

Chapter 3

Trans-European networks

3.1. The stakes

Traffic jams are not only exasperating, they also cost Europe dear in terms of productivity. Bottlenecks and missing links in the infrastructure fabric; lack of interoperability between modes and systems; non-communication between too many closed and scattered telecommunications circuits. Networks are the arteries of the single market. They are the lifeblood of competitiveness, and their malfunction is reflected in lost opportunities to create new markets and hence in a level of job creation that falls short of our potential.

The establishment of networks of the highest quality throughout the whole Union and beyond its frontiers is a priority task. It will require a joint, massive and sustained effort on the part of the authorities at all levels and of private operators. The potential to create jobs is substantial, both directly in the short term by initiating the large-scale projects proposed and through the beneficial effect in the long term on production conditions in Europe.

The Commission's analysis shows that the overall volume of direct investment to be mobilized by 1999 could amount to ECU 400 billion, of which ECU 220 billion would go to transport, ECU 150 billion to telecommunications and ECU 13 billion to energy transport. The sums involved are therefore fairly substantial. However, the possible gains in terms of employment creation, economic cohesion and as an aid to regional planning are no less considerable.

The message has not gone unheard. The new Title XII of the Treaty on European Union sets the framework. The objective of developing trans-European networks is to enable citizens, economic operators and regional and local communities to derive full benefit from the setting-up of an area without internal frontiers and to link the peripheral regions with the centre. The pol-

itical impetus was subsequently given by the Copenhagen European Council: it called on the Commission and the Council to speed up the adoption of master plans in the field of transport, energy and telecommunications and the examination of the Commission's proposals on telematic networks; it also extended the duration and amount of the Edinburgh facility, so that in some cases Community financing might amount to 90%; furthermore, projects awarded a declaration of Community interest are to be given privileged access to Community financial instruments. The European Council, meeting in Brussels on 29 October, extended the scope of the Edinburgh lending facility to cover transport infrastructures.

Four master plans for transport and the plan relating to telematic systems are now in place. Discussions are already in progress in the Council on some of the plans, and the Commission intends to present the other draft plans shortly. Major obstacles persist, which are holding up implementation of the objectives of Article 129b of the Treaty within the stipulated framework of 'a system of open and competitive markets'.

It is necessary to step up the pace again. Networks can — and in the present economic context, must — provide fresh impetus. The Commission's analysis shows that the installation or completion of networks as a whole is progressing too slowly. There are many reasons for this, depending to a large extent on the specificities of each type of network concerned.

3.2. Opinion of Member States

Low-cost, efficient infrastructures are generally regarded by the Member States as being essential to promoting competitiveness; by creating trans-European networks, it should be possible to derive greater benefit from the internal market. Several Member States consider that the efficiency of infrastructures depends on their interoperability at Community level together with their deregulation, and on greater competition in the energy and telecommu-

nications sectors in particular. In the transport sector, several Member States indicate that priority should be given to congested areas and transit, links to peripheral areas, traffic management systems, combined transport and high-speed rail links.

With regard to promoting networks, some Member States stress the need to apply market-oriented solutions and to encourage private-sector participation and financing. They are also keen to see rapid and optimum use of resources within the current budgetary constraints and with due regard to the subsidiarity principle.

Some Member States feel that account should be taken of links to the countries of Central and Eastern Europe in the planning of trans-European networks.

3.3. The four key elements of the initiative

On a general level, four factors of key importance to the proposals have emerged from the analysis:

- (i) The state of the Community's and Member States' finances leaves virtually no margin to increase public financing beyond that already planned. The Commission's proposals take account of this fact and do not entail new public financing requirements.
- (ii) The massive investment required in some sectors, particularly in transport infrastructures, necessitates new types of partnerships between private and public financing, backed by financial engineering encompassing all the different sources and types of financing.
- (iii) The absence of open and competitive markets is hampering, to differing degrees, the optimum use of existing networks and their completion in the interests both of consumers and operators.
- (iv) The inherent sluggishness of the preparation, planning, authorization and evaluation procedures creates major obstacles to the implementation of large projects.

The contributions from the governments of the Member States, as set out above, echo the substance of these points. All the contributions on the subject stress the importance of networks to the efficiency and proper functioning of the internal market, the linking up of peripheral areas with the centre and the impact on economic cohesion throughout the Community. The Member States broadly agree on the need for a greater role for private financing and better financial engineering. They also agree on the need to promote the most efficient use possible of networks by ensuring interconnection and interoperability. Some Member States stress the importance of creating or reinforcing market conditions, the need to respect the financial perspectives at Community level and the principle of subsidiarity.

Consequently, the objective of the Commission's proposals must be to attract private investment in networks by helping to create the conditions in which it will flourish, for example by removing the obstacles that persist, among others in the slowness of procedures at various levels, and by supplementing private investments with public funds where necessary. Stimulating the participation of private investors will have a direct effect on growth, competitiveness and employment in the Community, as it will advance projects which would otherwise not be implemented, however necessary and 'ripe' they may be, or which would suffer unreasonable delay. The Commission therefore proposes a pragmatic approach involving integrated projects.

The three types of networks involved each have different characteristics and suffer from different problems requiring a response tailored to their own particular operating conditions. These responses are examined further on. They have some points in common which make it possible to pursue a pragmatic joint approach. On the basis of a broad consensus between political and economic circles on the need to establish such networks, a genuine partnership should be sought between all concerned: the public authorities at all appropriate levels, in accordance with the subsidiarity principle, network operators, users,

service providers, financiers, and industrialists. The large number of parties involved in itself represents a challenge since it is necessary for them to be able to combine their interests and resolve any possible differences of opinion.

For each type of network, the nature of the partnership may vary according to the problems to be resolved and the objectives to be achieved. For example, to resolve transport infrastructure financing problems, emphasis should be placed on the pivotal role of players capable of mobilizing private investment. On the other hand, in the case of telecommunications there is a need for a partnership with the network users in order to enable the market to be developed in response to their expectations. Where energy is concerned, the partnership should involve players capable of optimizing network efficiency without diminishing the requisite level of competition in this sector.

This partnership is simply a *modus operandi* to be applied discerningly on a Community scale, or on an even wider scale if the networks are extended. Arriving at a consensus on the solutions to be implemented is not the least of the difficulties. There needs to be a willingness to find joint solutions involving measures at all decision-making levels: Community, national, regional, public authorities, economic operators, etc. A strong political signal would enable this partnership to be implemented with a view to addressing the problems identified as pragmatically as possible.

Their respective roles are complementary and, as far as the public authorities are concerned, clearly defined in the various legislative and administrative instruments existing in the Member States. At Community level, the new Title XII of the Treaty defines responsibilities and their limits in the light of subsidiarity. Coordination among Member States is one of these responsibilities, and there are numerous and powerful elements and support instruments available at Community level for this purpose.

The initiative must be taken to unite all the levels of responsibility concerned and the necessary powers, and to write together the score for each of the projects selected. The

Commission proposes to act as a catalyst in this respect.

It will be essential to play an active role at Community level to unlock private investment in the new open, competitive climate of the single market. Although the financing and implementation of the specific projects will have to be agreed on a case-by-case basis, it is equally important to improve market conditions in general by means of a framework favourable to the involvement of institutional and private investors. Various factors could influence the conditions on the financial markets, such as an innovative approach to guarantees and insurance in the framework of the European Investment Fund, interest-rate subsidies for Community loans or tax incentives to attract long-term capital. Direct financing would be another possibility. The Commission will present proposals on this matter.

Also at Community level, attention must be focused on enhancing the role of the declaration of Community interest. If this declaration is to have the desired profile and impact on the availability of private capital, projects to which it has been awarded should have easier access to Community financial instruments and benefit from a binding timetable for completion of the requisite administrative procedures.

3.4. Transport infrastructures: A financing problem

Financing problems are particularly apparent in relation to transport infrastructures, a sector with a major impact on employment in the construction industry.

By 1999, investment of ECU 220 billion will be necessary for trans-European transport networks alone, i.e. between ECU 30 and 35 billion per annum. The Community could mobilize ECU 90 billion of this, including the contributions from Member States. However, given the current state of Member States' finances, it is inconceivable that the remainder could be financed through the budget. Furthermore, the need for high-quality networks does not stop at the Community's external borders; it will be essential to extend the networks in particular within the boundaries of the

European Economic Area and to the East. The magnitude of the deficit is both substantial and worrying. Although the level of savings is still high, it has proved difficult to mobilize private-sector investments in this field. There are two reasons for this: firstly, and above all, any kind of risk inherent in a project dampens the enthusiasm of the private investor. This may concern feasibility, technical viability, authorizations, deadlines or competition from other modes. These elements need to be clarified, evaluated and conclusions drawn. The same response must be applied to the second disincentive, which is a natural follow-on from the first: uncertainty about the return on, and hence the profitability of, the investment.

The objective is therefore clear. In order to launch the process of reflection and preparation for the partnership immediately and effectively, an initial list of projects which are both of Community interest and have the potential to mobilize private economic operators must quickly be drawn up. To this end, the following selection criteria could be applied:

- (i) The Community interest of projects, all of which must figure in the master plans for trans-European networks presented or due to be presented shortly, is obvious in the case of new transfrontier links of a strategic character (e.g. transalpine and Pyrenean links, sea crossings, links with the East); it is also clear in the case of projects which interconnect national networks and ensure their interoperability and access to networks, including transfer from one mode to another; and for projects which take account of the special needs of the countries on the periphery of the Community.
- (ii) The proposed financing of these projects must allow for private investment, the magnitude of which will depend on an evaluation of the risks presented by each project or series of projects on a given network.
- (iii) Priority will be given to projects capable of being implemented at short notice, i.e. which are sufficiently well prepared and feasible.

- (iv) Economic importance in terms of employment creation and industrial impact is essential, over and above the economic viability of the project as such. The increase in the competitiveness of advanced technology products and services merits special attention in this context.
- (v) Last but not least, only projects that have passed the environmental impact scrutiny will be eligible.

The Commission has drawn up an indicative list (see Annex) of 26 major projects, representing an overall investment of the order of ECU 82 billion, on the basis of which it will initiate discussions as soon as possible with the authorities concerned and the relevant economic circles.

Each project on the list will be evaluated jointly with all the actors concerned, in accordance with the partnership principle defined above. The evaluation will focus above all on the inherent risks of the project and the possibilities for covering them under acceptable conditions. It will also be necessary to identify the public financing sources that can be mobilized and the nature of the instruments that could be used to assess the expected revenue from the projected traffic and to consider the possible duration of the concession, the most appropriate legal formula for involving the interested parties, the management of the project, the administrative obstacles and the impact on the environment. The evaluation should lead to the presentation of an action plan for each project in the form which gives it the political profile necessary to speed it on its way and secure its financing.

3.5. Energy transport infrastructure: Towards better utilization of capacities

The reliability and efficiency of energy supplies are key factors in the competitiveness of industry and in terms of their effect on the consumer's pocket. There are various reasons for this, but among them, the sub-optimum use of existing networks and

brakes on their desired expansion are a major problem in the central parts of the Community in particular, and one which is closely bound up with the situation on the market for electricity and gas.

Unlike transport proper, planning of trans-European energy transport networks is not in the first instance a financing problem. Investments in energy networks are generally more lucrative and do not require the same degree of financial support from the public sector. There are only some peripheral regions of the Community where public aid to certain projects is both necessary and useful. In such cases, the Community's Regional and Structural Funds and the EIB provide a suitable framework and market conditions do not, strictly speaking, pose problems.

What tends to be the problem is that private sector investments are often hampered by administrative constraints. These constraints are above all the consequence of exclusive import and export rights, transport monopolies, limited possibilities to construct and operate gas pipelines and transmission lines.

Removal of these constraints is essential to the relaunch of investment and network planning. Furthermore, the opening-up of markets and deregulation means greater competition and thus greater energy efficiency. The competitiveness of European industry would be generally strengthened as a result.

The development of energy networks also helps to protect the environment, by favouring the use of primary fuels with the least carbon dioxide emissions, and to intensify cooperation with non-Community countries in Europe and the Mediterranean region, the main suppliers in this area. Speeding up the development and more efficient use of networks is therefore vital. Gas consumption and imports are already increasing; in the case of electricity, interconnection and improvement of the management of electricity systems continent-wide falls short of what is considered essential to the proper functioning of the single market.

The slowness and complexity of administrative procedures are also an obstacle to

energy networks. As with the other transport networks mentioned above, it would be worth examining giving more force to the declaration of Community interest.

In the light of estimates based on projects in progress, scheduled and planned by industry, the total amount of investment in trans-European electricity and natural gas networks could reach ECU 13 billion by the end of the decade.

Until now, **Community action to promote energy transport networks has essentially focused on financing.** The European Council has also called on the EIB to step up this type of aid. A first series of loans under the new facility has already been decided. The Commission intends to give specific financial support to feasibility studies, as an incentive to carrying out the technical, economic and environmental studies necessary to determine projects and mobilize the various funds and Community financial instruments and programmes, with a view to contributing to the financing of energy transport infrastructure projects whose implementation depends on such support.

However, on a more general level, the Community must remove the obstacles to speedy establishment of these networks. In view of the major obstacles already mentioned, the Commission is seeking the support of the European Council to ask the Council and European Parliament to bring their work on completing the internal energy market already proposed by the Commission to a rapid close. The Commission, for its part, will re-examine the proposal regarding third-party access to the network given the importance of the evolution of national monopolies on imports and exports and on the establishment of lines and sales.

3.6. Telecommunications networks: Creation of new markets

The establishment of trans-European telecommunications networks is a precondition for the creation of the 'common information area'. It is particularly important for the completion of the single market.

The social and economic stakes are high. Today, the telecommunications industries

account for an annual market in terms of services of ECU 285 billion at world level and ECU 84 billion at Community level. The equipment market is worth ECU 82 billion at world level and ECU 26 billion at Community level. The expected annual growth rate until the year 2000 is 8% for services and 4% for the equipment market. It is estimated that this sector alone will account for 6% of GDP at the end of the century, not including the indirect effects on the economy as a whole of network installation and operation.

In the not too distant future, the telecommunications networks will be capable of instantly transporting and processing voice traffic, text and images between any locations, be they homes, offices or businesses, thanks to digitization techniques and electronic processing of information. These networks will therefore constitute the nervous system of the economy, and more generally of tomorrow's society.

With the aid of these new networks, it will be possible to transmit myriads of texts (commercial messages, newspapers, correspondence, training courses, catalogues, technical notices, etc.), images (films, medical images, graphics, etc.) and sound transmissions (voice traffic, music, etc.), stored and combined in databases, for use in the most diverse applications (leisure, education, medical care, tourism, manufacturing activity, etc.).

Although voice telephony networks and services are already international, the same is not true of other networks and services relating to information in text, data and image form. Such networks are currently developing at national level only.

If a common information area really is to be established, the digital national networks must, like the telephone network, be interconnected and managed in a coherent fashion in order to form trans-European networks which will provide access to a wide range of interactive services. Hence, the new telecommunications networks, themselves using different vectors (cables, terrestrial and satellite radio transmission, etc.) will have a beneficial effect on all economic activities and transform the way of life of Europe's citizens.

At present, this transition to interactive trans-European networks and services is being held up by the fragmentation of markets, by insufficient interconnection and interoperability and by the absence of mechanisms to ensure coherent management. Although these are obvious shortcomings, the problems concerning the telecommunications networks and services differ considerably from those of the other trans-European networks for the following reason: supply of services is inadequate and, where it does exist, too costly, with the result that demand is also too low as in this case it is supply which determines demand. As a result, demand is not manifesting itself, which in turn discourages the creation of a viable supply. This is a vicious circle. The general economic situation is aggravating this trend and the private sector will only invest in this area of services, which have been liberalized, if conditions are such as to limit the risks to an acceptable level.

To break this vicious circle and stimulate the creation of new markets, the Commission proposes to identify strategic trans-European projects in collaboration with all the various parties concerned. The aim will be to target our activities in order to identify potential new markets; to tackle obstacles to their development, be they of a financial, regulatory or standardization nature; and to define the specific details and functional characteristics of the services to be developed and the typology of potential suppliers. As in the case of transport networks, the national and Community authorities will restrict their financial involvement to a marginal, catalytic role.

This means that, taking account also of the conditions of competition on the world market, Community action will consist in removing obstacles of a general nature (problems of industrial property, security, training, protection of privacy, etc.), in providing R&D support to project implementation, in contributing to the performance of feasibility studies and in granting loan guarantees and interest-rate subsidies.

The strategic projects would be carried out at each of the three interdependent 'levels' that make up the telecommunications networks: the carrier networks for trans-

mission of information, generic services and telematic applications.

With regard to the networks that serve to carry the information (voice, data, images), the objective would be to consolidate the integrated services' digital network and to install the high-speed communications network using advanced transmission and switching techniques (asynchronous transfer mode: ATM), which will help digitized multimedia services to make a breakthrough.

With regard to the generic (universal) services, which form the common basis for all telematic applications, three areas would be considered:

- (i) access to information services, which should provide all users with user-friendly access to databases containing information of all types available in multimedia libraries, laboratories or administrations;
- (ii) electronic mail, which will enable documents to be transmitted fast and cheaply. The market most concerned, apart from large undertakings and administrations, is that of SMEs;
- (iii) interactive digitized video services covering the whole of the Community, the emergence of which it is vital to promote, as their general availability will revolutionize working practices, leisure and training. They offer new possibilities for customized services ('pay-as-you-view' and 'video on demand' services), creating new demand and hence jobs.

The general availability of such services in the Community will promote the development of 'teleworking', which will mean that

the location of activities and access to available employment can be optimized.

Telematic applications are the third level, which concerns adapting the service to the specific needs of user groups. Public administration in connection with the single market is of particular interest here, as already discussed in Chapter 2.B. Exchanges of data and the coordinated, accelerated introduction of an electronic mail network between administrations involved in the management of the single market should also enable businesses and citizens to have easy access to the administrative information they require. This objective is being pursued in the framework of the Community TNA-IDA project.

Distance learning is another area of considerable public interest which will help to improve skill levels in an on-going fashion without the need for costly infrastructures. The same applies to telemedicine which is designed in particular to give practitioners remote access to specialist centres of excellence, to provide diagnostic aids and a basis for deciding on treatment, and to contribute to exchanges of research results in the fight against serious illnesses such as cancer and AIDS. Finally, the application of telematics to transport (road, maritime, air) is now becoming an important aspect in transport infrastructures.

It is estimated that the volume of financing to be mustered by public and private investors in the areas currently identified as being favourable to the creation of new markets in services, will amount to ECU 150 billion from 1994 over a period of six to 10 years. The priority projects proposed until 1999 would amount to ECU 67 billion.

Infrastructure for the trans-European transport network

Indicative list of projects

Project type	Member States involved	Indicative total cost (million ECU)	Maturity
1. Brenner axis; rail connection through the Alps	I/A/D	10 000	Studies in progress
2. Paris-Brussels-Cologne-Amsterdam-London (PBKAL); high-speed train: Belgium	B	2 500	Completion of feasibility studies
3. Paris-Brussels-Cologne-Amsterdam-London (PBKAL); high-speed train: Netherlands	NL	2 100	Completion of feasibility studies
4. Paris-Brussels-Cologne-Amsterdam-London (PBKAL); high-speed train: London-Tunnel access	UK	3 900	Completion of feasibility studies
5. Madrid-Barcelona-Perpignan; high-speed train	E/F	6 800	Studies in progress
6. Fehmarn belt crossing; fixed link between Denmark and Germany; estimated construction costs for the tunnel/bridge; new construction or upgrading of railway needs to be decided (preliminary cost estimates ECU 2 to 4 billion)	DK/D	4 500	Studies in progress
7. TGV Est; high-speed train Paris-Strasbourg	F	4 000	Studies under completion (F)
8. TGV Est; high-speed train Karlsruhe-Frankfurt-Berlin	D	8 500	Partially ready to go
9. Rotterdam-Betuwe line/(Cologne-Frankfurt-Karlsruhe-Switzerland-Italy); railway line (cost estimates for the corridor up to German/Swiss border ECU 9.6 billion)	NL (D/(CH)/I)	3 100	Studies under completion
10. Lyons-Turin; high-speed train/combined transport	F/I	6 200	Studies in progress
11. Urban by-passes for combined transport corridors and selected combined transport projects	D/F/I/E	2 300	Ready to go
12. Nuremberg-German/Czech border-Prague; motorway	D (Cz)	1 000	German part; ready to go; Czech part: studies finalized
13. Berlin-Warsaw-Polish/Belarusian border (Moscow); motorway (new construction)	D/(P)	3 200	Ongoing studies

Project type	Member States involved	Indicative total cost (million ECU)	Maturity
14. Patras-Athens-Thessaloniki-Greek/Bulgarian border; motorway	GR	1 500	Works in progress
15. Lisbon-Valladolid (Spanish/French border); motorway	P/E	2 000	Works in progress (P)
16. (Dublin)-Holyhead-Birmingham-Cambridge-Felixstowe/Harwich-(Benelux); road corridor (by sections)	UK (IRL)	1 000	Works partially in progress
17. Bari-Brindisi-Otranto; motorway	I	1 000	Studies in progress
18. Road traffic management system	EC	1 000	Technology available; programme to be designed; some centres already in place
19. New Athens airport (Spata)	GR	2 000	Studies in progress, construction consortium chosen; contract not signed
20. Air traffic management system for Europe (CNS/ATM); this includes also the satellite system Inmarsat-III (navigation payloads) and associated ground segment	EC	8 000	Definition of system completed; projects ready for implementation
21. Channel Rhine-Rhône	F	2 500	Studies in progress
22. Channel Seine north	F	1 500	Studies in progress
23. Connections between Elbe and Oder; inland waterways	D	600	Studies in progress
24. Danube upgrading: section between Straubing and Vilshofen; inland waterways	D	700	Studies in progress
25. Vessel traffic management system for Community waters	EC	1 000	Works in progress in E; demands from Cohesion Fund M.S
26. Multimodal positioning system by satellites system	D/F + European Space Agency	1 000	Studies in progress
Total		81 900	

ELECTRICITY NETWORKS

- (a) Connection of isolated electricity networks
- a1: Northern Ireland — Scotland
 - a2: Ireland — United Kingdom
 - a3: Germany : Connection to the new *Länder*
 - a4: Greece — Italy
 - a5: Greece : Connection of Crete
 - a6: Spain : Connection of the Balears
- (b) Improvement of interconnections between Member States
- b1: Germany — Denmark
 - b2: Germany — Netherlands
 - b3: Germany — Belgium
 - b4: France — Belgium
 - b5: France — Germany
 - b6: France — Italy
 - b7: France — Spain
 - b8: Belgium — Netherlands
 - b9: Belgium — Luxembourg
 - b10: Spain — Portugal
- (c) Improvement of electricity networks within Member States in conjunction with improved interconnections between Member States or with non-Community countries
- c1: United Kingdom : Wales
 - c2: Denmark : East-West link
 - c3: Netherlands : North-East area
 - c4: France : North-East area
 - c5: Italy : North-South and East-West links
 - c6: Spain : North-South link and lines along the coast of the Mediterranean and the Cantabrian Sea
 - c7: Portugal : Improvements regarding interconnection with Spain
 - c8: Greece : East-West link
- (d) Creation or improvement of electricity interconnections with non-Community countries
- d1: Germany — Sweden
 - d2: Germany — Poland
 - d3: Germany — Norway
 - d4: Germany — Austria
 - d5: Italy — Switzerland
 - d6: Italy — Austria
 - d7: Italy — Tunisia
 - d8: Greece — Balkan countries
 - d9: Greece — Turkey
 - d10: United Kingdom — Norway
 - d11: Netherlands — Norway
 - d12: France — Switzerland
 - d13: Spain — Morocco

GAS NETWORKS

(e) Introduction of natural gas in new regions

- e1: Northern Ireland
- e2: Germany : New *Länder*
- e3: Corsica and Sardinia
- e4: Spain : New regions
- e5: Portugal : Whole country
- e6: Greece : Whole country, including Crete

(f) Connection of isolated or separated gas networks

- f1: Ireland — Northern Ireland
- f2: Great Britain — Continent
- f3: Germany : Connection of German network to gas
- Belgium : Pipelines coming from Zeebrugge
- f4: Germany : Connections to the new *Länder*
- f5: Spain — France
- f6: Portugal — Spain

(g) Improvement of reception capacities/LNG storage and underground storage

- g1: Ireland : Construction of an LNG station
- g2: Germany : Construction of an LNG station
- g3: France : Extension of LNG stations
- g4: Italy : Extension/construction of LNG stations
- g5: Spain : Extension of LNG stations
- g6: Germany : Creation of underground storage facilities
- g7: France : Creation of underground storage facilities
- g8: Spain : Creation of underground storage facilities

(h) New gas supply pipelines

- h1: Norway — Belgium or Netherlands: new project planned
- h2: Norway — Germany (Emden): Europipe project
- h3: Norway — Denmark-Sweden: Scanpipe project
- h4: Algeria — Morocco-Spain-France (Toulouse/Fos)
- h5: Algeria — Tunisia-Italy: capacity increase
- h6: Russia — Ukraine-EC: upgrading of existing gas pipeline system
- h7: Russia — Belarus-Poland-EC
- h8: Russia — Scandinavian countries-EC
- h9: Bulgaria — Greece

NB: LNG could be an interesting alternative to some gas supply pipeline projects that have not yet been finalized.

