Opinion of the European Economic and Social Committee on the 'Proposal for a Decision of the European Parliament and of the Council concerning the seventh framework programme of the European Community for research, technological development and demonstration activities (2007 to 2013) and the Proposal for a Council Decision concerning the seventh framework programme of the European Atomic Energy Community (Euratom) for nuclear research and training activities (2007 to 2011)'

(COM(2005) 119 final/2 — 2005/0043 (COD) — 2005/0044 (CNS))

(2006/C 65/02)

On 25 April 2005 the Council decided, under Article 95 of the Treaty establishing the European Community, to consult the European Economic and Social Committee on the abovementioned proposal.

The Section for the Single Market, Production and Consumption, which was responsible for preparing the Committee's work on the subject, adopted its opinion on 11 November 2005. The rapporteur was **Mr Wolf**, the co-rapporteur **Mr Pezzini**.

At its 422nd plenary session, held on 14 and 15 December 2005 (meeting of 14 December), the European Economic and Social Committee adopted the following opinion by 123 votes, with four abstentions:

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1. Summary and recommendations

1.1 The Lisbon objectives [1] are about Europe's position in global competition, which centres around the race to invest more in research and development; this involves both the traditional industrial nations (e.g. USA, EU and Japan) and the burgeoning new economic powers (e.g. China, India, Brazil, Korea) with their substantially cheaper labour.

1.2 Effective, high-quality research and development that enjoys an adequate level of support is in fact the basic foundation and *sine qua non* for innovation, competitiveness and prosperity, and thus also for cultural development and the provision of social services; investments in research and development have a high gain factor and boost economic strength accordingly. This is also in line with the 3 % objective laid down in Barcelona [2] in 2002, though the global race makes this a 'moving target'.

1.3 Community-funded research and development activities create considerable European added value. They open up potentials that plainly go beyond the capacities of individual Member States and have already facilitated European developments of global importance. They have a decisive and stimulating leverage and integration effect on the necessary and more extensive national research programmes of the Member States, which also leads to a pooling of resources. They bring together Europe's research elites, European industry and European decision-makers. They are a catalyst of European integration, cohesion and identity-building. They are the core element of the European Research Area.

1.4 The Commission's proposal to increase expenditure and to devote just under 8 % of the total Community budget to these objectives is a welcome and absolutely necessary first step in the right direction. It is a minimum amount that must be increased still further in the longer term so as not to gamble away – but rather to maintain and strengthen – Europe's position as the cradle of modern science and technology. Without such action, it will not be possible, even in the longer term, to meet the Lisbon objectives.

1.5 On scientific and technological performance hinge not just economic competitiveness and the 'pull' that that exerts on investors, scientists and engineers ('brain-drain'), but also cultural and political standing and influence. The EU must remain a key, sought-after partner in cooperation and must not lose its importance on the world stage as part of the global network.

1.6 The Committee therefore calls on the European Parliament, the European Council and, in particular, Member State heads of state or government to make the urgently needed R&D investments proposed by the Commission available in full and to ensure that these do not become a pawn in – or fall victim to – the negotiations on the EU's future overall budget. This decision will be a crucial touchstone for the capacity of European policy to set the right course for the future.

[1] This also applies to the objectives of the revamped Lisbon strategy (European Council of 23 March 2005).

[2] Total EU spending on research and development to rise to 3 % of GDP by 2010, with the private sector contributing two-thirds. See also OJ C 95 of 23.4.2003.

1.7 The Committee also calls on the heads of state or government and on European industry, including through their national research programmes and industrial research measures, to help ensure that the 3 % target is reached as soon as possible.

1.8 The Committee welcomes the fundamental direction of the two framework programmes proposed by the Commission (FP7 and Euratom FP7), not only for their thematic content and structure, but also, for the most part, for the balance they strike between the objectives and components of the individual programmes.

1.9 The Committee is pleased at the inclusion of the energy, security and space sub-programmes. One of the key priority issues is how to secure the adequate and sustainable supply of reasonably priced energy within the EU, which means finding the right balance between sustainability, environmental protection and competitiveness. The answer lies in sufficient research and development. Security too is a major issue, as the recent heinous terrorist attacks have made only too plain.

1.10 Many of the issues that need to be resolved cut across different remits and a number of different sub-programmes – including the humanities and economic sciences. In such cases, the Committee recommends that steps be taken to ensure overall coordination and the necessary link-ups. That might well have an impact on the current budgetary allocation for the individual sub-programmes. The same is true of the share of the budget earmarked for economic research, which may be too low.

1.11 The Committee welcomes the Commission's intention to simplify administrative procedures and reduce the effort these involve, thus boosting the efficiency of the European research programmes. As they stand, the application and approval procedures involve too much work and are too expensive, causing difficulties for scientific and industrial users. The European research programme must be a worthwhile venture for those taking part in it, including in terms of the risk involved in making the application. This also applies in particular to smaller players, such as SMEs or smaller research groups from universities and research centres.

1.12 A key consideration here is to ensure a sufficient degree of continuity in the application and support arrangements, and in the cooperative structures and organisational parameters (instruments). New instruments such as the joint technology initiatives should be introduced with great care, and, initially, for a trial period only.

1.13 Given the key role of small and medium-sized enterprises for the Lisbon process, the Committee welcomes the Commission's plan to involve SMEs even more closely in research, development and innovation. Accordingly, it recommends increasing the budget earmarked for this area even further where necessary, if the appropriations provided for in the competitiveness and innovation framework programme (2007-2013), which is not discussed here and which has a key support and intermediary role to play, should prove inadequate.

1.14 To win, SMEs set up specifically to develop and market innovative high-tech products above all need enough start capital and venture capital to be able to bridge the first five to ten years of operations successfully.

1.15 The Committee supports the role of the Joint Research Centre (JRC) and the key range of responsibilities it has in many fields, including the study of future scientific, technological, economic and social trends, and their importance for policy consultations.

1.16 Further, more in-depth comments and recommendations are set out in the more detailed sections 2, 4 and 5 of the opinion below.

2. **Introduction**

2.1 **Europe's economic, social and cultural future**. Europe's future development and position on the world stage will be determined above all by the competition that exists on the global market, with its changing industrial and economic structures, labour market situation and raw material parameters. In this context, growth, success and economic strength – and the resultant capacity to provide social services and secure cultural development – are critically contingent on available knowledge and thus on investment in research and technological development. Investments in research and development have a high gain factor and boost economic strength accordingly.

