



European Communities

EUROPEAN PARLIAMENT

WORKING DOCUMENTS

English Edition

1985-86

30 January 1986

SERIES A

DOCUMENT A 2-206/85

REPORT

drawn up on behalf of the Committee on Energy, Research and Technology

on the proposal from the Commission of the European Communities to the Council (COM(85) 399 final - Doc. C 2-75/85) for a decision adopting a multiannual research action programme on materials (raw materials and advanced materials - 1986-1989)

and

a support policy for research and development in the new materials sector

Rapporteur : Mr J.-P. ROUX

At its sitting of 8 May 1985 the European Parliament referred the motion for a resolution by Mr MALLET on a support policy for research and development in the new materials sector (Doc. B 2-0239/85), pursuant to Rule 47 of the Rules of Procedure, to the Committee on Energy, Research and Technology as the committee responsible and to the Committee on Economic and Monetary Affairs and Industrial Policy for an opinion.

By letter of 28 August 1985 the President of the Council of the European Communities requested the European Parliament to deliver an opinion on the proposal from the Commission of the European Communities for a decision adopting a multiannual research action programme on materials (raw materials and advanced materials - 1986-1989).

On 9 September 1985 the President of the European Parliament referred this proposal to the Committee on Energy, Research and Technology as the committee responsible and to the Committee on Economic and Monetary Affairs and Industrial Policy and the Committee on Budgets for their opinions.

At its meeting of 17 September 1985 the Committee on Energy, Research and Technology appointed Mr J.-P. ROUX rapporteur and decided to consider the Commission's proposal in conjunction with the motion for a resolution by Mr MALLET on a support policy for research and development in the new materials sector.

The committee considered the Commission's proposal and the draft report at its meetings of 19 November 1985, 17 December 1985 and 21 January 1986.

At the last meeting, the committee decided unanimously to recommend to Parliament that it approve the Commission's proposal subject to the following amendments.

The committee then adopted the motion for a resolution as a whole unanimously.

The following took part in the vote: Mr PONIATOWSKI, chairman, Mr ADAM, vice-chairman; Mr ROUX, rapporteur; Mrs BLOCH VON BLOTTNITZ (deputizing for Mr Tridente), Mr BUENO VICENTE (deputizing for Mr Kolokotronis), Mr BONACCINI (deputizing for Mr Valenzi), Mr CROUX (deputizing for Mr Ciancaglini), Mr DUARTE, Mr CENDON, Mr FORD (deputizing for Mr Lienemann), Mr IPPOLITO, Mrs LIZIN, Mr METTEN (deputizing for Mr Linkohr), Mr MUNCH, Mr PINTO, Mr RINSCHÉ, Mr SANZ FERNANDEZ, Mr SMITH, Mr VIEHOFF and Mr WEST.

The opinions of the Committee on Economic and Monetary Affairs and Industrial Policy and the Committee on Budgets are attached.

The report was tabled on 24 January 1986.

The deadline for tabling amendments to this report will be indicated in the draft agenda for the part-session at which it will be debated.

C O N T E N T S

	Page
Amendments to the Commission's proposal.....	5
A. MOTION FOR A RESOLUTION	10
B. EXPLANATORY STATEMENT	12
Annex: Motion for a resolution tabled by Mr MALLET on a support policy for research and development B 2-239/85)	17
Opinion of the Committee on Economic and Monetary Affairs and Industrial Policy	18
Opinion of the Committee on Budgets	23

The Committee on Energy, Research and Technology hereby submits to the European Parliament the following amendments to the Commission's proposal and motion for a resolution together with explanatory statement:

Proposal from the Commission for a Council decision adopting a multiannual research action programme on materials (raw materials and advanced materials) - (1986-1989)

Text proposed by the Commission of the European Communities

Amendments tabled by the Committee on Energy, Research and Technology

Preamble unchanged

1st, 2nd and 3rd recitals unchanged

4th recital

Amendment No. 1

The 4th recital to read as follows:

whereas the economic availability of raw materials and processed materials is indispensable to maintaining the industrial competitiveness of the Community;

whereas the economic availability of raw materials and advanced materials is indispensable to maintaining the industrial competitiveness of the Community;

5th, 6th, 7th, 8th and 9th recitals unchanged

Article 1 unchanged

Article 2

Amendment No. 2

Article 2(1) to read as follows:

1. The funds estimated as necessary for the execution of the programme amount to 110 mio ECU, including expenditure for a staff of 24.

1. The funds estimated as necessary for the execution of the programme amount to 200 m ECU, including expenditure for a staff of 30.

2. In the light of the experience gained in the course of implementing the programme and after receiving the opinion of the committee referred to in Article 3, the Commission shall be authorized to transfer funds from one subprogramme to another, provided that the final appropriations for any sub-programme does not differ by more than 15% from the original appropriations as set out in the annex.

Article 2(2) unchanged.

