NEW KNOWLEDGE, NEW JOBS:
THE IMPACT OF NEW TECHNOLOGIES

A challenge for the
Euro-Mediterranean Partnership

Subject studied by the Economic and Social Councils of:
Algeria - France - Greece - Italy - Spain - Tunisia

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At the Athens Summit in 2002, the Economic and Social Councils of the countries bordering the Mediterranean gave the Economic and Social Council of France responsibility for preparing a report on the subject of ‘New knowledge, new jobs: the impact of new technologies’ in conjunction with the Councils of Algeria, Tunisia, Greece, Italy and Spain.

The working party, composed of members of all these Councils, met twice: in Tunis on 26 and 27 September 2002 and in Marseilles on 12 and 13 December 2002.

This document, for which the rapporteur is Jean-Claude Pasty, is the result of this joint deliberation.

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‘People are the only true riches’.

Jean Bodin

I – Introduction: A scientific and technological revolution that is gaining pace and threatening to cause fragmentation and lasting splits unless appropriate policies are implemented to remedy the situation

1- The characteristics of the ‘new scientific and technological revolution’: 

a) acceleration of technological innovation due to:

- growing interaction between different knowledge-based sectors (mathematics, physics, chemistry, biology) and between the fundamental sciences and technologies (e.g. the unprecedented increase in real-time calculation capacity resulting from the use of digital technology is an incredible tool for the fundamental sciences);

- the accelerated transition from discovery to invention: e.g. the discovery of the human genome and the progress made in genetic engineering, opening the way for new forms of treatment.

b) this acceleration in technological innovation is taking place against the background of economic globalisation, a process which helps to intensify: elimination of distances due to the possibility of communicating in ‘real time’, anywhere in the world, provided easy and low-cost Internet access is available.

c) development of an intangible economy alongside the traditional tangible economy, with a possibility of osmosis between the two.

Depending on the strategies implemented, this osmosis can be encouraged or hindered, and may have a significant impact on the economic and social development of the countries concerned.

2- The advantages and the threats represented by new technologies, in particular NICTs, create new challenges for society which must be identified so that they can be taken up more effectively.
Like Aesop’s tongue, of which they are undoubtedly the most sophisticated contemporary form, NICTs can be the best or the worst of things, depending on the way in which they are used.

a) **Many opportunities are created by NICTs:**

- creation of new jobs, both direct (in hardware, associated services and NICT ‘products’) and indirect (as a result of the spin-off effects of the spread of NICTs in the economic and social fabric);

- teleworking makes it possible better to locate jobs throughout a country and to combat the problems of unchecked urbanisation and rural exodus and, in general, to create jobs where there are available labour forces, thereby limiting the risks of uncontrolled migration;

- alteration of the very substance of work, giving greater initiative and responsibility to workers in the organisation of their tasks;

- and greater flexibility in the internal operation of businesses;

- improved quality in many personal services:
  - in medicine: possibilities of telediagnosis or remote operations
  - in education: teaching support, where teaching staff are provided with digital products promoting the learning of languages and core subjects (telelearning);

- easier access to culture, in all its forms (virtual museums, digital music etc.);

- virtually unlimited freedom of choice for consumers, with the emergence of a global market linked to e-commerce;

- possibility of a participatory dialogue involving citizens on a global scale (digital forums, teleconferences), opening up new democratic channels.

b) **There is nevertheless a risk that the beneficial opportunities offered by NICTs may exacerbate inequalities, or even exclusion, if the greater freedom that they bring degenerates into excessive individualism and is not compensated for by new forms of solidarity and societal regulation.**

There are always two sides to a coin. For example:

- the increased use of new technologies may destroy large numbers of jobs in whole sectors of the traditional economy if that economy is unable to take advantage of them, thus jeopardising its national and global competitiveness;

- whilst the use of NICTs is concentrated in the most developed geographical areas, economic and demographic imbalances between north and south and between urban and rural areas are likely to worsen, and the emigration of highly skilled people, the brain drain, from the less developed countries may be accelerated.
Unless some activities are relocated, or those activities are at least distributed more uniformly in relation to the available labour forces, emigration from the south to the north will remain the only possible alternative.