2.2 **Global competition.** On the one hand, Europe is competing with the now-traditional industrial nations such as the USA, Japan and Russia, with, in all R&D sectors, **US** investments ([3]) in particular considerably outstripping those of the EU, thus steadily widening that country's existing lead. On the other hand, Europe is also competing with rapidly expanding economies such as **China, India, Brazil** and Korea.

([3]) R&D spending by the US Department of Defence (DoD) – which covers not only military research – represents a particularly important share of these investments.

2.3 **The global research race.** These last-named countries not only have much **cheaper labour** than the EU, but they are now also showing a rapid **rise in scientific and technical standards** and are investing strongly in education, research and development. For the EU, therefore, it is becoming increasingly difficult to safeguard what are, in comparison, its much higher wages and social and environmental standards by widening its scientific and technological lead and delivering superior products and processes as a result. Europe must thus do its utmost to ensure it does not lose this **global race** for increasing R&D investments that is so crucial for its future.

2.4 **Overall standing and attraction – international cooperation.** On scientific and technological performance hinge not just economic competitiveness and the 'pull' that that exerts on investors, scientists and engineers (brain-drain), but also cultural and political prestige and influence. The EU must remain a key, sought-after partner in cooperation and must not lose its importance on the world stage as part of the global network.

2.5 **The Lisbon strategy.** The March 2000 Lisbon European Council therefore resolved to make the European Union the most competitive and dynamic knowledge-based economy in the world ([4]). Since then, implementation of the Lisbon strategy, and the creation of a strong European Research Area, which forms an integral part of the strategy, is acknowledged as the centrepiece of EU policy. The spring 2002 European Council in **Barcelona** added quantitative objectives for the support of research activities, with total research expenditure in the EU set to rise to 3 % of GDP by 2010, with two-thirds of funding coming from the private sector (the **3 % objective**). The Committee would point out, however, that, in the light of the global investment race, this objective is a '**moving target'**. Those who fail to reach it in time fall even further behind.

2.6 **Need for a strong Community framework programme.** Community-funded research and development activities not only complement the Member States' research programmes, but also have considerable European added value. They open up potentials that plainly go beyond the capacities of individual Member States and have already facilitated European developments of global importance ([5]). They have a decisive and stimulating leverage and integration effect on the necessary and more extensive national research programmes of the Member States. They reflect the international nature of science, research and production and the international labour market that that requires.

2.7 **A catalyst for European integration and cohesion.** Community-funded research and development also brings together Europe's research elites, European industry and European decision-makers. It is a key catalyst of European integration, cohesion and identity-building.

2.8 **The Commission's proposals.** The Commission document sets out proposals for Community actions relating to programme funding and content which are urgently needed to support research and development activity, thus underpinning the objectives of the Lisbon strategy. Although they have been expanded, they still make up only a relatively small part – now just under 8 % – of the proposed overall EU budget for 2007 to 2013.

2.9 The Commission's proposals are also linked to the proposal to establish **a competitiveness and innovation framework programme (2007-2013)**, which is not discussed here. In particular, this programme could also act an **intermediary** between the framework programme submitted here and the innovation needed by many **SMEs**.

2.10 **Setting priorities as a test of commitment.** Adoption of the proposed measures and sufficiently high priority treatment by the Parliament, Council and particularly – with regard to the financial perspectives – the Member States, is therefore a crucial test of the EU's commitment and the extent to which its policies are credible and able to deliver results. (See also points 4.2 to 4.6).

3. Gist of the Commission document

3.1 The seventh framework programme of the European Community for research, technological development and demonstration activities (2007 to 2013), referred to hereafter as the **FP7**, differs from its predecessor in the following respects:

— It encompasses the EU-25 from the very start.

— The programming period has been extended by two years.

— The programme envisages a substantial increase in the total budget and annual budgets.

— It provides a clear and readily understandable breakdown of the proposed programmes and sub-programmes.

— Research in the fields of energy, security and space are included as explicit new sub-programmes.

3.2 By contrast, the seventh framework programme of the European Atomic Energy Community (Euratom) for nuclear research and training activities (2007 to 2011), referred to hereafter as the **Euratom FP7**, is of the same duration as before, although obviously it too covers the EU-25.

3.3 The **FP7** Framework Programme will be organised in four specific programmes, corresponding to the four major objectives of European research policy:

— **Cooperation**

With about 61 % of the total budget, this programme accounts for the lion's share of **FP7**. It is intended to support research activities carried out in transnational cooperation, including cooperation between the EU and third countries.

([4]) This objective was explicitly confirmed and detailed in the decisions taken by the March 2005 European Council in Brussels to revitalise the Lisbon strategy.

([5]) Examples of successful European cooperation: Ariane, Airbus, CERN, ESO, Galileo; JET/ITER.

— **Ideas**

An autonomous European Research Council will be created to support 'frontier research' projects competing at the European level. This may include all scientific and technological fields, including the humanities.

— **People**

Support for training and career development of researchers, referred to as 'Marie Curie' actions, will be reinforced and expanded, with stronger links to national systems.

— **Capacities**

This programme is intended to support various aspects of European research and innovation capacities: developing new research infrastructures and building on existing infrastructures; research for the benefit of SMEs; regional research-driven clusters; unlocking the full research potential in the EU's 'convergence' regions; 'science in society' issues; 'horizontal' activities of international cooperation.

— **Joint Research Centre**

In addition, there will be a specific programme for the non-nuclear actions of the Joint Research Centre.

3.4 The proposed total of Community financial participation in **FP7** is **EUR 72,726 million**. That amount is to be distributed, in percentage terms, among the activities and actions referred to in paragraphs 2 to 6 of Article 2, as follows:

Cooperation	61,1%
Ideas	16,3%
People	9,8%
Capacities	10,3%
Non-nuclear actions of the Joint Research Centre	2,5%

3.5 The **cooperation programme** has a proposed overall budget of **EUR 44,432 million** and is organised into thematic sub-programmes on the basis of priorities. Steps are to be taken to ensure consistency among the sub-programmes, and joint, cross-thematic approaches. The programme covers the following nine research subjects, which are to be approached within the EU in transnational cooperation. The proposed percentage budget allocation is also shown.

— Health	18,7%
— Food, Agriculture and Biotechnology	5,5%
— Information and Communication Technologies	28,5%
— Nanosciences, Nanotechnologies, Materials and new Production Technologies	10,9%
— Energy	6,6%
— Environment (including Climate Change)	5,7%
— Transport (including Aeronautics)	13,3%
— Socio-economic Sciences and the Humanities	1,8%
— Security and Space	8,9%

3.6 **Euratom FP7** is organised in two specific programmes.