Article 3 unchanged

Article 4

The programme shall be reviewed at the beginning of the third year. In the light of this review the Commission may, through the appropriate procedures, present to the Council a proposal for a new 4-year programme which would supercede the current programme at the end of the third year.

Amendment No. 3

Article 4 to read as follows:

The programme shall be reviewed at the end of the second year. In the light of this review, the Commission, may, through the appropriate procedures, present to the Council a proposal for a new four-year programme which would supercede the current programme at the beginning of the third year.

Articles 5 and 6 unchanged

ANNEX I

I - Primary raw materials (minerals)

unchanged

II - Secondary raw materials

unchanged

III - Wood as a renewable raw material

The expenditure estimated as necessary for this subprogramme is 20 million ECU. It covers the following research areas:

The expenditure estimated as necessary for this subprogramme is 20 million ECU. It covers the following research areas:

1. WOOD PRODUCTION

- 1.1. Forest tree breeding and gene resource conservation;
- 1.2. Protection against damage from biotic and abiotic agents;
- 1.3. Better use of land resources (coordination action only);
- 1.4. Forest inventory (coordination action only).

2. WOOD HARVEST, STORAGE AND TRANSPORT

- 2.1. Organization of harvesting operations and development of harvesting machinery;
- 2.2. Harvesting, treatment, storage and transport.

3. WOOD AS A MATERIAL

- 3.1. Properties, protection and improvement of wood and wood-based panels;
- 3.2. Development of testing and grading procedures.

4. MECHANICAL WOOD PROCESSING AND USE OF FINISHED WOOD PRODUCTS

- 4.1. Mechanical conversion and manufacturing processes;
- 4.2. Drying processes;
- 4.3. Constructional use of wood and wood-based materials;
- 4.4. Other uses of finished products made of wood.

5. PULP AND PAPER MANUFACTURING AND PROCESSING AND WOOD CHEMICALS

- 5.1. The physical and organic chemistry of wood defibring;
- 5.2. Chemi-mechanical pulping (high yield pulping);
- 5.3. Pulping processes with low grade wood;

1. WOOD PRODUCTION

- 1.1. Forest tree breeding and gene resource conservation;

Amendment No. 4

Paragraph 1.2 to read as follows:

- 1.2. Protection against damage from biotic and abiotic agents and fire;
- 1.3. Better use of land resources (coordination action only);
- 1.4. Forest inventory (coordination action only).

2. WOOD HARVEST, STORAGE AND TRANSPORT

unchanged

3. WOOD AS A MATERIAL

unchanged

4. MECHANICAL WOOD PROCESSING AND USE OF FINISHED WOOD PRODUCTS

unchanged

5. PULP AND PAPER MANUFACTURING AND WOOD CHEMICALS

unchanged

- 5.4. Substitutes for wood fibres and material additives;
- 5.5. Fibre recycling;
- 5.6. The process of manufacture of paper and board;
- 5.7. Products derived from wood as a source of chemicals.

IV - Advance materials (EURAM)

Amendment No. 5

The first sentence to read as follows:

The expenditure estimated as necessary for this sub-programme is 38 m ECU. It covers the following research areas:

1. METALLIC MATERIALS

1.1. light aluminium -, magnesium - and titanium-based alloys;

1.2. electrical-contact materials.

1.3. high-performance magnetic materials.

1.4. materials for surface coatings and machine, tool and cutting equipment.

1.5. thin-walled castings

2. ENGINEERING CERAMICS

2.1. Optimization of engineering ceramics.

2.2. Study of metal/ceramic interface cermets.

2.3. Ceramic composites with fibres and whiskers.

2.4. High temperature behaviour of engineering ceramics.

The expenditure estimated as necessary for this sub-programme is 128 m ECU. It covers the following research areas:

1. METALLIC MATERIALS

1.1. light aluminium -, magnesium - and titanium-based alloys;

Amendment No. 6

Paragraph 1.2 to read as follows:

1.2. Electronic- and electrical- contact materials.

1.3. High-performance magnetic materials.

1.4. Materials for surface coatings and machine, tool and cutting equipment.

1.5. Thin-walled castings.

2. ENGINEERING CERAMICS

unchanged

3. COMPOSITE MATERIALS

- 3.1. Organic-matrix composites.
- 3.2. Metallic-matrix composites.
- 3.3. Ceramic-matrix composites.
- 3.4. Other specific advanced materials.

3. COMPOSITE MATERIALS

unchanged

Amendment No. 7

Insert the following new paragraph :

The aim of research carried out under the subprogramme shall be to provide the basis for a Community policy for supporting research and development in the advanced materials sector and for coordinating national programmes.

To this end:

- an assessment shall be made of European research and development capacity in the advanced materials sector, by area, Member State and in the Community as a whole, by comparison with the technological capacity of Japan and the United States
- a medium-term analysis and estimate shall be made of requirements in the various sectors of the European industry, in relation, if necessary with the BRITE programme,

every two years, in connection with the progress report provided for in Article 5(2).

