 2009 by the State Secretariat for Research; BOE (Official Journal) 31-12-2009 (2009)* and *Resolution of 26 December 2010 by the State Secretariat for Research; BOE (Official Journal) 31-12-2010 (2010)* which close the cycle of the VI Plan Nacional I+D+i. In these, Sports Science has been integrated at the same level as the remaining sciences. It has its own Management Area (*Thematic Management Area for Sports Science*), which ensures a budget, equal opportunities and objectivity in the evaluation of projects against the basic principles for all calls.

As from the 2009 Call, the thematic axes are not reflected, as this is no longer considered necessary. In the other hand the TRACE sub-programme has been renamed INNPACTO, with an independent call. The last one is Order CIN/699/2011, of 23 March 2011, for subprogramme INNPACTO (2011), within the instrumental line for the *Articulation and Internationalisation of the System*, under the VI Plan Nacional I+D+i 2008-2011.

## CONCLUSIONS

The participation of researchers in consecutive calls is essential in ensuring the ongoing presence of Sports Science in *National Programmes for Fundamental Research Projects* of the National Plans and in finding the necessary material and human resources for developing our scientific research, the technological development and innovation advocated by the *VI Plan Nacional I+D+i*. Past experiences remind us that our permanence might not be final, which renders participation with quality projects absolutely relevant. In recent years, researcher groups have been consolidated and they are now prepared to take on research challenges at a higher level, with well equipped laboratories where they can develop research lines that are profitable in all dimensions. Likewise, experience has been built in so as to better coordinate research groups, and scientific knowledge has been consolidated and used as a foundation in tackling new study lines and broadening existing ones. All this has happened in a scenario in which Sports and Physical Activity represent a clear alternative for improving people's quality of life. *Sport Scientists* have the same opportunities as the rest of scientists. Now we have the possibility to overcome shortages and errors from the past, and foster a work style with renewed attitudes towards a new way, for us to catch up with other sciences. We must make the most of it.

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