- greater individual initiative in the organisation of work and the internal operation of businesses may have an adverse impact on current solidarity mechanisms and the contractual relations resulting from the social dialogue, unless all the consequences of the introduction of NICTs into the work place are taken into consideration;

- unless access to NICTs is guaranteed for everyone, the inequalities that can already be seen between rich countries and poor countries in terms of quality of life (health, education, cultural policies and extension of the democratic debate) can only worsen and further widen the gap between north and south;

- lastly, the necessary consequence of any extension of individual liberties is the development of a sense of personal responsibility, capped by respect for others, which implies consensual acceptance of ethical rules, a moral code and regulation, which must be enforced by administrative and judicial authorities.

The technological revolution of the 21st century therefore faces politicians, citizens and all social actors with new challenges, which have often never been met before and which they have to take up so that scientific and technological progress is made to serve humankind, peace, a better global balance and the preservation of the planet for future generations, which corresponds to the commonly accepted definition of sustainable development.

The strategies to be implemented and the north-south cooperation to be developed in order to achieve this objective will be even more effective if they are based on an objective analysis of the parameters that currently characterise the situation with regard to the use of new technologies in the different States (review) and on the identification of the main levers to be used with a view to achieving progress.

On the basis of that analysis, proposals will have to be drawn up for specific actions that can be implemented quickly within the framework of the Euro-Mediterranean Partnership, whose foundations were laid by the Barcelona Conference in 1995 but whose general objectives have taken a long time to be translated into specific policies.

II – Review: in the light of the capacity for large-scale implementation of NICTs, there are currently serious inequalities between the States on the two shores of the Mediterranean.

The main challenge is to move from an information society to a knowledge-based society.

In order to take advantage of the development of NICTs, it is necessary to be able to turn information into knowledge. We talk about the knowledge-based society, as a way of highlighting appropriate production, management and assimilation of knowledge, based on the growing volume of available information, rather than merely having access to information.

It could not be more clear that information is the raw material for knowledge, which must be used by human intelligence, and not an end in itself.
The success of the move from an information society to a knowledge-based society depends on two factors: the general (quantitative and qualitative) level of education and training among the population and the ability of the production system to use the mass of available information for innovation.

What is the situation in the different States bordering the Mediterranean from the point of view of these two factors?

**A - A large, young population of working age: an asset and an enormous challenge for the southern and eastern Mediterranean countries**

1. **Demographic data:**

   a) *Strong demographic dynamism in the southern and eastern Mediterranean contrasts with stagnation to the north.* The total population of the nine southern and eastern Mediterranean countries (including Israel) that are partners in the Euro-Mediterranean Partnership has grown from 103 million in 1980 to 167 million in 2000, a rise of 64 million in twenty years, which is slightly more than the current population of France or Italy.

   According to World Bank projections, this population should continue to grow considerably, even though some decline in the rate of growth can be expected (demographic transition), reaching 214 million in 2015, an additional population increase of 47 million, which represents more than the current population of Spain.

   Demographic ratios on both sides of the Mediterranean are set to alter very significantly.

   At present, the five European Union countries to the north of the Mediterranean (Portugal, Spain, France, Italy and Greece) have a total of 197 million inhabitants, slightly more than the 167 million people that live in the southern and eastern Mediterranean.

   By 2015, taking into account foreseeable demographic trends and the marked fall in the fertility rate observed in some European countries (in particular Spain, Italy and Greece), demographic ratios should be reversed markedly in favour of the southern and eastern Mediterranean.

   This is an inescapable fact that has to be taken into account in a dynamic approach to the future of the Euro-Mediterranean Partnership.

   In contrast, foreseeable trends are unlikely to have much of an impact on demographic ratios within the southern and eastern part of the Mediterranean.

   b) *A young population in the southern and eastern Mediterranean, contrasting with a distinctly older population in the north.*

   The youth of the population in the southern and eastern Mediterranean is the direct consequence of the fertility rates observed over the last 15 years.