3.6.1 One covers two areas:

— **Fusion energy research**: to develop the technology for a safe, sustainable, environmentally responsible and economically viable energy source.

— **Nuclear fission and radiation protection**: to promote the safe use and exploitation of nuclear fission and other uses of radiation in industry and medicine.

3.6.2 The other programme covers the activities of the Joint Research Centre in the field of nuclear energy.

3.6.3 A total of **EUR 3,092 million** is to be earmarked for the implementation of **Euratom FP7** for the period from 2007 to 2011. That amount is distributed in percentage terms as follows:

(a) Fusion energy research	69,8%
(b) Nuclear Fission and Radiation Protection	12,8%
(c) Nuclear Activities of the Joint Research Centre	17,4%

3.7 The Commission document also contains a detailed analysis and explanation of the proposed **support instruments and underlying principles**. These were already outlined in a previous Communication from the Commission ([6]), which the Committee has evaluated in depth ([7]).

4. General comments

4.1 The Commission proposal is a very substantial document, which outlines an extensive research and development programme with its many details, aspects and links to other areas. In view of this, this opinion cannot analyse or comment on all the components and procedures of the programme.

([6]) *Science and technology, the key to Europe's future – Guidelines for future European Union policy to support research*, COM(2004) 353 final.
([7]) OJ C 157, 28.6.2005.

Detailed comments are therefore reserved for aspects to which the Committee attaches particular importance. The Committee would draw attention to its earlier recommendations ([8]) on relevant specific issues, and notes that these still apply to FP7. The Committee will make more detailed statements in its upcoming opinions on the Commission communications on the specific programmes ([9]) and access rules ([10]).

4.2 The Committee considers both proposed **budgets** as minimum amounts that must be increased still further in the longer term so as not to gamble away – but rather to maintain and strengthen – Europe's position as the cradle of modern science and technology. The Committee sees this as a welcome and absolutely **necessary first step** in bringing the Community at least closer towards to the **3 % objective** ([11]) set by European heads of state or government at the **Barcelona** summit.

4.3 **Without adequate financial backing, FP7 and Euratom FP7 will not be able to contribute to the Lisbon strategy;** there is even a risk that Europe will fall further behind in the global race. R&D are the starting point and engine of innovation for competitive products and technologies. They can trigger a snowball effect that will then impact on economic momentum and jobs.

4.4 Furthermore, the Commission proposal is a clear signal to Member States to follow this example and do everything possible, including in their national research budgets, to attain the 3 % objective.

4.5 Consequently, the Committee views the **total funding** decided on for the two budgets as a crucial test of European policies, of their credibility and ability to deliver results. It is this funding which will reveal the extent to which Europe has set itself the **right priorities** and is on the right course to prevent the EU falling behind in the global race and to deliver the promises of the Lisbon objectives.

4.6 **Appeal**. The Committee thus calls on the European Parliament, the European Council and, in particular, the Member State heads of state or government to ensure that the urgently needed **R&D investments proposed by the Commission are actually made available and do not become a pawn in – or fall victim to – the negotiations on the future overall EU budget**. Major difficulties would otherwise ensue, the Lisbon strategy objectives would not be met, and the standing and credibility of European policy would be dented.

4.7 The Committee also calls on the Member State heads of state or government and on European industry, including through their more extensive **national research programmes** and **industrial research measures**, to make a major effort to ensure that **the 3 % target** is reached as soon as possible.

4.8 The Committee welcomes the **fundamental direction** of the two framework programmes proposed by the Commission (FP7 and Euratom FP7), not only for their thematic content and structure, but also, for the most part, for the balance they strike between the objectives and components of the individual programmes.

4.9 The Committee notes with approval that the Commission's proposal has taken on board or attached particular importance to many of its recommendations. In the case of the research themes of the specific cooperation programme, these recommendations relate to its opinions on subjects such as **nanotechnology** ([12]), **biotechnology** ([13]) **health research** ([14]), **information technology** ([15]), **energy research** ([16]) (including fusion energy research ([17])), **space** ([18]) and **security research** ([19]). The Committee would reiterate at this point that it considers all these issues to be very important and thus strongly advocates that they be dealt with appropriately. Any gaps or other specific points still identified by the Committee will be addressed at a later stage.

4.10 It is true that in the case of **space and security research**, the Committee had made a reasoned case for such research to be managed and supported outside FP7. However, it realises that there are also arguments in favour of incorporating this area into FP7; for example, management would be more straightforward, and there would be better synergy and coherence with other sub-programmes. Therefore, it would now advocate initially incorporating these sub-programmes into FP7 on a trial basis and, depending on the results, making the necessary changes after the mid-term review, or in FP8.

4.10.1 Space-based applications at the service of the European society, which falls under the space sub-programme, will, as a typical cross-cutting theme (see section 5), be coordinated with the themes of security, the environment and information technology.

([8]) See footnotes 14 to 21 below.
([9]) COM(2005) 440 to 445 final.
([10]) Expected shortly.
([11]) OJ C 95, 23.4.2003.
([12]) OJ C 157 of 28.6.2005.
([13]) OJ C 234, 30.9.2003; OJ C 61, 14.3.2003; OJ C 94, 18.4.2002.
([14]) OJ C 74, 23.3.2005; OJ C 133, 6.6.2003.
([15]) OJ C 302, 7.12.2004.
([16]) OJ C 241, 7.10.2002.
([17]) OJ C 302, 7.12.2004.
([18]) OJ C 220, 16.9.2003; OJ C 112, 30.4.2004.
([19]) OJ C 157, 28.6.2005.

4.10.2 **Security research** themes, which are, sadly, of particular concern at the moment, such as protection against terrorism and crime, security of infrastructures and utilities, border security, and security and society are cross-cutting issues that should be complemented by research in the humanities and sociology on themes such as conflict and peace and culture, in order to learn more about the background to conflicts and ways of avoiding or preventing them. Particular attention should be paid to **combating terrorism** and the control of menacing **weapons of mass destruction** (see also point 6.4.3 below).

4.11 With regard to the **ideas programme**, the Committee is also pleased to note that its recommendations ([20]) have been taken up. These dealt largely with the autonomous management of this programme by the European Research Council, which is to be made up of outstanding scientists of international renown. The Committee would reiterate its recommendation to involve high-calibre industrial research scientists in this venture as well. The Committee therefore feels it is all the more imperative that the Parliament and the Council should approve this new type of research support, which should be organised on similar lines to the UK Medical Research Council or the German Research Foundation (*Deutsche Forschungsgemeinschaft*), for example.