Chapter 4

Research and technological development

Research and technological development (RTD) can contribute to renewing growth, strengthening competitiveness and boosting employment in the Community. However, in order to achieve this a series of conditions must be satisfied: an adequate level of funding; an appropriate range of research activities; and effective mechanisms for transferring the results.

4.1. Opinion of the Member States

As it is difficult to increase public spending, the Member States agree on the need to promote investment in RTD in the private sector especially and to increase the effectiveness of their RTD through cooperation between companies and with universities and research centres.

Where Community RTD is concerned, emphasis is placed on **coordination** of RTD conducted by the Community and the Member States, focusing on key areas, simplifying procedures, in particular to facilitate the access of SMEs to RTD, and especially improving the **dissemination and application** of RTD results, notably by promoting standardization.

Among the practical measures proposed, mention is made of tax incentives for RTD investments, the promotion of companies specializing in new technologies, and the launching of major RTD projects.

4.2. Assessment of research in the Community

In the Commission's opinion, Europe's research and industrial base suffers from a series of weaknesses.

(a) Level of resources

The first of these weaknesses is financial. **The Community invests proportionately less than its competitors in research and technological development.** In 1991, for example,

its total public, private, civil and military spending on RTD stood at some ECU 104 billion, compared with ECU 124 billion for the USA and ECU 77 billion for Japan. This was equivalent to an average of **2% of GDP in the Community, 2.8% in the USA and 3% in Japan** or, in relation to population, ECU 302 per inhabitant in the Community, compared with ECU 493 in the USA and ECU 627 in Japan. However, there are big differences between the Member States with research spending accounting for 2.6% of GDP in Germany, for example, but only 0.7% in Greece and Portugal. Investment by businesses is particularly weak, as they fund only 52% of all research in Europe compared with 78% in Japan, for example.

The Community also has **proportionately fewer researchers and engineers**: 630 000 (4 out of every 1 000 of the working population) compared with 950 000 (8 per 1 000) in the USA and 450 000 (9 per 1 000) in Japan.

Figures like these are meaningless in absolute terms and must be treated with caution. The use made of the funds is more important than the amount spent. And more important than the absolute number of researchers are their qualifications, their ability to meet the needs of developing industries and the extent to which the capital they represent is utilized. Nevertheless, on the whole this lower investment in both financial and human terms gives cause for concern.

(b) Coordination of research

A second weakness is the **lack of coordination at various levels** of the research and technological development activities, programmes and strategies in Europe. First, there is the lack of coordination between the **national research policies**. The Community's research budget accounts for only 4% of research spending by the 12 Member States. Even adding the resources allocated to joint European RTD activities in other frameworks (e.g. under Eureka, ESA, CERN, EMBL, etc.), the budget

amounts to only 10% or so of the total. Despite the coordination called for by the existence of these activities and the need for the Member States to take them into account when defining their own policies, the national policies are still developed largely without reference to one another.

This lack of coordination is particularly marked between military and civil research activities in each Member State which are conducted within relatively self-contained institutional frameworks, between which bridges are only just beginning to be built. In some Member States military activities account for a large proportion of all research (44% in the United Kingdom, 37% in France and 17% in Spain).

One immediate consequence, which can vary in intensity from one sector to another but is generally relatively important, is the lack of coordination of **business strategies** too, not only with public research policies and with the activities of universities and public research centres in each Member State but also with the strategies of other European businesses.

(c) Application of research results

The greatest weakness of Europe's research base, however, is its **comparatively limited capacity to convert scientific breakthroughs and technological achievements into industrial and commercial successes**. In most major fields and disciplines, Europe is up to the highest standards in the world in terms, for example, of the number of publications by researchers and of references thereto. In certain fields heavily dependent on action by the public sector, such as telecommunications, transport or the aerospace industry, European firms can also point to indisputable technological successes. The European chemical and pharmaceutical industries are in the forefront on world markets. However, in all other fields of advanced technology, with a few exceptions, European firms have failed to convert their scientific and technological achievements into products and competitiveness.

This weakness stems from a **combination of factors**: the still inadequate links between universities and businesses, despite the pro-

gress made on this point in most Member States; the lack of risk capital to help firms through the development phase and the reluctance of private-sector financiers to invest in activities if they consider the risks too great or the return too uncertain; insufficient account of RTD in business strategies and the lack of coordinated strategies between businesses, universities and the public authorities (compared with Japan, for example); the lack of facilities or the regulatory obstacles to business start-ups by researchers and the lack of mechanisms for harnessing the knowledge and technologies generated by defence research; the targeting on markets which are too small and the weak capacity to foresee future needs and demand on the market, etc.

4.3. The solutions

(a) New directions for research

To restore the dynamic combination of technology, growth and employment, the Community and the Member States must take measures on several levels. These can be divided into two main groups. The first comprises measures aiming essentially at **restoring the competitiveness** of European businesses and **renewing growth**. One aspect will be to correct the traditional weaknesses of Europe's research and industrial base and to restore Community firms to the forefront of the world economy. The other will be to **extend the geographical coverage** and to **take account of the new needs of society** in the Community and throughout the world.

The effect of these measures to restore competitiveness on industrial activity in the Community will have a positive indirect impact on employment. Coordinated measures to take account of the new needs of society should in turn create a number of jobs. Alongside these measures, however, a second category of action should also be taken, targeted more specifically on improving the employment situation.

(i) Restoring competitiveness and renewing growth

To make European companies more competitive, action is needed on the three tradi-

tional weaknesses of Europe's scientific and industrial base. First, steps must be taken to allow **better application of the results of the research** carried out in the Community, i.e. the establishment of **operational mechanisms** at national and European level for the **transfer of technologies from university laboratories to companies, from one company to another and from the military to civil research sectors**. One key aspect must be substantially to step up the measures to improve the business environment, in the form of scientific and technical information, financial services, aid to protect innovations, training in new technologies, etc.

In this context, sufficient importance should be attached to small businesses. **Small businesses working in high-technology sectors**, producing capital goods and advanced consumer goods or **applying advanced technologies** in manufacturing industry, represent a significant potential source of growth. In the USA, a very large proportion of emerging technologies was first developed by small firms which are better equipped to anticipate the needs of the market and to react rapidly.

Beyond the coordination already existing in practice today, measures should also be taken to further effective coordination of research activities, strategies and programmes in Europe. **The first thing must be coordination between the national public research bodies**: the coordination structures now being set up between most of the major national bodies should be strengthened and institutionalized. **A forum for concertation and exchanges between the various European research bodies and centres** could also be set up. To encourage the development of concerted strategies linked to the Community's activities, a **science and technology assembly** could also be established, based on the Commission's existing consultative committees.

Companies, particularly firms conducting large amounts of research, should also **coordinate their strategies more closely in the framework of Community projects**. Based on or alongside existing consortia, **frameworks for intercompany cooperation** should be established at Community level. These frameworks for close cooperation between

potential users and makers of new products, component suppliers and manufacturers of the end-products would provide a means of deriving maximum benefit from the work carried out by companies' research departments and establishing consistent strategies, guided by earlier anticipation of the needs of the market. They could be planned in conjunction with the definition and implementation of major projects bringing together rival European companies for work on carefully targeted technological objectives.

With regard to overall research funding, the **objective of a gradual increase to 3% of GDP** should be borne in mind. It is not a question of 'more of the same research'. In view of the current budgetary constraints in all European countries, companies should bear a larger share of the spending. Their objective should be to achieve investment levels comparable to those of their rivals by providing greater funding for in-house research and work in universities. Appropriate regulatory and tax measures should be taken to make it easier for the private sector to bear such a higher share of research spending.

(ii) New geographical markets and new needs of society

In addition to competition and market forces, considerable potential for growth lies in **catering for a wider geographical area** than the Triad alone (European Community, USA and Japan) **and for the emerging needs of society**. The newly industrialized countries in the Pacific region compete with the Community in basic and intermediate technologies and will soon be able to develop more sophisticated technologies themselves. For several years they will offer a window of opportunity for companies in the Community. Countries such as these which are keen to acquire advanced production technologies but also, by virtue of their explosive development, face serious environmental problems, offer large potential markets.

Both as a source of high-level scientific and technical know-how and as a market for specific technologies and advanced production processes, **the countries of Central and Eastern Europe**, which are not only geogra-

phically but also historically close to the Community, provide further rich potential for innovations which Eastern and Western Europeans should harness together, by pooling their complementary skills.

Accompanied by measures to create viable demand in the countries concerned, the establishment of **truly effective mechanisms for transferring technologies to developing countries** would also provide Europe with substantial potential markets for specific products and requirements.

One key aspect of this broadening of the horizons of the Community's research should be **closer cooperation to implement very big programmes reflecting the biggest worldwide needs for the next century: energy, global change and food.**

New needs which could make a significant contribution to restoring growth are apparent in **three areas: the environment, health and the media.** The market in environmental products and services, for example, covers pollution detection and monitoring technologies, environmental improvement technologies, clean technologies (i.e. improvements to conventional technologies to take greater account of environmental requirements) and ecotechnologies (entirely new technologies based on novel raw materials and energy sources). Added to this market in goods, there is also the market in services such as water treatment, waste processing, etc. On the basis of the latest estimates, this world market in environmental products and services is worth some ECU 190 billion per year now and could reach ECU 270 billion by the year 2000.

The second area is **health.** Alongside new molecules to treat diseases of the nervous system and degenerative and viral illnesses not yet properly controlled, the principal market concerned is in advanced preventive technologies and methods allowing treatment in the home by the patients themselves or by non-specialist staff, automatic monitoring and diagnosis systems, remote monitoring, etc.

In the field of the **media,** one category heading for vigorous expansion is the range of **multimedia products** (CD-ROM, CD-I,

CD-TV, etc.) and the corresponding hardware. With their impressive capacity to store enormous quantities of text, sound and moving and fixed images on the same medium, combined with the possibility of multiplying the effects by linking up with telecommunications systems, these products will revolutionize the media industries.

At the crossroads between satisfying the worldwide needs in the fields of energy, health and the environment and the requirements for competitiveness, **biotechnology** is one of the fields offering the greatest potential for innovation and a particularly rich source of growth. What is more, a significant proportion of the research and development work in this field is carried out by small and medium-sized businesses. However, in order to ensure development of activities in this field commensurate with actual and potential needs, steps must be taken to establish an appropriate regulatory framework, to harmonize the measures taken in the various countries and to **define a global strategy** bringing together the public authorities, research bodies, businesses and the various sectors of society concerned.

Impact on employment

The measures described above to restore competitiveness and take account of the new needs of society should have a **moderate, but indisputably positive indirect impact on employment.** The rise of the environmental industries could possibly have a great impact on competitiveness and should have at least the same effect in terms of safeguarding existing jobs as the concept of quality did a few years ago. By contrast, **there is undoubtedly potential to create jobs in the health and media sectors.** The development of new formulas for care in the home based on decentralized assistance and health-care technologies will create a need for health-care, assistance and training staff. The **new market in media products** in addition to, rather than in place of, existing printed and audiovisual media should also generate a whole cascade of new jobs.

Of course, the measures to encourage business start-ups in high-technology sectors should in turn have a positive impact on

employment. In the USA, firms of this type are often started up by researchers leaving universities or big businesses. The increase in the number of firms of this type should create a certain number of jobs for development engineers, administrative staff, etc. The same applies to the measures to increase the total number of researchers and engineers in the Community. Of course, the primary objective should be **optimization of the available resources by adapting the skills of the existing scientific and technical staff to the new needs.** However, the creation of new jobs for researchers and engineers as fast as Europe's scientific and industrial base can absorb them would be the most effective means of ensuring a net increase in the resources allocated to research activities.

The policies and programmes conducted by the Member States and the Community should also aim at **promoting technologies which will save the maximum number of jobs or require or encourage the creation of new jobs** as long as they have an equal effect on competitiveness and growth and an equal capacity to satisfy the current and foreseeable needs of society. Tools and methods must be devised to determine the net impact of a wide range of technologies on employment.

(b) Specific means

(i) Measures by the Member States

Since most of the spending on research and development in the Community is under the control of the Member States, most of the measures mentioned must be taken at national level. **The provisions outlined should be put into practice in the national policies and programmes.** In view of the current constraints on research budgets and to ensure the most effective action possible in cost/benefit terms, **priority must be given to the indirect regulatory instruments** under the control of the Member States.

In the context of transferring a higher proportion of research spending to the private sector and of shifting government intervention from direct support to indirect instruments, **tax credit schemes for research** could be developed to encourage companies to invest more in science, even in the long

term. Special formulas could be devised to **encourage companies to fund research by universities.**

The Member States could also study and **introduce schemes to lighten the social security contribution burden on firms and research bodies creating new jobs for researchers and engineers** together with financial or career **incentives for further on-the-job training for the scientific and technical staff in service.** In addition to its impact on employment, action in this field could also promote the dissemination of knowledge and of new technologies. Within the existing schemes to help business start-ups, formulas could also be defined for helping researchers to start up businesses. Financial instruments under the direct or indirect control of the national authorities could be adjusted to provide companies, particularly small businesses, with the **risk capital** to develop the innovations which they have prepared.

(ii) Community measures and concerted action

The Community itself should also take measures to back up these activities. The broad lines of the **fourth (1994-98) framework programme** currently being discussed already clearly point towards the establishment of mechanisms to coordinate the national efforts (research consortia) and industrial research policies (particularly in the form of support for Eureka projects), concentration on a limited number of key technologies with a major impact on many branches of industry, greater support for the dissemination of the results of the research carried out in the Community, establishment of a system of access to and participation in the programmes specifically for small and medium-sized businesses, etc.

In conjunction with the fourth framework programme and the preparations about to be started for the next programme, **new large-scale research projects should be defined in conjunction with the national research bodies and companies.**

Implementation of the guidelines proposed will also call for **changes in the rules and instruments for Community research.** In

practice, there are clearly limits to the single formula of 50% funding of the costs of pre-competitive research projects. Formulas creating a more flexible link between project-funding and the obligation to produce results, tailoring the level of public support to the economic and social importance of the results, will have to be explored. More practical formulas in terms of costs and benefits, such as low-interest loans repayable over very long periods, will have to be developed.

To facilitate the adoption of converging, proactive measures in the Member States,

the possibility of **agreeing guidelines at Community level** on business start-ups, funding of the application of research results or changes in the conditions of employment for scientific staff will have to be studied. Steps will also have to be taken to ensure that the measures implemented are compatible with competition policy, notably on agreements and State aid. Finally, to maximize the impact of the measures taken at Community level and by the Member States, significant efforts will be required to **make the Community's research, external relations and commercial policies more compatible.**

Chapter 5

The changing society, the new technologies

Introduction

Information and communication technologies (ICTs) are transforming dramatically many aspects of economic and social life, such as working methods and relations, the organization of companies, the focus of training and education, and the way people communicate with each other. They are resulting in major gains in productivity in industry, and in the quality and performance of services. A new 'information society' is emerging, in which management, quality and speed of information are key factors for competitiveness: as an input to the industries as a whole and as a service provided to ultimate consumers, information and communication technologies influence the economy at all stages.

Comparable changes in productivity will be achieved by further progress in life sciences — biotechnology — through the creation of innovation in highly competitive areas of industry and agriculture.

The competitiveness of the European economy will to a great extent depend both on the conditions of utilization and on the development and application of these technologies. Since they are amongst the highest growth activities in industrialized countries, and they are also highly skilled labour activities, their potential for employment creation is considerable, in particular for the creation of new services. At the same time, potential drawbacks of widespread use of these new technologies, such as the risk of non-skilled people being left behind by progress in information technologies, should be combated through positive policies.

Various obstacles to an optimum exploitation of these technologies have been encountered in Europe, and they should be removed. The diffusion of best practice aimed at business should be promoted and the development of Community-wide applications favoured. To this end, an

appropriate regulatory and political environment should be created and the implementation of trans-European telecommunication services stimulated. Training systems should foster the application of these technologies. Europe should implement the conditions that will allow it to maintain a sufficient level of mastery over technology and benefit from an innovative and competitive ICT industry, within an open and competitive environment.

Member States' views

The Member States' contributions on this subject place the emphasis on cooperation between the Community and the Member States to promote economies of scale; the Community could focus its efforts on facilitating the development of market forces, while ensuring free competition and promoting systems compatibility.

A. *The information society*

5.1. Introduction

This decade is witnessing the forging of a link of unprecedented magnitude and significance between the technological innovation process and economic and social organization. Countless innovations are combining to bring about a major upheaval in the organization of activities and relationships within society. A new 'information society' is emerging in which the services provided by information and communications technologies (ICTs) underpin human activities. It constitutes an upheaval but can also offer new job prospects.

With easier access to information, it is becoming increasingly easy to identify, evaluate and compete with economic activities in all sectors. The pressure of the market-place is spreading and growing, obliging businesses to exploit every opportunity available to increase productivity and efficiency. Structural adaptability is becoming a major prerequisite for economic success. The growing interconnection of the economy is leading to major produc-

tivity improvements in the production of goods but also in relation to services, and the borderline between goods and services is becoming increasingly blurred. Throughout the world there is a trend towards specialization and professionalization in economic activities which is gradually extending to subcontractors and service providers. To be able to compete worldwide, European industry must exploit all possible ways of improving its competitiveness by making growing and effective use of ICTs. It must favour innovative and attacking strategies aimed at acquiring market shares rather than simply adjusting by reducing its production costs.

Businesses are very much aware of the importance of applying ICTs in order to stay competitive. The job situation has generally remained more favourable in companies which have introduced microelectronics than in those companies that have not used this technology. The main effects have been job substitutions on the basis of different qualifications. The spread of ICTs within the Community has generated increases in productivity and in GDP, and a lower rate of inflation. The overall impact on employment depends to a large extent on how competitive the European ICT industry is: the better it performs, the greater the benefit in terms of the impact on employment. However, the current worrying employment situation within the Community cannot be blamed on the penetration of the ICTs into the industrial and social fabric.

The economic impact of technological progress on growth and employment depends on the innovation process, which has become interactive. The linear model of innovation, with the innovative act being isolated, has in today's world been replaced by complex mechanisms: innovation requires constant and organized interdependence between the upstream phases linked to technology, and the downstream phases linked to the market.

The means available to create, process, access and transfer information are remodelling relationships in our societies. One of the most important aspects of current developments is the breathtaking expansion in the means available to us to communicate

and process information (sound, text, images) in digital form.

Companies' operations have become unthinkable without the use of ICTs. These technologies are enabling them to seek total integration of their own functions in space and time and in terms of their environment. The introduction of ICTs, globalization and international competition are forcing companies to rethink the way in which they organize their production. Where the general public is concerned, the penetration of ICT-dependent products and services into everyday activities is also striking. This generates new forms of economic and social organization, the structure of which is no longer subject to geographical constraints but depends on telecommunications networks or teleports: teleworking is emerging as a major social phenomenon. Authorities concerned with the management of public funds and wishing to provide their constituents with better quality services also call upon ICTs. Relationships between the general public and the authorities are changing, and more fundamentally the present boundaries between the role of the State and the market are altering.

Despite the undeniable progress that has been made, the penetration of ICTs is not an unmitigated success story. The change-over towards an information society has placed severe demands on the adaptability of those concerned. The risk of exclusion, for example, as a result of inadequate skills or qualifications and, more generally, the emergence of a two-tier society should not be underestimated. Europe must prepare itself for this changeover in order to capitalize upon the economic and social advantages while analysing and mitigating any adverse consequences: an increase in the isolation of individuals, intrusions into private life, and moral and ethical problems. It is important to identify to a greater extent the employment possibilities for those who encounter difficulties in integrating into a working world which is becoming increasingly complex and demanding. Social responsibility is a matter for employers, employees and the State. The information society is producing a significant acceleration of economic and social changes, and new and more flexible

forms of employment are emerging which often require new forms of social protection.

5.2. A common information area

The move towards an 'information society' is irreversible, and affects all aspects of society and interrelations between economic partners. Creation of a common information area within the Community will enable the Community fully to seize these opportunities.