   The three States with the largest populations (Egypt, Algeria, Morocco) have a population below the age of 15 that represents more than a third of their total population (around 35%). In Israel and in Tunisia, this percentage is slightly below 30% and it is 40% in Syria and Jordan.

   For the five northern Mediterranean countries, these percentages are less than half of those observed in the south and east: 14.4% for Italy, 15% for Spain, 15.3% for Greece, 16.8% for Portugal and 18.9% for France.
Symmetrically, the percentage of people above the age of 65 is the result of the fall in fertility rates observed in the States that were first to begin their demographic transition: 6.1% in Lebanon, 5.9% in Tunisia, compared with 4.1% in Algeria, Egypt and Morocco, and only 3.1% in Syria and 2.8% in Jordan.

However, these percentages are still well below those in the northern Mediterranean, which are all higher than 15% (with the exception of Ireland, the Netherlands and Luxembourg, where they are between 11.2% and 15%).

Lessons can be drawn from these differences in population structure between the northern and southern Mediterranean for the major economic and social challenges faced by both.

While the northern countries are already experiencing recruitment difficulties, and will do so even more in future, in particular for certain professions neglected by their nationals, as well as problems financing their pension schemes, the southern countries have an enormous challenge to face: the education and employment of a large young population. This represents a major advantage for them in global competition, provided that active policies are implemented to develop their human resources, attracting investors and encouraging entrepreneurship and job creation.

As a result of health policies and the improvement of sickness cover introduced by the southern countries, to which the MEDA funds have contributed EUR 293 million in five countries (Egypt, Morocco, Tunisia, Syria and the Palestinian Territories), life expectancy at birth (70 on average), except in Egypt and Morocco where it is lower (67), is close to the European level, which is also the same as in Israel (78 on average).

On the other hand, infant mortality rates still show very large disparities, since they range from 3 in 1 000 to 6 in 1 000 in the northern countries and in Israel and are 4 to 10 times higher in the southern countries, where they range from 24 in 1 000 in Syria to 45 in 1 000 in Morocco.

It is clear that considerable work has to be done to develop health infrastructures and health personnel in this sector in order to reduce such disparities, which are morally unacceptable. We will have to look at the extent to which the use of new information and communication technologies can make a contribution, in particular in the area of health personnel training and the development of telemedicine.

2. Data on the working population

Transition from the population of working age (arbitrarily defined as the age groups between 15 and 64) to the population actually at work depends on many parameters (unemployment rate, rate of disability making a proportion of the population unfit for work, average age for starting work linked to the length of full-time education, average age for finishing work linked to retirement and early retirement conditions), which must be interpreted with great caution, because of the lack of harmonisation of the available statistics and their relative reliability.

Nevertheless, data on the working population and its development are absolutely necessary as a basis for human resource development policies and to provide a better response to future employment requirements.

Lastly, whatever reservations might be held about the available information, it does indicate trends which, as with population, reveal considerable disparities between the northern and southern Mediterranean.
These differences relate in particular to the participation rate (percentage of the population in work compared with the total population), the unemployment rate, the rate of participation in full-time education and vocational training, and gender-based disparities in access to employment.

a) generalised growth in the participation rate in all countries in the Euro-Mediterranean region, but more marked in the south than in the north.

Table No 1, based on the World Employment Report (1998-1999) published by the ILO, shows highly significant trends, since it covers a fairly long review period of 17 years (1980-1997).

The first finding is that all the countries in the region have a faster growth rate for their working population than for their total population, bringing about a general increase in the participation rate.

The second finding is that the growth rates for the working population observed in the south are very much higher (from 2.1% in Lebanon to 5.3% in Jordan) than those observed in the European Union where, except for only the Netherlands (+1.5%) and Spain (+1.2%), they are all lower than 1%, with an extremely low rate of 0.4% in the United Kingdom, Portugal and Belgium.