ANNEX II

unchanged

A

MOTION FOR A RESOLUTION

embodying the opinion of the European Parliament on the proposal from the Commission of the European Communities to the Council for a decision adopting a multiannual research action programme on materials (raw materials and advanced materials - 1986-1989) and on a support policy for research and development in the new materials sector

The European Parliament,

- having regard to the proposal from the Commission to the Council¹,
 - having been consulted by the Council (Doc. C 2-75/85),
 - having regard to the motion for a resolution by Mr MALLET on a support policy for research and development in the new materials sector (Doc. B 2-0239/85),
 - having regard to the report of the Committee on Energy, Research and Technology and the opinions of the Committee on Economic and Monetary Affairs and Industrial Policy and the Committee on Budgets (Doc. A 2-206/85),
 - having regard to the result of the vote on the Commission's proposal,
- A. whereas advanced materials, like information technology and biotechnology, constitute one of the main areas of new technologies,
 - B. whereas the United States and Japan have had ambitious advanced materials research and development programmes for several years,
 - C. concerned at the increased vulnerability of Europe in this field because of the lack of any Community strategy although some technological breakthroughs have been made by individual Member States,
 - D. considering Community action in this area to be a matter of urgency,
1. Confirms that the Community needs to have a support policy for research and development in the advanced materials sector;
 2. Considers that such a policy should first and foremost be based on:
 - the coordination of national policies in this field,
 - support for materials of prime importance for Europe's competitive position,
 - projects of a transnational nature;
 3. Deplores the fact that it is once again called upon to deliver an opinion when the Council, at its meeting of 10 December 1985, has already de facto adopted its position on the Commission proposal under discussion;

¹OJ No. C 220, 30.8.1985, p. 3

4. Welcomes with interest the Commission's proposed multiannual research action programme on materials;
5. Agrees in general with the first three subprogrammes contained in this proposal which concern primary raw materials, secondary raw materials and wood as a renewable raw material respectively;
6. Believes that these three subprogrammes could enable the Community to make better use of its natural resources and enhance the competitive position of its industries as regards metals and mineral substances, the recycling of waste, and the production, exploitation and industrial use of wood and wood products;
7. On the other hand, regrets that the fourth subprogramme of this proposal on advanced materials research has not been given priority;
8. Believes that the place currently occupied by advanced materials in this programme, the only general framework within which a Community strategy in this field can be devised, bears no relation to the real importance of advanced materials in today's and tomorrow's world economy;
9. Therefore feels that the EURAM advanced materials subprogramme should be given much more financial support than proposed by the Commission;
10. Calls for the advanced materials subprogramme to be seen not merely as the setting for a series of research projects but as a Community policy on advanced materials;
11. To this end, calls on the Commission to carry out a full assessment of European research and development capacity in this sector, and to estimate the medium-term requirements of European industry so that the programme can be adapted to the needs of international competition and a proper policy pursued;
12. At all events, recommends that the Commission ensure that research carried out under the multiannual programme complements rather than competes with programmes on industrial technologies (BRITE), information technologies (ESPRIT), high-temperature materials and material information of the Petten Joint Research Centre;
13. Subject to the above remarks, approves the Commission's proposal for a decision adopting a multiannual research action programme on materials;
14. Reserves the right to open the conciliation procedure should the Council propose to depart from this opinion.
15. Instructs its President to forward to the Council and Commission, as Parliament's opinion, the Commission's proposal as voted by Parliament and the corresponding resolution.

EXPLANATORY STATEMENTI - INTRODUCTION

1. The background to this report is the motion for a resolution on a support policy for research and development in the new materials sector (Doc. B 2-0239/85) in which the author, Mr Mallet, points out that they are of key importance to new technologies, as are information technology and biotechnology.

2. Advanced materials are in fact part of the new technologies. They constitute a field in their own right and developments are constantly being made.

3. It is therefore obvious that advanced materials are the subject of international competition. Mr Mallet's motion for a resolution called for European cooperation on a strategy for advanced materials and in particular for an analysis of the requirements of the industrial sectors in Europe and an assessment of European research capacity. It also called on the Commission to draw up a European programme to coordinate and strengthen research.

4. It so happens that, shortly after this motion for a resolution was tabled, the Commission submitted to Parliament a proposal for a multiannual research action programme on materials (raw materials and advanced materials) (1986-1989).

5. The question therefore is how far the Commission's proposal goes towards meeting the requests made in Mr Mallet's motion for a resolution. The proposal consists of four subprogrammes, the first on primary raw materials, the second on secondary raw materials, the third on wood as a renewable raw material and the fourth on advanced materials.

6. The proposal thus deals with all materials, not just advanced materials.

7. Your rapporteur has even wondered whether the first three subprogrammes came entirely under the jurisdiction of the Committee on Energy, Research and Technology since they seem to cover more general economic aspects rather than specifically research and technology aspects.

8. Secondly, the fact that advanced materials is the subject of only one of the four subprogrammes of this multiannual programme indicates that advanced materials are not being given the priority they should have in Europe.

