

# **Ireland**

## **Position Paper on Sixth Framework Programme**

**Office of Science & Technology  
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## FOREWORD

In the course of preparing this position paper the Office Of Science & Technology and the Irish Council for Science Technology and Innovation (ICSTI) engaged in a process of widespread consultation, including regional workshops, involving the major stakeholders in the Research, Technological Development and Innovation (RTDI) system in Ireland.

The paper has also taken into consideration the following :

- the Technology Foresight Ireland reports produced in 1999,
- the Commission Communication “*Towards a European Research Area*” published at the beginning of 2000,
- the Commission Communication “ *Making a reality of the European Research Area : Guidelines for EU research activities (2002-2006)*”,
- the Conclusions and Resolutions adopted at various European Councils and Research Councils during the past year.
- the experience gained from previous Framework Programmes, in particular FP5.

The Office of Science and Technology wishes to acknowledge the substantial input of Forfás, the national policy and advisory board for enterprise, trade, science, technology and innovation and ICSTI in the development of this paper.

## 1. BACKGROUND

*....build on success to date...*

Ireland is approaching the Sixth Framework Programme (FP6) from the point of view of seeking to build on the successes achieved by its predecessors. The Fifth Framework Programme represented a major change in orientation and structure from the earlier Programmes and we are in favour of continuing with this model subject to certain modifications and improvements. The modifications proposed attempt to build on the experience gained during the course of previous programmes and to reflect the changes which have taken place in the overall research environment since FP5 was drafted.

*...fundamental changes to the research landscape in Ireland....*

The scientific research landscape in Ireland today is fundamentally different from what it was even 5 years ago and it continues to change rapidly. Investment in scientific research is increasing in many areas of social and economic activity. Today, investment in research activities by the business sector is about 1.1% of GDP or about the average for all EU countries.

Until recently fundamental research carried on in the Third Level sector was poorly funded and structured, but this is now changing and significant levels of national infrastructural funding have been provided under the Programme for Research in Third Level Institutions (PRTLTI) which funds research across a range of disciplines.

*....significant national support for RTDI...*

In the National Development Plan, 2000-2006 the Government has clearly recognised the link between investment in the research and innovation base of the economy and sustained economic growth and has allocated a total of €2.47 billion for research, technological development and innovation initiatives in industry and the third level sector over the period of the Plan.

*...significant national funding available for ICT and Biotechnology...*

€711 million has been allocated to a Technology Foresight Fund and a new body, Science Foundation Ireland, operating under the aegis of Forfás was established during the year to administer this Fund. The analyses undertaken in the Technology Foresight process identified quite clearly the research capability required to underpin the future development of eight significant sectors of the economy. In particular, the Foresight initiative highlighted that global competition and economic development will be largely driven by the unprecedented growth in knowledge in the pervasive areas of Information and Communication Technologies (ICTs) and Biotechnology. As a matter of national strategy it was decided to concentrate Foresight funding initially on these two areas.

The decision to invest heavily in fundamental research to support the development of world-class research capabilities in niche areas of information and communication technologies and of biotechnology in order to ensure the future development of knowledge-based enterprises represents a significant evolution of industrial policy in Ireland.

## **2. ENTERPRISE COMPETITIVENESS**

*...continuously underpin the competitiveness of the enterprise sector....*

In our approach to FP6 we consider that there is an important need to continuously underpin the competitiveness of the enterprise sector, in particular, advanced manufacturing, services and the knowledge-based enterprises in the 'new economy'.

In Ireland Framework Programmes potentially contribute to increasing the number high R&D performer companies and to the acceleration of the internationalisation of Irish business in a European context through collaborative R&D and Innovation activities.

*...the importance of networks and alliances....*

The quality of networks and alliances which facilitate the acquisition, understanding and application of knowledge to social and economic objectives is a factor in economic competitiveness. In FP6 it will be important to ensure that enterprise is adequately aware of and linked to leading-edge developments in Europe and elsewhere.