There has therefore been some catching up between participation rates on the two shores of the Mediterranean. In 1980, the gap between the north and the south was very large, from 23.8% in Jordan to 50.6% in Sweden. It had closed considerably in 1997, with a minimum of 28.9% in Jordan and a maximum of 54.2% in Sweden.

This catching up can be explained by the stronger demographic growth in the southern countries, reflected by a rejuvenation of their populations, compared with an ageing trend in the north. Nevertheless, there are still large gaps between the countries on the northern shore and the countries on the southern and eastern shores of the Mediterranean. For the former, participation rates range from 41% to 54.2%, compared with 28.9% to 39.1% for the latter.

b) Participation rates for women have increased throughout the region, but more significantly in the European Union States than in the States on the southern and eastern shores of the Mediterranean, further widening the gap between the former and the latter.

The participation rate for women is higher than 31% in all the European Union Member States (with the exception of Ireland), whilst it is a maximum of 27.1% in Morocco and is still lower than 20% in Algeria, Jordan, Syria and Lebanon.

Whilst the participation rate for women represents only 30% (Jordan) to 45% (Tunisia, Egypt) of the rate for men in the southern countries (Morocco is the only exception with a rate of 53%), in the European Union Member States this rate ranges from 50% (Ireland) to 90% in Sweden, where parity between men and women as regards access to employment has more or less been achieved. There are therefore significant differences between the north and the south, but also within each of the two subgroups.

These differences can be attributed to inequalities in economic development (the more developed the States’ tertiary sector, the more job opportunities for women), social constraints (where the population is moving from rural areas to urban areas, employment for women becomes a more pressing need), unequal levels of public social services (in high-income developed countries, the existence of reception and pre-school infrastructures for young children frees mothers to carry on independent gainful employment) and, lastly, to the different cultural approaches to the role of women in society (political, civil and professional autonomy has been won by women in the countries of the European Union only recently and the above-mentioned figures show that the northern European countries started along this route earlier than the countries of Mediterranean Europe).
At present, throughout the European Union, overall population ageing makes the increase in the participation rate for women more significant.

At the same time, the need for the southern Mediterranean countries to increase the participation rate for women, in order to very substantially to step up their development potential, is not easy to address, but it is an inescapable requirement. This was strongly emphasised by the report produced by experts from the Arab world, published under the auspices of the UNDP and entitled *Arab Human Development Report for 2002*.

The report argues that *no society can achieve the desired state of well-being and human development, or compete in a globalising world if half its people remain marginalised and disempowered. Development requires unleashing the energies of all. New information and communication technologies can provide the instruments for unleashing those energies if they form part of strategies supported by a strong political will.*

3. The socioeconomic data, as they appear in the raw statistics, show a discrepancy between a young population's legitimate aspirations for better human development and the current inadequate performance of the economies of the southern and eastern Mediterranean.

The result is a high level of despair among young people from those countries, which, according to the abovementioned UNDP report, is reflected in a very strong desire to emigrate. According to an opinion poll among young Arabs conducted by the team that prepared the report, 51% of older teenagers and 45% of younger teenagers expressed a desire to emigrate, stating the current circumstances and inadequate future prospects in their countries of origin as their reasons.

To reverse these anticipated developments, which would be disastrous for the entire southern and eastern Mediterranean area, it is first necessary to conduct a review to identify the main causes of stagnation or inertia, inherited from the past, that are an obstacle to more dynamic economic and social development.

*a) Labour market imbalances are reflected in a persistently high unemployment rate, among women and young people in particular, which affects the entire Euro-Mediterranean area, but is much higher in the countries on the eastern and southern shores than those on the northern shore.*

Tables No 2 and 3 have been based on data collected by the ILO. Statistics provided by the Algerian National Economic and Social Council (CNES) allow precise data to be used for that country.

In general, even though some European Union countries were experiencing high two-figure unemployment rates in 1996, with very high rates in Spain (22.2%) and Finland (16.1%), the situation was even worse in the southern Mediterranean, with rates higher than 15% (15.3% in Tunisia, 18.6% in Morocco) and as much as 28% in Algeria.