9. I therefore propose to consider the Commission's first three subprogrammes and then the advanced materials subprogramme since they are quite different in both substance and form.

II - PRIMARY AND SECONDARY RAW MATERIALS AND WOOD AS A RENEWABLE RAW MATERIAL

10. These three subprogramme have one common characteristic, which reinforces the conviction that they should be dealt with as a whole. For each of these three subprogrammes, the Commission has made a point of methodically analysing the entire production network and considering the most appropriate action the Community could take. The good thing about this approach is that it tries to be exhaustive and is therefore to be welcomed.

11. The first subprogramme concerns primary raw materials (metals and mineral substances) and covers exploration, mining technology and mineral processing. A series of research activities is proposed for each of these production stages. In the case of mining technology for instance consideration will be given to the introduction of robotics, the modelling of mining operations and certain transfers of technology. The aim therefore is to modernize mining technology. Thirty million ECU (spread over 4 years) will be allocated for this subprogramme. According to information we have received, this subprogramme will enhance the competitive position of the European mining and metallurgical sectors.

12. The second subprogramme concerns secondary raw materials, the objective being to study and improve the recycling of waste (non-ferrous metals and organic waste). Considering the large amounts of waste generated at an increasing rate in modern societies, the importance of recycling cannot be denied. Apart from the purely economic aspect of the recovery of raw materials, this subprogramme is also of environmental interest. The possibilities of energy conservation should also not be forgotten. A total of 22 million ECU is proposed for these research activities.

13. The third subprogramme deals with wood as a renewable raw material. An economic analysis of the wood industry is undoubtedly needed. The Community currently imports about 50% of the wood it needs. Better exploitation of our forest resources would undoubtedly help to reduce a trade deficit which the Commission estimates to be more than 12 billion ECU and to create jobs since the wood industry is relatively labour-intensive. It is undoubtedly because of the fragmented nature of Community forests that modern industrial methods have not been used to enhance the economic viability of this sector.

14. This subprogramme is therefore to be welcomed since its aim is to study the production, exploitation, storage and transport of wood and then to consider all the possible industrial uses of wood.

15. All the stages of production seem to have been taken into account although it is regrettable that the question of windfallen wood has not been discussed more thoroughly outside 1.2. 'protection against damage by biotic and abiotic agents'. Your rapporteur recognizes that windfallen wood is a recurring problem that has attracted our attention because of the exceptionally bad weather we have had in recent years. No special measures seem to have been proposed for one other aspect, the destruction of forests by fire, although this problem is extremely pertinent to Mediterranean forests. 20 million ECU has been allocated for this subprogramme.

16. These three subprogrammes are particularly useful as a means of assessing Europe's raw materials potential and are therefore to be recommended. The expenditure estimated as necessary seems to be appropriate, considering all the areas covered.

III - ADVANCED MATERIALS¹

The international context

¹The term 'advanced materials' will be used in preference to 'new materials' or 'composite materials' which have a more limited meaning.

17. Before considering the content of the advanced materials subprogramme, we must take careful stock of the challenge presented by the Americans and the Japanese - one of the major challenges in new technology. The Commission has provided various documents which show that each year the Federal Government earmarks 1 billion dollars for materials research, including military appropriations. Space projects (Apollo) and the nuclear programme (Project Manhattan) have undoubtedly helped to bring this about.

These public programmes are run by government agencies (NASA, NBS) and departments. They have been stepped up in recent years, enabling the United States to make breakthroughs in a number of areas: superconducting alloys, amorphous metals and special polymers.

A materials investigation and testing centre has been set up at the University of Berkeley.

18. An even more interesting and serious fact is that, according to the Commission, the United States now imposes severe restrictions as regards new materials, as Mr METTEN pointed out in his report on transfers of technology.

19. Since 1981, the Japanese Ministry of Industry and Trade, MITI, has had a particularly ambitious materials programme, involving specialists in basic research and technology research, to which some \$300 million is allocated each year. Japan's interest in this particular area of advanced materials has even been dubbed 'ceramics fever'. More than 2 000 scientists and engineers are working in high-technology ceramics and the Fine Ceramics Association, which is composed of companies working right across the range of ceramics applications, has 170 members. These companies' annual R & D budgets range from \$2 million to \$6 million. Japan has now reached a level of undisputed skill that puts it ahead even of the United States. Japan's commitment to ceramics is illustrated by the fact that it is devoting particular attention to using ceramics in the manufacture of engine parts and is hoping to be able to build an all-ceramic engine by the end of the century (with the advantages of petrol savings, lightness, no need for lubricants etc.). In 1982 the Japanese ceramics market was worth \$1 360 billion, 80% of which was accounted for by electrical ceramics.

20. According to the main observers, Japan and America will make even more important technological breakthroughs by 1990-1995. The Commission highlights the situation of technological dependence that already exists as regards advanced materials. Four out of five materials patents belong to the Americans and the Japanese. It is estimated that Europe pays several hundred million dollars per year in royalties to the United States and Japan. This situation clearly creates a loss of potential jobs.