(a) *What is a common information area?*

The common information area consists of a number of indivisible levels:

- (i) the **information** itself, converted and collated in electronic, i.e. digital, form (databases, document bases, image bases, CDI, etc.);
- (ii) the **hardware, components and software** available to the user to process this information;
- (iii) the **physical infrastructure** (terrestrial cable infrastructure, radio communications networks and satellites);
- (iv) the **basic telecommunications services**, particularly electronic mail, file transfer, interactive access to databases and interactive digital image transmission;
- (v) the **applications**, for which the above-mentioned levels perform the storage, processing and transmission functions, providing users with the specific services they need. Generally, users 'see' only the application to which they are connected; the transport side needs to be 'transparent' for them. Consequently, applications are the area where the greatest efforts must be made to improve the structuring of the information and user-friendliness. With the aid of the applications, their performance and the conditions in which they can be used, the common-information area will have an economic and social impact and can help to improve the employment situation;

- (vi) **users**, who are not only trained in operation of the applications, but are also aware of the potential of ICTs and of the conditions required for optimum use thereof.

(b) *What opportunities?*

The common information area is a factor for economic and social improvement. In the current competitive context, access to and mobilization of information are becoming the central aspects of productivity and competitiveness, especially for SMEs. The capital and non-capital investment required to set up information technology infrastructures directly supports growth and contributes to structural improvements in the conditions of supply. The common information area is also a factor for economic and social cohesion: it will allow reconsideration of siting and make it possible to promote new decentralized methods of organizing work, for example, teleworking. It contributes to the performance of other major infrastructures, in particular transport infrastructures, and constitutes an aid for the protection of the environment and risk management. Last but not least, infrastructures are a powerful lever for the development of new services, and in this way can make a significant contribution to improving the job situation. In particular, certain services for which the State has been responsible hitherto, and which are subject to increasingly tight budget restrictions, could be transferred permanently to the market. There are many examples of such new services related to communication and social relations: education and training, culture, security, etc. They cannot be developed free of charge and be funded implicitly by the taxpayer. They call for the introduction of new methods of payment, such as the pay-per-use system.

Modern technologies are fundamentally changing the relationship between the State and the general public. The ordinary citizen can have access to 'public services' on an individual basis, and these will be invoiced on the basis of the use made of them. Transferring such services to the marketplace will lead to new private-sector offers of services and numerous job-creation

opportunities. However, this will have to be accompanied by a reduction in user costs; otherwise, no-one will be willing to make use of such opportunities. It will also be essential to ensure that this transfer does not entail social disadvantages.

(c) The policies pursued with the Triad (European Community, United States and Japan)

The move towards an information society, and the opportunities which it provides, will in the long run be as important as the first industrial revolution. It is difficult to predict the pace at which this change will take place. The economies which are the first to succeed in completing this change satisfactorily will have major competitive advantages. The USA and Japan are therefore attempting to speed up the process.

In the USA, the public authorities have a strong desire to maintain US technological pre-eminence, in particular on national economic security grounds, and are making technology the driving force behind a revival in US economic growth and competitiveness. The policy to establish information technology infrastructure spanning the entire USA is considered vital for the country's growth. The project to speed up the introduction of new high-speed networks, computer systems and communication technologies is not limited to investment in physical infrastructures. It also includes the development and installation of new technologies and applications.

In Japan, political awareness of the strategic importance of ICTs for Japan's economic development dates back to the 1960s, and a social consensus on the priorities and the means and programmes required was already achieved at that time. The recognized importance of 'information infrastructures' to maintain Japan's development has given rise to a programme under the new Japanese economic recovery plan.

The Community and the Member States have taken numerous steps to create information infrastructures: revision of the regulatory framework for telecommunications,

and in particular the liberalization of value-added services and a programme designed to culminate in 1998 in the liberalization of voice telephony, RTD support programme, stimulation of the development of data-communication systems of general interest, establishment of a standardization policy, and a policy of innovation and support for regional policy.

The development of an 'information society' will be a global phenomenon, led first of all by the Triad, but gradually extended to cover the entire planet. In pursuing its strategy, Europe should aim at achieving three objectives:

- (i) from the outset, placing its approach in a world perspective, and therefore encouraging the international alliance strategies of its companies and operators; promoting where possible the development of open systems and international standards; working resolutely towards the opening-up of third country markets, in order to seek genuine reciprocity, and opposing any form of discrimination;
- (ii) ensuring, at the same time, that the systems developed take due account of European characteristics: multilingualism, cultural diversity, economic divergence, and more generally the preservation of its social model;
- (iii) creating the conditions whereby, in an open and competitive international system, Europe still has an adequate take-up of basic technologies and an efficient and competitive industry.

Fuller use of the potential offered by information and communication technologies can:

create new service markets;

facilitate provision of services by the private rather than the public sector, including a new partnership between the private and public sector, for example for training;

speed up administrative decision-making procedures.

5.3. The objective: To create new service markets

Europe has the know-how and experience to establish a common information area. However, to harness them, there needs to be a collective effort and a political framework so that the measures to be taken can be implemented as quickly as possible. This process will primarily be led by the private sector and underpinned by the emergence of new needs and new markets. It is therefore necessary to define the role of the public authorities unambiguously.

In the first instance, it will be their responsibility to address the 'societal' implications as a whole, avoiding exclusion phenomena, maximizing the impact on employment, adapting education and training systems, and taking due account of the cultural and ethical implications for the general public, including aspects relating to the protection of privacy.

The second task of the public authorities will be to remove the remaining regulatory obstacles to the development of new markets. However, investors' 'wait-and-see' attitude can also be explained by the fact that, for want of a communication infrastructure, demand cannot be expressed sufficiently clearly. To resolve this dilemma there is a need for the public authorities to provide encouragement, guidance and opportunities for concertation.

The third task of the public authorities is to create the conditions whereby European companies develop their strategies in an open internal and international competitive environment, and can continue to ensure that crucial technologies are mastered and developed in Europe.

The changeover towards an information society is a very complex process requiring new forms of partnership and cooperation between the public and private sectors. In the measures proposed below, the principle of subsidiarity must be applied fully between the private sector and the public authorities and also between the Community authorities and the national administrations.

A strategy for establishing a common information area must satisfy four specific requirements:

- (i) diffusion of best practice and development of European ICT applications, which is the fundamental objective in view of the contribution which it can make to restoring growth and strengthening competitiveness;
- (ii) liberalization of the telecommunications sector, which alone can release the market forces of the information society; users must be offered a broad range of options at attractive tariffs;
- (iii) faster standardization, which alone can create a European information area from the fragmented communications areas;
- (iv) trans-European telecommunications infrastructure, which is essential as the basic foundation of the information society.

The policy for creating a common information area should set the following priorities:

- (a) Diffusion of best practice and development of European ICT applications. This is the fundamental objective in view of the contribution which it can make to restoring growth, strengthening competitiveness and improving the employment situation.
- (b) Creation and enforcement of a legal, regulatory and political environment encouraging private initiative by opening up the market to competition, taking due account of the interests of the Community (the existence of universal services and the emergence of European operators) and of individual citizens (protection of data and privacy, security, etc.).
- (c) Development of basic trans-European telecommunications services, which are a *sine qua non* for the free movement of information.
- (d) Provision of specific training targeted on extensive use of information and on the needs of the ICT industries for qualified human resources.
- (e) Technology take-up and improvement of the performance of the European ICT industries, a precon-

dition for adapting the applications to the specific situation in Europe, for making full use of technological progress and for maximizing the impact of the measures proposed on employment.

These five complementary priorities form an indivisible whole. The first sets the objective and the others are the means to attain that end. In the current climate of rapid technological and industrial change, action must be started as soon as possible to establish a European information infrastructure and give a positive lead to the strategic intentions and choices made by businesses. The instruments or bodies necessary to ensure the compatibility and interoperability of products and services must also be set up without delay.

(a) Diffusion of best practice and development of European ICT applications

Strict implementation conditions are needed to exploit all the potential offered by ICTs. In particular, the introduction of computer systems must go hand-in-hand with the identification of companies' strategic objectives, the functions and support to be provided by the system, and appropriate work organization. This is an area where the awareness of the user companies must be raised.

It is recommended that the following action be taken:

- (i) **Diffusion of best practice** in the use of ICTs. Attention should be focused on the conditions under which ICTs are used: a programme for the diffusion of best ICT practice aimed at businesses, in particular SMEs, would significantly improve the impact of ICTs on their competitiveness and ability to create jobs.
- (ii) **Launch of European applications projects.** The crux of the matter is not technology, but organization. In order to avoid a proliferation of uncoordinated and incompatible applications in Europe, several major applications projects should be launched to catalyse the market and promote greater

homogeneity in terms of standards in particular. Clear priorities must be defined. They offer the prospect of creating a market large enough to make investment in telecommunications infrastructure profitable and guarantee satisfactory amortization. They could concern:

Administrations, through an extended version of the IDA programme.

Major public services. On the basis of work already carried out, efforts should be concentrated on effective implementation of a limited number of major projects leading to a political commitment: an integrated air-traffic control system, a European road-traffic management network, a European medical information system, a network of research centres, a European distance-learning service, a 'computers in schools' programme or a European civil protection system.

Teleworking and telepartnerships. Teleworking and telepartnerships have an important part to play in the relocation of work and of businesses to the disadvantaged areas of Europe (rural areas, peripheral areas or old industrial areas, etc.). A European project could be launched to promote the development of teleworking and telepartnerships.

Greater involvement of ICT users in the creation and implementation of Community programmes.

Strengthening the coordination of programmes

(b) Creation of a regulatory and political environment

Creation of a common information area will depend primarily on private sector investment. It is therefore essential to create a legal environment which will stimulate the development of such investments and guarantee that they are used in the public interest. Several types of action can be taken to achieve these objectives, most of which have already been initiated, and should be intensified where appropriate.

- (i) **Opening up to competition**, to provide the broadest possible range of services at the best price to suit the market.
- (ii) **Universal service**: since the traditional operators are becoming increasingly independent of the State and are exposed to growing competition, it is necessary to define precisely the universal service obligations, their price and how they should be financed.
- (iii) **Standardization**: given the standardization policy conducted hitherto at Community level, enhancing the efficiency of the present system means speeding up standardization processes, ensuring transparency in standardization (declaration *ab initio* of patents by standards proposers) and guaranteeing all companies equitable rights to exploit the patents underlying the standards.
- (iv) **Protection of data and privacy**, in particular ensuring complete reliability of data transfer systems.
- (v) **Security of information and communication systems**: both industry and Member States are calling for coordinated action to solve the problems of security of information and communication systems.

(c) *Providing the Community with basic trans-European telecommunications services*

European telecommunications face considerable difficulties, notably the incompatibility and non-interoperability of the national telecommunications services' networks. The principal problem is not technological, it is the result of the structure and organization of the market: the absence of telecommunications operators of a European stature and the non-existence of basic services at European level (electronic mail and file transfer, remote access to databases and interactive image transmission services).¹

¹ It should be noted that standardization could lead to the introduction of European telephone paycards or a European 'Minitel' without the need for specific technological development.

The following action can be recommended:

- (i) **development of support networks**: Euro-ISDN and integrated broadband communication (IBC) system. Mobile radio communications (GSM, PCN) are another area in which efforts should be made to speed up development;
- (ii) **acceleration of the standardization process** and integration of standards into services, in particular those which are vital to service interoperability;
- (iii) **strengthening of coordination**, in particular between telecommunications policy and the Structural Funds.

(d) *Providing the right training*

The competitive pressures on European industry require from all staff an increasingly high level of skills and an ability to use new technologies effectively. Managers need specific training to make them aware of the potential of ICTs and their organizational and socio-professional implications. Technicians and other workers need to have specific ICT-related aspects better integrated into the training for their basic trade. Schoolchildren and students should learn to use ICTs, in particular in order to resolve general education and training problems. Educating potential ICT users to enable them to make effective use of ICTs entails training as many people as possible in the basic skills and providing specialist training for some of them.

Europe has made a big effort to develop basic training in computer science, but it does not have sufficient qualified staff, and insufficient attention has been paid so far to the application of new technologies in training and education systems. In particular, the possibilities opened up by distance-training should be better exploited.

The following recommendations are put forward:

- (i) There needs to be an in-depth analysis of the importance of the greatest possible number of people being given the basic knowledge for making the best possible use of data-processing systems, and the conditions and resources necessary to achieve this; on user-

oriented training: generalize the use of new technologies in teaching and training, notably by developing appropriate software and training teachers and instructors;

- (ii) on producer-oriented training: it is essential to train the engineers and researchers which the European ICT industry needs and to coordinate the ICT-related training provided under the various specific Community RTD programmes.

(e) Harnessing technologies and improving the performance of Europe's ICT industry

Unlike its competitors, Europe's ICT industry does not have a firm hold on its home market. Europe must be given the applications necessary to meet its needs and the ability to devise the requisite applications software. A solid software industry base is inconceivable without close cooperation with equipment suppliers and early knowledge of how their equipment performs. Because of the speed of new developments, it is essential to know the specifications of equipment and components before they are available on the market, otherwise it is possible only to follow developments, which leaves very little scope for initiative. Having a strong European ICT industry would also help considerably in maintaining a scientific and technological community in Europe, and particularly in harnessing generic manufacturing technology.

It is recommended that action be taken in the following areas:

- (i) **Promotion of 'strategy watch' at European level.** There should be action to raise awareness on strategy watch, to reinforce the measures already taken and to coordinate and rationalize existing resources in order to remedy the lack of strategy watch structures and organizations in Europe.
- (ii) **Support for the R&D effort.** The rapidity of technological progress requires that the R&D effort be maintained and even reinforced. In the priorities of the fourth framework pro-

gramme concerning the generic technologies necessary for the emergence of an information and communication infrastructure special emphasis will be placed on taking into account users' and market needs and the general aim of making the economy as a whole more competitive. The impact of the programmes will be strengthened by involving users, and through training, coordination with national initiatives and Eureka and international cooperation. Careful consideration needs to be given to taking better account of the importance of incremental research, industrial realities and the interactive nature of the innovation process.

- (iii) **Exploitation of RTD projects through industrial policy.** Specific action could be launched consisting in developing pilot demonstrations in those areas where market forces are slow to commercialize the results of RTD (multimedia, in particular).
- (iv) **Adapting industrial and commercial policies to the new international situation.** Globalization of the economy and the existence of unfair competitive practices in the various markets of the Triad create competitive advantages which could seriously handicap European companies. In accordance with the Council resolution of November 1991,¹ higher priority should be given to specific measures aimed at levelling competitive practices and launching international cooperation programmes.

5.4. Conclusions: Combining our efforts

A Community policy aimed at establishing a common information area will help to increase competition and improve European competitiveness. It will help to create jobs. It should be backed up by specific measures aimed at facilitating economic

¹ Council resolution of 18 November 1991 concerning electronics, information and communication technologies (SN 211/91).

and social changes, and ensuring that all workers have jobs which reflect their qualifications. To this end, steps should be taken to promote the creation of new jobs, for example, in new social services.

Devising a policy to promote a common information area requires in particular the setting-up of an efficient system for cooperation between the parties concerned. Because of the Community's political structure, this is much more difficult than in the USA or Japan.

Establishing an information infrastructure will require urgent and structured measures. If these measures are to be credible and successful, it is important to define them clearly, to specify a timetable and to put in place resources or structures which will ensure that this timetable is respected. We must therefore combine our efforts in Europe and make greater use of synergy in order to achieve as soon as possible objectives aimed at building an efficient European information infrastructure and taking the necessary measures for creating new services.

It is proposed that a task force on European information infrastructures be established with a direct mandate from the European Council. This very high-level task force would follow guidelines set by the European Council and would have the task of establishing priorities, deciding on procedures and setting schedules. It would be required to report to the European Council within three months after first consulting all the parties concerned.

It would consist of one member of the Commission, several members of the governments of the Member States, representatives of the European Parliament and high-level representatives of industry, operators, users and financial institutions.

The task force should be set up before the end of 1993.

At the same time, the European Council should instruct the Council to speed up the work already being done aimed at setting up information infrastructures.

B. Biotechnology and its diffusion

5.5. As a result of intensive scientific research and major discoveries over the past four decades in molecular biology, biotechnology has emerged as one of the most promising and crucial technologies for sustainable development in the next century. Modern biotechnology constitutes a growing range of techniques, procedures and processes, such as cell fusion, r-DNA technology, biocatalysis, that can substitute and complement classical biotechnologies of selective breeding and fermentation. This confluence of classical and modern technologies **enables the creation of new products and highly competitive processes in a large number of industrial and agricultural activities** as well as in the health sector. This would provide the impulse to radically transform the competitiveness and growth potential for a number of activities and open up new possibilities in other sectors such as diagnostics, bioremediation and production of process equipment (biohardware). In terms of the quality of life, we should not underrate the important **potential of biotechnology for improving the environment** by correcting pollution and for improving health by preventing or remedying illness or other physical problems.

The Community has taken a number of initiatives, on the one hand, to promote the competitiveness of bio-industries and, on the other hand, to ensure the safe application of biotechnology. It implies mainly funding of research and development and the putting into place of a regulatory framework.

5.6. Potential of biotechnology and similarities with information technologies

Reinforcing the potential of biotechnology are a number of features which biotechnology shares with electronics and information technologies: it is science-based, the scientific input being the most crucial element of the technology trajectory; the gap between developments in basic science and their research and development applications and even further downstream is small and diminishing; a very major and growing

stimulus can be expected for process equipment, instrument and engineering sectors; and finally the impacts of the processes, techniques and hardware represented by biotechnology are across a number of sectors.

The Community is highly competitive in these sectors which cover chemicals, pharmaceuticals, health care, agriculture and agricultural processing, bulk and specialized plant protection products as well as decontamination, waste treatment and disposal. These sectors where biotechnology has a direct impact currently account for 9% of the Community's gross value-added (approximately ECU 450 billion) and 8% of its employment (approximately 9 million). Beyond this, perhaps only modern biotechnology has the potential to provide significant and viable thrusts, compatible with CAP reform and not dependent on operating subsidies, to new energy/fuel and industrial outlets for agricultural raw materials. The important role of biotechnology in these sectors is likely to be to maintain employment by stimulating its productivity as well as to create highly skilled labour demand.

The following are two valid indicators of the potential of biotechnology: the pace of international innovative activity and the evidence of growth in output and value-added in products derived through biotechnology. Measuring innovative activity by patents filed for relevant products in the USA, the Community and Japan show that patents filed have increased from 1 100 per annum in the early 1980s to 3 350 per annum in 1990. In 1980 the Community was in a leading position, by 1990 the USA was filing 50% more patents than the Community. European Patent Office (EPO) statistics reveal a similar evolution: between 1980 and 1991 biotechnology patents filed with the EPO increased by a factor of 10, the most being filed by US-based companies.

Current global indicators of the growth prospects of the biotechnology industry are the following: in the USA the industry based on modern biotechnology had a turnover of over USD 8 billion in 1992, a growth rate of 28% with employment growing at 13%. It is estimated on the basis of the observed rates of diffusion of bio-

technology that the US biotechnology industry's revenues will grow at an average rate of 40% to reach USD 52 billion by the year 2000. The current industry size in Japan is officially put at USD 3.8 billion and is estimated by the Ministry of International Trade and Industry to reach USD 35 billion by the end of the century. In the Community, despite the emergence of a significant number of firms and a substantial growth in markets, primarily of bio-pharmaceuticals, to over USD 3 billion, at the current rate of growth, the value of output and employment is about the same as that in Japan. It is therefore clear that by the year 2000 with an estimated world market of ECU 100 billion for the biotechnology industry, the Community growth rate will have to be substantially higher than at present to ensure that the Community will become a major producer of such products, thereby reaping the output and employment advantages while at the same time remaining a key player in the related research area.

5.7. Factors favouring growth, competitiveness and employment in the Community

The sectors with the greatest potential for the applications of biotechnology are amongst the most vigorous and competitive sectors in the Community with a long record of sustained growth, productivity increase, and highly competitive trade performance.

The Community firms in these sectors (chemicals, pharmaceuticals, agricultural processing) are leading firms at a global level with important capabilities in the domain of innovation.

Among other factors favouring investment in biotechnology in the Community are the strong science base and infrastructure, the availability of skilled labour, and the high quality of process engineering and production facilities.

5.8. Unfavourable factors

The key factors that may jeopardize a significant expansion of biotechnological applications in the Community are the following:

- (i) In a domain where the technology trajectory is crucially dependent on basic science, the **public research and development expenditure in the Community lags behind**. For the 1993 financial year publicly financed US biotechnology research and development expenditures are set to exceed USD 4 billion; in Japan in 1991 they exceeded USD 900 million whereas the Community's and Member States' expenditures totalled around USD 600 million. The fourth research and development framework programme's proposes ECU 650 million in biotechnology over five years. Member States have also programmes devoted to R&D in biotechnology.
- (ii) **Privately financed research and development on biotechnology in the Community has not compensated for the shortfall in public funding**; on the contrary, available indicators identify a delocalization — an investment outflow, largely net, from Community companies mainly towards the USA and Japan of USD 2.2 billion since 1984. In the most vigorous sector of biotechnology, biopharmaceuticals, in 1990 67% of patents were held by US-based companies and only 15% by Community-based companies. There exists the risk that the Community will be a leading future market for biopharmaceuticals but not a leading future producer. There is an evident feedback between technology diffusion and private investment.
- (iii) Regulation concerning the safety of applications of the new biotechnology is necessary to ensure harmonization, safety, and public acceptance. However, the current horizontal approach is unfavourably perceived by scientists and industry as introducing constraints on basic and applied research and its diffusion and hence having unfavourable effects on EC competitiveness.
- (iv) Technology hostility and social inertia in respect of biotechnology have been more pronounced in the Community in general than in the USA or Japan. It has become clear that these issues should be examined in greater detail in

order to properly address these concerns. Supporting actions such as those under the Biotech programme and the creation of a group of advisers to look at ethical issues have been undertaken.

5.9. Conclusions and recommendations

The potential of biotechnology to dramatically impact on competitiveness is greatest in certain sectors of the Community chemicals, pharmaceuticals, process equipments and appliances, agriculture and agricultural processing. These sectors contribute importantly to value-added and employment. The observed international growth in output of between 30 and 40% in the most vigorous of the biotechnology dependent sectors and the associated labour-intensive service activities (e.g. research, health care) has the capacity to provide a valuable stimulus to employment growth.

The means to achieve a fuller realization of the Community's inherent strength in biotechnology are to be found in overcoming existing constraints by creating appropriate channels for biotechnology policy development and coordination and by acting on the following **recommendations**.

- (a) Given the importance of regulations for a stable and predictable environment for industry and given that they influence localization factors such as field trials and scientific experimentation, the Community should be open to review its regulatory framework with a view to ensuring that advances in scientific knowledge are constantly taken into account and that regulatory oversight is based on potential risks. A greater recourse, where appropriate, to mutual recognition, is warranted to stimulate research activities across Member States. Furthermore, if the Community is to avoid becoming simply a market rather than a producer of biotechnology-derived products then it is vital that Community regulations are harmonized with international practice. The development of standards will supplement regulatory efforts.