### **3. SMEs**

*...ensure that more SMEs are involved in EU research...*

In Ireland's position paper on the European Research Area Communication we emphasised the importance of the development and enhancement of Small and Medium Sized Enterprises in promoting and maintaining economic growth and competitiveness. We also referred to the need to ensure that more SMEs become involved in research.

*...nurture the innovative potential of SMEs...*

It is essential that everything possible be done to nurture the innovative potential of SMEs. It follows that we are strongly of the view that research programmes, whether at national or European level, should be structured in a way that proactively encourages and facilitates SMEs to become genuinely involved in research activities.

*...reduce the bureaucracy of EU programmes...*

In our national consultation process for the Sixth Framework Programme one of the recurring issues has been the need to ensure that whatever programmes are put in place, they should not be unduly complicated or overly bureaucratic.

*...equality of opportunity and access....*

It is important also that whatever programmes are put in place to increase industrial competitiveness and whatever the means adopted to implement those programmes, including large projects if that is what is agreed on, they must allow for access and meaningful participation by all interested companies and other higher education institutions.

Specifically in relation to the proposed research support for the Aeronautics sector, Ireland considers that an approach that is transparent and inclusive and allows for the involvement of **all** the potential participants is essential.

## 4. PRIORITY AREAS

### 4.1 *Competitiveness of Materials, Advanced Manufacturing & Services*

*...value added component along the value chain is changing...*

The structure of manufacturing industry is changing. The value-added component in products is being pushed back along the value chain i.e. to design and materials/components production and also forward on the value chain to new distribution techniques, customization and services.

*...new materials....*

Furthermore, new and improved materials require new methods of process design and manufacture which will have to be produced in a way that minimises negative impact on the environment from the production process through to distribution and end of life product systems.

*...EU waste directives....*

The EU waste directives are placing responsibility on producers for disposal of end of life products and will have major implications for materials and manufacturing processes. These developments will need to be supported by appropriate R&D.

*...a green technologies programme is necessary...*

A new *Green Technologies Programme*, to support industry and academia in the development and deployment of creative new environment sustaining and enhancing technologies, should be introduced. The benefits would primarily be twofold: improve the environment and create European excellence and competitive advantage in “green technologies” which can be exported onto the world market.

## **4.2 The Knowledge Economy and the Citizen**

*...pervasive applications of ICTs...*

Economic activity, cultural activity, education, healthcare – virtually all aspects of daily life are being changed by information and communication technologies (ICTs) within Europe.

ICT developments have the potential to bring citizens closer to leading-edge technologies and research efforts.

*...avoiding the digital divide...*

A key benefit from the development and use of ICT applications in continuing and distance education, teleworking and networking is the development of human capital enabling the adoption of new ways of working. This will help to ease development pressures on the environment, labour supply and deficient infrastructure. ICTs in these areas will also improve the level of skill available to industry, promote greater relevance, cross-fertilisation and take-up of research ideas and activities and help to enhance EU social integration.

## **4.3 Welfare of the Citizen**

*...new, safe medicines faster...*

Throughout Europe the production of new, safe medicines faster will involve the development of new technologies capable of more effective selection of potential drug candidates for innovative medicines while accommodating safety demands; the use of such technologies to speed up the pharmaceutical development process and the elimination of bottlenecks created by initial exploratory drug research.

*...changing living patterns and eating habits...*

Changing living and working patterns and changing demography have radically altered the eating habits of the European citizen. Concerns about the residues of substances in food and their effects on health are currently preoccupying the citizen, national Governments and the EU institutions.

*...more transparency and more controls...*

The agri-food industry is operating in an environment characterised by substantially greater requirements in relation to food safety and quality, protection of the environment and animal welfare allied to changing lifestyles. This will result in

more stringent controls over the entire food chain. Ireland considers that food safety research should be addressed in FP6.

*...use of GM crops surrounded by intense scientific and emotional debate...*

Despite its potential, the use of GM crops in human food and in feed for animals for human consumption is surrounded by intense scientific and emotional debate. Establishing safety will require exhaustive and wide-ranging programmes of research and testing. This research should be carried out in a co-ordinated way by Member States and involving the new EU Food Safety Centre.