4.11.1 This programme, which seeks to promote excellence **in all areas of science and technology**, will offer European added value and contribute to the EU's competitiveness in the global context. The Committee would point out in particular that ([21]) *basic research which is free, independent and unhampered, even though subject to certain limits, is the only kind of research which can deliver the key ingredient for future prosperity – new knowledge*. Industry also acknowledges the value of basic research and the need to support it ([22]).

4.11.2 At the same time, this ties in with repeated recommendations by the Committee to give due emphasis to all three essential sides of the **innovation triangle – basic research, applied research and development** (product and process development), in order to create the best possible conditions for full success, while helping to promote multidisciplinarity, as advocated by the Commission. The Committee would again point out that the **dividing lines between the terms** basic research, applied research and development have always been **fluid and arbitrary,** and their importance should not, therefore, be artificially inflated by administrative measures.

([20]) OJ C 110, 30.4.2004.

([21]) Quotation from the speech of the then German Chancellor, Gerhard Schröder. inaugurating Einstein Year in 2005. He went on to point out that *'basic research also needs security, freedom from the pressure to deliver direct applications of its findings and the compulsion to constantly demonstrate its usefulness …'*.

([22]) cf. *The Economic Returns to Basic Research and the Benefits of University-Industry Relationships. A literature review and update of findings. Report for the UK Office of Science and Technology* by SPRU - Science and Technology Policy Research., Alister Scott, Grové Steyn, Aldo Geuna, Stefano Brusoni, Ed Steinmueller, 2002.

4.12 The Committee also welcomes the proposal to beef up actions under the **people** heading and the associated **'Marie Curie' programmes**. This programme has so far also proven to be an extremely successful and important means of training and supporting **European researchers**, and of **making the European Research Area more attractive** for researchers from all over the world. The Committee reiterates that, as well as creating new knowledge, researchers are also the main agents in the transfer of such knowledge between countries and continents, and also between research establishments and industry, i.e. between research and application.

4.12.1 The objectives of **life-long training and career development** and **pathways and partnerships between industry and universities** are particularly interesting aspects of the programme. Whereas the first objective applies to training for young researchers and subsequent professional development (including the professional development of experienced researchers – see also the next point), the second concerns the important task of launching and supporting longer-term cooperation programmes between organisations from academia and industry, in particular SMEs, thus underpinning the innovation triangle outlined above. It is therefore particularly important to promote **mobility between the public and private sectors**. This should also include mobility in relation to, and partnerships with, for instance, the farming sector or political institutions.

4.12.2 The Committee is also touching here on the **key role of universities** as **research and training bodies.** To be able to meet their remit, however, it is essential that universities have the material and tools they need, as well as an appropriate staff budget and organisational structure (see also point 4.15.4). There are major shortcomings on this front – not least in comparison with top universities, for instance in the USA. The Committee is therefore pleased that the Commission is working on a separate communication on this issue, on which the Committee itself will also issue an opinion. At this stage, the Committee would just make clear one key point in relation to FP7: namely that the support instruments must be in keeping with the usual scale of projects conducted by university research groups.

4.13 In addition, the Committee endorses the Commission's efforts to establish a coherent **professional profile for European researchers**, to develop a stable career structure, and to adapt internal market rules accordingly. The Committee has pointed out in the past ([23]) that human capital is the most sensitive and valuable resource for research and development and that it supports the Commission's efforts to maintain and develop human resources. The Committee agrees with the Commission that improvements are needed both in relation to researchers' contracts and to the adaptation/portability of all aspects of social security and retirement provision, which are so important for all types of mobility.

([23]) See also OJ C 110, 30.4.2004.

4.13.1 Capable young scientists will take their research out of Europe or turn to other activities unless we succeed in offering them an **attractive and predictable career path** (known in the USA as a **tenure track**). Mobility among scientists is needed and wanted not only within the EU, but also between the EU and many other countries. This must not, however, lead to a net loss of the most gifted among them (brain-drain). One particular aspect of this, in view of the importance of family cohesion, is the option of 'dual-career-couples'.

4.13.2 The Committee would refer in that regard to the Commission's recommendation of 11 March 2005 concerning the **European Charter for Researchers** ([24]) and a code of conduct for the recruitment of researchers designed to promote the objectives set out above. The Committee very much endorses the intentions expressed therein and many of the individual proposals. It therefore regrets that in certain respects the proposed rules go too far and thus make it difficult for the provisions – and the fundamentally warranted concern that underpins them – to secure acceptance among the scientific community. In some cases, the wording and recommendations are even misleading, or at the very least unclear or ambiguous ([25]). This can, among other things, make simplification more difficult (see next point) or result in unsound decisions being taken. The Committee therefore recommends that these key provisions be revised as appropriate when the opportunity arises.

4.14 In this context, the Committee endorses the Commission's declared intention, under the heading of **simplification**, of streamlining numerous actions and rules for application and decision-making procedures, thereby making them markedly easier for applicants to deal with. Ultimately, the considerable investment of time and money involved in application and approval procedures is one of the main obstacles for scientific and industrial users. This applies in particular to SMEs with their considerable potential for innovation, and to smaller, university-based research groups**.** More user-friendly procedures would considerably enhance the efficiency of European support for research, besides helping to improve perceptions of 'Brussels' among the European public, which, unfortunately, are largely clouded by images of 'red tape' and 'overregulation'. The Committee reiterates its earlier recommendations to this effect and its endorsement of the Marimon Report ([26]). **The European research programme must be a worthwhile venture for those taking part in it, including in terms of the effort and risk involved in making the application.**

4.14.1 The Committee is aware that this issue touches on the **balance** between the requirement for **transparency**, the rules of the **European Court of Auditors** and the need for all decision-makers to have sufficient **room for manoeuvre**. This can and must lead to stakeholders from the Commission or its authorised agencies acting more on their own initiative (although the problem of their personal liability will have to be considered), which in turn will place very exacting demands on their specialist knowledge. The Committee therefore reiterates its recommendation that specific experts with many years' experience are needed here. The Committee would refer to its earlier recommendations on this point ([27]).

4.14.2 A particularly important facet of securing innovation and 'going the extra mile' is the willingness to **accept uncertainty** and the **risk** of failure. No attempt to break new scientific and technological ground, no quest to discover the unknown can be planned or organised in such a way that success is guaranteed. Indeed, the reverse is true. Nothing new can be discovered if everything is known in advance. 'Failure' must not therefore be seen as such, but rather a useful finding in the trial-and-error process. **Opportunity and risk are two sides of the same coin**.

