Nanosciences and nanotechnologies: an action plan for Europe 2005-2009

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The Nanotechnology Action Plan 2005-2009 has provided an impetus for a variety of developments, in research and innovation as well as in policy making. After the first two years of the Action Plan, progress in almost every area was identified in the First Implementation Report (COM(2007)0505).

This Communication outlines the key developments during 2007-2009 in each policy area of the Action Plan, identifies current challenges, and draws conclusions relevant to the future European nanotechnology policy.

As a general remark, the past two years have seen a substantial development of nanotechnology, supported by a further growth in research funding and the active development of policy. Novel applications and products of nanotechnology are constantly being realised.

Bringing together public and private organisations across Europe to carry out collaborative research and development is of particular importance in the interdisciplinary approach needed in nanotechnology.

According to the Communication, **support for nanotechnology research under the Community's Framework Programmes has continued to grow**, from EUR 1.4 billion in the four-year period 2003-2006, to more than EUR 1.1 billion in the two-year period 2007-2008. **Further growth is expected in the years up to the end of the 7th Research Framework Programme (FP7) in 2013**. This investment is complemented by significant public funding in Member States, to the tune of more than EUR 2.5 billion in 2007-2008. Private funding, however, still lagged behind public funding in Europe. At the same time, funding was increasing rapidly in other parts of the world, and dynamic new players were coming on the scene.

The Community funding covered a **very wide spectrum**, from fundamental nanoscience to industrial applications, with an increasing emphasis on applications. Much of this funding came from the **cross-thematic approaches** developed in FP7, as nanotechnologies have an interdisciplinary and enabling character and can contribute to different industrial sectors and policy objectives in health, food, environment, energy and transport.

The industrial participation in projects is gradually increasing, having reached 40 %. The Commission is also directly engaged in nanotechnology research through its Joint Research Centre (JRC), whose activities are directly linked to a number of related policy areas.

In conclusion, the Communication considers that **significant progress has been made on all points of the Action Plan**. Building on this, it is proposed to continue and consolidate the present actions in the coming years, with emphasis on:

- deepening the research efforts and roadmaps for **key nanotechnology sectors**, to enhance innovation and competitiveness; whilst advancing fundamental understanding of how nanomaterials throughout their life cycle interact with living organisms, to ensure a high safety level and protection of human health and the environment;
- developing **infrastructures and the educational system** further, consistent with the multidisciplinary character of nanotechnology;

- strengthening the **mechanisms available for industrial innovation**, stressing the concept of open innovation and facilitating technology transfer;
- implementing a **more direct, focused and continuous societal dialogue**; and monitoring public opinion and issues related to consumer, environmental and worker protection;
- continuing to review the **adequacy of regulation**, adapting as appropriate the implementation instruments, proposing regulatory change where necessary, and engaging where possible with international developments;
- **surveying the market for products of nanotechnology**, including their safety aspects, and likely developments;
- intensifying the **research effort on safety assessment**, including risk management, throughout the product life cycle; support the further development and validation of nanomaterial characterisation and test methods;
- enhancing **coordination and exchange of information** with Member States.

Building on achievements so far and with these needs in mind, the Commission is considering proposing a **new Nanotechnology Action Plan** that would be one of the driving forces of the European Research Area and address important societal and environmental issues.