- (b) The Commission intends to make full use of the possibilities which exist in the present regulatory framework on flexibility and simplification of procedures as well as for technical adaptation. To sustain a high level of environmental protection and to underpin public acceptance, it is important to reinforce and pool the scientific support for regulations. An advisory scientific body at Community level for biotechnology diffusion drawing on the scientific expertise within and at the disposal of the existing committees at national and Community level. An advisory body at Community level — scientific committee for biotechnology diffusion — could play a crucial role in intensifying scientific collaboration and in providing the needed support for a harmonized approach of the development of risk assessments underlying product approval. This body could also advise on the development of a further Community strategy for biotechnology.
- (c) Since the Community is not matching efforts elsewhere in research and development expenditure, it needs to compensate for this through **focusing on the most vigorous biotechnology research and development domains and increased coordination** between the Community and Member States in order to avoid duplication, encourage collaborative research and improve efficiency of expenditure on research and development.
- (d) The small and medium-sized research-oriented firms play an important role in biotechnology diffusion and the growth of this sector would substantially benefit from the creation of a **network of existing and new biotechnology science parks** in the Community linking together academic institutions, research laboratories and SMEs. This would create the possibilities for, on the one hand, greater educational investment in molecular biology and biohardware, and, on the other hand, the involvement of venture capital and other financial institutions. The Structural Funds could also play an important role.
- (e) Member States should provide additional incentives to **improve further the investment climate for biotechnology** and to facilitate the transfer of applied research and development to the market place. These might include fiscal incentives respecting the existing Community guidelines that have a bearing on biotechnology innovation and investment.
- (f) The commercialization of biotechnology will in certain areas require specific actions aimed at **further enhancing public understanding of the technology**. Member States should encourage interest groups to make objective information available and to encourage dialogue.
- (g) It is necessary to **clarify further value laden issues in relation to some applications of biotechnology**. In view of this, the Commission will reinforce the role of the Group of Advisers on Ethical Implications of Biotechnology and other groups which examine in particular ethical questions related to biomedical research.

C. The audiovisual sector

5.10. Introduction

The audiovisual sector which covers programme production and distribution ('software'), to which equipment manufacturing ('hardware') can be added, has an economic importance that is often underestimated as compared to its unquestionable cultural significance.

The sector has an estimated current global market value, considering both its components, of ECU 257 billion.¹ The software sector represents 54% of the overall market value.² One of the main characteristics of the sector is that it is undergoing both a technological and regulatory transformation that will considerably affect its future growth and development.

¹ Source: OMSYC 1993 report.

² Source: OMSYC 1993 report.

5.11. Europe — Growth forecasts and employment

The European market has been among the fastest growing in the world with a current market growth rate of 6% a year in real terms, that is being sustained even in today's recessionary climate. The USA has benefited most from growth in Europe increasing its sales of programming in Europe from USD 330 million in 1984 to USD 3.6 billion in 1992. In 1991, 77% of American exports of audiovisual programmes went to Europe, of which nearly 60% to the Community, this being the second largest US industrial sector in export terms, while the European Union's annual deficit with the USA in audiovisual trade amounts to about USD 3.5 billion.

Some impressive growth figures that flow from recent studies clearly show that by the end of this century the demand for audiovisual products will double in Europe, expenditure on both audiovisual hardware and software growing from ECU 23 to ECU 45 billion.

Such growth will accelerate under the impact of new transmission technologies which will multiply and diversify the vectors for distribution (satellite TV, pay-per-view, video on demand, interactive TV, etc.). The number of TV channels is expected to increase from the present 117 to 500 by the year 2000 with an increase of TV broadcast hours from 650 000 to 3 250 000 over the same period. Moreover, encrypted programming hours are predicted to increase by a factor of 30, which implies fundamentally different (and greater) revenue flows.

The audiovisual sector has a highly labour-intensive structure. Staff costs make up 47% of typical film budget and on average 15% of TV channels' operating costs (i.e. not counting the personnel involved in **producing** the programmes which may be bought in or made in-house). The sector intrinsically provides many high-level 'grey-matter' jobs, like technicians, performers, script-writers, directors, and so on. It is thus potentially less vulnerable to competition from low labour cost markets.

Though there is a lack of reliable statistics on employment within the sector, it has been estimated that at least 1.8 million people are earning their living in the EC audiovisual services (i.e. in the software sector).³ It is clear from the vigorous demand-side growth trend, accentuated by technological developments, in the audiovisual software sector in Europe, and from the nature and structure of the employment that it can provide, that there is remarkable potential for job creation in this sector. Recent estimates point to the doubling in the medium term of the share of household expenditure given over to audiovisual software products. In line with the increased growth predicted for the sector, on the condition that the growth is translated into jobs in Europe and not into financial transfers from Europe to other parts of the world, job creation could be of the order of two million by the year 2000, if current conditions prevail. Furthermore, bearing in mind that, if proper resources are deployed, there is a clear potential for an increase in our share of the market, it is not unrealistic to estimate that the audiovisual services sector could provide jobs, directly or indirectly, to four million people.

5.12. Conclusions

It is vital that the predicted growth in the European audiovisual market be translated into jobs in Europe? Given the intrinsic nature of audiovisual products (i.e. that they need to be amortized on large domestic markets) concerted national policies and policies at Community level are needed to achieve this objective. The aim must be to establish a growth-employment relationship that is positive within the European audiovisual sector and to prevent increasing resources from being diverted to job creation in other parts of the world, with Europe becoming a passive consumer of other countries' audiovisual products and with both its economy and culture depending on others. This thinking is behind the Community's firm stance in the

³ Source: Eurostat.

GATT negotiations and behind the policy instruments that have been developed since the Rhodes European Council in 1988. Moreover, a Green Paper on audiovisual policy will be presented by the Commission during the first semester of 1994 setting out suggestions on how existing policy instruments in this field may be developed and refined in order to maximize their impact

and contribute to guaranteeing not only the survival but also the growth of a viable audiovisual software industry in Europe into the year 2000. The stakes are high. The audiovisual sector is no longer a marginal one in economic or employment terms. On the contrary, it will be one of the major service sectors in the 21st century and should be given corresponding attention.

Chapter 6

The Community, an open and reliable partner

Summary

World economic relations are no longer limited to international trade in goods and services. In the world economy, the Community and all major partners are interdependent: Community policies must reflect and build on this reality.

The Community must keep up its efforts to bring the Uruguay Round to a swift conclusion covering all the problems now outstanding and paving the way for the transition to a world trade organization.

In the context of the liberalization of global trade and economic relations, the integration of Central and Eastern Europe and the former Soviet Union into the world economy will contribute to the strengthening of growth in these countries and the world in general. Similarly, the Community should for the same reasons support the smooth and gradual integration of the developing countries in the world economy.

The perspective of accession for the associated countries confirmed by the Copenhagen Summit lays the foundation for the development of a Europe-wide zone of open markets and economic cooperation which will stimulate growth in the associates and give a strong stimulus to Community exports and therefore growth. This process of integration will contribute to rendering European enterprises in West and East more competitive on world markets.

6.1. Diagnosis

The Community economy is a global economy. The Community accounts for one fifth of total world trade in goods; 12 million jobs in Europe depend directly on export of goods. Tradable services account for one quarter of overall goods and services exports. Nor are trade figures alone a good reflection of Community economic

links worldwide. Direct investment by Europe in other countries accounts for over one third of foreign direct investment worldwide. The Community has strong links to preferential partners, but these do not dominate trade: Community exports to EFTA, Eastern Europe, the Mediterranean basin and ACP countries together account for only just over 40% of total exports.

Underlying this static picture, **the structure of the world economy is undergoing rapid change.** The post-war picture of inter-country trade, increasingly accompanied by international investment and with very large companies the privileged players, is less and less reliable. Trade in goods increasingly means interfirm trade in semi-manufactures. The development of informatics networks makes it possible for companies to cooperate more flexibly than by joint venture or franchise alone.

This means that **the key factors shaping business behaviour will be different.** Already, import duties are generally less important for exporters than domestic regulations (tax, safety, consumer protection). There is less and less scope for a nation State or an economic community to improve life for its businessmen by acting alone. Nor, even internationally, can trade policy action be taken without looking at possible policy linkages (trade/exchange rates, trade/environment, trade/security, trade/human rights) which were hardly addressed 10 years ago.

Integration in the global economy none the less depends on a **solid set of trade relations.** The analysis of competitiveness has already demonstrated that extra-Community exports of traded goods are too frequently concentrated in sectors where long-term prospects are for low demand. Nor are Community exporters sufficiently focused on the Asia-Pacific region, which has the highest medium-term growth potential. Community exports to some Asian markets have increased dramatically, underlining the mutual advantages of free trade. But we need to be more broadly present and to pursue further market-opening worldwide.

Nominal exchange-rate fluctuations may increase business uncertainty on third country markets and are a proper subject for Community activity (see recommendation (h) below) but do not seem to drive the underlying trend in Community competitiveness.

Perceptions of unfair trade abound. Some relate to traditional problems (dumping, subsidy, unilateralism), and some to the problem of free-riding in new areas of international policy coordination (social or environmental dumping, international impact of anti-competitive practices). There remains, too, a sense that market-opening is lagging behind economic growth and export performance in many, newly industrialized countries.

6.2. Member States' views

Several Member States' contributions underscore the benefits of an open market economy and free competition as advocated in the Union Treaty. This would enable the Community to turn its competitive advantages to good account in the framework of the international division of labour. Maintaining an open economy facilitates the allocation of resources to the places where they are most productive and, consequently, specialization in products and services with a high added-value and greater competitiveness. In the view of some Member States these arguments also hold good for products originating in countries with low wage costs as their development, coupled with an opening-up of their markets, offers new opportunities for European industry.

All Member States consider the conclusion of the Uruguay Round in the very near future to be necessary for the world economy. Several point to the need in future negotiations to take account of certain factors which have a bearing on trade, such as the environment, competition conditions and monetary aspects. There is no unanimity, however, on the inclusion in trade negotiations of social aspects or on the use and shape of trade policy instruments.

Most of the contributions highlight the benefits to be derived from the European

Economic Area and the progressive integration of the economies of Central and Eastern European.

Some Member States call for international economic cooperation to be stepped up significantly, notably in the G7 framework.

6.3. Europe in the world economy

Open markets with free competition is one of the objectives of the Treaty on European Union. It has a profound interest in promoting open markets, both inside and outside the Community. Open markets are a key element for international competitiveness. Within the Community they facilitate the international division of labour and the assignment of resources where they are most efficient. They also enable Community industry to purchase goods and services (for intermediate or final consumption) or raise capital in the best available conditions worldwide.

In the changing world economy, Europe itself is changing rapidly, presenting dangers but also great opportunities for the European Community.

The successful conclusion of accession negotiations with four of the EFTA countries will lead to the creation of an even more powerful industrial and trading Community.

Recent changes in Eastern Europe and the former Soviet Union have major implications for the Community, creating **new opportunities to expand the overall volume of trade** in the region and challenging the Community, and Community business, to play an active role in supporting these countries in their progress towards full market economies so that they achieve their full potential. The European Council meeting in Copenhagen laid down the parameters for developing future relations.

The integration of the associated countries of Central and Eastern Europe with the Community resulting from the decisions of the Copenhagen Summit will further reinforce the Continent's trading capacity and its competitiveness on world markets.

In the longer term, similar benefits and challenges for the Community can be

expected from contributing actively to a smooth and gradual integration of the developing countries into the world economy.

6.4. Strategy

An open and comprehensive framework for trade and economic relations under internationally agreed rules, enforced multilaterally, with strong coordination of policy-making in all areas beyond those rules, is the only recipe for maximizing growth in an **interdependent world**. But that recipe will only work if the Community economy regains a long-term competitive position on world markets.

The push for competitiveness and the search for a strong position in the global market depends on a long-term vision: 20 years, not two.

The open 'trade' system must be improved and extended to meet the challenge of global economic interdependence. In order to regain public confidence, it must be seen to respond to current concerns.

The Community must be seen to take full advantage of that system. Community institutions must respond more quickly to threats and opportunities. Community business must work harder at developing strong links to foreign firms and consumers.

We must avoid setting up international trade as either a panacea or a scapegoat for current ills. Strong export growth can ease necessary internal restructuring, but no action on the external front alone, however drastic, could resolve the current unemployment problem.

Community priorities must reflect structural change in world markets, both the long-term prospects of fast-growing regions such as Asia and the immense opportunities created by adjustment in Central and Eastern Europe and the Commonwealth of Independent States (CIS).

These latter opportunities must be seized as they represent not only large future markets but also will present opportunities to Community companies to improve their competitiveness on world markets. It will be necessary to push forward with the liberaliza-

tion of market access, and to develop the economic relationship in areas such as industrial cooperation, in order to maximize the benefits accruing to the Community and the associates from progressive economic integration.

However, the creation of new market opportunities in highly indebted countries will depend on the effective alleviation of the debt burden which strongly constrains these countries' capacity to import. The Community will work jointly with other partners in order to find a lasting and satisfactory solution to the debt problem.

6.5. Recommendations

(a) Reform the open market rules of the world economy

The Uruguay Round is an overdue first push towards the objective of strengthening GATT rules and extending them to reflect today's wider and more complex set of international economic relationships. We must reach a successful conclusion to the Round this year. Prospects for a favourable deal will not improve with time. Without a Uruguay Round agreement, the open trade system will come under sharp protectionist pressures: current Community trade flows as well as prospects for further growth will suffer.

In the remainder of this year and beyond, the Community's priorities are clear:

(i) Market-opening in both goods and services

The latest negotiations have produced progress in sectors where the Community is competitive, at least among major developed countries, and have laid the basis for further progress among all GATT participants.

Negotiations for accession to GATT by countries such as China and Russia will provide opportunities to secure clear commitments to continued market-opening.

The Community must make a positive contribution in order to unlock all these benefits.

Even if the Uruguay Round is concluded successfully, it is still based on a one-track approach to trade liberalization, dealing only with governmental obstacles to trade. It is important that multilateral rules are developed for the elimination of private conduct and structures which constitute obstacles to trade. Such obstacles are adequately dealt with in the Community through an active competition policy. However, the competition policies of its major trading partners are not geared similarly to the trade impeding effects of such private obstacles. Multilateral rules in this area should therefore re-establish a level playing field for Community companies and provide them with important additional trade opportunities.

(ii) Rules for a global economy

In a global economy, the range of policy areas where foreign decisions will affect Community companies is widening rapidly, while the scope for unilateral Community action to secure competitiveness gains at the expense of other economies is weakening. The strategy for all policy areas should be to seek common action with partners to meet Community objectives. This will require early action in a series of fields: some, such as intellectual property rules and investment, are covered in the Round, and others, such as environment and multilateral rules, which establish a level playing field.

(iii) A robust framework

This is essential to guarantee prompt action on outstanding issues. GATT is too loose a body to respond with the speed now essential in the face of new challenges, to integrate the range of policies that now interact, or to secure full compliance with increasingly complex multilateral rules. The trade impact of environment protection is one such issue which will have to be tackled immediately after the Round: the European Community wants to see a permanent environment committee in the new multilateral trade organization. A strengthened organization to manage the multilateral system is the essential guarantee that a Uruguay Round result will be of lasting value.

(iv) More harmonious rules

Special sectoral deals create intersectoral distortions which hamper economic growth in Europe. The Community is fighting in the Uruguay Round for an overall agreement that enables rules for textiles and clothing, agriculture and other sectors subject to GATT — recognized or covert trade restrictions, to be returned progressively to normal disciplines. The process can only be gradual, must bind all participants and must be set in the context of an overall strengthening of GATT rules as well as of the recognition of Community policies in the spheres affected. On this basis, it will be beneficial to Community producers as well as to the economy as a whole.

(v) Stronger rules

This is a necessary corollary to other action referred to above. Dumping and export subsidy remain threats to fair competition. GATT rules for preventing unfair competition must be strengthened. Safeguard action must also be made more effective and transparent, so that the Community can, as GATT foresees, take temporary action to allow industrial restructuring. Wherever possible, this action should be based on cooperative understanding with all involved rather than unilateral action.

(b) Streamline Community decision-making

Trade policy should be shifted towards the citizen (transparency, assessment of consumer interest) and towards greater Commission autonomy (subject to CFI control by the European Court). This will increase the confidence of Community producers that necessary decisions can be taken rapidly. But this will require not only legal powers but greatly increased Commission resources, and better cooperation from national administrations (e.g. statistical offices and customs). Key areas for resource increases include anti-dumping/anti-subsidy/safeguard action, the new policy instrument, the international dimension of competition policy, and action to prevent circumvention or fraudulent use of quotas under the Multifibre Agreement.

(c) Promote Community business strategies for the post-Round world

Uruguay Round market-opening measures will be implemented progressively. But it is not too early to focus debate on optimal strategies to generate Community gains (profit, market-share, new investments and business relationships) from the post-Round world market. This should look beyond the likely impact effect on world business confidence and anticipate the adjustment necessary to take account of new competitive situations in Community markets as well as overseas.

There is no need for Community duplication of Member State export promotion efforts. But at Community level, more effort is needed to produce Community-wide business organizations, and to develop Community organizations expert in regional rather than simply national export markets. Asia is a high priority for action in this regard. Positive developments in Latin America (the setting-up of NAFTA, Mercosur, etc.) open up increasing possibilities for action in this region as well.

The framework exists in embryo in the current web of bilateral agreements, and will be reinforced as those countries align themselves ever more closely on multilateral open market principles. The Community is both leading the cooperative effort of the G24 and developing, through TACIS and PHARE, its own instruments.

Broader business investment in these markets, whether bilaterally or in joint efforts with Asian or US business, is the element that must now be encouraged. Closer economic integration of this sort would accelerate the pace of reform to the East and reduce the examples of friction that inevitably result in sectors suffering structural overcapacity.

We should improve **coordination between export promotion and other policies** in order to increase export opportunities, particularly at the cutting edge of technological development. As policy cooperation becomes more extensive (for example on environment or biotechnology under the Community/Japan Declaration, or other-

wise), the officials involved should be conscious of the scope for creating new forms of industrial cooperation or new markets for Community products.

The globalization of the economy raises the question of the adequacy of the current instruments of commercial policy. We should now be developing more positive tools of business and intergovernmental cooperation.

(d) Develop the relationship with Eastern Europe and the former Soviet Union

The Europe Agreements concluded with Poland, Hungary, the Czech and Slovak Republics, Bulgaria and Romania commit the parties to the creation of broadly based political and economic cooperation on the basis of a free trade area. In Copenhagen the European Council decided to accelerate the timetable for removing barriers to trade on the Community side, recognizing that greater market access was an essential support for the process of economic reform in these countries.

In addition to the framework for future trading relations, which has been established, it is necessary to **develop a broad and dynamic economic relationship**, by encouraging business and economic cooperation between Western and Eastern Europe and by providing a framework for cooperation, including the application of common competition rules in the wider European area. One of the benefits of closer economic cooperation should be to reduce trade frictions by easing adjustment and minimizing recourse to trade defence instruments.

The Community is currently negotiating partnership and cooperation agreements with Russia and a number of other newly independent States, and defining the rules which will govern the future trading relationship and which will form a key element of these agreements. The Community has indicated its willingness to envisage establishing a free trade area with Russia in the future.

Finally, the Community must pursue the process of multilateral opening and integration among TACIS and PHARE partici-

pants and support appropriate regional cooperation so that the old model of hub-and-spoke preferences can be avoided.

In order for the former centrally planned economies of Europe to be able to implement market-oriented reforms successfully, the Community will need to adopt an innovative approach that, besides market-opening and financial support, includes the necessary transfer of skills. **Cooperation between Community enterprises and newly privatized firms** can play a key role in this regard.

(e) Anchor the southern Mediterranean region into the European economy

The Mediterranean neighbours, from Morocco to Turkey, represent the southern part of the European Union's future economic and social environment. With a rapidly growing population of some 200 million people at present, these countries represent as important an export market potential as Eastern Europe.

It is of vital political and economic importance for the European Union to develop this relationship into a closer economic symbiosis.

The first steps towards a possible Euro-Mediterranean free trade area have already been made: free trade agreement with Israel (1989), customs union to be completed with Turkey by 1995 and Cyprus, association agreement to be negotiated with Morocco in 1994, later with Tunisia and possibly with other countries of the region.

It is also expected that the successful outcome of the peace negotiations in the Middle East and the process of economic liberalization which is under way will boost the intraregional trade.

All these developments should, during the coming decade, lead to a substantial increase in entrepreneurial activity in the Mediterranean countries, marked by more direct investment, more joint ventures, more agreements of production sharing, and, in general, a much higher level of industrial and trading interaction.

These geo-strategic developments on Europe's southern flank are bound to have a positive impact on the European employment situation, thanks to the economic dynamics that will be generated in the Mediterranean basin.

For this potential to become a reality the Community must contribute actively to the process of economic and social transformation which has already started in these countries, towards more open, regionally integrated and efficient economies.

(f) Improve competitiveness

Trade and economic policies cannot substitute for the development by business both of saleable products and of the means to deliver them to world markets on time and at the cost and quality needed. As to social costs, the fear of so-called social dumping would be misplaced if it related to a belief that in certain countries the level of social protection is kept artificially low in order to gain a competitive advantage elsewhere. We should not accept too simple a picture of high-wage industrial countries and low-wage developing countries. Differences in worker wages alone can be misleading. It is true that modern technology spreads much faster and more easily than in the past to different areas of the world. But poorer education, lower skill levels, lower levels of capital investment overall and inadequate infrastructure can all offset the possible advantage to be derived from low wages.

This is not to say that the Community has no difficulty in competing with labour-abundant countries. But **European competitiveness is falling not principally because of the impact of international social cost differentials in some sectors, but because we ourselves suffer structural distortions in Europe.** In developing countries, more elaborate social protection becomes a generally held political objective as national income rises to a level where those objectives are attainable. In the long run, a major part of the solution will consist in helping these countries to set up the conditions necessary for the development of domestic demand and rise in the standard of living.

The search for greater competitiveness both by trade and other policies does not imply that social protection should be undermined in Europe or ignored abroad. We are rightly proud of our record in this respect, which compares with the best in the world, and we are right to remain committed to establishing European-wide standards for social protection wherever appropriate.

The Community and its Member States can take every opportunity to raise with the countries concerned the need to bring forward their own legal changes. We can encourage this by positive measures, for instance by providing legal advice or technical cooperation where required. These are legitimate objectives of development aid and economic cooperation. But trade policy is not an instrument for the achievement of those objectives.

We rightly object to unilateral action by others to impose on Europe their view of how the world should be run. The international organizations responsible for multilateral rules must themselves judge Community compliance with these rules. The same principle must apply to judging others' compliance.