4.14.3 It is advisable to set up external agencies only if a clear improvement in administrative procedures can be achieved by doing so and if there is a clear and proven cost advantage to be gained. Any additional or external **administrative costs must not, under any circumstances, eat into the budget available for actual research.**

4.15 The Committee also particularly welcomes the important sub-programmes included under the **capacities** programme. These cover the fields of research infrastructures; research for the benefit of SMEs; regions of knowledge; research potential; science in society; and activities of international cooperation.

4.15.1 The important objective of involving **small and medium-sized enterprises (SMEs)** more closely in research and innovation process and creating suitable conditions and tools for this to happen is of particular interest.

([24]) OJ L 75, 22.3.2005, p. 67.

([25]) This applies, for instance to a failure to appreciate (a) the fact that the main purpose of research is to generate new knowledge, while the issue of what serves humanity or what is relevant to society is not an appropriate criterion in individual cases (see also OJ C 221, 7.8.2001, points 4 and 6 – point 6.7.1 for instance – and footnote 14, or (b) the key importance of duplication, not only to safeguard new knowledge but to ensure that such knowledge is circulated, built on and expanded (see also OJ C 221, 7.8.2001, points 4.7.5 and 4.7.6). Good research cannot be forced by over-narrow rules, but needs freedom in which to develop.
The most effective way to forge ahead to break new ground and achieve good results is to appoint the most successful and particularly experienced researchers to executive positions, to secure the services of and promote the best scientists, and to make sure adequate provision is made for proper equipment and research resources (critical mass). See also OJ C 204, 18.7.2000 and OJ C 110, 30.4.2004. Researchers' skills cannot be quantified or assessed in an objective way. Any judgement is bound to be subject to the discretion of their experienced peers.

([26]) Report of an Expert Panel chaired by Prof. Marimon, 21 June 2004, Sixth Framework Programme.

([27]) OJ C 204, 18.7.2000 (CES 595/2000, point 9.8.4).

4.15.2 Support from the **innovation programme** may prove to be another useful means of **supporting SMEs** ([28]), but, here too, procedures must be kept practicable and in due proportion to the resources of SMEs. Depending on the success of this innovation programme, the Committee feels it would be worth considering a further increase in the share of explicit SME support from its current level of 15 %, not least given the requirements of the new Member States. The Committee would reiterate its earlier statements on this issue, namely that, to win, SMEs set up specifically to develop and market innovative high-tech products above all need enough start capital and **venture capital** to be able to bridge the first five to ten years of operations successfully. Economic research and economic policy can make key contributions here.

4.15.3 Equally important are the objectives of optimising and developing **research infrastructures**, of developing **regional** research-driven **clusters**, and of promoting and unlocking research potential in the **EU's convergence and outermost regions**. Developing research infrastructures and establishing new infrastructures will promote and stimulate the emergence of regional research-driven clusters. Here too, there is above all a need for adequate **venture capital** – a crucial factor in success.

4.15.4 The Committee would above all stress the importance of adequate infrastructure measures to get the universities up to speed (see point 4.12.2 above). In this context, the Committee notes that, in a number of places in the EU, successful clusters of high-tech firms have grown up around certain universities and/or research centres, sparking growth and innovation in the neighbouring economic area as well (poles of economic growth). See also point 4.16.2.

4.15.5 There is more on the role of European **supercomputer centres** as an additional and very important infrastructure measure at a later stage in this opinion (see point 5.8 below).

4.15.6 The Committee also recommends that, subject to its inclusion under the 'Ideas' programme as well, the issue of **science in society –** currently one of the activities under the 'Capacities' heading – should be switched ([29]) to the priority **sub-programme'Socio-economic sciences and the humanities'** which is part of the 'Cooperation' programme. In this way, more effective use might be made of the potential synergies between these themes, and the necessary links could also be established. This would also make it clearer that the total budget of these overlapping issues is 3 % of the thematic, priority programmes.

4.15.7 Sound and effective international cooperation in research and training is a key element of global partnership and reflects with the very nature of scientific R&D**. International cooperation** activities ([30]), which come under the capacities sub-programme, focus on the key issue of working together (see also point 4.13.1) with applicant countries, countries neighbouring the EU, developing countries and emerging economies. The Committee is pleased that cooperation with economically and technically advanced countries such as the **USA or Japan,** which is, at the least, equally important, is made possible under the 'Cooperation' or 'People' sub-programmes, and that, in individual cases, such cooperation has even been placed on an institutional footing through bilateral agreements. The Committee recognises that this cooperation must grow out of actual need in the fields concerned, but it would nonetheless recommend raising the profile of these important facts and giving them greater emphasis.

4.16 **Continuity and tools to promote research (forms of support).** With regard to both aspects, the Committee strongly reaffirms its recommendations put forward in a previous opinion. In view of the urgent need for greater **continuity**, the Committee reiterates its point that the retention of instruments which have proved their worth is an important means of achieving this objective, and that there should be scope for flexibility in applicants' choices of instruments. At the same time, however, the assessment procedure must not sanction the choice of a particular instrument (not favoured by the Commission), nor may it give priority to particular instruments. The Committee also sees the **extended duration of FP7** as a contribution to greater continuity, provided, however, that it is adequately funded.

4.16.1 Some of the **instruments** have been re-named or are **entirely new**. At this point the Committee would reiterate its general recommendations to the effect that, firstly, the Commission should, in the interests of continuity, proceed with great caution in introducing new instruments, or even renaming existing ones, and secondly, during the necessary trials of new instruments, it should make it clear that such instruments may still be in the testing phase.

4.16.2 In addition to the **technology platforms** mentioned earlier, the **joint technology initiatives** are also a new instrument of this kind designed to promote the establishment of longer-term public-private partnerships. There are high hopes for these initiatives within industry and not least among SMEs, although the Committee notes that the Commission has yet to produce any clearer proposals on this issue, including how the initiatives differ from technology platforms. Such initiatives could, among other things, also lead to the establishment of cooperative networks between big companies and SMEs, and also with universities and research centres, and, in broad terms, to more private-sector R&D investment (see also point 4.15.4). It is important, therefore, not only to work out clearer conditions and operating arrangements for joint technology initiatives of this kind, but also, after an appropriate period, to check whether the expectations placed in the initiatives have been fulfilled.

([28]) (COM(2005) 121 final – 2005/0050 (COD))

([29]) This recommendation concerns only the primarily sociological research on the subject 'Science in Society'. On the other hand, that share of the budget earmarked for activities (exhibitions, museums, conferences) designed to spread scientific knowledge ('Communicating science'), i.e. its findings and methodology, should remain in the specific programme 'Capacities'.