21. As in other areas such as electronics, Europe's weakness seems to stem from the compartmentalization of basic research and industrial applications. One example is the 'amorphous' silicone that was discovered by scientists in the United Kingdom and then developed and marketed in the United States and Japan. Even more ironically, this amorphous silicone will be the first to bear the EUREKA label.

Member States' national policies

22. At present, only Germany and France have any real programme specifically concerned with advanced materials.

23. Germany has just (November 1985) adopted a 'Programm des Bundesministers für Forschung und Technologie', to which a total of DM 1 billion will be allocated over a ten-year period (1986-1995).

24. France has developed an introductory materials programme (PMM), for which about FF 70 million were entered in the 1985 budget. The rate of increase of materials research appropriations is higher than that of resources provided for all other research.

25. In Italy, the National Research Council is in the process of finalizing what is expected to be a major programme but the budget has not yet been fixed.

26. In the United Kingdom, a voluminous report, the COLLYEAR report, has been prepared but so far no decision has been taken on the financing of such a programme from public funds.

27. Lastly, although Spain does not yet have an advanced materials programme, (but it will not be long before it does), it attaches considerable importance to the subject. It feels it can rapidly assume an important role in this field, particularly as regards ceramics.

28. We are obviously at a turning point since all these very recent programmes indicate that there is an awareness of the need for an advanced material strategy. The time is therefore ripe for a coordinated policy to harmonize and reinforce European research efforts.

The advanced materials subprogramme - EURAM

29. The main question is whether the content of this subprogramme is suitable as a European riposte. It covers three main areas of research: metallic materials, engineering ceramics and composite materials, which in fact covers practically everything normally referred to as advanced materials. It is proposed that 38 million ECU be allocated for this subprogramme.

Comments on the advanced materials subprogramme

30. At first sight, as was pointed out in the introduction, it is surprising that, given the strategic importance of advanced materials for Europe's competitive position, only a subprogramme has been devoted to the subject although the overall programme covers materials. When discussing the other subprogrammes, we saw how this was because the way of thinking and potential for action were totally different in the case of advanced materials. Similarly, from a financing point of view, although more funds are allocated to the EURAM programme than for the other subprogrammes, they are not significantly higher, representing only 4% of the materials programme.

31. It would have been preferable for the Commission to draw up two separate programmes, one for raw materials and the other for advanced materials. Moreover, if time had permitted, your rapporteur's instinct would have been to amend the text so that there were in fact two Commission proposals. However, in view of the urgent need for this new materials programme, he will not make such a proposal.

32. If we want to stress that it is absolutely essential for Europe to catch up, the advanced materials subprogramme must be given much more substantial financing. To this end, the amount allocated to this subprogramme should be

increased to 128 million ECU without in any way reducing funds for the other three subprogrammes, for which we consider the amounts proposed to be essential and sufficient. Appropriations for the materials research action programme would thus increase from 110 million ECU to 200 million ECU.

33. Although, as we have said, the research topics cover all the fields involved, it is surprising that no strategy is apparent. Here, as elsewhere, priorities exist in the light of industrial needs and in relation to research work carried out outside the Community.

As this subprogramme now stands, it is difficult to see on what grounds the Commission intends to finance, for instance, engineering ceramics rather than composite materials. Such a choice has to be made since advanced materials offer a vast field of research for a multitude of industrial applications.

34. It is therefore essential that the Commission conduct its research with the best possible knowledge of the market, first of all by assessing carefully the real technological capacity of the different Member States as regards advanced materials and secondly, by estimating the medium-term requirements of industry. It is difficult to see how otherwise the Commission could direct its research efficiently.

35. Your rapporteur also feels that a European advanced materials policy must first and foremost be based on the coordination of national research policies. This would be quite easy to do since as we have seen those policies are only now being introduced in the different Member States. Now is therefore the best time to make the necessary adjustments at European level. It does not seem advisable for the Commission to consider carrying out the research at the Joint Research Centre's laboratories even though the results obtained at Petten for high-temperature materials are interesting.

36. The Community's role should rather be to determine what current research weaknesses there are and to that end to finance specific topics that become of priority importance on the basis for instance of transnational projects. If properly played, this role of providing an incentive would be extremely useful in preparing the Community's technological future.

37. To improve its effectiveness, steps must also be taken to ensure that the new materials subprogramme does not overlap with other research programmes or activities at Community level. Both the ESPRIT and BRITE programmes have a bearing on advanced materials. Similarly, the Joint Research Centre at Petten, in collaboration with the ISPRA establishment, is conducting a programme for developing advanced technologies in the high-temperature materials sector.

38. After carefully examining these possible interactions, it does not seem that there will be any real overlapping. It is however possible that at some point programmes might converge. It is therefore recommended that, each time this type of problem arises, the Commission should ensure that there is the closest possible cooperation.

