

Opinion of the European Economic and Social Committee on the communication from the Commission entitled 'Europe and Basic Research'

(COM(2004) 9 final)

(2004/C 110/16)

On 14 January 2004, the Commission decided to consult the European Economic and Social Committee, under Article 262 of the Treaty establishing the European Community, on the Communication from the Commission entitled 'Europe and Basic Research'

The European Economic and Social Committee instructed its Section for the Single Market, Production and Consumption to prepare its work on this subject.

In view of the urgent nature of the work, the EESC appointed Mr Wolf as rapporteur-general at its 406th plenary session, held on 25 and 26 February 2004 (meeting of 26 February 2004), at which it adopted the following opinion, by a unanimous vote:

1. Introduction and gist of the Commission's communication

1.1 For a long period it was the prevailing view amongst both the Member States and also amongst the EU Institutions that basic research was predominantly the responsibility of the individual Member States, whilst the Community was to concentrate mainly on applied research and development work. This standpoint was based on what was, with the benefit of hindsight, a rather one-sided interpretation of Article 163 of the Treaty establishing the European Community⁽¹⁾.

1.2 An initial change, triggered by two pioneering actions and decisions, came about at the beginning of 2000. Two elements were of decisive importance in this context: on the one hand, the Communication from the Commission entitled 'Towards a European Research Area'⁽²⁾, which did not explicitly describe basic research as an EU responsibility but made it clear that this was the case; and on the other hand, the decisions taken at the Lisbon European Council⁽³⁾, which included, inter alia, the ambitious and important objective of making the EU a knowledge-based economy and society, whilst not, however, explicitly stressing the fundamental importance of basic research.

1.3 At much the same time, the EESC, in its opinion⁽⁴⁾ on the Communication from the Commission entitled 'Towards a European Research Area', drew attention to the importance of a balanced relationship, and the requisite interaction, between basic research and applied R&D. In its opinion, the EESC explicitly urged that basic research for the purpose of broadening our knowledge be adequately promoted, as such research was the source of new discoveries, concepts and methods.

1.4 This view has since gained widespread acceptance. There is a clearer awareness of the need for a knowledge-based economy and society, together with a recognition of the

importance of making progress in all scientific disciplines, including basic research, if the Lisbon objectives are to be achieved in reality.

1.5 Europe has undeniable strengths in basic research, too, both at university level and in a number of special organisations⁽⁵⁾. More initiatives should, however, be taken at Community level.

1.5.1 Historically, the first initiatives in the field of scientific cooperation in (western) Europe concerned basic research projects. This cooperation derived from the need to establish centres for the use of large-scale facilities and to attain a critical mass, the cost of which was beyond the financial capacity, or exceeded the readiness to pay, of individual Member States.

1.5.2 Thus, CERN (high-energy physics) was founded in the 1950s, and the 1960s saw the establishment of ESO (astronomy), EMBO and EMBL (molecular biology)⁽⁶⁾, together with the Franco-German ILL⁽⁷⁾. ESRF⁽⁸⁾ was set up later. Large experimental plants⁽⁹⁾, exploited on a bilateral or multilateral basis, have also been built in individual Member States in the meantime.

1.5.3 Even European programmes which are particularly high-tech and applications-oriented, such as space travel and fusion research, interact very closely with basic research and require considerable input from such research.

⁽¹⁾ Incorporated, to a large extent, in the draft Constitution of 18 July 2003 in Article III - 146

⁽²⁾ COM(2000) 6 final

⁽³⁾ Lisbon European Council, held on 23 and 24 March 2000

⁽⁴⁾ OJ C 204 of 18.7.2000

⁽⁵⁾ OJ C 204 of 18.7.2000

⁽⁶⁾ CERN - European Organisation for Nuclear Research; (ESO) - European Southern Observatory; EMBO - European Molecular Biology Organisation; EMBL - European Molecular Biology Laboratory

⁽⁷⁾ Institute Laue-Langevin in Grenoble

⁽⁸⁾ ESRF - European Synchrotron-Radiation facility, also based in Grenoble

⁽⁹⁾ e.g. DESY (German Electron Synchrotron), Hamburg

1.6 It has thus been possible to establish institutions which have since assumed world-wide importance and have made a decisive contribution towards establishing Europe's reputation as a leading scientific area⁽¹⁰⁾. Furthermore, these institutions have a great impact on and serve as a magnet for a great variety of research work carried out at universities and other research institutes. This has led to the formation of valuable cooperation networks, a vital prerequisite for the achievement of joint success.