([30]) See also the European Commission's magazine RTDinfo, special INCO issue, July 2005.

4.16.3 When introducing new instruments, the Commission should take care to avoid any recurrence of the mistakes that were made during the launch of the 'networks of excellence' (FP6). In that instance, an ineffective information policy led to **confusion** and differing interpretations among all stakeholders, and even within the Commission itself. The Committee trusts that it will have an opportunity to go into this subject in a subsequent opinion. It **welcomes** the Commission's proposal to apply **Articles 169 and 171** of the EU Treaty to the funding schemes.

5. **Specific comments**

5.1 Most of the specific comments relate to the thematic **sub-programmes of the cooperation programme** which form the core of the framework programme. At this point, the Committee would like to reaffirm its support for the Commission's proposals as a whole, and to recommend their implementation.

5.2 The Committee would first of all consider the key aspect of **multidisciplinary, cross-cutting themes**, which, by their very nature, require overall coordination or direction, and thus frequently also encompass the **socio-economic sciences and humanities sub-programme** (see also point 5.8). Care should therefore be taken to ensure that, in spite of the precise structure of the individual programmes – unavoidable for administrative and other reasons – the **overall connection** between many of the issues to be tackled is recognised, dealt with and turned to good account. The Committee therefore recommends that steps be taken to ensure overall coordination and the necessary link-ups.

5.2.1 This also includes the theme of **security research and combating terrorism,** discussed in section 4 above.

5.2.2 **Demographics** is another case in point ([31]). Research required in this field ranges from identifying demographic facts, causes and trends, to the worryingly low birth rate in many Member States and the impact of still-rising average life expectancy. On this last point, the focus is on the requisite geriatric/medical research and care techniques ([32]). The social and economic issues involved in the whole complex question are a particularly important consideration here.

5.2.3 **Health** too is also a cross-cutting issue (see point 5.9), as it is affected by lifestyle. working conditions, environment, diet, vaccinations, and other factors such as addictions.

5.3 Some of the sub-programmes, however, are also, by their very nature, particularly **cross-cutting**, in that, besides having a direct impact on European industrial performance, they also benefit other sub-programmes, due to thematic links between them. (In this regard, again see point 5.2.)

5.4 This is particularly true of the **information and communication technologies (ICT), biotechnology**, and **nanosciences, nanotechnologies, materials and new production technologies** sub-programmes. The energy, environment, and transport sub-programmes are also closely interconnected. In view of this, any assessment of the balance between the individual sub-programmes can at best be only qualitative; this reservation should be borne in mind in connection with the following remarks.

5.5 Information and communication technologies (**ICT**) are indeed of crucial relevance to all aspects of industry, business, the services sector, science and technology, including security and defence. They are a critical element in global competition. Compared to Japan and the USA in particular, Europe has considerable ground to make up, not least in view of the need for supercomputers in many important fields, such as climate, security and materials research and the synthesis of new medicines. This concerns both the establishment of European supercomputer centres – which could be more appropriately covered by the capacities or infrastructure programmes – and independent European development of the requisite hardware and software.

5.5.1 However, it is striking that, as under FP6, by far the largest share of the budget has again been allocated to the ICT sub-programme. Given the importance of other themes, particularly energy or, for instance, health which also have economic implications, it may be asked whether the possibility of a certain **shift in emphasis** should not be kept open, in the interests of a consistent approach to the sub-programmes. The answer to this question partly depends on the degree to which the ICT programme contributes to other programmes, e.g. security research or space exploration.

5.5.2 With this specific example in mind, the Committee recommends that in general, FP7 should be implemented in such a way as to allow **sufficient flexibility in allocating funds** between individual sub-programmes or to benefit from the intended coherence, e.g. by means of sub-programmes jointly issuing calls for tenders. The Committee's remarks on ICT also apply to the transport and space sub-programmes (e.g. aeronautics).

5.5.3 Once again, the Committee expresses its satisfaction at the start of construction of the **Galileo project** which is a prime example of the application of the subsidiarity principle. Besides being of great value in terms of innovation, the technological solutions employed here and especially their application are, in the Committee's view, what makes this project truly multi-disciplinary and cross-functional.

([31]) CESE 818/2005 fin.
([32]) OJ C 74, 23.3.2005.

5.6 The Committee reiterates its strong satisfaction at the incorporation of the important **energy** sub-programme into FP7, in line with a recommendation that it has put forward on several occasions. However, even though energy research is also a very high priority for Euratom FP7, the Committee does feel that even greater emphasis should be placed on this vital and highly topical subject. Energy is the 'staple food' of a competitive economy, yet not only is the EU **currently dependent on energy imports to an extremely worrying degree**, but global resources are also set to run short in the medium term. R&D is the key to solving the energy problem.

5.6.1 The Committee is thus pleased that the development of **renewable energy sources** has been given such clear emphasis. They play a crucial role in the whole energy/environment equation (global warming). Here the Committee would refer to its numerous opinions ([33]) which cover the whole range of needs for research into renewables, from geothermal energy, biomass, solar and wind energy to storage technology. Support from FP7 will give renewable energy sources a substantial additional boost, complementing various support measures for commercial launches (e.g. legislation on the sale of electricity to the grid), which are intended to promote the development of commercially viable products. The Committee would also recommend that more detailed studies be conducted into the energy balance of renewable systems as doubts have recently been raised about, for instance, the positive energy efficiency of certain biofuels ([34]).

5.6.2 However, the Committee would emphasise that the **conventional** fossil fuels, **coal, crude oil and natural gas** ([35]), will remain the backbone of European and global energy supplies for several decades to come. In view of this, any research and development activities which contribute to **more efficient** extraction, transportation and use of such fuels, and thus directly or indirectly to reducing greenhouse gas emissions, are of great economic and environmental significance. Admittedly, the energy sub-programme refers to **cutting CO_2** (including CO_2 separation and storage) and energy efficiency, but it is still important to ensure that the relevant measures are adequately funded. In addition, interconnections with the **materials** and **transport** sub-programmes offer potential synergies. The Committee also welcomes the related coal and steel research programme ([36]).

5.6.3 The Committee therefore recommends that research and development measures give due emphasis not only to renewables but also to energy production technologies using fossil fuels. This is all the more important in view of the fact that over the next two decades many of the existing fossil-fuelled power stations will have to be replaced, and extra new ones (several hundred throughout the EU!) will be needed. It is of vital economic and environmental importance that these stations should use **state-of-the-art technology**. The high oil price also raises the question as to when coal-based fuel generation technologies will be able to offer an economically competitive alternative.