39. In conclusion, the Commission's proposal seems inadequate as it now stands. We therefore propose various amendments, one concerning the appropriations for the advanced materials subprogramme and the other introducing the concept of European strategy into the subprogramme itself. These adjustments should enable the subprogramme to achieve the desired degree of effectiveness.

MOTION FOR A RESOLUTION (DOCUMENT B 2-239/85)

tabled by Mr MALLET

pursuant to Rule 47 of the Rules of Procedure

on a support policy for research and development in the new materials sector

The European Parliament,

- A. having regard to the increasingly marked trend towards composite materials, i.e. materials consisting of substances combined for their specific properties such as lightness, performance, strength, safety etc.,
- B. whereas, taken in conjunction with information technology and biotechnology, new materials constitute the third field in the new technologies sector,
- C. whereas steel is increasingly being replaced in industry by an ever-larger number of composite and synthetic materials, demonstrating their key importance for growth industries,
- D. whereas much technical progress has only been made possible by the development of new materials,
- E. whereas the use in particular of synthetic resins and new fibres has opened up new markets, uncovered hidden needs and altered life-styles,
- F. conscious that the new materials industry is becoming a service industry whose products are based on cost-benefit ratios,
- G. fully appreciating also the strategic importance for Europe of supplies of certain ores essential to the manufacture of these materials,
- H. whereas the use of new materials is likely to be beneficial to the environment and to save certain natural resources,
- I. whereas technological progress affects every aspect of the industrial process,
 1. Stresses the need to support and step up European research efforts in the new materials sector;
 2. To this end, considers it essential:
 - to make a thorough analysis of this matter, in particular as regards the requirements of the various industrial sectors,
 - to carry out a full assessment of European research and development capacity for new materials;
 3. Calls on the Commission of the European Communities, on the basis of previous work, to draw up a European programme to coordinate and strengthen research in this field;
 4. Instructs its President to forward this resolution to the Commission and the Council of the European Communities.

O P I N I O N

(Rule 101 of the Rules of Procedure)

of the Committee on Economic and Monetary Affairs and Industrial Policy

Draftsman: Mr METTEN

On 25 September 1985 the Committee on Economic and Monetary Affairs and Industrial Policy appointed Mr METTEN draftsman of the opinion.

The committee considered the draft opinion at its meeting of 17-18 December 1985 and adopted it unanimously on that date.

The following took part in the vote: Mr Seal, chairman; Mr von Bismarck and Mr P. Beazley, vice-chairmen; Mr Metten, rapporteur; Mr Besse, Mr Beumer, Mr Bonaccini, Mr Carossino, deputizing for Mr Novelli), Mr Cassidy, Mr Christodoulou (deputizing for Mr Chiusano), Mr Filinis, Mr Gautier, Mr Herman, Mr Tove Nielsen, Mrs Oppenheim, Mr Patterson, Mr Raftery, Mrs van Hemeldonck, Mr Wagner, Mr Wedekind and Mr von Wogau.

BACKGROUND

1. The Commission is proposing a multiannual research action programme on materials (raw materials and advanced materials) (1986-1989). This would be a follow-up to existing Community R and D programmes and is divided into four main subprogrammes.

The first subprogramme deals with primary raw materials (minerals) and consists of three main research areas, exploration, mining technology and mineral processing.

The next subprogramme concerns secondary raw materials, namely the recycling of non-ferrous metals, and the recycling and utilization of waste.

A third main area of research covers wood as a renewable raw material and is divided into a number of more specific programmes dealing with wood production, wood harvest, storage and transport, wood as a material, mechanical wood processing and use of finished wood products, and pulp and paper manufacturing and processing and wood chemicals.

The fourth main area of research has been given its own programme title - EURAM, which stands for European Research on Advanced Materials. Covering the materials priority areas in the higher technology industrial sectors of the Community, it includes research on metallic materials (such as aluminium, magnesium and titanium alloys, electrical contact materials and magnetic materials), engineering ceramics and composite materials.

2. Most of the programme will be implemented by means of shared-cost contracts with industry, public research centres and universities, with a certain amount of coordinated activities as well. In executing the programme the Commission would be assisted by a Management and Coordination Advisory Committee - Materials, which would assess the results of the programme and ensure liaison between Community and national research efforts in this area.

Initial criticisms

3. To a large extent this proposal has to do with the continuation of existing programmes and your draftsman wonders whether a frank assessment of the current programmes is needed, in order to improve the quality of the proposed new programmes. A statement such as 'the results of these programmes ... have led to sound industrial and economic applications' is totally inadequate and must be expanded. Moreover the (evaluation) report of the panel of independent experts needs to be made available to Parliament in good time.

4. Secondly, the Commission states that the priorities have been determined by means of studies and in consultation with industry, government experts and researchers, which would seem to be a sound procedure. However, if Parliament is not given any information on which research projects were in fact assessed, but were not considered priorities, Parliament is forced into a position where it can only approve or reject the entire programme. Your draftsman considers that this is not desirable, and that it underlines the need for an independent Parliamentary Technology Assessment Office.