1.7 The research carried out by the European Science Foundation (ESF), too, which is a non-specialised organisation set up in the 1970s, frequently covers relatively basic research subjects. The same applies to the work carried out under the R&D framework programme of the EU; this work, which forms part of the broader thematic actions undertaken by the EU, also requires and includes an albeit relatively small degree of basic research.

1.8 The Commission's Communication also addresses the role, importance and current situation of basic research in the European Research Area, and sets out observations on possible measures to be taken by the Commission to promote basic research in the EU not only much more intensively than in the past but also on a systematic basis.

1.9 The Commission's Communication thus covers the following aspects of basic research:

- Basic research and its impact,
- The situation worldwide and in Europe,
- Basic research at EU level,
- Prospects
- Next steps.

1.10 As regards the situation of basic research in Europe, the Commission notes the following:

1.10.1 In Europe, the private sector is relatively inactive in basic research. Only a few companies have strong research capabilities in this field, and their activities generally tend to focus on applied R&D. Moreover, the funding of research

⁽¹⁰⁾ The EESC also draws attention to the fact that the revolutionary Worldwide Web communications system, which forms the basis for the Internet, is a development pioneered by CERN which was originally intended to be used only for the transfer of scientific data between laboratories participating in its research.

through foundations is limited.

1.10.2 Unlike in the USA, where the private sector has always defended the idea of the need for public funding of basic research⁽¹¹⁾, European industry has also for a long time advocated giving priority to public funding for applied research carried out by companies themselves. The importance of basic research for economic competitiveness is, however, starting to be recognised more and more in Europe, including by the business world (for example the European Round Table of Industrialists).

1.11 The further measures referred to in the Commission's proposal will also be based on the views expressed on this issue by a large number of key figures, organisations and institutions, such as a group of 45 Nobel Prize winners, the European Science Foundation (ESF), the Association of Heads and Presidents of National Research Councils (EuroHORCS)⁽¹²⁾, the Eurosciences Association, the Academia Europea, the European Research Advisory Board (EURAB) and an Adhoc Group of individuals (ERCEG) set up following the conference on the European Research Council (ERC) held in Copenhagen on 7 and 8 October 2002 under the Danish presidency of the Council of the EU⁽¹³⁾.

1.12 The Commission is thus planning follow-up action in the first quarter of 2004, namely:

- a broad debate on the Commission's Communication within the scientific community and the groups concerned, in conjunction with the reflections on a European Research Council;
- a debate at the political level within the Council and the European Parliament on the basis of the Commission's Communication.

2. General comments

2.1 The EESC expressly welcomes the Commission's Communication and the observations and planned measures set out in this Communication. In giving its endorsement to the Commission's Communication, the EESC would also draw attention to its recent opinions on R&D in which it has drawn attention time and again⁽¹⁴⁾ to the need, in the light of the objectives set at the Lisbon European Council, for the EU to promote basic research adequately – i.e. much more than it has done hitherto.

⁽¹¹⁾ See the report on 'America's Basic Research: Prosperity Through Discovery' of the Committee for Economic Development, which comprises representatives of the major industrial groups. There are, however, companies in the USA, such as IBM or Bell Labs, which continue to be extensively engaged in basic research, and, albeit to a decreasing extent, in very basic research.

⁽¹²⁾ EuroHORCS: European Heads of Research Councils, EURAB: European Research Advisory Board, ERCEG: The European Research Council Expert Group, Chair: Professor Federico Mayor.

⁽¹³⁾ On 15 December 2003 the Danish Minister for Research sent his EU colleagues copies of the final report drawn up by the Expert Group. In its report the Expert Group endorsed the establishment of a European Fund for Basic Research which would be funded primarily from new resources made available under the research framework programme of the EU and which would be administered by the European Research Council.

⁽¹⁴⁾ OJ C 221 of 7.8.2001 (see points 4.4.1, 4.4.2, 4.4.3, 4.4.4 and 4.4.5).