5.6.4 For further details, the Committee's would refer to its earlier and current opinions on energy research and the energy issue ([37]).

5.7 Ultimately, one of the most effective means of combating climate change and other undesirable environmental impacts is to improve energy production technologies ([38]).

5.7.1 The link between the themes of the two sub-programmes should therefore be used to enhance both. While research in the environment sub-programme (including climate change) is designed largely to provide the **diagnosis**, the main purpose of the energy sub-programme is to provide the **therapy**.

5.7.2 Even within the environment sub-programme, however, the key links and synergies between analysis/diagnosis (e.g. seabed geology) and potential therapies (e.g. seabed protection) should be identified and turned to good account.

5.8 The **socio-economic sciences and the humanities** sub-programme, expanded, as recommended in point 4.15.5, to incorporate the **science in society** programme, should also be seen as a cross-cutting theme. The Committee also reiterates its previous recommendation that there should be a closer link between natural sciences and the humanities (including social sciences), not only between individuals working in these two areas, but between their methods and criteria too ([39]). Social scientists and researchers in the humanities should also be involved in examining the key issues connected with security research.

5.8.1 In this connection, the Committee also welcomes the emphasis placed on **economic analyses** to develop best practices for the single market and the Lisbon strategy in the face of global competition and other effects of globalisation. The Committee would also stress the urgent need for analyses of and political discussion (see also the Joint Research Centre programme, point 5.10.1) about the causes of unemployment,

([33]) E.g. OJ C 241 of 7.10.2002; JO C 221 of 8.9.2005 and JO C 286 of 17.11.2005.
([34]) David Pimentel and Ted. W. Patzek, Natural Resources Research Vol. 14, No 1, 2005.
([35]) JO C 120 of 20.5.2005.
([36]) OJ C 294 of 25.11.2005.
([37]) OJ C 241 of 7.10.2002, JO C 133 of 6.6.2003, JO C 108 of 30.4.2004, JO C 110 of 30.4.2004, JO C 302 of 7.12.2004, JO C 286 of 17.11.2005, JO C 120 of 20.5.2005.
([38]) See also: Deutsche Physikalische Gesellschaft, Sept. 2005 'Klimaschutz und Energieversorgung in Deutschland 1990-2020'.
([39]) This very complex issue was to some extent examined in OJ C 221, 7.8.2001, points 3.9 and section 6.

the strengths and weaknesses of various economic systems and the causes, implications and possible turning points of demographic trends. Last but not least, the Committee would underscore the need to look in greater depth at the causal link between research, innovation and prosperity.

5.8.2 It is not only the **legal sciences** that are involved here, but ultimately also the scientific foundations of all EU policies, be they social, legislative, economic (monetary and financial, fiscal, innovation-based, etc.) or security-related. Particularly important, however, are the political, economic and legal issues raised by the further internal development of the EU, including the single market, cohesion, integration and governance.

5.8.3 The Committee would also emphasise the particularly topical issue of the **political and cultural identity of the EU and its borders**. It is important here to explore the common features of European culture, not only in terms of art, science, architecture, technology and fashion, but also in relation to the history of ideas, the law, value systems, and the way countries are run. The modern idea of the state was born in Europe (and first realised in the USA). This, however, also implies more in-depth consideration of the concept of culture, its facets and obscurities, its hierarchies of values and the misunderstandings to which it may give rise.

5.8.4 Given the diverse range of important issues involved, the **budget** earmarked for the *socio-economic sciences and the humanities* sub-programme may, despite the proposed input from the *science in society* budget, be **low.** To decide, conclusively, whether that is the case, consideration must also be given to areas of the other sub-programmes – such as energy – that include aspects of the humanities.

5.8.5 Last but not least, the Committee would emphasise all **ethical issues**, which reflect the interplay of knowledge, research and application, and the balance between risks and opportunities. One key issue, also with regard to the Lisbon strategy, relates to the connections and conflicts between ideological/dogmatic positions, the willingness to take risks, and progress.

5.8.6 This brings us back to the question of **science in society**, a topic on which the Committee has already drawn up a very substantial opinion ([40]). In line with the position adopted in this earlier opinion, the Committee also endorses the range of themes proposed by the Commission, which reflect a concern to bring scientific research and knowledge closer to the public, to enhance mutual understanding and to encourage young people in particular to consider a scientific career. A forum is needed to engage citizens and consumers with science and research and in which they can bring their opinions to bear.

5.8.6.1 The Committee feels that measures which enable direct contacts or even hands-on involvement are especially important: good technology museums, special laboratories, work shadowing, etc. However, renewed emphasis in higher educational curricula on effective and dynamic **science teaching** is what is needed most of all. The particular aim is also to promote interest in and understanding of science and technology. Adequate knowledge is the *sine qua non* of sound judgement.

5.8.6.2 Scientific knowledge is also an essential part of training the mind and instilling a **clear world view**.

5.8.6.3 However, it is equally important for researchers themselves to contribute their views and become more closely involved in discussions and decision-making processes concerning this programme.

5.9 One particularly important sub-programme relates to **health,** a very broad issue that the Committee has already addressed on a number of occasions**.** This sub-programme covers all R&D work in the fields of diagnostics, therapeutics and the relief and prevention of disease.

5.9.1 Priority should thereby first of all be given to the treatment or prevention of diseases which have – or would have if spread in an uncontrolled epidemic – a particularly high **mortality and morbidity rate among children, adults and older people**.

5.9.2 The steady increase in average life expectancy is the result not only of successful medical progress but also of the ever-better, ever-healthier food supply. A corollary of that, however, is also the increased incidence of **lifestyle-related illnesses** (caused, for instance, by obesity ([41]) or smoking) and of **job- and age-related illnesses** and ailments. The importance of this latter issue has been highlighted many times above ([42]). It is an issue that not only touches on medical and human aspects, but, in terms of fitness for work and care costs, also has an economic dimension. The same is also true for the entire issue of how the health system is organised and financed, and the application of medical advances. Research into **disabilities** is a similar case in point. Research of this kind seeks to raise the quality of life of people with disabilities and possibly to get them into work.

5.9.3 However, disability issues and health issues are not one and the same; disabilities should therefore be recognised across all relevant sectors of the programme.

([40]) OJ C 221, 7.8.2001.

([41]) JO C 24 of 31.1.2006.

([42]) See footnotes to point 5.2.2.