These rates have fallen since 1996, but more significantly in the north than in the south (and the Algerian unemployment rate has remained stable), which increases the disparities between the two shores of the Mediterranean.

This is the consequence of a growth in jobs that is almost half the growth in labour supply in Algeria, as is shown in Table No 3. The situation has certainly improved since 1995 with an average annual rate of employment growth of 3%, but it is still insufficient in relation to growth in labour supply. In Tunisia and Morocco, growth in employment, equal to that in labour, has not enabled a significant
reduction of the unemployment rate. In Egypt, although the rate of employment growth has quadrupled, it is still lower than the labour force growth rate, with the result that unemployment has risen.

Among these four countries, high GDP growth rates (between 4.5 and 5.1%) have not enabled a significant reduction in unemployment rates in three of them, bearing in mind, moreover, a very dynamic labour supply for demographic reasons or following a population shift from rural to urban areas (in Morocco in particular). In Algeria, the implementation of structural adjustment policies required by the international institutions and the fall in public-sector employment explain the disappointing performance as regards GDP growth and the ensuing erosion of the labour market.

For all these countries, but to varying degrees, emigration remains the only release from an even greater erosion of the local labour market if policies are not implemented to create sustained growth and jobs. This makes it necessary to pinpoint those sectors of activity that could bring about this type of growth in future.

The fight against the unemployment problem, a source of exclusion and impoverishment, is a strong social imperative, especially since the most vulnerable population groups are worst hit: young people, women and disabled workers.

According to the ILO report, more than 30% of women were unemployed in urban areas in Morocco in 1994, compared with 17% of men. Furthermore, almost half the job seekers with some level of education were women, undoubtedly because it is more difficult for them to leave the country.

According to data provided by the Algerian CNES, 70% of unemployed persons are aged less than 30 and the majority of the 250,000 new entrants to the labour market each year have had no education or have received education that is unsuited to the new jobs being offered (46% of these first job seekers are aged under 25).

A more worrying finding is that whilst 75% of job seekers do not have any qualifications, 100,000 graduates were unemployed in 2000. In addition, long-term unemployment is rising (55% of unemployed persons have been looking for a job for more than a year and 34% for more than two years).

The CNES notes with concern that a large number of unemployed persons have lost any desire to seek work because of the scarcity of new jobs and the ineffectiveness of the employment services in matching labour force supply and demand.

As far employment among women is concerned, in 2000 the unemployment rate for women was still very high (almost 30%), but equal to that for men, whereas in 1995 it was higher. The arrival of more young women on the labour market makes the market even more competitive.

b) The distribution of the labour force according to major sectors of activity reveals considerable disparities between the trends in the north and the south, but also within each of the two sub-groups.

In agriculture, which encompasses fishing, hunting and forestry, there is a general downward trend, which is much more marked in the north than in the south, increasing the already very large initial disparities. The comparisons relate to a period of 17 years, from 1980 to 1997 (see Table No 4).

Whereas the percentages of the population engaged in agriculture in the northern countries in 1980 ranged from 2.6% in the United Kingdom to 31.2% in Greece, the corresponding figures for 1997 started from 1.4% in Germany.
The implementation of the European Union’s Common Agricultural Policy (CAP) has helped to speed up the modernisation of agriculture, which largely explains this marked reduction in the participation rate in agriculture. In the southern Mediterranean, only Israel and Lebanon (where agricultural activity is marginal with a participation rate corresponding to 1% of total employment) have seen a development comparable to that in the north. The percentage of jobs in agriculture and fishing is still very high in all the other countries in the area and ranges from 14% in Jordan to 37.5% in Morocco, with rates higher than 21% in Algeria, Tunisia, Egypt and Syria.

In the industrial sector, which encompasses four sub-sectors (mining industry, manufacturing industries, electricity, gas and water, and building and public works), there is a stark contrast between the trends in the north and the south, providing a good picture of the inequalities in economic development between the two shores of the Mediterranean.