2.2 The EESC supports, in particular, the Commission's call for the research budget of the EU to be substantially boosted. In so doing it would especially refer to its opinion⁽¹⁵⁾ on the Commission's proposal for the Sixth R&D Framework Programme and its recommendation that the overall R&D budget of the EU be increased by 50 % in the medium term (with reference to the budget of EU-15). The EESC also supports the Commission's intention to follow the recommendations of the Mayor Group and to make increased support for basic research one of the focal points of the EU's future research measures. In this context, the EESC would draw attention to the alarming indicators produced by the Commission which show that the gulf between the EU and, for example, the USA in the scientific and research fields is even still expanding.

2.3 The EESC also endorses the initial observations on the establishment of a 'European Scientific Council', which could assume responsibility at EU level for the tasks carried out at Member-State level by bodies such as the Research Councils in the UK, the 'Deutsche Forschungsgemeinschaft' (German Research Council) in Germany, the 'Vetenskapsrådet' (Science Council) in Sweden, the NWO in the Netherlands, the FRNS in Belgium, etc. These bodies provide, on request, funding for projects or grants to projects carried out by individual research teams, as in the USA.

2.4 The EESC agrees with the Commission that it is hardly possible to define strict criteria for drawing a distinction between basic research and applied research. The EESC does not, however, see this as a problem (and therefore recommends that a degree of discretion be authorised at a practical level), as there is, and should be, fruitful interaction and even collaboration between these two categories of research.

2.4.1 The EESC draws attention to the recommendation which it made in an earlier opinion⁽¹⁶⁾ that the interplay between fundamental and applied research in a diverse multi-polar scientific system be strengthened.

2.4.2 In the EESC's view, there is, however, a need, as part of the further action in this field, for the Commission to define the term 'basic research' (or propose a definition of the term) in such a way that the definition provides a sufficiently practical basis for taking decisions on aid applications. In this context, the EESC draws attention to the definition which it recommended in an earlier opinion⁽¹⁷⁾.

2.5 In its Communication, the Commission also addresses the highly complex issue of intellectual property rights in connection with basic research. It is a well-known fact that discoveries are not patentable, whereas inventions are. As there is a need for research workers to publish their findings without delay (see below), with a view, inter alia, to enabling knowledge

to be disseminated, they thus face a conflict.

2.5.1 This conflict derives from the question which arises when discoveries are made, namely whether the discovery in question could not lead to an application which should be patented; in that case, a patent application would clearly have to be made before the findings in question were published. As a result of this conflict, either the dissemination of knowledge and, thus scientific reputation suffers or potential patent protection for new, and possibly pioneering, ideas is lost, to the detriment of the EU and inventors.

2.5.2 This conflict could be considerably eased by introducing a so-called 'grace period'⁽¹⁸⁾. The EESC therefore reiterates the recommendation which it has made on numerous earlier occasions⁽¹⁹⁾ that the 'grace period', which is customary in the USA, also be introduced in the EU. The EESC also takes the opportunity to re-emphasise the need to introduce a European Community patent. This would remove a serious handicap for EU businesses and researchers.

2.6 Furthermore, the EESC wonders how and whether the promotion of basic research (with a view to meeting the Lisbon objectives) could be explicitly enshrined in future EU treaties or decisions.

3. Specific comments

3.1 The EESC also largely agrees with the stocktaking presented by the Commission and its analysis of the current situation as regards basic research.

3.1.1 The EESC does not, however, agree with all the points made by the Commission. The Commission states, for example, that: 'Along with its assets, Europe... suffers from a number of weaknesses as far as basic research is concerned. These are largely due to the compartmentalised nature of the national research systems and, above all, to the lack of sufficient competition between researchers, teams and individual projects at a European level', and concludes that there is a need for better coordination of activities, measures and national programmes in the field of basic research.

3.1.2 The EESC takes the view that the Committee's observation concerning the 'compartmentalised nature of the national research systems' and the 'lack of sufficient competition' – an observation which generally does not probably hold good in the case of those institutions which supervise or direct research at a political level – is misleading, both from a general point of view and with regard to scientific research. This observation fails to recognise or give adequate consideration to, above all, one decisive characteristic of scientific research.