5.9.4 The Committee would also highlight the **international dimension** of health. This involves working together with countries strongly committed to successful research, and also covers health-related development aid. This makes cooperation with the World Heath Organisation (WHO) particularly important.

5.9.5 The global dispersal of new pathogens is another international issue in which cooperation with the **WHO** is also very important.

5.9.6 Moreover, international cooperation provides an opportunity to conduct in-depth clinical studies not only of the population at large, but also in relation to specific age groups: children, adults and older people.

5.9.7 The substantial health-related R&D work that has been done, including in the private sector (the pharmaceuticals industry and appliance manufacturers) is a good example of the application of Article 169 in **partnerships between the private sector and research funded by the public sector** (including the Member States).

5.10 Joint Research Centre (non-nuclear actions)

5.10.1 The Joint Research Centre (JRC) provides **scientific and technical support for EU policymaking** in areas such as sustainable development; climate change; food; energy; transport; chemicals; alternative methods to animal testing; research policy; information technologies; reference methods and materials; biotechnology risks, hazards and socio-economic impacts; as well as in the field of econometric modelling and analysis techniques. A further task is to develop scientific and technological **reference data** in various fields of environmental and food monitoring. This also provides valuable input into the framing of Community legislation.

5.10.2 The Committee also feels that the Community has an additional task in helping coordinate national metrological and standardisation institutions while, at the same time, taking part in their programmes. With the single market and European integration as a whole in mind, consideration should be given to establishing a **European Bureau of Standards**, with the involvement of the appropriate national institutions, relevant industries and the JRC. The diversity that has existed to date would provide an opportunity to adopt 'parallel' practices, to compare different approaches, and to forge ahead with new developments within a dependably resourced, properly coordinated environment.

5.10.3 The Committee is pleased to note that JRC activities are integrated into **the international scientific community**. However, it also considers such integration to be particularly important in the field of socio-economic sciences and the humanities mentioned in point 5.8.

6. The seventh Euratom framework programme (Euratom FP7)

6.1 **Controlled fusion.** The Committee reiterates the view expressed in its recent opinion ([43]) on *fusion energy* that, in the long term, the peaceful use of fusion energy has the potential to play a very important part in resolving energy supply problems in a sustainable, environmentally sound and competitive way. Like nuclear fission, fusion does not generate any greenhouse gases, but it also has other important advantages.

6.1.1 The Committee congratulates the Commission and other stakeholders on the success of negotiations, recommended by the Committee, as a result of which the major international ITER project has been brought to Europe. **ITER** ([44]) represents a decisive step towards a future demonstration reactor, DEMO. However, this also entails a contractual obligation to finance ITER and the preparatory and accompanying programmes this requires, as well as the preparatory programmes for DEMO.

6.1.2 With this in mind, the Committee calls on the Member States to make a substantial contribution of their own to the European fusion programme and provide appropriate backing for the laboratories associated with the programme. The Committee acknowledges that the fusion programme has reached a stage at which implementation requires a substantial and increased investment, which it feels is necessary and warranted in view of the potential of this energy source and the seriousness of the energy problem.

6.1.3 For further details, the Committee would refer to its recent opinion on this issue ([45]) in which it highlights the **DEMO preparatory work** (development of materials and blankets, the idea behind the system, etc.) and studies on improved **confinement concepts**.

([43]) OJ C 302, 7.12.2004.

([44]) ITER will produce 500 MW of fusion power. It is the step between today's studies of plasma physics like JET and tomorrow's electricity-producing fusion power plant DEMO. It is an international project involving China, the European Union and Switzerland, Japan, Korea, Russia and the USA. It is to be constructed at Cadarache, France.

([45]) See footnote 44.

6.2 **Nuclear fission and radiation protection.** Nuclear energy is the most important source of carbon-free base-load electricity presently available. However, there are still concerns about operating risks and safe storage of spent nuclear fuel. The Committee would refer to its opinions on nuclear energy ([46]) (nuclear fission) and on the nuclear package ([47]). In the latter opinion, it expressed its support for *'the Commission's intention to vigorously promote research relating to safety of nuclear installations and disposal of radioactive waste in the future and to coordinate such research across the Community'*. It endorses the measures proposed by the Commission, which are consistent with this intention.

6.2.1 **Reactor systems**. This involves research to underpin the continued safe operation of existing reactor systems (including fuel cycle facilities), and to assess the potential and safety aspects of future reactor systems.

6.2.1.1 The Committee sets great store by actions in the latter area, which should lead to the development of **innovative reactor systems**. The history of technology shows that the greatest potential for progress lies in new-generation systems and innovation building on existing systems and concepts. In view of the importance of nuclear power for energy policy, measures should be taken to unlock existing potential in terms of enhanced safety, reduced radioactive (especially long-life) waste, making resources go further, and tapping additional resources.

6.2.2 **Radiation protection.** The objective here is to consolidate the scientific basis for protection of the general public from ionising radiation arising from radioactivity or other sources in medicine, research and industry (including the production of nuclear energy). One particularly important issue that could be investigated is the **effects of very low doses of radiation**, a subject that is difficult to access statistically and which still arouses controversy as a result.

6.2.3 There have also been particularly important developments in the technical monitoring and supervision of all **non-proliferation measures** for nuclear weapons material and technology.

6.3 For the development of the nuclear fusion power station and the safe operation and ongoing development of nuclear fission reactors, it is a matter of some urgency **to educate a new generation of highly skilled experts** and **train** them using appropriate test facilities. That can only succeed if nuclear technology in Europe is again given higher priority, thereby stimulating the interest of the upcoming generation of scientists. Here too, it is essential, as in the past, to forge close links between **research and training**.

6.3.1 For further details, the Committee would refer to its recent opinions on this subject ([48]).

6.4 *Joint Research Centre – Euratom Programme*

6.4.1 The Committee is pleased to note that the Joint Research Centre **supports policymaking** in the nuclear field, including the implementation and monitoring of existing policies and responding to new demands.

6.4.2 The Committee feels that it is right to focus 'nuclear' JRC activities on the **key issues of waste management, nuclear safety and security**, as these are the specific subjects of public concern that need reliable solutions. The Committee trusts that activities in this field will also be networked and coordinated with those of the Member States.

6.4.3 The Committee also feels it is an important task to (further) develop procedures to secure even more effective monitoring of the **non-proliferation** of nuclear weapons material and technologies (see also point 4.10.2).

Brussels, 14 December 2005

The President
of the European Economic and Social Committee
Anne-Marie SIGMUND

([46]) OJ C 110, 30.4.2004.
([47]) OJ C 133, 6.6.2003.
([48]) See previous footnotes.