There are **three fronts** on which to act:

- (i) Inform better the current Community debates on social dumping, explaining why the Community wants multilateral rule-making and should not allow individual countries to set up as the unilateral judge of others' domestic laws or of others' compliance with international agreements;
- (ii) Develop a positive Community economic cooperation policy to increase social standards worldwide but without introducing unilateral trade discrimination as a lever;
- (iii) Prepare for the discussions that will be necessary, in the International Labour Organization and elsewhere, after the Uruguay Round, of how best to strengthen compliance with current and future agreements in the field of social policy.

(g) Pursue a balanced policy on preferential agreements

As worldwide levels of protection fall, the importance of trade preferences diminishes, except in the case of newcomers to the world market-economy open trading system.

Preferences remain an important signal of the Community's political commitment to one or other of its neighbours or partners, but should be **made compatible with the health and stability of the multilateral system**. Nor should special bilateral economic relationships be limited to trade preferences: economic integration cannot be achieved only through reduction of tariffs and non-tariff barriers, however. It also requires the elimination of distortions of competition resulting from anti-competitive behaviour or State aid.

(h) Delocalization

Increased direct investment is good for jobs, for reducing trade imbalances and trade frictions, for developing Europe's cultural understanding of other countries, and for the projection of Europe's identity among its trading partners. It is most useful as a stimulus to the world economy where trade barriers are low, so that increased international investment should go hand in hand with efforts towards further market-opening, in particular in the newly industrialized countries.

There are no Community restrictions on foreign investment, although some Member States continue to vet investment in certain sectors. We encourage investment, but also encourage inward investors to integrate fully in the European economy. We do not want so-called 'screwdriver' operations, nor are they likely to be an attractive formula in the long term for European-based operations, since we have high labour costs and a screwdriver operation depends on low labour costs. For us, the future lies in inward investment which is fully integrated in the local economy, with research, development, marketing and management functions located in Europe alongside manufacturing, sales and service. This indeed is the trend, not least because there has been a sharp rise in mergers and acquisitions as a

proportion of overall foreign investment in Europe.

Little by little, foreign investment in Europe has come to be accepted by European citizens as the first step in closer cooperation between sectors in Europe and their counterparts in key markets overseas. The same is not yet true of European outward investment which has been criticized for over 30 years as a means of 'exporting jobs'. The argument maintains that outward investment simply deprives Europe of value-added activities, increases our imports and decreases our exports. This is not a correct analysis. **Over 80% of Community overseas investment goes to other members of the OECD. Less than 10% goes to the newly industrialized Asian countries and Latin America.** In some parts of the Community, the level of investment in low-salary countries is even lower: 4% of overseas French investment, for example, a figure that has changed very little over time. Industrialists who invest outside Europe tend to do so to supply markets other than their own, reimporting barely 10% of their total intracompany purchases from the low-salary countries where they have invested.

(i) Work multilaterally to minimize exchange-rate fluctuations

Coupled to macroeconomic imbalances and the resulting current account problems of major trading countries, exchange-rate fluctuations increase prevailing levels of uncertainty and increase trade friction, thus reducing business confidence and delaying recovery.

This is a problem which cannot be tackled by the Community in isolation but requires a multilateral solution in which there is **better coordination between the macroeconomic and structural policies** of major international economies and not only exchange-rate targeting. The Community can encourage this by building on its own internal policy coordination of economic policy through regular surveillance.

Recent developments within Europe have not made action on this front any less urgent. Community interests will only be given proper weight in world discussion of exchange-rate issues when we are seen by

the rest of the world to be back on the course towards EMU.

(j) The international dimension of competition policy

Competition policy in most countries has traditionally been seen as a purely national prerogative. The Community was the first to practise a policy which tried to deal with the impact that distortions of competition had on trade. Originally only applied within the Community, this approach has been gradually extended to trade with the Community's main trading partners in Europe as well. Thus, competition policy has played a major role in furthering international trade and, in particular, the possibilities of our companies to export to other markets, hitherto closed by anti-competitive practices, State aids or public monopolies.

Not all the Community's main trading partners have followed a similar approach of applying their competition policies to open their markets to imports, however. Such policies are lacking in particular in a number of countries in East and South-East Asia, whose markets are closed not so much by tariffs and non-tariff barriers, but mainly by anti-competitive practices. The 'Keiretsu' in Japan and the closed distribution systems in several countries are but two important examples of this phenomenon.

It should be a Community priority to seek to establish rules governing these competition problems. Ideally such rules should be multilaterally agreed, in order to give them the broadest coverage possible. As indicated above, the present GATT Round does not deal with the issue, even though certain codes (in particular the TRIPS and Services Codes) include provisions on restrictive business practices. The Multilateral Trade Organization, created as part of the Round's package, should cover competition policy issues as part of its immediate agenda, focusing especially on restrictive business practices and cartels. The aim should certainly be to agree on minimum substantive rules, but more importantly to lay down procedures to ensure enforcement of these rules by each of the contracting parties. For it is only through their enforcement in individual cases that the positive market opening effects can be achieved.

The right of recourse to GATT panels should be strengthened, as should the effectiveness of their adjudications. Achieving effective rules of this kind will be difficult and time consuming but it is high time that the process began.

In the short term, therefore, the first step is to seek agreement on a system of mutual consultation and cooperation with competitive authorities elsewhere in order to forestall potential conflict. The Commission has concluded an administrative agreement with the antitrust authorities of the United

States of America in order to limit such conflicts through a process of consultation, cooperation and coordination.

If the agreement, which is presently being reviewed by the Court of Justice, is upheld, it can form a model for other negotiations. Discussions to this end were already held with the Canadian authorities and other candidates could follow. As one of their main objectives is to limit conflicts in cases of enforcement, such agreements can only be concluded with authorities which actively enforce their competition rules.

III — EMPLOYMENT

Chapter 7

Adaptation of education and vocational training systems

7.1. Training — the catalyst of a changing society

There can be no doubt that education and training, in addition to their fundamental task of promoting the development of the individual and the values of citizenship, have a key role to play in stimulating growth and restoring competitiveness and a socially acceptable level of employment in the Community. However, it is essential to grasp the nature, extent and limits of this role. Given the economic and social problems they are facing today, which are cyclical in certain cases and essentially and more profoundly structural in others, *our societies are making many pressing and sometimes contradictory demands on education and training systems*. Education and training are expected to solve the problems of the competitiveness of businesses, the employment crisis and the tragedy of social exclusion and marginality — in a word, they are expected to help society to overcome its present difficulties and to control the profound changes which it is currently undergoing.

Certain of these demands and expectations are fully justified. Moreover, all other things being equal, it is the countries with the highest levels of general education and training (for example, Germany or Japan) which are the least affected by the problems of competitiveness and employment. However, education and training should not be seen as the sole solution to the most urgent questions. *It is only within certain limits, and in combination with measures in other areas* (industrial and trade policies, research policy etc.) *that they can help to solve immediate problems*. There is no doubt that they could play a significant part in the emergence of a new development model in the Community in the coming years. However, European systems of education and training will be able to do this only if they are suited to the task. Indeed, it is the

place of education and training in the fabric of society and their links with all economic and social activity which must be re-examined. *In a society based far more on the production, transfer and sharing of knowledge than on trade in goods, access to theoretical and practical knowledge must necessarily play a major role.*

These adaptation measures will inevitably have to be implemented progressively, and their effects will be felt only with the passing of time. Nevertheless, by the extension of a certain number of steps taken by the Member States and the Community in recent years, well-planned education and training measures should still produce positive results in *three* areas: *combating unemployment by training young people and retraining staff made unemployed by rises in productivity as a result of technological progress; boosting growth by strengthening the competitiveness of businesses; developing a form of growth which produces more employment* by improved matching of general and specific skills to changes on the markets and to social needs. In order to determine with accuracy the shape and content of the measures needed, it is essential to diagnose the current state of education and training in the Community.

7.2. Opinion of the Member States

The contributions of the Member States highlight the dual role played by the system of vocational training:

- (i) training is an *instrument of active labour market policy*; it adapts vocational skills to market needs and is therefore a key element in making the labour market more flexible; the training system plays a major role in combating unemployment, making it easier for young people to enter the labour market and promote the re-employment of the long-term unemployed;
- (ii) investment in human resources is necessary in order to increase *competitiveness*, and especially in order to make it easier to assimilate and spread new technologies.

As far as labour market policies are concerned, the contributions of the Member States all point to the need to promote *continuing* training in various forms (sandwich and supplementary training, systems of rotation and training leave); several Member States believe that priority should be given to *preventive measures* for low-skilled people whose jobs are more likely to be under threat and to measures for integrating the unemployed and young people into the labour market.

The Member States agree on the need for *greater involvement of the private sector* in education and/or vocational training systems and in drawing up education and training policies in order to take account of market needs and local conditions. This could be done, for example, by encouraging businesses to become involved in education and training systems and to integrate continuing training into their strategic plans.

The following suggestions have been made for specific improvements to training systems:

- (i) the transition from the education system to the world of work should be eased by increasingly practical orientation of training and by ensuring that students have achieved a higher minimum level before they leave the education system;
- (ii) education could be rationalized by providing a shorter period of general education which is better tailored to market needs and by promoting vocational training as an alternative to university;
- (iii) there is a need to improve coordination of the measures implemented by the various authorities and bodies with responsibilities in the areas of training and the labour market.

Under the Treaty on European Union, the Community is to concentrate on promoting cooperation between Member States and on supporting national strategies for improving the results and quality of training, establishing an open education area in the Community by greater recognition of qualifications, and developing Com-

munity programmes for giving a European dimension to training.

7.3. The diagnosis

The most important thing to remember is that the situation differs greatly from one Member State to another. In some of them, the standard of basic education is satisfactory while the quality of vocational training is inadequate; in others, it is the continuing training element which is weak and the basic training which is strong; then again, continuing training may be well-organized but initial training deficient.

A diagnosis of the current situation in the Community in this area provides a mixed picture of weaknesses and a certain number of strengths.

(a) Weaknesses

The major weaknesses of the education and training systems can be found in the most frequently voiced criticisms by industry, parents, social analysts etc. The first is the *relatively low level of training in the Community, and especially the fact that too many young people leave school without essential basic training*. In the Community, the proportion of people of normal school-leaving age who leave the education system with a secondary qualification is 42%, against 75% in the United States of America and 90% in Japan. The proportion of young people in any age bracket who are in higher education in the Community is, on average, 30%, as compared to 70% in the USA and 50% in Japan.

There is a direct connection between this problem and the problem of *the failure of education, which is a particularly important and increasingly widespread factor of marginalization and economic and social exclusion*. In the Community, 25 to 30% of young people, who are the victims of failure, leave the education system without the preparation they need to become properly integrated into working life. Many of them join the ranks of the young long-term unemployed.

As shown by the initially surprising combination of a high rate of unemployment and a lack of skills in various areas, the second area of weakness is the *persistently inade-*

quate development of systems and types of continuing training, the inequality of access to this kind of training, the limited possibilities in this area for people employed in SMEs etc. These weaknesses have produced the second substantial group of unemployed people against a background of ever increasing strides in knowledge and an ever shorter life for technologies and types of work organization.

While the problem of the suitability of skills concerns primarily low- and intermediate-level *skills, there is also a real lack of skills in a number of areas related to the applications of science and technology and the interaction between them and society: information technologies; applications of biotechnologies; applications of regulations on the environment; combinations of technical and management skills, etc.*

With a university system faced — as it has been since the beginning of the 1970s — with the challenge of absorbing a growing number of students while maintaining the quality of its teaching, and the marginalization of — and increasing disaffection with — vocational education, the most developed systems of education and training in the Member States of the Community are, to put it another way, becoming subject to ever increasing constraints. They are weighed down by a combination of new expectations (improving the level of initial training and the ability of individuals to adapt to occupational and social changes throughout their lives) and old tasks (socializing people and imparting to them the basic values of citizenship).

In addition to these features, which are present in varying but significant degrees in all Member States of the Community, there are a number of *weaknesses at the specifically European level: the lack of a genuine European market in skills and occupations; the lack of mutual transparency and the limited recognition of qualifications and skills at Community level; the lack of a genuine European area for open and distance learning.*

(b) Positive aspects

Nevertheless, there are also positive points and encouraging developments.

Accordingly, in recent years there have been a number of *important qualitative and quantitative steps forward* in most Member States: a general improvement in the population's level of training; an increase in the level of school enrolment; the recovery or development of investment in education; an increase in the number of teaching staff etc. *Reforms of university systems and education policies and structures — some of them major — have been devised and implemented, the effects of which should be felt throughout the 1990s: growing involvement of the private sector; decentralization of the management of education systems; an increase in local and regional initiatives.*

These measures have been accompanied by changes in attitudes which have led to a *rapprochement* (not always without its risks) *between education systems and industry*, with the representatives of education systems showing increasing awareness of the need to provide training which prepares students for the world of work, and the representatives of industry realizing the importance of general education, in addition to purely vocational knowledge, given the development of new forms of work organization and the decentralization of responsibilities.

The Member States and the Community should now adapt the European system of education and training by building on the measures referred to above and continuing and bolstering the efforts already made.

7.4. Elements of a reform of education and vocational training systems

(a) General objectives and broad lines

The main principle of the various types of measures to be taken should be to develop human resources throughout people's working lives, starting with basic education and working through initial training to continuing training. By giving general currency to best practice in the various Member States at these different stages, we will succeed in developing an education and training system of the quality we are seeking.

In order to combat unemployment among young people with no skills, the objective should be to develop systems and formulas which *provide sound adequate basic training and establish the link between school education and working life*. The basic skills which are essential for integration into society and working life include a mastery of basic knowledge (linguistic, scientific and other knowledge) and skills of a technological and social nature, that is to say the ability to develop and act in a complex and highly technological environment, characterized, in particular, by the importance of information technologies; the ability to communicate, make contacts and organize etc. These skills include, in particular, the fundamental ability to acquire new knowledge and new skills — *'to learn how to learn' throughout one's life*. People's careers will develop on the basis of the progressive extension of skills.

In order to ensure a smoother and more effective transition from education to working life, *formulas of apprenticeship and in-service training in businesses* which allow people to gain skills in the world of work *should be developed and systematized*. Alongside the normal apprenticeship schemes, considerable effort should be devoted to developing *initial vocational training* in special training centres as a possible alternative to university. *Shorter and more practically oriented forms of training* should be encouraged, but students should still be provided with enough general knowledge to ensure a sufficient degree of adaptability and to avoid excessive specialization.

In their efforts to devise and implement education and training measures which are able to stimulate growth and employment, the Community and the Member States must also take account of the fact that 80% of the European labour force of the year 2000 is already on the labour market. All measures must therefore necessarily be based on the *concept of developing, generalizing and systematizing lifelong learning and continuing training*. This means that education and training systems must be reworked in order to take account of the need — which is already growing and is set to grow even more in the future — for the *perma-*

nent recomposition and redevelopment of knowledge and know-how. The establishment of more flexible and more open systems of training and the development of individuals' ability to adapt will become increasingly important, both for businesses, so that they can make better use of the technological innovations they develop or acquire, and for individuals, a considerable proportion of whom may well have to change their line of work four or five times during their lives.

Education and training systems will have an important role to play in this process of adaptation. There is an evident shortage in the Community of certain highly-skilled technical personnel, such as people who are capable of maintaining flexible manufacturing systems or handling systems for monitoring emissions of pollutants in firms. In many high-tech disciplines, Europe cannot yet call on the requisite manpower to do top-level research. This problem can be overcome by a joint effort on the part of specialized training and higher education establishments. *Cooperation between universities and the business world* is another basic way of transmitting knowledge, a vector for innovation and a way of increasing productivity in developing and potentially job-creating sectors.

Universities must also be given the resources they need to play their particular role in developing lifelong learning and continuing training. In association with public and private partners at national and regional level, they can *promote lifelong education*, for example by measures for training instructors, retraining primary and secondary school teachers, retraining middle and senior management, etc.

In order for these measures to be as effective as possible, it is necessary to *anticipate skill needs correctly and in good time* by identifying the developing areas and the new economic and social functions to be fulfilled, as well as the skills required for them. Even if real-time adjustment is not possible (since a certain period of adaptation is inevitable), the organization of as much research as is necessary in this area and the introduction of observation instruments and of mechanisms for transferring the information collected to the education

system should make it possible to minimize the gap between required and available skills.

In order to ensure the success of this process of adapting the system of education and training and to implement the measures set out above, *it will not just be a question of increasing the level of public funding assigned to this area nor will the same increase be appropriate in all cases. The task is rather to reorganize educational resources in association with the employment services.*

Generally speaking, *the private sector, and businesses in particular, should become more involved in the work of vocational training systems.* In order to facilitate this process, *appropriate incentives (of a fiscal and legal nature) should be developed. The training dimension should be integrated into the strategic plans of businesses.* Provision should also be made for a significant proportion of the funding allocated for the compensation for the unemployed to be reallocated for training measures. In order to ensure optimum overall use of funding, *it is essential to improve the coordination between public and private training opportunities.*

The public authorities, apart from their role of providing incentives and setting the general framework for the measures, *would be responsible for setting guidelines and giving clear instructions on the objectives to be achieved at the various levels.*

Moreover, the systems of education and, above all, vocational training, have developed over the past two decades against the background of life dominated by work. Given the steady rises in productivity and the concern to distribute work more equitably — but at a rate and in a manner which are not yet known — there will probably be a further reduction of working time and a readjustment of the balance between working time and training time. New possibilities are emerging for *linking new patterns of working time with the development of training;* these possibilities should be explored and exploited. Experiments in this area, based notably on agreements between the various parties in businesses, should be multiplied, assessed and, where appropriate, generalized.

(b) The specific means

(i) Action at Member-State level or concerted action

By concerted action at European level, possibly even in a Community framework and with the aid of Community instruments, Member States should use the instruments which they control in an effort to achieve the goals set out above. A key aspect should be the *development of genuine 'training policies' with the involvement of the public authorities, businesses and the social partners.* In order to ensure sufficient transparency at European level and to make it possible for Member States to draw on the experience gained in other Member States and to adapt their measures to those conducted elsewhere, the policies and strategies implemented should lead to *the regular publication and large-scale distribution of documents setting out objectives and providing descriptions and assessments.*

Particular attention should be paid to the continuing training of staff in SMEs, which account for a significant proportion of businesses in the Community and represent a potential for innovation which is by no means negligible. There can be no doubt that *regional and local authorities* have a particular role to play in this area by setting up mechanisms for promoting local forms of partnership in the area of continuing training and the retraining of workers.

The *fiscal instruments* available to Member States (the lowering of social contributions for businesses which organize training measures etc.) should also be used, since they place fewer restrictions on public budgets than does direct funding. *Systems of compensation for unemployment should be modified* and formulas developed for *reallocating part of this funding for training measures,* in particular for the long-term unemployed and for young people entering the labour market without skills.

It is important to set up *generalized and versatile systems of 'training credits' ('training vouchers')* which all young people would receive and could spend relatively freely throughout their working lives in order to obtain new knowledge and to update their skills. Such systems already exist in certain

Member States, but are limited in their scope and target population. Formulas which are more ambitious and of broader scope should be examined and developed on the basis of the models which are best adapted to the various national cultures: statutory entitlement to 'training leave' with financial assistance from the State; incorporation of the right to training in collective agreements, etc. In this context, *possible ways of linking these formulas with measures for increasing flexibility in the conditions applicable to employment and for sharing working time* should be studied and tested.

On the basis of a partnership between universities, public authorities and businesses, systems of initial and continuing training should be set up in the areas corresponding to the technological and social skills required for developing functions and occupations (multidisciplinary types of training; training for work in an environment which makes intensive use of information technologies; compound, technical and management skills, etc.). One pivotal aspect should be the development of *training by the new technologies*, more particularly information technologies, with a view to enhancing the quality and diversity of basic education and training and introducing modular and interactive elements.

By extending and emulating the measures implemented in certain Member States, the countries of the Community should also adopt the provisions needed to *increase the flexibility of the various parts of education systems and the level of decentralization of management of education systems*: within certain limits, and account being taken of the risks of increasing inequalities in education and eroding its humanist and cultural vocation, it is also desirable to give greater choice to students and to stimulate competition between establishments of higher education.

(ii) Community action

The Community could and should take a certain number of specific steps to support and complement all these measures. These steps can be bracketed together in *three main groups*.

In an extension of existing programmes and regulations, and against the backdrop of the implementation of the guidelines for future education and training programmes, the first objective should be *to develop still further the European dimension of education*: to improve the quality of training and to foster innovation in education by increasing exchanges of experience and information on good practices and developing joint projects; to establish a genuine European area of — and market in — skills and training by increasing the transparency, and improving the mutual recognition, of qualifications and skills; to promote European-level mobility among teachers, students and other people undergoing training, that is to say physical mobility and the 'virtual' mobility made possible by the new technologies of communication; to develop common databases and knowledge on skills needs; to conduct comparative research on methodologies used and policies implemented; to improve the interoperability of systems of distance learning and to increase the level of standardization of the new decentralized multi-media training tools, etc.

In association with the measures taken at Community level in the areas of social and employment policy, and in concert with the Member States, the Community should *set in place a political framework for the medium and long-term measures for linking the systems of continuing training and training credits with measures for increasing flexibility and reducing working time*.

Generally speaking, the Community should *set firmly and clearly the essential requirements and the long-term objectives for measures and policies in this area* in order to make it easier to develop a new model for growth, competitiveness and employment in which education and training play a key role and to ensure essential equality of opportunity and the coherent development of the three dimensions of the European system of education and training (education, training and culture). One way of sending an important signal and creating added awareness in this area would be to announce and organise a 'European Year of Education' (perhaps in 1995).

Chapter 8

Turning growth into jobs

8.1. Introduction

The Community will need **both sustained economic growth** and a more **employment intensive** pattern of growth if it is to meet its employment and unemployment objectives.

This will require **changes in economic and social policies** and **changes in the employment environment** as expressed in the structure of labour market, taxation and social security **incentives**. This implies new relationships and new methods of participation between all those effecting, and affected by, the changes that are required.

Producing more jobs from whatever rates of economic growth the Community can achieve requires a **new solidarity** — between those with work and those without, as well as between those who earn their income from work and those who earn their income from investments.

At the same time, the Community needs to improve its **long-term competitiveness** and avoid overreacting to short-term changes in price competitiveness resulting from the vagaries of exchange-rate movements. It means both **investing in people** and developing an active policy of encouraging **new economic activity and employment growth** in domestic and internationally competitive sectors.

This chapter recognizes the need for **more efficient labour market** and associated policies. It also recognizes that the **market alone cannot solve** the employment, unemployment and associated social problems faced by the Community. There is a need to take full account of the **real costs of unemployment for both societies and economies** in developing fiscal as well as labour market and social policies.