In all the European Union countries, and in Israel, the decline in the number of people employed in industry has been smaller than in agriculture, but this decline has nevertheless been very significant, ranging in 1997 from 21% (United Kingdom, Belgium) to 35% (Austria 34.9%, Portugal 32%, Germany 31%). In 1980, these figures ranged from 28.5% in Greece to 45.4% in Germany.

This decline in industrial employment has had a very pronounced impact on manufacturing industry, which nevertheless remains the main provider of jobs in this sector: in Finland, employment in the manufacturing industries accounts for only 13.6% of total employment, in the United Kingdom 14.5%, in France, in Belgium and the Netherlands slightly more than 16%.

In contrast to the northern countries, employment in manufacturing industry has continued to grow considerably in the southern countries, by more than 50% in the last two decades in Egypt, Morocco and Lebanon, whilst it has remained more or less stable in Algeria, Tunisia, Syria and Jordan.

These divergent trends can undoubtedly be explained by business relocations from the north to the south during that period, particularly in manufacturing industry, and especially the textile and clothing sectors.

According to UNIDO statistics dating from 1997 and concerning the annual rate of employment growth between 1980 and 1994 in certain representative industrial sectors of developing countries, employment in Egypt in the textile sector had fallen each year by an average of 0.9%, but had risen in the clothing sector by 14.2%, by 12% in the machinery and scientific and technical equipment sector, and by 2.7% in the hardware and electrical machinery sector. For Bangladesh these increases are, respectively, 10.3%, 56.3%, 10.3% and 21.9% and for China 0.3%, 18.8%, 7.1% and 7.5%.

These international comparisons are a cause for concern, since they show the extent to which global competition has intensified and the comparative advantage that can be gained by the countries where salaries and social status are the lowest. This is a fact that the States forming the Euro-Mediterranean Partnership cannot ignore and methods of cooperation have to be found to address it.

The services sector’s share of overall employment has increased considerably as a result of the decline in the active labour force in the agricultural and industrial sectors in the European Union countries, in Israel and, to a lesser extent, in the southern countries, where the number of people working in industry has continued to grow. In six European Union countries, and in Israel, the share of the labour force employed in services is 70% or more, reaching a maximum of 77% in the United Kingdom, Belgium and Luxembourg; in six other countries, this percentage is also very high and is between 60% and 70%. For the last three countries (Austria, Portugal and Greece), it is between 57.4% and 59.3%.

In the southern countries, with the exception of Lebanon and Jordan, where the figures are, respectively, 64.8% and 62.6%, numbers in the services sector are lower than 50% and range from
34.8% in Morocco to 48.3% in Syria, the figures for Algeria, Egypt and Tunisia being 45.6%, 45.3% and 44.2% respectively.

The gap between the bottom of the range of the rates observed in the European Union and the rates observed in the south was 22.6 points in 1997. This same gap was 13.9 points in 1980 and has therefore widened by more than 50% in the last two decades. These figures must be interpreted with caution, since the huge services sector covers very diverse activities, such as commerce, transport, communications, financial services, health and education services, and personal services. In addition, the existence of an informal sector, which has developed to varying degrees but is to be found in all the southern countries and is difficult to apprehend statistically, may introduce a bias into the comparisons between north and south.

Nevertheless, considering that economic development tends to increase the services sector’s share of employment and wealth creation, these figures reflect a widening discrepancy between north and south, which is a matter of concern.

The contribution made by each of the three major sectors to the gross national product confirms these findings and amplifies them (Table No 5).

In the European Union countries, there is a remarkable convergence between economic structures, which is undoubtedly the result of the single market integration process. With the exception of Greece, agriculture, forestry and fishing (primary sector) accounts for an extremely low share of the national wealth creation, ranging from 1 to 4%, with services accounting for the largest share (from 60 to 72%).

In the southern countries, agriculture is still an important sector (10-24% of added value) and the share for services shows very large disparities, from 35% in Algeria (due to the major importance – 55% – of the industrial sector) to 66% in Lebanon. It should be noted, however, that, the services sector figures in Jordan, Lebanon, Tunisia and Turkey are comparable with those for the European Union.