5. Thirdly, the Commission document deals far too briefly with the relationship between the proposed and existing Community programmes and between the proposed programme and national programmes. Your draftsman considers that, if a well-founded decision is to be taken, a much more detailed description is needed of Community and national programmes concerned with advanced materials. The brevity of the programme descriptions both in the Commission document and in the national research programmes at the very least gives the impression that as yet there is no overall view and that such will be difficult to achieve.

Assessment

6. In industry, the cost of materials accounts for 50% of total production costs for capital and consumer goods.

Research to improve the availability at competitive prices of the raw materials needed for industry is therefore of paramount importance and the first three subprogrammes are particularly concerned with this area.

7. The aim of the subprogramme on primary raw materials is to enhance the competitiveness of the European mining and metallurgical sectors and to reduce the Community's vulnerability. With regard to the second objective, your draftsman is surprised that it is not combined with an analysis of the materials where there is special vulnerability (e.g. where there is a single-supplier or almost single-supplier situation). An assessment would also be needed of whether or not cooperation agreements with suppliers from developing countries might reduce vulnerability.

In view of the poor competitive position of the European mining sector, the first subprogramme should concentrate on the objective of enhancing the competitiveness of this sector.

8. The recycling subprogramme consists of two parts both of which have a clear environmental significance but are also aimed at developing cost-effectiveness technologies.

In the non-ferrous metals sector, covered by the first sub-section, some progress has already been made. As revealed in a 1983 Commission report, in the period 1980-1982 recycling provided 35% of the Community's total consumption of aluminium, 37% of copper, 55% of lead, about 20% of zinc and 10-15% of nickel (COM(83) 575 final). The importance of recycling in reducing the Community's vulnerability was illustrated at the recent hearing on the automobile industry held by the Committee on Economic and Monetary Affairs. For the 3-way catalytic converter which is to be introduced in the Community, a number of essential raw materials, including rhodium, are obtainable virtually only from South Africa. In addition to the fact that the price has risen four-fold in a short period of time, the explosive situation in that country and the threat of a boycott by the South African government illustrate the uncertainty of a constant supply. Recycling of these scarce materials could reduce the vulnerability of the Community. It should also be noted that the recycling and recuperation of waste (which is the second part of the subprogramme) are important growth sectors which constitute an independent source of employment and prosperity.

The Committee on Economic and Monetary Affairs ought to consider whether these sectors might not be given further consideration.

9. The third subprogramme, which deals with wood as a renewable raw material, has as its objectives increasing the availability, reducing the costs of production by using new technology and enhancing the quality of wood and wood products.

Because of the fragmentation of woodlands and woodland ownership in the Community, the competitiveness of forestry is not satisfactory and the large-scale exploitation techniques developed for the extensive woodland areas outside the Community cannot generally be used. Research aimed at increasing the productivity of woodlands, making greater use of all forest products and finding techniques appropriate to the fragmented woodlands should improve the competitiveness of the Community's forestry industry. Improved quality needs to increase the resistance of woodland to environmental factors such as acid rain, but this last point should not be seen as an alternative to combating acid rain at source, but rather as a means of supplementing efforts in this field. The economic importance of profitable wood production can be seen from the current trade deficit for wood and wood products of more than 12 billion ECU and from the employment opportunities in the wood processing industry, which accounts for 5.5% of the industrial labour force, in other words 1.4 million people. However, as the structure of the wood processing industry is weak, your draftsman wonders whether the research subprogramme should not be geared more towards strengthening the structure of this industry. The Committee on Economic and Monetary Affairs should consider the possibility of a further study of the wood-processing industry in the Community.

10. The pièce de résistance of the materials action programme is the fourth subprogramme, EURAM, on research on advanced materials. In recent years there has been a veritable explosion of research programmes on advanced materials, and the Commission's proposal is only of a rather modest nature.

The reason for the rapid growth in research is, of course, that advanced materials, superior in technical or economic respects, are a key factor in the competitiveness of industry, especially in view of the size of the materials cost element in the total cost of industrial products.

The need for concentrated efforts is therefore quite obvious, but what is surprising is the fact that the scale of this programme, 38 m ECU over four years is far smaller, for example, than that of France (55 m ECU per annum) or Germany (50 m ECU per annum until 1994). This is one area where a common and coordinated European effort is clearly needed and this is illustrated by the fact that a materials programme has already been discussed within the framework of Eureka.

Advanced materials often have wide-ranging applications but they require prior basic research. The German and British materials programmes, which are both organized in the same way as the Community programmes, show clearly that government assistance, in the form of coordination and financial support, is needed. The Committee on Economic and Monetary Affairs therefore recommends, as a matter of urgency, that a much greater Community effort be made in this area, but not at the expense of the other subprogrammes, which are well-founded, necessary and already too modest in scope.

As Europe's particular weakness is an inability to transfer research results rapidly into the industrial sphere, the Committee on Economic and Monetary Affairs calls on the Commission to consider these aspects further. A sound relationship with the Brite programme is of prime importance in this context.