This means significant changes, but it does not simply mean a deregulation of Europe's labour markets. Rather, it implies a **remodelled, rational and simplified system of regulation and incentives** which will promote

employment creation, without putting the burden of change on those already in a weak position in the labour market.

All Member States are suffering serious short-term unemployment problems. The scale of these problems should not divert the Community from the longer-term tasks, however. An end to recession will not bring an end to employment difficulties. Short-term concerns should be balanced against the longer-term imperatives of expanding employment opportunities and of ensuring that economic and social progress march in step.

The approach and proposals outlined in this chapter support the medium-term strategy of **'moving towards the 21st century'**. In order to achieve these objectives, and pursue the appropriate mix in terms of policy and delivery, it will be essential to engage the active participation of the widest possible range of economic and social actors at all levels. 'Bottom-up' initiatives need to be encouraged as much as possible. The social partners especially have a substantial responsibility and opportunity to **work together in new ways** to find new solutions, including at European level, through the machinery set up under the terms of the Social Protocol.

8.2. Member States' views

All the Member States agree in their contributions — albeit with certain nuances — on why unemployment is so high in the Community, their **diagnosis** being that unemployment and the inadequate level of job creation are due principally to **structural factors**, exacerbated by the effects of the current recession.

There is unanimous agreement on the fact that **labour markets do not work efficiently**, with a lack of flexibility — more particularly in terms of the organization of working time, pay and mobility — and an inadequate match of labour supply to the needs of the market, especially as regards workforce skills and qualifications. This rigidity is the root cause of what are relatively high labour costs, which have risen at a

much greater rate in the Community than among our principal trading partners. As a result, firms are liable to make any necessary business adjustments by manipulating the labour factor, the tendency being for human labour to be substituted by more capital-intensive factors.

Social protection schemes have — in part at least — had a negative impact on employment in that they have, in the main, tended to protect people already in work, making their situation more secure and consolidating certain advantages. They have in effect proved to be an obstacle to the recruitment of job-seekers or of new entrants to the labour market. A number of Member States make reference here to a dual standard of treatment working to the detriment of the jobless.

Mention is also made of other factors which militate against jobs, such as the high level of non-wage costs, particularly in the form of statutory levies and charges, and insufficient motivation to work due to inappropriate social protection systems and employment services. Certain Member States also cite competition from low-wage countries as a contributory factor to the loss of jobs, particularly in labour-intensive or unskilled sectors.

Together with the broad agreement among the Member States on their diagnosis of the situation, there is also a wide measure of agreement on what remedies should be adopted. There can certainly be no miracle cure, but there is a need for a **thoroughgoing reform of the labour market**, with the introduction of greater flexibility in the organization of work and the distribution of working time, reduced labour costs, a higher level of skills, and pro-active labour policies. There is also a good degree of convergence on the need to maintain social protection systems. Finally, reference is also made to giving priority to combating unemployment among young people and long-term unemployment, as well as social exclusion.

The introduction of more flexibility should centre on the way work is organized, for example by removing obstacles which make it more difficult or costly to employ part-time workers or workers on a fixed-dura-

tion contract, and gearing careers more closely to the individual, or facilitating forms of progressive retirement. As regards the distribution of working time, there are suggestions on calculating working time on an annual basis and on reducing working hours in a period of recession. Obstacles to mobility (whether sectoral, geographical or in-house) should also be eliminated. This increased flexibility should be reflected in collective bargaining rules and systems, to make them more appropriate to the specific situation of local markets and undertakings.

As regards ways of **reducing labour costs**, suggestions are made for gearing levels of pay to company performance and productivity as a way of encouraging the recruitment of young people, and as an alternative to laying people off in a period of recession. A number of Member States make a plea for pay restraint to reflect economic circumstances at a local, sectoral or more general level, as a means of enhancing competitiveness and containing inflation, and to boost jobs. However, some Member States caution that pay restraint should not result in demand contracting over-much.

Most of the **Member States** make reference to this subject in their contributions, suggesting various means of cutting social welfare contributions, more particularly by concentrating such cuts on unskilled jobs. Among the suggestions made for compensating for this loss of income, there are proposals for taxing polluting activities or products, energy or scarce natural resources, or encouraging private insurance schemes. The idea of introducing a 'green tax' receives a varied response, with some of the Member States having reservations about the effect of such taxes on international competitiveness.

To create more **jobs for young people**, there is a suggestion to introduce greater flexibility with regard to the minimum wage, reduced social welfare contributions or other contract terms, for example by introducing flexible forms of apprenticeship, training or practices.

The ideas put forward on **pro-active labour policies** centre on three main aspects. Some of the ideas concern the **employment services**, for example enhancing and refining

the role of employment agencies and creating a better match between labour market supply and demand, by way of closer liaison with undertakings and with local markets, or by the establishment of private employment agencies. Most of the Member States believe that substantial employment prospects could be opened up by developing labour-intensive service activities (for instance, by introducing a greater degree of liberalization), and by introducing **new activities**, for example in the social and cultural fields, and in terms of health, the environment and the quality of life in general. Finally, many of the Member States call for an **examination of social protection systems** to ensure that they actually encourage people to work, for benefits to be more closely geared to the specific market situation, and for expenditure to be targeted more accurately to concentrate the effort on those in real need.

Many of the Member States suggest the introduction of a form of cost/benefit analysis for Community legislative proposals in the social field.

Finally, as regards the **instruments** needed to implement these major reforms, the Member States stress the need for social consensus and for a cooperative attitude on the part of all the parties concerned, with some of them proposing a search for consensus at Community level.

8.3. Scale and nature of the problem

(a) High recorded and hidden unemployment

Over the past three years, **recorded unemployment in the Community has risen sharply**. It now stands at almost 16 million people or around 10.5% of the registered workforce. **All Member States have been affected**, although levels of unemployment vary considerably between them.

It follows a period when unemployment had been falling with increased and stable economic growth. However, even after four to five years of steady economic growth at the end of the 1980s, when unemployment reached its lowest level for a decade, it was **still at 12 million or over 8% of the labour force**, and with only 60% of people of

working age in employment. One consequence was that, of the 10 million extra jobs created in this period, only three million were taken by the registered unemployed with the remainder taken by new entrants to the labour market.

(b) Low rate of employment

Europe's **employment rate** — the proportion of its population of working age that is in work — is the lowest of any industrialized part of the world. Moreover, it has fallen over the past two decades — from somewhat above 60% to somewhat below. In contrast, the employment rates in Japan and Scandinavia have remained consistently above 70%, and that of the United States of America — which started in 1970 at a similar level to the Community — has grown throughout two decades to reach its present level of 70%.

Divergences in employment-creation performance between the Community and other developed economies, and between Member States, are much greater than would be implied by differences in economic performance. Between 1970 and 1992, the US economy grew in real terms by 70% — somewhat less than Community growth of 81%. Yet employment in the USA rose by 49%, **compared with only 9% in the Community**. In Japan, where the economy grew by 173% from its 1970 level, employment grew by 25%.

In most European countries the proceeds of economic growth have mainly been **absorbed by those who remained in employment**, and there is a large pool of unemployed who have been excluded.

The Spanish economy is the most striking example. Between 1970 and 1992, the Spanish economy grew by 103%. But in 1992, employment was actually 0.3% less than it had been in 1970. Other EC economies also show **relatively low employment growth** compared with output. Over the 1970-92 period, the total growth in output and employment was, respectively: Germany, 70% and 11%; France, 77% and 6%; Italy, 85% and 18%; UK 51% and 3%.

While employment rates in the Community are broadly related to levels of development with southern States having rates of

employment of around 50 to 55% — there is nevertheless a great deal of **variation between economies at similar levels of economic development**. Thus the Netherlands has a much higher rate of employment than Belgium, and Portugal a much higher rate than comparable southern economies.

(c) Changes in hours of work

When examining **changes in working hours**, and considering the potential of job creation in the Community, it is important to **draw a distinction** between the volume of work and the number of people in employment. A number of Member States have, to date, succeeded better than others in translating a given volume of work into jobs, both by reducing normal working hours by a variety of means and by increasing the number of part-time jobs.

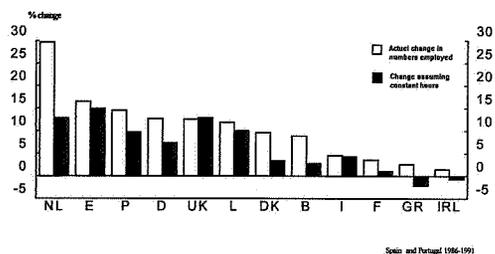
The Netherlands has gone **much further** in this direction than other countries. In 1991, those in employment worked an average of only 33 hours a week as compared with 39 hours a week in the Community as a whole. In Denmark, the figure was **similarly low** at under 35 hours a week. In both cases, these figures reflect the relatively high proportion of people working part-time instead of full-time — 33% in the Netherlands and 23% in Denmark, higher than anywhere else in the Community.

Between 1983 and 1991, the longest period for which comparable data are available, the average hours worked per person per week declined by only 3% in the Community as a whole — by just over one hour. In the Netherlands, by contrast, the reduction was 13% — equivalent to each person working an average of five hours a week less in 1991 than only eight years earlier.

The reduction in hours worked in the Community over the 1980s is not substantial in most countries apart from the Netherlands. However, it seems that in northern Member States, except for the UK, it had an affect on the labour market over this period. The volume of work undertaken, in terms of the total number of hours worked, went up by only around 2% in Denmark and Belgium but, because of the reduction in average hours worked, the number of people in employment increased by 8%. In Germany,

the volume of work rose by 7% and the number of people employed by 12%. In the Netherlands, more than half of the rise in employment of 30% seems to be attributable to the fall in average working time.

Graph 1: Contribution in hours worked to the growth of numbers employed 1983-91



The fact that average weekly hours of work fell between 1983 and 1991 in all Member States, except the UK, means that the available work was shared among more people.

The experience of the recent past is **very relevant** for future job-creation prospects and for the debate on distribution of work and income. In a real sense, such redistribution occurred over the 1980s in many Member States, though only in the Netherlands and perhaps Denmark was it a **deliberate part of labour market policy**. However, the issue is complex and job-creation potential is dependent on a number of social, fiscal and regulatory factors. Also, not all countries are well placed to do so, especially when their levels of income per head are lower — and therefore the income available to be shared along with work is correspondingly less.

(d) Difficulties facing particular groups

The unemployment rates of **young people** (those under 25) are double those of adults. They range, however, from less than 10% in Germany and Luxembourg to 20 to 30% in much of the South of the Community and in France and Ireland.

The incidence of **unemployment among women in the labour force** in the Com-

munity is significantly higher than among men. In May 1993, the unemployment rate for women averaged over 12% whereas for men it was around 9%.

Long-term unemployment has become endemic in the Community. Over half the unemployed have been unemployed for more than one year. It is a particular problem for young people in the South — where they account for 50% of the long-term unemployed. In the North, for men in particular, it is often more concentrated among unskilled middle-aged workers, who have lost their jobs through firm closures. In these areas, youth unemployment accounts for only 15 to 25% of the total.

8.4. Costs and causes of unemployment

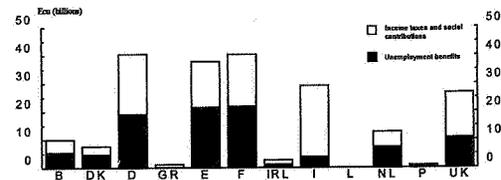
The economic and social costs of this unemployment are enormous. They include not only the direct expenditure on providing social security support for the unemployed, but also the loss of tax revenue which the unemployed would pay out of income if they were working; the increased burden on social services; rising poverty, crime and ill-health; and the increasing levels of educational underachievement.

Graph 2 illustrates the **direct costs of unemployment** in each of the Member States. These costs comprise the amounts paid out in unemployment benefits and the income lost, i.e. the amounts that would be received from taxes and social contributions were those unemployed people in employment.

In Germany, for example, the figures suggest that unemployment will **cost the government** ECU 40 billion in 1993 — ECU 19 billion from benefit payments and ECU 21 billion from foregone income. The estimates suggest that unemployment throughout the Community will cost governments in excess of ECU 200 billion in 1993, which equates to the GDP of Belgium. These costs, it should be noted, do not take account of the wider social costs mentioned above.

Part of the present unemployment in the Community is a legacy of the **depressed rate of economic growth and rigidities in the labour market**.

Graph 2: The cost of unemployment in the Member States



Expenditure on unemployment benefits and foregone revenue from income tax and social contributions is significant in most Member States. For the Community as a whole, the cost of the two elements is estimated at ECU 210 billion in 1993 — almost 4% of Community GDP. The true costs are even higher than this because of lower indirect taxes and all the social costs associated with unemployment.

Slow growth has not only meant low rates of employment creation, however. It has also **inhibited the process of structural economic adjustment**. Before 1973, the creation of new jobs in growth sectors was large enough to absorb those losing their jobs in agriculture and declining industries, and unemployment for the most part remained below 2 to 3%.

Since 1973, job creation in growth sectors has been much slower. The **shift in employment has been much more painful** due to the shortage of alternative employment opportunities, the limited possibilities for companies to shift labour from declining to expanding activities and the **significant impact of new technologies** in replacing labour, particularly in terms of manual and low-skill occupations.

Even if manufacturing employment began to increase again during the period of fast growth at the end of the 1980s, the secular tendency has been for employment in goods-producing industries, including agriculture, to decline. Employment in service-producing industries has increased, thereby **partially offsetting** losses elsewhere in the economy. There are signs that growth in service industries will no longer be possible on the levels previously achieved. To begin

with, services now represent such a large share in all developed economies that income arising from productivity gains in goods-producing industries will not be sufficiently large to finance employment gains elsewhere in the economy.

Further income gains will now largely have to come from productivity gains within the service sector itself. Such gains are indeed possible and are likely to arise from a combination of the **successful application of information technologies and new organization methods**, and from competitive pressures on those service industries subject to international competition or those which represent a significant input to other firms.

A corollary to substantial restructuring in the service sector is that unemployment is also likely to affect those with a **higher level of educational attainment** and not just the poorly qualified, unskilled part of the labour force. In turn, this will create further challenges to containing unemployment.

At the same time, Member State economies and labour markets have been slow to cope with other structural changes. These have included the effects of the continued **industrialization of the less developed parts of the world** with the eventual relocation of activities. They also include the **effects of Community integration** with, on the one hand, the completion of the internal market leading to rationalization, restructuring and relocation and, on the other hand, the progressive convergence of richer and poorer Member States. All this means that the labour market too will have to adapt to changed circumstances.

Social and demographic changes have also been significant:

- (i) the progressive **decline in the importance of traditional households** (husband, wife and children) as the main economic and social unit in society, and the increasing participation of women in the labour market;
- (ii) **demographic changes** with declining birth-rates leading to an ageing population. While this has not, as yet, resulted in an ageing working population — since the effect is offset by the increasing participation of younger women — it will do so post-2000.

Demographic changes are, however, bringing pressure on social security budgets;

- (iii) a **shift in consumer and political preferences** away from the public provision of goods and services towards more private provision has brought a reduction in public sector activities, and hence employment, in many areas of the economy, including areas of potential employment growth.

8.5. The consequences of change

The overall effect of these various economic and social factors has been to:

- (i) **increase the pace of change needed in economic and labour market structures** in order to maintain the Community's competitive economic performance, and thereby maintain employment and real income levels;
- (ii) alter the composition of the Community's labour force in ways that require major **changes in labour market organization**, as well as in supporting activities — from training to child-care;
- (iii) **limit the ability of governments to intervene** directly in the employment-creation process and oblige them to rely more on creating the right market conditions and providing appropriate incentives as a means of promoting employment.

8.6. The need for new policy responses

In the face of persistently high levels of unemployment in the Community, and clear evidence of its growing structural dimensions, some observers have advocated wholesale **labour market deregulation** — especially of employment protection legislation and wage determination — as the only way of bringing its labour markets into equilibrium.

Most Member States have gone somewhat in this direction — with an emphasis on encouraging wage moderation, increasing external labour market flexibility, and reducing the growth of social security expenditure. Many enterprises have fol-

lowed the same route — with the emphasis on increasing internal flexibility and reducing fixed labour costs.

At the same time, government actions have reflected **wider concerns** — such as the need to maintain social and industrial peace, and to avoid creating further poverty among those groups already in the weakest position on the labour market.

The arguments are not just social or political. Evidence that **income distributions have worsened** in certain Member States provides grounds for caution. The Community cannot hope to address the consequences of the international relocation of many jobs through wage-price competition, and that many problems of price competitiveness are due more to the vagaries of exchange-rate movements. This argues for **long-term, strategic responses** rather than short-term ones.

However, where most of the Member States' responses have converged is that actions have generally been aimed more at **reducing unemployment than at increasing employment**. This has been reflected in the large number of employment and training schemes created for the unemployed, and in specific incentives to encourage the recruitment of target groups. Unfortunately, little has been done to **adapt the wider legal and financial environment and regimes** — which provide the main incentives in the labour market — to the new economic and social realities, or to **modify the institutional structures** which surround them.

In broad terms, the way in which taxes, and social contributions, are raised seems to take **little or no account of their potential effects on the level of employment**, still less of the potential effects they may have in, for example, discouraging firms from offering jobs to less skilled and lower paid workers.

Also, many **national fiscal systems are poorly adapted** to present and developing employment needs, and **disincentives and administrative obstacles** to flexible or variable patterns of work abound.

Attempts to reduce levels of job protection in order to introduce more flexibility into labour markets have often led to the **growth**

of two-tier labour markets — those with secure permanent jobs and those with insecure temporary jobs.

Pressure to increase labour market flexibility without countervailing actions has moreover, often **reduced, rather than increased, the incentives for firms and individuals to invest in much needed training and retraining**, as has the lack of taxation encouragement to training.

Also, the range of special measures and incentives which help reintegrate the long-term unemployed, young people, women heads of household and returners, the handicapped or disadvantaged groups in the labour market have become so numerous and complex that they **overcomplicate the recruitment decisions of firms**.

Failure to address these fundamental issues in developing responses is at the **heart of the Community's labour market difficulties**. It is important to find a better balance between combating unemployment and job creation, and to ensure we do not only rely on market forces to resolve the highly complex problems of achieving higher economic and employment performance. It is also important that we acknowledge that all of these factors together with the ineffective gearing of, and interaction between, labour market and other policies have **inhibited the growth of more effective labour markets**.

8.7. Proposals for action: Broad objectives

While the Commission considers that some further **reform of labour market regulation** is called for this has to be accompanied by **other tasks**, namely to:

- (i) **raise levels of employment** and not just lower levels of unemployment;
- (ii) **focus** not on the workings of the labour market, narrowly defined, but on the **broader employment environment**, paying particular attention to the effects of financial deterrents to employment creation embodied in taxation and related fiscal systems;
- (iii) increase the Community's **investment in human resources**, on which long-term competitiveness ultimately depends.

That a **higher rate of employment** can be achieved for a given level of economic activity is amply demonstrated, not only by examples from outside the Community — USA, Japan and Scandinavia — but also by those within. Denmark has among the highest rates in the world.

The **diversity of results** demonstrates that there are multiple routes to follow. The challenge for the Community is to achieve **high employment** results in ways which are compatible with its general economic and social goals and criteria.

Fundamental **economic and social changes** are required, however, if income and employment opportunities are to be distributed more widely among those who wish or need to work. This is not based on a static vision of job and wealth creation. The objective must be continually to increase the stock of jobs and wealth by increasing competitiveness and value-added. However, the manner in which this process gets translated into new and additional employment opportunities is not preordained. Different societies can and do make political and social choices which give different results. If Europe is to set itself a goal of reducing unemployment, which in turn requires maximizing employment opportunities — due to the presence of hidden unemployment — then it will require a general **reform of the systems of incentives which affect employment in the labour market**. Indeed, there is no real alternative if a continued disenfranchisement of a significant minority of its citizens is to be avoided.

There will have to be four interdependent targets:

- (i) to identify the changes which are taking place in the labour market, especially concerning part-time and flexible work and to achieve a **wider distribution of jobs and income**. This includes changing the **pattern and level of working time** to reflect new work organization and job needs; **adapting the incidence of taxation** in ways that encourage more employment; and improving the **adaptability of the labour market** by adjusting the regulatory framework;

- (ii) to improve access to the labour market, especially in less developed regions and among disadvantaged social groups. In particular, this means addressing **youth employment problems**; combating **long-term unemployment** and labour market **exclusion**; and promoting and improving our efforts towards **equal opportunities** between women and men. In this regard, public employment services, together with private agencies, would have a vital role to play in adopting a more proactive approach to job placement;
- (iii) to **raise the stock of human capital** in ways that ensure that Community competitiveness is optimized. Particular attention is given to **continuous training and upgrading skills, basic and introductory training and new technology skills**;
- (iv) to **anticipate and accelerate the development of new jobs and new activities**, particularly labour-intensive ones. This includes **exploiting the potential of SMEs and developing new jobs** in the environmental industries and services — notably, the care sector and the audiovisual, arts, cultural and tourism industries.

8.8. Specific actions

(a) Labour costs and job creation

There is evidence that there may be a mismatch between productivity and wage costs in the low skill part of the market.

Existing collective bargaining and related taxation and labour cost arrangements have the effect of causing gains from economic growth **to be absorbed mainly by those already in employment**, rather than creating more jobs. To change this would mean seeking political and social partner agreement on:

- (i) keeping hourly wage increases below the growth of productivity;
- (ii) accompanying measures to ensure, by a variety of different instruments, that economic growth is better translated into new jobs and a reduction of unemployment.

(b) Flexibility and job creation

Member States should seek to remove obstacles to **already changing** trends, preferences and demands of employees and employers regarding patterns and hours of working, which will **increase the number of jobs for given levels of output**. This cannot be pursued by a top-down, mandatory approach seeking to legislate for a shorter working week. It should rather be pursued by a range of appropriate means which could include:

- (i) adjusting the legal framework so that those who are willing, and often keen, to **work shorter hours** do not suffer loss of social protection and poorer conditions of service;
- (ii) negotiating the balance of social protection between part-time and full-time workers so as to **avoid major discontinuities**, and in order to make the decisions of both employees and employers about preferred working patterns more neutral;
- (iii) minimizing **artificial financial incentives** for those of above-average incomes to work above-average hours;
- (iv) encouraging the national cyclical trends towards a **shorter working week** per employee, where appropriate, while increasing utilization of capital equipment and ensuring competitiveness;
- (v) developing measures which provide incentives to filling the new employment opportunities by people **from the unemployed register**, for example through types of job rotation schemes such as that initiated in Denmark;
- (vi) **reductions** in annualized hours and a favourable examination of career, training, parental and sabbatical **leave breaks**.