*...outcome of research should be to determine the effects of a range of GMOs..*

The outcome of research carried out under FP 6 on the safety aspects of GMOs should be to:

- Systematically determine the effects of a range of GMOs on human and animal health, and on the environment
- Create an informed basis for decision and regulation on GMOs on the food chain.

#### ***4.4 Exploitation of biotechnology research, in the areas of genomics, bio-materials and nano materials***

*...biotechnology will affect the quality of life and the quality of the environment...*

Developments in biotechnology will have an impact on many sectors of the European economy. These include healthcare, medical science, pharmachem, food agriculture, industrial processes, information technology, waste treatment and many others. The benefits arising from developments in biotechnology will affect the quality of life of EU citizens and the quality of the environment in which they live.

*...encourage multi-disciplinary team formation...*

A challenge and an opportunity will be to structure a research programme which fosters international collaboration, and industry-academia collaboration, as before, but in addition encourages multi-disciplinary team formation. This will be necessary in order to develop the contributions disparate disciplines must make to biotechnology.

#### **4.5 Sustainable Development of Marine Resources**

*...new sustainable opportunities in the marine sector....*

The sustainable development of the European marine resource, the protection of the marine environment and the environmental services provided by the seas (such as climate control) are critical to the well being of the European economy, to the quality of life of its citizens and provide many business opportunities based on the application of new technologies and knowledge-based industries.

*...a multi-disciplinary approach is necessary...*

The Marine Science and Technology necessary to underpin the sustainable development of the marine resources overlaps with, relies on and integrates many technologies (e.g. biotechnology, ICT, nanotechnology, etc) and disciplines (e.g. food science, fisheries science, materials science, environmental science, energy, etc.).

*....contributing to the European Research Area....*

It is this essential multidisciplinary approach, coupled with the unique characteristics of the marine environment, that necessitate a separate and identifiable Sustainable Marine Resources Development action line in FP6. It is also for these reasons that, in the context of the European Research Area, marine science stands out as one of the areas where we can truly develop a European research ethos and partnership utilising the mechanisms proposed under FP6 (i.e. networking excellence, mobility of researchers, etc.)

*....a single, unified Marine RTD activity in FP6...*

It is also proposed that the elements of marine science and technology (e.g. fisheries and aquaculture, sustainable marine ecosystems,

marine technology) separated into different Thematic Areas in FP5 be re-integrated into a single and unified Marine RTD action in FP6.

#### **4.6 *Environment, Energy and Transport***

*...Kyoto commitments...*

Environmental concerns have progressively gained a prevailing role as a determinant of energy policy. Under the terms of the Kyoto Protocol, the EU is committed to significantly reducing its greenhouse gas emissions by 2010 with respect to 1990 levels. Cost efficient ways of fulfilling this target will involve the deployment of advanced energy technologies.

*...the research agenda for global climate change...*

Global climate change is the first environmental problem that mankind has to face in a really world wide context. The Inter-Governmental Panel on Climate Change (IPCC) have in their 3<sup>rd</sup> Assessment Report indicated the speed of future global warming and the associated direct and indirect effects. The outcome of the recent meeting on Climate Change in the Hague has given an added sense of urgency to the quest for a solution. FP6 should support the comprehensive research agenda identified by the IPCC.

*...key technologies to manage energy demand...*

Key technologies which will enable Europe to strategically manage energy demand in the future include:

- New and renewable energy technologies, including ocean wave energy, hybrid energy systems, energy storage systems and alternative environmentally friendly transport systems.
- Intelligent consumer energy products - the *intelligent* home of tomorrow.
- Energy efficiency initiatives in the construction sector.

*...mobility is linked to the economic, environmental and social aspects of life...*

Mobility in urban areas is closely linked to the economic, environmental and social aspects of life in cities and it is part of what enables them to be vital centres of activity. Moving towards sustainable urban mobility means mitigating the negative externalities of transport, such as air and noise pollution. It also calls for resource conservation, reducing energy consumption and easing congestion. The current focus in FP5 is on socio-economic scenarios for the mobility of people and goods; infrastructures and their interfaces with transport means and systems; modal and inter-modal transport management systems. There is a need to continue with this focus in FP6.