Conclusions

The Committee on Economic Affairs and Industrial Policy

1. Endorses the importance of the proposed programme for improving and enhancing the Community's competitiveness;
2. Regrets that the scope of the proposed programme is far smaller than that of a number of national programmes; takes the view that this is an area where Community action is eminently justified;
3. Regrets that it does not have available a proper assessment of the current programmes, of which, to a large extent, the proposed programme is a continuation; takes the view that a frank evaluation of Community programmes, even where the latter are very desirable, is necessary to enhance the quality of the Community programmes;
4. Wishes to see a detailed description of those parts of other Community programmes (ESPRIT, BRITE, JRC) which also relate to advanced materials; hopes also for a survey of current and forthcoming national programmes in this field;
5. Attaches importance to obtaining more information as to which projects have also received consideration, but which, in consultation with industry, government experts and researchers, have not been deemed to deserve priority;
6. Calls, in respect of the subprogramme on primary raw materials, for a survey of those materials where there is vulnerability (single supplier); considers that, in view of the poor competitive position of the European mining industry, this subprogramme should concentrate on strengthening the competitiveness of mining in the Community;
7. Supports unreservedly the subprogrammes on recycling and on wood as a renewable raw material;
8. Takes the view that progress in the field of advanced materials could have far-reaching consequences in many economic and social fields; considers that the Community cannot allow itself to take a back seat in this field or to be satisfied with fragmented, national efforts; considers therefore that provision of adequate funds for this programme will be a crucial indicator of the Council's willingness to create a European technological community.

OPINION

(Rule 101 of the Rules of Procedure)

of the Committee on Budgets

Draftsman: Mr O. d'ORMESSON

On 18 September 1985, the Committee on Budgets appointed Mr d'ORMESSON draftsman of the opinion.

The committee considered the draft opinion at its meeting of 2-4 December 1985. It adopted the draft opinion on 4 December unanimously by 17 votes to none with no abstentions.

The following were present: Mr COT, chairman, Mr RYAN, Sir James SCOTT-HOPKINS and Mrs BARBARELLA, vice-chairmen; Mr AIGNER (deputizing for Mr Pfennig), Mr BONACCINI (deputizing for Mr Spinelli), Mrs BOSERUP, Mr CHRISTODOULOU, Mr CORNELISSEN, Mr CURRY, Mr DEBATISSE (deputizing for Mr Deprez), Mrs HOFF, Mr LALOR, Mr LANGES, Mr LOUWES, Mr MERTENS (deputizing for Mr Bardong), Mr NORMANTON, Mr PASTY, Mr SCHREIBER (deputizing for Mr Arndt), Mr TOMLINSON, Mr VAN DER WAAL (deputizing for Mr CiccioMessere) and Mr VON DER VRING.

The Committee on Budgets invites the Committee on Energy, Research and Technology to incorporate the following points into its motion for a resolution:

1. Recognizes that it is important for the Community to achieve self-sufficiency in raw materials in order to reduce the cost of imports;
2. Notes that the Council adopted an initial research and development programme on raw materials for 1982-1985, which has proved very satisfactory;
3. Urges that the indicative nature of the level of funds estimated as necessary for the implementation of the new programme (110 m ECU) should be stressed in Article 2 of the Commission's proposal for a decision, and that this figure should be retained in the decision adopted by the Council;
4. Welcomes the fact that the Commission has been able to commit virtually all the funds allocated in 1982 for the previous programme to the end of 1985 as follows:

1982	0.58 m ECU
1983	24.46 m ECU
1984	18.74 m ECU
1985 (estimate)	9.28 m ECU
	53.06 m ECU

5. Stresses that the new programme's schedule for 1986-1987 provides for the budgetary authority to authorize a considerable increase in commitments between 1985 and 1987 and in payments between 1987 and 1989 as follows:

(m ECU)	1986	1987	1988	1989
Commitments	32.5	52.1	22.74	2.66)
Payments	3.5	20.9	29.1	56.5)110m ECU

6. Considers that this increase in expenditure fits in well with the policy, supported by the Commission, of increasing the proportion of research appropriations from 3% to 6% of the total Community budget for 1989;
7. Notes that 65% of the funds will be channelled into the sub-programmes already forming part of the previous programme as follows:
 - (a) primary raw materials (minerals) - 30 m ECU,
 - (b) wood as a renewable raw material - 20 m ECU,
 - (c) treatment and recycling of urban, industrial and agricultural waste - 22 m ECU;
8. Notes that the new sub-programme on advanced materials, notably light super-alloys and metals, and the development of new technical ceramics and composite materials, is accorded substantial funding (38 m ECU);

9. Considers that the Commission's proposal that the transfer of funds from one sub-programme to another may be authorized provided that this does not lead to an increase or reduction of more than 15% in the original appropriations for each sub-programme gives more flexibility than the current programmes, which permit a variation of 10%;
10. Approves the Commission's proposal, which is a suitable response to a crucial challenge facing the Community.