⁽¹⁵⁾ See OJ no. C 260/3 of 17.9.2001

⁽¹⁶⁾ See OJ No. C 221 of 7.8.2001, point 6.7.2

⁽¹⁷⁾ CESE 1588/2003, point 4.5.3.

⁽¹⁸⁾ This provision was earlier enshrined in German patent law in the form of a period of grace prior to publication which does not infringe novelty status.

⁽¹⁹⁾ See, in particular, OJ C 95/48 of 23.4.2003, point 5.2.

3.1.3 One of the most important motivating factors for research workers, in addition to the search for knowledge and the endeavour to find and develop new ideas – is the competition between rival groups or laboratories and the desire to exchange ideas with specialist colleagues working elsewhere. Excessive competition or ambition is, however, detrimental to the very nature of scientific research. It may lead researchers to adopt a superficial approach and it may have a damaging effect on the careful, thorough approach required by scientific work or jeopardise the endeavour to discover new knowledge.

3.1.4 This exchange of ideas and competition can be observed, for example, at international scientific conferences or congresses and in reputable international specialist journals. The national and international reputation of individual research workers (and hence, also, their career prospects) and that of the institutes for which they work also rests on who is the first to discover and publish important new findings.

3.1.5 Such conferences or congresses are generally organised by the respective scientific societies or associations and provide – on the basis of a trade-off between cooperation and competition – an international forum for the exchange of the latest findings and plans, for the launching of new cooperative ventures and also for demonstrating capabilities and achievements and for bringing competition into play.

3.1.6 The fact that highly international teams⁽²⁰⁾ work on many research projects, and that many projects form part of international programmes⁽²¹⁾, also promotes the exchange of knowledge and coordination of effort.

3.1.7 All of the abovementioned factors do, of course, prompt the various institutions and their research workers to draw conclusions and thus also bring about a constant process of adjustment and reorientation of research programmes, in line with the timeframe for scientific research.

3.1.8 As the EESC has already stressed in one of its earlier opinions, the Commission should be more aware of and do more to recognise and exploit this process of self-regulation and adjustment in the scientific and research sectors which is now coming into play at international level and is also partly promoted by competition. The Commission should therefore involve, more than has hitherto been the case, recognised leading scientists and representatives of scientific societies and associations (bodies which are supported and funded by their members and therefore take the form of NGOs) in its internal deliberating processes and, in particular, also

⁽²⁰⁾ For example, over 50 % of the junior research workers and even a quarter of the directors of the Max Planck institutes are non-Germans.

⁽²¹⁾ This applies, for example, particularly in the case of the programmes also referred to by the Commission in the fields of climatology, oceanography, atmospheric physics, etc.

its funding-distribution processes.

3.1.9 The above observations are not, however, to be construed as opposition to further 'open coordination' and hence 'Europeanisation' of the basic research programmes of the individual Member States, insofar as these processes are necessary and helpful. These objectives should, however, preferably be achieved by providing adequate incentives for 'bottom-up' processes generated from within the sectors concerned and also by providing support for projects⁽²²⁾ or large-scale facilities which, in line with the principle of subsidiarity, exceed the capacity or ambition of national aid programmes and from which European networks are built up in the fields concerned.

3.1.10 There is also a need to develop a cultural environment and administrative and financial context that encourage excellence, provide scope for more open work programmes and topics, and become more attractive for researchers.

3.1.11 The Committee reiterates its concern regarding the insufficient synergy and exchange of researchers between universities and the business sector. This creates a split between basic and applied research, makes it difficult to achieve synergy between different technologies, methods and approaches, and reduces interdisciplinary work, while also encouraging people to focus too much on scientific publications and on short-term results.

3.2 The EU should also, preferably, provide assistance to programmes or institutions which involve a high degree of interdisciplinary research. This type of research is becoming more and more important in many key areas; such research can be carried out most effectively by interlinking the various disciplines and the requisite facilities at a central point from where Europe and European networking could benefit.

3.3 In the light of its above comments, the EESC endorses the Commission's views in respect of the following measures put forward in the Communication:

- strengthening European support for research infrastructures and supporting the creation of centres of excellence through a combination of national and European, public and private funding;
- strengthening support for the development of human resources, researcher-training and the development of careers in science⁽²³⁾;
- supporting collaboration and networking.

⁽²²⁾ OJ C 95 of 23.4.2003.