(c) Taxation and incentives: Low-skill job creation

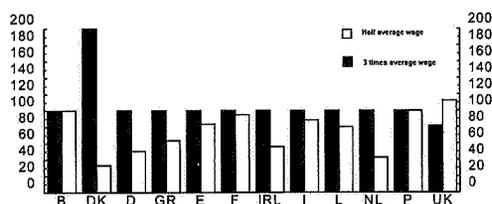
Member States should seek to address the present **disincentives to employing less skilled workers** by a range of possible measures, including:

- (i) adjusting taxation systems as they affect employers, notably by making

non-wage employers' costs neutral or progressive, rather than regressive as they generally are at the moment (see Graph 3), in order to encourage the provision of more jobs for the relatively less skilled by reducing their cost to employers (this approach concerns the adjustment and targeting of taxation incidence, not the level of revenue raised overall);

Graph 3: Employer's social contributions at different wage levels

Index (Contribution at average wage = 100)



In most Member States, employers' social contributions are regressive — they are at a lower rate on high wages than on low wages. The only exceptions are Belgium and Portugal where the rate is the same at all wage levels and the UK where the rate increases as wages rise (but only slightly). In all other countries, apart from Denmark, although the rate is the same at half the average wage as at the average, it is lower for those on three times the average wage. In Denmark, contributions are highly regressive but the rate is very low (1% of wages as opposed to over 20% in most other Member States).

- (ii) lowering the **relative cost of labour with respect to the other production factors** (capital, energy and non-energy inputs), for example by reducing the employers' social security contributions and increasing revenue through other means so as to neutralize the effects on the social protection of workers;
- (iii) improving the prospects of labour market entry for the least competitive by restructuring national government income support schemes in ways which **enable income from work to be topped up with income from social**

security, by developing integrated taxation and income support systems with appropriate safeguards. The job generation potential of such measures might be maximized by their operation through a single government agency;

- (iv) re-examining the ways in which the present interplay of taxation, regulation and related structures could be adapted to enable a **widening of the concept of work**, incorporating all forms of paid or partially paid work within a common framework encompassing the social economy, intermediate employment enterprises and the informal economy, thereby **enabling the re-entry into the formal labour market** of many citizens who have to work at the margins.

(d) SMEs, new activities and job creation

Member States should address **existing barriers to maximizing the job-creation potential** of SMEs and areas of new employment growth and activity by a range of measures aimed at anticipating and accelerating SME and new jobs growth.

- (i) **In terms of SMEs**, these could include measures to:

- facilitate and maximize participation of SMEs in the common internal market by **strengthening their competitiveness** regarding such issues as their access to finance, to information sources, to the results of research and development, and to training, including support through the new European Social Fund Objective 4;
- identify and review those **financial, fiscal, administrative and legal constraints** which fall disproportionately on small and medium-sized firms in order to avoid such measures inhibiting the growth of employment. Small businesses are important as creators of new jobs but they have the **least capacity to pass on costs**, because they have little market power and the highest cost of coping with regulation, due to a lack of specialist staff;

- an important part of **SME development** and the generation of new jobs concerns the best uses and development of **women's work** in ways that improve job creation and fight inequality between women and men. Women's full integration in the labour market is expected to **create jobs in the provision of services and goods not yet integrated** in the market and currently being provided by either unpaid women's labour or paid informal women's labour;

- (ii) In terms of **new jobs and activities** more generally, measures could include those which:

- **promote the development of new employment opportunities** through the use of public-private partnerships at all levels, and notably in potential growth areas such as environment, energy, transport, leisure, arts, sport and the care sector;
- encourage, while respecting existing competition policy, specific sectors, such as the **audiovisual industries**, which could have a strong impact in terms of inward investment, export revenue, and diverse types and levels of employment in a growing media/leisure market. **Pump-priming finance** can be important, particularly where high potential profit is balanced by high risk;
- exploit fully the employment potential represented by the **environment sector**. This covers not only the clean-up activity needed to deal with the legacies of the past, but the new monitoring, standard-setting and maintenance areas which now offer a challenge and opportunity to employment in science and technology. Public expenditure associated with EC programmes could **contribute strongly to job creation** related to supply of equipment, construction and contracting services, in particular in Objective 1 regions. This could average ECU 2.5 billion per annum 1993-2000, which by the end of the century could have cre-

ated 100 000 permanent jobs and 200 000 jobs related to supply of equipment, construction and contracting services in these areas;

- encourage growth in the employment-intensive areas of the **care sector** and of the **provision of household services**. It is necessary to enhance the perceived value, and therefore encourage increased skills in sectors;
- in support of all the above, **strengthen the role of local economic and employment development** through the decentralizing of public agency and government decision-making and expenditure, and support this by Community-wide inter-area cooperation designed to transfer know-how and experience;
- finally, progress on all of those fronts is dependent on ensuring that, at all levels, the social partners are encouraged to **develop new models of workplace relationships** in order to improve flexibility, and keep pace with the changing structures of production, in both large and small firms.

(e) Raising the stock of human capital

The inadequacy of present education and training systems in meeting the challenge of long-term competitiveness should be addressed by developing a range of measures, in the context of national structures, to:

- (i) establish a Community-wide guarantee that no young persons can be unemployed under the age of 18: they should be guaranteed a place in the education and training system or in a linked work and training placement;
- (ii) set progressive targets up to the year 2000 for the elimination of basic illiteracy, and lack of other basic skills, on the part of school-leavers;
- (iii) raise the status of initial vocational education and training, and encourage the development of the entrepreneurial skills of young people

and their capacity to exploit the new technologies throughout appropriate work experience;

- (iv) extend the scope and range of existing apprenticeship schemes, and/or other forms of linked work and training, in active cooperation with the social partners;
- (v) improve the coordinated provision of guidance and placement services, notably at local level, to provide systematic advice to young people on career and job opportunities;
- (vi) encourage universities and other higher education institutions to collaborate more intensively with industry and commerce, especially with a view to ensuring the transfer of innovation and technological breakthroughs through continuing training schemes to firms, especially small and medium-sized;
- (vii) examine ways of introducing tax incentives for firms and individuals to invest in their continuing training, as an expression of public policy commitment to the development of life-long learning opportunities for adults;
- (viii) the social partners should be encouraged to set up collective agreements, including at European level, **to extend access to, and participation in, continuing training** as an essential means of improving the motivation and quality of the workforce as a whole. The setting-up of company-based training plans, linked to company business plans, should be widely encouraged, drawing appropriately on the possibilities opened up by the new Objective 4 of the European Social Fund. A strong emphasis should be placed on anticipative training within companies so as to plan ahead for restructuring, and also new ways of mastering technological change. The dangers of an excessive

emphasis on automation producing a 'culture of no skills' and job displacement should be avoided, and experiments involving the development of human-centred technologies should be given priority and appropriate encouragement.

(f) Targeting specific groups

Member States have to ensure that additional jobs are most effectively made available to those in a **disadvantaged position in the labour market**. This was not achieved in the employment growth period of the second half of the 1980s, and the Community now faces the danger of **not only a dual labour market but also a dual society**. In order to address this threat to social cohesion, Member States are asked, firstly, to have regard to the reintegration potential of the proposals outlined earlier, in terms of the job-creation potential of changes in labour costs, flexibility, taxation and incentives, and, secondly, to consider improving specific integration and reintegration measures in ways which could include:

- **strengthening efforts to integrate or reintegrate the long-term unemployed and unemployed young people, by providing clearer stepping stones to the formal labour market, and to find worthwhile alternatives to inactivity. This would include the introduction of minimum standards** for Member States on those measures for which Community support is sought. Such standards could include:

coherent links with the labour market;

minimum training/qualification standards;

independent counselling;

adequate post-activity placement;

equitable remuneration;

full range of 'soft infrastructure' support (child-care, literacy, etc.);

- providing stronger support in terms of resources and devolved responsibilities, encouraging links to the private sector and to employment services, to the wide range of **intermediate labour market**

agencies (often voluntary sector, local and regional government) which have **demonstrated their ability** to play a strong role in providing effective stepping stones to the formal labour market;

- within this, examining ways in which the social economy can be encouraged, through tax exemptions, public/private partnerships, part work and part income support models, to **engage unemployed people, voluntarily, in actions** which close the gap between people wishing to work and unmet social needs;

- **strengthening equal opportunities policies for women and men in employment** by:

(i) eliminating any **potentially discriminatory** fiscal and social protection policies which can discourage women's equal participation in the formal labour market;

(ii) improving **existing career opportunities** for women, thereby generating demand for support and technical assistance services such as child-care and vocational training;

(iii) ensuring that taxation and social security systems reflect the **fact that women and men may well act as individuals** in seeking employment and reconciling family and working life.

Within all the above efforts aimed at disadvantaged groups, it is important to strengthen and focus the **role of employment services**. Public employment services should be encouraged to **sharpen the guidance and placement services** offered to the unemployed, targeting more effectively the individuals concerned at local level. The provision of these services should be dovetailed with related but often separate vocational guidance units and monitored on a regular basis.

They should also be encouraged to establish **coordinated jobs needs audits** at local level, distilling the potential range of employment opportunities which exist but are unmet and making available such information in more imaginative ways. The results of these audits could be disseminated widely through appropriate national machinery as well as via EURES at European level.

Youthstart

In order to respond more effectively to the problems facing young people in the labour market, Member States will be invited to cooperate in establishing a youth guarantee scheme throughout the Union, to be known as Youthstart. Under this scheme, Member States should progressively take the necessary steps to ensure the availability of access to a recognized form of education or training, including apprenticeships or other forms of linked work and training, to all young people under the age of 18. Assistance to Member States to fulfil such an aim is available under the terms of Objective 3 of the European Social Fund. Special efforts should be targeted by Member States at those young people leaving school with no diploma or basic qualifications.

In the framework of Youthstart, opportunities should be provided to interested young people to take part in voluntary transnational exchanges, involving work experience and training in another Member State. Voluntary organizations and the social partners should be associated with such arrangements. Young people would be encouraged to develop their vocational, personal, entrepreneurial and linguistic skills through gaining experience in projects involving environment protection, urban regeneration or restoration of the cultural heritage. Support for innovative transnational action to underpin Youthstart will be provided under the 'Innovation' section of the European Social Fund, drawing also on the experience to date of the PETRA programme.

There is also a need to encourage **good practice** in temporary job agency activity. Empirical evidence suggests that **temporary work**, as actively operated in a number of Member States, can **lead to permanent job**

creation, by helping to accumulate work experience and training or serve as a kind of probationary period. Also, many people wish to work under such arrangements. It is, however, essential that such instruments offer a path **towards permanent jobs rather than replacing them.**

8.9. Conclusions

Reducing unemployment necessarily requires **increased employment opportunities on an unprecedented scale.** Pro-active labour market policies will be central to such a strategy and will require a radical new look at the whole range of available instruments which can influence the employment environment, whether these be regulatory, fiscal or social security incentives. The vast bulk of these measures will be for individual Member States to decide upon in responding to their diverse national situations.

However, the Community can and must play an important supporting role by:

- (i) providing a forum where a **common broad framework strategy** can be agreed, and by
- (ii) underpinning national measures with **complementary Community action**, whether in the form of financial support through the European Social Fund (which represents 13% of all Member States' expenditure on active labour market policies at present) or through networking and other measures designed to **ensure the transfer of good practice and experience.**

The overall objective should be to encourage the development of national labour markets towards a **Community labour market.** This could produce a more skilled, flexible, mobile, linguistically able and culturally sophisticated workforce, able to exploit Europe's inherited advantages in the developing world markets.

Chapter 9

Statutory charges on labour

A coordinated Community strategy for rekindling growth and overcoming a structural crisis cannot disregard the weight and structure of statutory charges,¹ through which the equivalent of 40% of Community GDP is channelled.

Between 1970 and 1991 statutory charges rose in the Community from 34 to 40% of GDP. Over the same period they remained stable in the United States of America, at slightly below 30%. In Japan, statutory charges have increased appreciably since 1980 but in 1991 stood at 31% of GDP, i.e. the same level as in the USA and a quarter lower than the average level recorded in the European Union.

Within the European Union there are variations between Member States. In a number of countries the overall level of statutory charges is close to, or in excess of, 45% of GDP. Such is the case in Denmark, the Netherlands, Belgium and France. The United Kingdom, by contrast, has stabilized its statutory charges since 1980 at a level that is markedly lower than the Community average.

The growing significance of statutory charges raises the question of whether such an increase, which is part the result of the slowdown in economic growth over the past 20 years compared with the previous period, is not itself becoming a cause of that slowdown in growth. This explains the determination of governments in most Member States to **stabilize or reduce statutory charges as a proportion of GDP**. But such policies for stabilizing statutory charges presuppose a long-term effort to control public expenditure and have frequently run foul of the priority need to reduce excessive public deficits.

It is also on account of **their structure** that statutory charges **have an impact on growth**,

¹ The sum of taxes and obligatory social security contributions.

competitiveness and employment. For a firm, this structure partly determines recruitment and investment decisions because it alters the costs of the factors of production (labour, capital, energy, other scarce resources). Particularly where demand is hesitant, statutory charges which immediately increase production costs are felt more keenly than those imposed on products sold or on profits.

Table 1: Changes in statutory charges

(as % of GDP)

Country	1970	1980	1991
B	36.1	43.6	43.7
DK	40.5	44.8	47.1
D	35.7	40.7	40.5
GR	n.a.	30.7	39.7
E	n.a.	25.8	34.4 ¹
F	35.1	41.1	42.8
IRL	31.6	33.7	36.4
I	25.8	29.9	39.0
L	30.8	45.4	47.1
NL	37.4	44.3	46.3
P	n.a.	29.7	35.6
UK	37.2	34.8	34.4
EUR 10	34.4	37.3	39.6 ²
EUR 12			39.6 ²
USA	29.2	29.3	29.8
JAP	19.7	25.4	30.9

¹ 1990.

² Task Force estimates.

Source: OECD.

An analysis must therefore be made of whether the structures of the tax systems, which vary very widely from one Member State to another, could not gradually be adapted to make them less prejudicial to labour. This would involve **reducing non-wage labour costs**, i.e. the statutory charges (taxes and social security contributions of employers and employees) imposed on labour. To be more effective, this reduc-

tion in the statutory charges which are pushing up the cost of labour would have to be coordinated with active employment policies. It could form part of efforts to rekindle growth by restoring confidence (revival of demand), by stepping up investment — particularly non-physical investment (training, research) — and by improving the use of equipment through a rearrangement of working hours.

In order to maintain a high level of social protection and to meet the need to reduce budget deficits, the **easing of statutory charges, which would amount to 1% to 2% of GDP**, would largely be offset by a rise in other charges. These would consist particularly of charges on scarce natural resources and on energy — in order to reinforce environmental protection — and, where appropriate, of taxes on consumption and investment income.

Both for alleviating the charges on labour and for offsetting that through other tax bases, each Member State would adopt measures that would be appropriate to its own situation and consistent with the smooth functioning of the single market.

9.1. Views of the Member States

Most Member States refer to this topic in their contributions. They advocate a reduction in social security contributions, which would be achieved in various ways but particularly by concentrating those reductions on unskilled jobs. The suggestions put forward for offsetting the loss of revenue include the possibility of taxing polluting activities or products, energy or scarce natural resources, and promoting private insurance schemes. The possible introduction of 'green taxes' is not viewed uniformly, however, since some Member States have reservations about the impact of such taxes on international competitiveness.

9.2. Current structures and impact on employment

(a) Charges on labour

Charges directly imposed on labour are equivalent to 23.5% of Community GDP, i.e. **more than half the figure for statutory**

charges as a whole. Since 1970 these charges on labour have increased in the Community by 40% in real terms, twice as rapidly as in the USA.

In a number of Member States charges on labour are equivalent to more than 25% and, in some cases, almost 30% of GDP (the Netherlands, Belgium, Denmark, Germany and France).

Table 2: Statutory charges on labour (approximation used: personal income taxes + social security contributions)

(as % of GDP)

Country	1970	1991	Change 1970-91
B	19.6	29.5	9.9
DK	21.2	27.3	6.1
D	18.8	25.9	7.1
GR	10.1	16.5	6.4
E	8.2	20.4	12.2
F	16.9	25.4	8.5
IRL	8.3	17.8	9.5
I	12.7	23.6	10.9
L	16.2	25.0	8.8
NL	22.7	29.7	7.0
P	n.a.	16.0	n.a.
UK	16.7	16.7	0.0
EUR 12	16.6	23.5	6.9
USA	15.9	19.4	3.5
JAP	8.6	17.6	9.0

Source: OECD.

In the United Kingdom charges on labour have stabilized since 1980 at a level appreciably lower than the Community average and comparable with the current level in Japan.

If these tax and social security charges are expressed as a proportion not of GDP but of total labour costs, they account on average for **more than 40% of overall labour costs in the Community.** This level is much higher than in Japan (20%) and the USA (30%).

(b) Diversity of charges

In some Member States, the charges on labour consist primarily of income tax, with social security contributions playing only a minor or very minor role: such is the case in Denmark, the United Kingdom and Ireland.

Other Member States, by contrast, have very high social security contributions and a relatively low level of income tax. This is particularly the case in France and Greece.

Finally, on average in the Community, two thirds of compulsory social security contributions are borne by employers and one third by employees. In some Member States, however, such as Belgium and France, the employers' share is higher, accounting for some three quarters of total social security contributions; in the Netherlands, by contrast, employers' social security contributions account for less than half of total social security contributions.

Table 3: Structure of statutory charges by major category (1991)

(as % of GDP)

Country	Indirect	Direct ¹	Social security	Total
B	11	17	16	44
DK	17	29	1	47
D	11	13	16	40
GR	19	8	12	39
E	10	12	12	34
F	14	10	19	43
IRL	16	15	6	37
I	11	15	13	39
L	16	17	14	47
NL	11	17	18	46
P	15	11	10	36
UK	13	14	7	34
EUR 12	12	14	14	40
USA	5	16	9	30
JAP	5	17	9	31

Task Force estimates.

¹ Includes capital taxes.

Source: Eurostat and OECD.

(c) Impact on employment

The high level of non-wage labour costs is prejudicial to employment, exerting a dissuasive influence: it encourages the substitution of capital for labour and promotes the parallel economy; it particularly affects employment in SMEs; finally, it leads to relocation of investment or activities.

Faced with inadequate demand, firms attempt first and foremost to reduce their costs by laying off workers, labour being the adjustment variable. The rise in unemployment pushes up contributions and reduces the number of contributors; labour costs increase, and so forth; and a kind of vicious circle is established. A firm which, by laying off workers, reduces its own costs also passes on the cost of unemployment to other firms in industries which cannot lay off workers as easily, and they too see their situation deteriorate.

Highly labour-intensive firms, whose labour costs and social security budgets are relatively high, are then in turn compelled to lay off workers, to relocate or to resort to the underground economy, either directly or through subcontracting.

The size of the underground economy varies from country to country and according to the methods used to estimate it, but is probably equivalent to between 5% and over 20% of GNP. If the real figure were 10%, this would represent a loss of the order of 5% of GDP in statutory charges. In terms of jobs, the loss is even greater since, to the extent that these activities are carried out by those falsely registered as unemployed, they are an obstacle to bringing down unemployment.

A reduction in the charges on labour, accompanied by tighter controls against fraud, would be likely, if not to reincorporate some of those activities into the normal economy, at least to slow their growth.

(d) Special case of SMEs

Although 70% of private sector jobs are created in SMEs, it is these firms which are worst affected by administrative complexity and the high level of charges on labour: firstly, it would seem that, in the case of

small firms, it is the high level of charges rather than net wages that triggers a psychological reaction against the idea of recruiting labour; secondly, however justified they may be, controls, forms and checks have to be multiplied by the number of administrative departments involved and are viewed as an additional labour cost. This extra burden seems all the more onerous when it has to be borne by someone not familiar with such matters and when it relates to only a small number of jobs.

Several types of tax measure could, therefore, assist SMEs:

- administrative tasks could be simplified: the creation, for all statutory charges, of a single department with which to correspond would be an improvement;
- SMEs that were not limited companies could opt for taxation at the relevant rate of corporation tax and not, as now, in accordance with income-tax scales;
- external financing could be promoted by eliminating double taxation of venture-capital companies;
- the survival of SMEs could be assured by preventing taxes levied on transfers of businesses — particularly cross-frontier transfers — from jeopardizing their existence.

9.3 Guidelines for reducing labour costs

(a) Objective

In order to help maintain employment and create new jobs without reducing wage levels, therefore, steps must be taken to reduce non-wage costs, particularly for less skilled labour. Unemployment is particularly high among unskilled workers. Furthermore, in most Member States non-wage costs bear relatively more heavily on those in low-paid employment.

The Member States should set themselves **the target of reducing non-wage labour costs by an amount equivalent to 1% to 2% of GDP**; this figure could vary according to the tax structures in the Member States.

(b) Implementation

The objective being to reduce labour costs, the reduction could differ from one Member State to another depending on the extent to which it is applied to employers' social security contributions and/or to employees' social security contributions and/or to taxes levied directly on wages.

Social security contributions themselves are sometimes divided up according to the various objectives involved: family, health, old age, unemployment.

In these cases, the reduction could relate primarily to contributions which finance expenditure normally pertaining to national solidarity: family allowances, the minimum old-age pension, serious illnesses, or long-term unemployment. In the case of schemes in which the benefits are more directly related to the contributions (e.g. retirement pensions), it is for each Member State to determine the respective proportions of compulsory and voluntary contributions to be paid under insurance schemes or savings arrangements.

Furthermore, the reduction of statutory charges on labour should apply as a priority to the **lowest earnings**. This would make it possible to limit the budgetary cost of the measure per job saved or created while responding to the scale of unemployment among the least skilled workers.

The flexibility of work should also be encouraged

Experience in some Member States suggests that more flexible organization of work would stimulate job creation. The promotion of more flexible working arrangements could be backed up by reductions in the statutory charges currently imposed on such arrangements.

With regard to services, whether market services or otherwise, which are in contact with the public, an adjustment of working time accompanied by tax incentives would make it possible to increase employment, use equipment more intensively (longer opening hours), and meet a demand (more practical opening hours, longer free time).

The reductions could also be specially targeted on the **creation of new jobs** and the **recruitment of young people**.

But it is clear that if measures to bring down statutory charges substantially are to be effective, **they must be simple**. While it may appear desirable to make certain tax advantages conditional upon the taking of action consistent with the objectives of active employment policies, it is important to avoid schemes which cannot work well because of their complexity.

(c) Effect on employment

The results of several econometric models (see annexed table) confirm that reductions in social security charges offset by an increase in other charges produce a significant positive effect on employment. The most favourable results are observed when the reduction in employers' social security contributions is targeted on categories of workers with a low level of skills and if a tax on CO₂ energy is introduced rather than VAT being increased. On a favourable hypothesis, these models show that if employers' social security contributions are reduced by 1% of GDP, **the unemployment rate falls by 2.5% over four years**.