## **5. MODALITIES AND STRUCTURE OF FP6**

*...basic concept of FP5 should continue...*

The basic structure of FP5 with its solution-oriented Key Actions, major thematic areas and horizontal areas is working and should continue unchanged in FP6 but should gain in transparency. Issues relating to bureaucracy and dissemination of information need to be addressed.

*...also a need for "free space"...*

Additionally, "free space" will be necessary in FP6 to allow for high quality research which is not linked directly to particular policy or outcome goals.

*...entrepreneurial culture needs to be developed...*

A more entrepreneurial, risk-taking culture needs to be developed throughout the entire FP6 system – from researchers to management. There must be positive encouragement of multi-disciplinary research.

*....terminate futile projects....*

It is also important to manage contracts prudently and to monitor progress closely. Of its nature, the success rate in research is less than complete, and decisions must be taken to terminate futile projects in the interests of budgetary effectiveness.

## 6. SME PARTICIPATION

*...ensure that SMEs are not deterred from submitting research proposals...*

In general, small companies have great difficulty with the administration and cash flow demands of European projects. Current procedures should be modified to ensure that potential applicants, particularly SMEs are not unduly deterred from submitting research proposals. It may be possible to improve the efficiency of the Commission's management, perhaps by out sourcing certain project management activities and refining some of the application forms further.

*...FP6 must support highly speculative research...*

Given the speed of technological change and the exploding knowledge base, FP6 must incorporate the possibility of supporting highly speculative research in new and emerging areas and innovative ways of addressing existing research topics. This is particularly true in the case of ICTs where the long lead times involved in EU programmes militates against really innovative applications with a high degree of risk.

## 7. INNOVATION AND TECHNOLOGY TRANSFER

*...establishing long term collaboration partnerships within the ERA...*

Participation in the Framework Programme brings significant benefits to European firms, far and beyond the immediate financial gain. These include being required to work to the best international standards with peer companies, and possibilities for continuing technical and commercial collaboration, thus contributing in the long term to the European Research Area.

*...the CRAFT-type model must be continued...*

A more pro-active approach must be made to increase the opportunities for small companies to involve themselves in co-operative research projects. The establishment of the CRAFT system for SMEs was beneficial. Continuous and increased commitment to a CRAFT-type model is essential.

*...linkages with the national technology transfer mechanisms...*

FP6 needs to recognise that SMEs are not just small versions of big companies. They are a different type of organisation, with different dynamics. We need to consider different modalities for SME participation in RTD projects. The exploitation and dissemination of RTD results from Framework Programmes is an area where more linkages into national support and technology transfer mechanisms should be considered.

## **8. ROLE OF THE EU JOINT RESEARCH CENTRES**

*...JRC should continue to provide technical support for EU policies...*

The role of the JRC should be examined in the light of the objectives of developing the European Research Area and the principle of subsidiarity. The JRC has provided, and should continue to provide technical support for EU policies.

*...carefully examine the type of R&D being carried out...*

The function of the JRC in carrying out conventional scientific and technical R&D should be examined carefully to avoid any potential duplication of national public or private sector actions. This is particularly important if funding for such activities is to be decided on a non-competitive basis.

## **9. NETWORKS OF EXCELLENCE**

*...networks of excellence should contribute to increased co-operation....*

The concept of networks of excellence needs to be examined in depth to ensure that potential benefits are achieved. These include the opportunity for increased training and mobility of researchers, the development of a critical mass of research activity within a particular field and increased co-operation between individual Member States and between MS and Third Countries.

## **10. RESEARCH INFRASTRUCTURES**

*...adopt a broad definition for infrastructures...*

Research infrastructure has a central role in facilitating and supporting world-class research. When we come to consider appropriate mechanisms for supporting research infrastructure

in FP6 it is essential that we adopt as broad a definition as possible. This should not be restricted to large-scale facilities but should also encompass small and unique infrastructures which may be of great scientific and technological value.