⁽²³⁾ See the Communication from the Commission entitled 'Researchers in the European Research Area: one profession, multiple careers' (COM(2003) 436 of 18.7.2003) and the EESC opinion on this Communication – CESE 305/2004.

3.4 In the EESC's view, a key tool should be the provision of adequate financial support for individual projects. As proposed by the Commission, this could involve a body such as the European Research Council, which should be modelled on the institutions already working very successfully at national level, such as the Deutsche Forschungsgemeinschaft (DFG) (German Research Council) or the (UK) Research Councils. Because of, inter alia, the points raised below, projects should, however, be allowed to run for a sufficiently long period. Particular forms of more institutionalised assistance⁽²⁴⁾ (e.g. covering periods of between 12 and 15 years) should also be considered to a certain extent.

3.4.1 In this context, two key points - which have already been addressed in an earlier EESC opinion⁽²⁵⁾ - should be borne in mind.

3.4.2 Firstly, there is the question of ensuring that research workers taking part in projects have adequate personal contractual arrangements. Because projects are per se of limited duration, research workers must not suffer any disadvantages in respect of their contractual arrangements, pay and social security cover, and adequate incentives must be provided to attract and retain particularly well-qualified research workers.

3.4.3 Secondly, there is the question of the outlay⁽²⁶⁾ involved for both the applicants and the experts in submitting applications, providing expertise, etc. There is a need to follow, in this context, the example of bodies such as the German Research Council (DFG), and to ensure, inter alia, that the outlay is small in comparison to the potential success if the requested funding is granted. One possible solution could be to standardise and amalgamate the application and assessment procedures of all funding bodies involved - and not subject them to constant amendment.

3.5 In this context, a particularly difficult situation could arise if the budget available for basic research were to be drastically limited and a large number of applications for funding - far in excess of the budget available - were to be submitted for

a decision, which would in most cases take the form of a rejection.

3.5.1 On the one hand, it is necessary to avoid a situation where unsuccessful applicants for funding - who would, in the circumstances form the vast majority of applicants - may feel a grudge towards the Commission and the EU, not least because of their outlay.

3.5.2 And on the other hand, it is necessary to avoid excessive bureaucracy (see above) in proving correct and fair procedures have been followed. For this very reason, the EESC urges the Commission to seek advice from both organisations with experience in this field in the Member States and also, above all, successful and unsuccessful applicants for funding.

3.6 The Commission rightly draws attention to the decisive role played by basic research in helping universities fulfil their educational responsibilities; the EESC therefore agrees with the view expressed by the Commission in its Communication that: 'In this respect and for this reason, basic research is likely to remain a central feature of the activities and tasks undertaken by universities and, along with teaching, the performance of such research is the reason why they exist' (see page 6 of the Communication). In the EESC's view, the abovementioned observation does however apply equally to research bodies other than universities which (also) carry out basic research and are linked in many ways, with regard to staffing, programmes and administration, to the research and educational work of universities.

4. Conclusion

The EESC strongly supports the Commission in its goal of ensuring that basic research receives appropriate and systematic support at EU level too, and of making available, to this end, an adequate budget and suitable, 'lean' administrative instruments. The EESC recommends that the Commission implement its planned 'Next steps' and, in so doing, take account of the abovementioned observations and detailed recommendations.

Brussels, 26 February 2004.

The President
of the European Economic and Social
Committee
Roger BRIESCH

⁽²⁴⁾ As is the case with, for example, the 'special research areas' funded by the German Research Council (DFG) in Germany.

⁽²⁵⁾ CESE 305/2004, point 5.1.8.

⁽²⁶⁾ CESE 305/2004, point 5.1.8.4

APPENDIX

to the opinion of the European Economic and Social Committee

The following proposed amendment was rejected in the course of the debate (Rule 54(3) of the EESC's Rules of Procedure).

Point 2.6 — Delete.**Reason**

Basic research is already funded under the sixth RTD framework programme, and it is appropriate that the mix of basic and applied research should be decided by the political decision-makers (the Council and the European Parliament) in the light of strategic objectives at the time. Moreover, practical problems would arise because there is no unanimously accepted definition of the term 'basic research'.

Voting

For: 18, against: 43, abstentions: 12.