9.4. Possible compensatory measures

In view of the need to keep budget deficits as small as possible, compensatory measures should be introduced to offset the reductions in statutory charges designed to reduce labour costs.

The reduction in social security contributions could be partly financed by the contributions of persons for which jobs had been created, by the reduction in unemployment benefits resulting from an increase in employment, and by tighter control of public expenditure to make it more efficient.

But in most cases, **compensatory measures in the form of taxation** will be necessary to ensure the tax neutrality of the reductions made. From the various possibilities, measures should be chosen which do not have an adverse effect on the competitiveness of Community industry.

Of course, a detailed study should be made of the effects and the combination of these different possibilities.

(a) Environmental taxes

Environmental taxes, charged for example on the use of limited natural resources and energy, may be envisaged.

The CO₂/energy tax proposed by the Commission in 1992 could raise an amount of revenue equivalent to some 1% of GDP; the other possibilities include taxes on polluting or energy-intensive equipment, some of which would have the advantage of internalizing costs for the environment. In all these cases, predictability and tax neutrality should be assured so as not to handicap industries exposed to international competition, and appropriate **tax incentives** should be studied.

An increase in excise duties on energy products may also form part of a policy of environmental protection enjoying fairly broad popular support. One option to be set alongside the introduction of a tax on CO₂ would be to extend the existing excise duties charged on mineral oils to other energy products (natural gas, coal, electricity), which are also responsible for environmental damage.

According to various studies, carried out both by the Commission departments and in a number of Member States, a transfer of social security charges worth some 1% of GDP to a CO₂/energy tax in the region of USD 10 a barrel would have beneficial effects not only on the environment but also on the use of CO₂.

(b) Taxes on consumption

An increase in excise duties on tobacco and alcohol provides a source of additional budget revenue and a means of preventing widespread social problems, and can help the social security budgets to make savings (by reducing the need to treat cancer and alcoholism).

Since VAT has very little influence on international competitiveness (it can be deducted on exportation) the idea of a social VAT has been mooted.

It is considered in some quarters that VAT could be raised to offset the reduction in social security charges. In theory, the increase in VAT accompanied by a reduction in social security charges could enhance business competitiveness in the Community. Moreover, the system of minimum rates in force in the Community authorizes Member States to raise their rates of VAT. Nevertheless, any increase in VAT and therefore in prices is bound to inhibit consumption and may have economic drawbacks. The question therefore deserves thorough examination in each case. In addition, within the Community, it would be necessary to ensure that disorderly increases in VAT, in particular in the countries where the standard rate of VAT is already high, did not create distortions of competition or call into question the approximation of rates carried out for the entry into force of the single market. If the Member States wish VAT to be increased, it would be better to consider making the change at Community level, in particular by raising the common minimum rate of 15%. For, if the approximation of rates embarked upon in recent years in the Community were to be abandoned, the establishment in 1997 of the definitive VAT arrangements (payment of VAT in the country of origin) would be threatened.

(c) Other taxes

Of the other possibilities, it is necessary to mention measures concerning the taxation of capital.

Without standing in the way of investment, this would mean altering the structure of statutory charges on the different factors of production (labour, capital, scarce natural resources) so as to favour employment instead of discouraging it.

A tax on the income from financial capital which the Commission has been advocating since 1989 would also have the advantage of making it more attractive to channel savings into productive investment and the creation of businesses.

9.5. Conclusion

A substantial reduction in non-wage labour costs (between 1 and 2 percentage points of GDP), particularly for the least-skilled workers, would play a key part in effectively combating unemployment and promoting job creation.

This easing of the burden of statutory charges, which would be introduced as part of active employment policies, would have to be offset by tax measures so as not to swell budget deficits.

Given the diversity of tax systems (taxes and social security contributions) in the European Union, it is impossible to identify a single method for shifting some of the statutory charges on labour onto other factors of production or onto consumption. However, possible compensatory tax measures include environmental taxes (taxation of CO₂ and excise duties on energy), excise duties on consumer products that are damaging to health, taxation of interest income applicable to all Community residents and, where appropriate and subject to certain conditions, an increase in VAT.

In order to ensure that these changes to the structures of statutory charges lead to a coordinated recovery of the European economies, the Member States must be aware of the importance of joint consultations and cooperation in this field

Table 4 — General hypothesis: Reduction in employers' social security contributions with compensation via other statutory charges

Models used

A) Elements of the model

	Quest	Hermes	Mimic
Countries concerned:	EC as a whole	B, D, F, I, NL, UK	Netherlands
Period:	7 years	9 years	10 years
Hypotheses:	Generalized reduction to 1% of GDP (average reduction in rate of 10). Reduction limited to low wages	Generalized reduction of 0,33% in 1993 to 1% in 2001	Generalized reduction in contribution rate from 17,8% to 15,1% Reduction in contribution rate from 17,8% to 11,3% limited to annual wages of up to HFL 20 500
Compensatory measures	Increase in VAT Increase in income tax CO ₂ of USD 10 per barrel	CO ₂ tax	VAT linked to energy consumption

B) Results of simulations in employment terms

a) Values in percentage points of unemployment rate

b) Extent of new job creation: % difference relative to reference situation in 2001

	Quest (a)	Mimic (a)	Hermes (b)
Reduction in social security contributions and increase in VAT	0,0	—	—
Reduction in social security contributions and increase in income tax	-0,7	—	—
Reduction in social security contributions and introduction of CO ₂ tax	-0,9	0,3	0,64
Differentiated reduction in social security contributions and introduction of CO ₂ tax	-2,7	-0,6	—

IV. TOWARDS A NEW DEVELOPMENT MODEL

Chapter 10

Thoughts on a new development model for the Community

10.1. The structural links between environment and employment

(a) *The inefficient use of resources in the Community*

The current development model in the Community is leading to a sub-optimal combination of two of its main resources, i.e. labour and nature. The model is characterized by an insufficient use of labour resources and an excessive use of natural resources, and results in a deterioration of the quality of life. The Community needs to analyse in which ways economic growth can be promoted in a sustainable way which contributes to higher intensity of employment and lower intensity of energy and natural resources consumption.

(i) **The 'underuse' of labour resources**

The use of labour resources has been persistently discouraged for several decades. Although the growth in labour productivity has been a major element contributing to a continued increase in net income per head, a critical point seems to have been reached.

On the one hand, the substitution of labour by capital has been accompanied by a continued increase in the use of energy and raw material, leading to an over-exploitation of environmental resources.

On the other hand, **business strategies are being driven by labour-saving considerations** to an extent, where the productivity gain at the business level seems to be increasingly neutralized by an increase of costs in the sector. One of the clearest examples is unemployment, whereby labour is pushed out of business but at the expense of an increase in unemployment benefits.

The financial requirements of those social security arrangements increase the indirect labour costs further, intensifying the tendency towards labour saving. This mecha-

nism has in addition led to a considerable loss in competitiveness on external markets as sophisticated technology is increasingly being installed in low-wage countries.

Many countries have tried to manage the problem through a reduction in social security provisions, however with limited success. The resulting increase in poverty and income disparities has led to social tensions and a decay of the quality of life in many urban centres.

The 'underuse' of labour resources has apparently not only a quantitative but also a qualitative nature. The organization of work in a standardized way, frequently in huge production units, has distanced the individual from the results of his work. The resulting loss in motivation and creativity, compared to what can be observed in small businesses and farms, is therefore likely also to have had an impact on the economic output as well as on the enjoyability of many jobs. Some businesses have successfully managed to recuperate the lost human capital by combining small, more or less independent production units in an efficient and flexible way.

(ii) **The 'overuse' of environmental resources**

The 'underuse' of labour is combined with an 'overuse' of environmental and natural resources. During the last two decades, and in particular since 1973, it has become increasingly clear that the latter resources are not available in unlimited amounts. Because the market prices do not incorporate sufficiently the limited availability of those natural resources and the environmental scarcities related to their consumption, their overuse has become systematic. This situation cannot be maintained any longer for different reasons:

- (i) the clean-up of past damage requires mounting costs (e.g. polluted sites);
- (ii) the reduced availability and quality of natural and environmental resources represents a burden to future genera-

tions and a reduced capacity for long term economic prosperity;

- (iii) extrapolating current industrial consumption and production patterns to the entire world would require about 10 times the existing resources, which illustrates the scope for possible distribution tensions at global level if current tendencies are not curbed;
- (iv) some forms of pollution are threatening not only local ecological systems but also the natural balance of the entire planet, e.g. climate change, ozone layer, bio-diversity.

These inefficiencies represent significant but hidden welfare losses. As current economic accounting does not reflect unpriced resources such as the environment, only partial estimates are available. It is, for example, generally recognized that **the external cost of current transportation systems alone amount to at least 3 to 4% of GDP** (environmental pollution, accidents, traffic jams). The more research intensifies, and the more is known about these hidden costs which someone ultimately has to bear, the more those estimates become a cause of concern.

Another inefficiency of the current development model concerns the external effects related to the use of fossil and nuclear energy. Although intensified technological progress is able to solve many problems, it is also true that **energy can no longer be seen as an unlimited resource**, particularly not if the external costs related to climate change, acidification, health risks, nuclear waste and risk are concerned. The relative position of energy in the new development model is therefore a key element to be considered.

A more attentive look at the way the Community uses its labour and environmental resources leads to some fundamental weaknesses in the incentive structure of the EC's economy as a result of public intervention (e.g. fiscal treatment of labour costs, transport infrastructure) as well as of market forces (environmental externalities). As a consequence, it is open to question whether an increasing part of the measured economic growth figures does not deal with illusionary instead of real economic progress

and whether many traditional economic concepts (e.g. GDP as traditionally conceived) may be losing their relevance for future policy design.

(b) The request for a new 'sustainable development' model

The inadequate use of available resources — too little labour, too much use of environmental resources — is clearly not in line with the preferences of society as they are revealed through the democratic system: people expect for themselves and for their children on the one hand more jobs and a stable income, but on the other also a higher quality of life. The latter element is reflected through an increasing demand for enjoyable jobs and environmentally-friendly products and public goods.

Any new policy will have to contain substantive answers on how to reduce pollution and how to improve the quality of life in a broad sense. The former element concerns the reversing of the currently negative relationship between 'classical' economic growth and more pollution. People no longer see why the use of more packaging or the presence of more printed advertising material in their mail boxes contributes to higher economic growth figures, as is officially registered.

Improving the quality of life, on the other hand, not only concerns habitats and nature protection, but also the amenity of the landscape, better integration of new buildings and transport infrastructure into historical urban centres, or the availability of parks and other green zones in urban areas. In such a way, the quality of life of millions of people can be substantially improved.

A more adequate policy should therefore be able to offer society a better quality of life with a lower consumption intensity and as a consequence with a reduced stress on environmental resources. In this same context, the creation of more challenging jobs is to be situated, as well as the valorization of human capital in local networks, fostering individual responsibility and social participation. **The new development model for the Community therefore has to address**

the inefficient use of available resources in a wide perspective, i.e. taking into consideration the overall quality of life of the citizen.

Some of these questions have a Community dimension. Indeed, the transition phase towards a more optimal economic model is easier to realize if several countries act together, as this minimizes costs and maximises results. Furthermore, many measures implicitly or explicitly concern sectoral policies as well as the steering of market forces within the internal market. This potential new role for the Community is now explicitly recognized by the Treaty as sustainable development has been incorporated as an overall Community objective.

(c) Clean technology is a key

A major element of the new development model will be to decouple future economic prosperity from environmental pollution and even to **make the economic-ecological relationship a positive instead of a negative one.** The key for doing this will ultimately lie in the creation of a new 'clean technology' base.

There are already important examples which show that bringing the environmental resources explicitly into the production function is able to make such a decoupling possible. The German and Japanese economic growth figures for the last two decades although being the most successful ones in the industrial world, were brought about with a negligible increase in energy consumption somewhere before a linear relationship was considered to be common sense. The driving force behind this basic change has been a high energy price which, also contrary to the usual expectations, did not hinder but rather encouraged economic growth.

Although economic models tend to see technological achievements as exogenous, it should be recognized that these are essentially the result of fundamental incentives originating from the public and private sectors. Moreover, it should be clearly stated that any technology is made by man and that in that respect continued investment in human capital is critical. Solving the current environmental problems is a major challenge in the coming years.

The new integrated technology, of which very likely only the tip of the iceberg has been seen, should result in a reduced need for new environmental resources through:

- (i) improved 'nature productivity' of products: e.g. increased energy efficiency, less raw material-intensive products (lighter cars, etc.);
- (ii) a longer product lifetime: making repair and control services more attractive, which are labour-intensive activities *par excellence*;
- (iii) more reuse and recycling: use the same raw materials or spare parts far more frequently;
- (iv) improved process technology: the production processes (and not the final consumers) generate the largest quantities of waste water, solid waste, etc.

The gradual implementation of the new clean technology will generate a continuous renewal of the capital stock of the Community and will need particular training requirements for the newly-qualified engineers and managers. The resulting integration of clean technologies by industry will become far more important than the current clean-up activities such as waste and waste water treatment, however important they are for the immediate future. The relative, and even the absolute, importance of those activities is expected to decline the more society comes closer to the sustainable development model.

The new clean technology is likely also to generate, apart from a substantially improved environment, considerable **secondary benefits** for the Community:

- (i) in competitiveness terms, in a double perspective: the Community would improve the overall strength of the economy through optimal use of its resources and the prevention of costly clean-up operations, while a first-mover advantage can be exploited; the latter element is not to be underestimated as the new technology is not only a necessity in the industrial world but also in the NICs and LDCs;
- (ii) in strategic terms: the enormous dependence of the Community on the

rest of the world for its imports of energy and raw materials would be reduced and better managed; the savings made through avoided imports could be used to encourage sustainable development, in particular by transferring clean technology to LDCs;

- (iii) the Community would show internationally how sustainable development can be translated into practice, would diminish its excessive use of primary resources, and would thereby soften considerably future distribution problems for scarce environmental and natural resources at global level.

10.2. Ways to facilitate the structural change

(a) *The need for a strategic microeconomic policy*

The decoupling of economic prosperity from environmental deterioration through the creation of a new clean technology base is unlikely to happen without an active and imaginative policy support. To that end, **existing policy instruments will have to be reoriented in so far as they encourage the inefficient use of resources in the Community.** Particular attention will have to be given to many regulations which have been gradually developed during the last few decades but which no longer serve objectives which belong to the new sustainable development model. On top of that, **market prices will have to internalize systematically all the external costs that they generate to society.** Such a review should end up in a set of clear signals and incentives to all economic agents and decision-makers.

The first key element of a strategic microeconomic policy concerns a significant reorientation and encouragement of basic research in areas of particular relevance to the model of sustainable development (renewable energy, recycling and new materials, biotechnology, etc.). This reorientation also concerns economic science and in particular the so-called area of green accounting, which is basically a systematic analysis and estimation of all external effects. In combining scientific and econ-

omic information, a better understanding of the problems and solutions concerning the use of natural resources and their relative importance will be obtained.

The second key element concerns the **speeding up of the implementation of basic research results into marketable innovations.** To that end, a consistent set of pragmatic incentives is to be developed to economic agents considering investments related to the new products and production processes, including new and innovative forms of work organization. This should create a 'virtuous' circle of confidence with consumers and investors concerning the societal project of a sustainable economic future.

(b) *Policy instruments at macro-economic level*

The set of incentives envisaged above concerns a gradual and systematic review of many policy instruments, of which several have a Community dimension. In this context, the following instruments merit particular attention:

- (i) **Indirect taxes** on pollution are a powerful way to address hidden subsidies in so far as external costs are generated at the expense of the society as a whole. Therefore, market prices may have to be corrected to cover the environmental damage related to the use of particular products, e.g. energy sources according to their CO₂ content.
- (ii) **Fiscal regulations**, and in particular tax deduction schemes, are a powerful way of encouraging sustainable economic activities (e.g. pre-market research on green innovations) but are currently having, in many cases, a negative environmental impact (e.g. generous tax deduction schemes for the use of private cars, real estate taxation favouring suburban development, etc.).
- (iii) **The dynamics of the internal market** can be steered to generate optimal resource use in the Community: firstly, sound competition on a level playing field gives a higher chance of generating the necessary technological changes and renewal of capital stock; secondly,

public procurement regulation could be explicitly curbed towards sustainable objectives; thirdly, the internal relocation of economic activities will contribute to the most efficient exploitation of environmental resources inside the Community as well as to a reduction of the far too-high environmental pressure in some areas. The same argument applies, of course, to the enlargement of the Community.

- (iv) **International trade and cooperation policy:** as environmental problems frequently have transfrontier and global aspects, they lead to more intensive international cooperation. In many cases, the involvement of Community resources for dealing with foreign environmental problems are shown to be a cost-effective solution for environmental problems inside the Community (acidification, pollution of rivers, reduction of CO₂). This is equally true for structural problems in the area of growth and employment. In both cases, real and sustainable solutions have to take into consideration this international dimension, in particular concerning regions close to the Community, e.g. Central and Eastern Europe, the CIS and the Mediterranean basin.

(c) Policy instruments at sectoral level

Apart from the instruments which are to be situated at the macroeconomic level, the Community also disposes to some extent of instruments in particular sectoral areas, the importance of which is likely to grow the more the Community strives at the above-mentioned new economic model. The following sectors merit particular attention and have been explicitly addressed in the fifth environmental action programme:

- (i) **Energy:** the way energy is consumed is at the centre of the new development model. In parallel to the liberalization of the internal energy market for electricity and gas, the Community will have to make strategic choices which until now have been sole Member State responsibilities. Those options in particular concern a vigorous development of demand-side management as

well as a diversification of supply towards environmentally-friendly energy sources. Important tools have been used in the past (e.g. Euratom) and need reorientation and strengthening.

- (ii) **Transport:** the huge welfare losses mentioned in the previous section will have to be eliminated thorough revision of investment and planning in transport infrastructure (in particular in urban areas). Tax and subsidy instruments commonly used in the past could be substantially revised as well as zoning and urban planning conceptions.
- (iii) **Agriculture:** the current review of the CAP reform leads to a reduction of the general price support which is compensated for by direct financial support for farmers and accompanied by other measures allowing for the remuneration of agricultural practices, favourable to the environment as well as by a fair remuneration of activities safeguarding hydro-geological balances (quality of drinking water, avoidance of soil erosion, etc.) or improving the amenity of the landscape. This tendency should be reinforced gradually in the years to come. In such a way, the current imbalances in environmental terms will increasingly be eliminated, while a new basis is being laid for sustainable activities and an improved quality of life in rural areas. In this respect, it is also important to evaluate, economically as well as environmentally, pilot projects being undertaken in several Member States, concerning the production of biofuels (biomasse, diester, bioethanol) particularly with a view to reaching environmentally-friendly energy scenarios.
- (iv) **Industry:** a new set of business-minded environmental instruments is to be exploited and a start has already been made through eco-auditing, eco-labelling, voluntary agreements, liability schemes, etc. Some of those instruments will create new job opportunities, particularly in environmental services

*(d) Short term-policy
recommendations*

If it is recognized that the current recession has a dimension beyond the business cycle, preparation for the long term project needs to start now. This implies not only a systematic reorientation of public policy according to the lines sketched out above, but also the **design of anti-cyclical policy measures** which could at the same time contribute to the objectives of the sustainable development model.

A basic recommendation concerns the prevention of further environmental degradation through the **creation of an 'environmental infrastructure'**. Notwithstanding the gradual development of clean technology, in the short and medium term clean-up activities are likely to remain significant, and should even substantially grow in the immediate future. It concerns a considerable backlog of investments in waste recycling equipment (compare over-supply of waste paper), in waste incinerators (incorporating best available technology standards), in waste water treatment equipment.

Many of these activities concern construction activities and are likely to mobilize a significant number of jobs in the short term, while the financing should be provided for by levies and charges in conformity with the 'polluter pays' principle foreseen in the Treaty. The public expenditure and the employment generating capacity can be the more important insofar as the basic infrastructure is still to be built, for example, water sewerage networks.

The same employment-generating possibility applies to the build-up of a higher capacity in the field of collective transportation systems, which is capable of improving substantially the quality of life of millions of people living in urban agglomerations.

Queries also reveal that a considerable demand and an explicit willingness to pay exists for the creation of enjoyable and environmentally friendly projects at the local level, including the creation of parks, walking or jogging and cycling circuits.

The field of energy use has been indicated several times as one of the key areas of the

new economic development model. In particular in households, efficiency standards in energy use can be substantially improved — indicators frequently indicate 40 to 50% — provided appropriate investments are being undertaken in the area of housing (double/triple glazing, roof insulation, best available technologies (BAT) boilers). A considerable amount of jobs can be created in this context, provided sufficient incentives are being developed.

Finally, if the double challenge of unemployment/environmental pollution is to be addressed, a swap can be envisaged between reducing labour costs through increased pollution charges. One particular concrete Commission proposal, which fits completely with the perspective of long term structural change, concerns the carbon/energy tax: external costs related to energy use are being addressed, while the substantial revenue (approximately 1% of GDP) can be used as a first step to accommodate high wage costs by employers.

An important dimension of the proposal concerns the widely advocated shift towards a more intensive use of indirect taxation, as well as a widening and balancing of the tax base on energy products. In the Community these proposals enjoy popular support: about 60 % of European citizens are in favour of such a tax.

10.3. Conclusions

The nature of the structural change the Community is going through needs to be recognized and addressed. It is important to develop a societal project for a higher quality of life in the Community, which can motivate people and hence can generate the required human energy:

- (a) The serious economic and social problems the Community currently faces are the result of some fundamental inefficiencies: an 'underuse' of the quality and quantity of the labour force, combined with an 'overuse' of natural and environmental resources. Both elements are at the heart of the economic development model followed by the Community during the past few decades.
- (d) The basic challenge of a new economic development model is to reverse the

currently negative relationship between environmental conditions and the quality of life in general on the one hand, and economic prosperity on the other. In this respect, a widespread implementation of clean technology is a key aspect. It is to be stressed that much scientific knowledge is already available but is waiting for insertion into the economic system.

- (c) The transition towards a new 'sustainable development' model requires the development of a consistent set of market incentives. The basic task will consist of a systematic review of existent macro and sectoral policies with as a basic guideline that market prices have to incorporate all external effects. Indeed, many policy decisions in the field of taxation, subsidization, competition, infrastructure, labour

organization, land use, urban planning, etc., were developed in a gradual way and on an *ad hoc* basis, or in view of long-term considerations which no longer fit the goal of sustainable development. The same applies even more to policies in the field of energy, transport, industry and agriculture, where several choices, made in the 1950s and 1960s, should be the subject of a review.

- (d) Any short-term policy recommendation to overcome the current recession should make a first step in the policy reorientation mentioned above. Moreover, in the same long-term perspective, considerable employment opportunities can be created in environmental infrastructure, energy efficiency improvements, the creation of enjoyable natural areas and the clean-up of polluted zones.

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