*...further consideration necessary regarding the scope of funding...*

In the case of large scale facilities we would support continued funding for access to such facilities. Whether European funding should be provided for costs incurred in building new facilities or for the operation and further development of existing facilities is a question that requires careful consideration. The forthcoming Commission paper on Research Infrastructures should help to provide a focus for the debate on this topic.

*...support for the eEurope Action Plan....*

Ireland is in favour of further investment at National and European level in the development of electronic infrastructure and capacity and is fully supportive of the actions provided for in the Lisbon Summit Conclusions and the eEurope Action Plan.

## **11. HUMAN CAPITAL**

*...increase support for researcher training and mobility activities in FP6...*

Ireland considers that researcher training and mobility is a core element in the development of the European Research Area. Therefore, the current work of the EU Commission High Level Group on Mobility is crucial in the quest to minimise and eliminate the various barriers and disincentives to researcher mobility that currently exist in Europe. An additional challenge for FP6 is to stimulate and facilitate greater mobility of researchers not only between different countries but also between the academic and business world.

*...declining numbers of third level students entering S&T course...*

In most Western countries, second level students are showing less and less interest in studying science or engineering subjects and this is subsequently reflected in the numbers studying these subjects at third level. The current less than

attractive image of S&T in the Union must be improved. Within Europe it will be necessary for the population as a whole to be comfortable with science, be entrepreneurial and adaptable and have a basic technical competence.

*...a common challenge throughout the EU...*

In building for the future, Europe requires more science, technology and engineering graduates. The free mobility of citizens makes this a common challenge throughout the EU Community. The challenge is to develop an S&T literacy amongst the population as a whole, to stimulate more young people to study engineering, science and technology, to facilitate the uptake of research *as a career* by more young people and through improved life long learning and other approaches to address current skills shortages.

*...young researchers need to be encouraged....*

To encourage young researchers FP6 must incorporate the possibility of supporting highly speculative research in new and emerging areas and innovative ways of addressing existing research topics. In this context, young researchers need to be particularly encouraged in the main RTD programmes.

*...loss for women, society and science...*

There are fewer women than men working in research in academia and industry, despite the fact that as many women as men on average graduate from universities, and even more in the biological sciences. This situation is a loss for women, for society and for science, not least because of the consequential reduction in the pool of skilled and motivated researchers.

*....actions to increase the number of women in S&T...*

Arising from the Commission Communication on Women and Science of February 1999 and the Research Council Resolution of June 1999 Member States are involved with the Commission in examining existing information and data on the gender balance of personnel involved in research. This should lead to improved mechanisms for the collection and exchange of data and to other

initiatives designed to ensure the increased participation of women in research activities.

*...continue with participation targets for women...*

Measures were included in FP5 to address gender imbalance and this should also be the case in FP6 building on the experience gained during FP5.

## **12. SCIENCE AND SOCIETY**

*....welcome the public debate...*

We welcome the Commission working document on Science, Society and the Citizen in Europe as providing a useful frame of reference to stimulate a debate on this issue.

*...all RTD projects should produce a statement of their project aimed at the general public...*

We feel that there is a need for a mix of actions at national and community level to raise awareness and to familiarise the citizen with science issues. This involves encouraging the scientific community to embrace the need to communicate through the general media. For this reason we are proposing that as part of the public awareness raising effort, all EU funded RTD project teams should be required to produce a statement of their project aimed at the general public.

*...public trust has become a key issue...*

Public trust in certain technologies may be influenced more by confidence in the decision-making process than in the technologies themselves. Specific measures need to be designed to address this issue at Community level.

*...a European Biotechnology Information Centre...*

Currently, the debate around the risks and benefits of biotechnology are quite polarized and it is widely accepted that the debate should be more open, transparent and inclusive. A European Biotechnology Information Centre – providing balanced, scientifically credible but readable documentation on the development and application of biotechnology – would contribute to the development of a society comfortable with this technology in particular and science in general.