Will these countries experience a similar development to the European Union countries, where the agricultural sector has been radically transformed in the last forty years, leading to a transfer of labour, first to industrial sectors, then to services and which would mean strong growth in services in the southern countries?

This development, if uncontrolled, could pose enormous regional development problems (risk of entire areas being abandoned and doomed to desertification), resulting in unchecked and destructive urbanisation.

More generally, one of the major concerns of the Euro-Mediterranean partners should be to seek a model of sustainable development that is tailored to the situation in the southern countries and avoids what economists call negative externalities, from which the northern countries have suffered.

The World Employment Report (1998-1999), published by the ILO, contains interesting information on the proportion of the intellectual and scientific professions (which include engineers, researchers and teachers) and intermediate professions (technicians) in total employment, irrespective of the sectors in which these staff are employed (Table No 6).

Whilst Israel and Jordan, on the southern shore, have employment rates for such staff that are comparable with the average for the European countries and Egypt has a rate comparable with the lowest rates in Europe (in countries such as Greece and Portugal), Morocco, Tunisia, Syria and Turkey have much lower rates (less than half) than the European average.
This table also shows that the percentage employment of scientists in the European Union have risen very considerably in the last fifteen years (tripling in Spain and Portugal and almost doubling in Ireland and Greece, the poorest countries in the European Union in 1980), whilst it has risen only slightly in Egypt and Israel, the only two countries for which comparative data for that period are available.

The introduction of the integrated common market at European Union level has certainly been a major factor in the convergence between its Member States. In the absence of such an impetus for the southern Mediterranean countries, it is to be feared that the current disparities, far from being reduced, could worsen, which represents another major challenge for the implementation of the Euro-Mediterranean Partnership.

This means that it is necessary to assess the existing differences in education and training policies, the results of which very strongly shape any strengthening of potential development and access to new information and communication technologies in the southern Mediterranean countries.

B - Still too large differences between the northern and southern Mediterranean with regard to access to sources of knowledge

Despite the implementation of resolute policies in the fields of basic education and vocational training, there are still very substantial differences between the two shores of the Mediterranean.

Because of the diversity of insufficiently harmonised statistical sources, caution is advisable in interpreting the figures, which must not be taken as absolute, but as indicators of differences which, because of their size, are unquestionable. A few points can nevertheless be made:

1. A general fall in illiteracy, but there are still strong disparities between countries and between the genders

First, the percentage of illiterate people in relation to the total population over the age of 15 was estimated to be lower than 1% in 2000 in all the European Union countries, with the exception of Portugal (8%) and Greece (3%), whilst on the southern and eastern shores of the Mediterranean, it ranged from 10% in Jordan, where the rate in lowest, to very high figures for Egypt (45%) and Morocco (51%) (Table No 7).

These rates are higher for the female population than for the male population and in rural areas. For example, in Algeria, illiteracy rates in 1998 were 24% for men and 40% for women, 26% in the urban areas of the wilaya administrative centres, 35% in secondary urban areas, and more than 51% in outlying areas. Looking at the figures from 1999, there is a very large disparity between men and women, with figures generally twice and in some cases three times as high in Jordan (where, however, the overall rate is one of the lowest), Syria, Lebanon and Turkey.

However, such disparities can also be seen in the three southern European Union countries (Italy, Portugal and Greece) that still have a residual illiteracy rate, which would suggest that the battle for gender equality is fundamentally a cultural problem that concerns all the Euro-Mediterranean partners. Nevertheless, one positive factor is that the illiteracy rate is generally falling in all countries as a result of a better rate of participation in schools by young people, who form the largest group. In the case of Algeria, for the population aged ten and over, the percentage of illiterate people has fallen from 43.6% to 31.9% (i.e. -11.7 points), and in the case of women from 56.7% to 40.3% (i.e. -16.4 points), over a decade (from 1987 to 1998), which represents a significant narrowing of the gap between men and women.
The figures published by UNESCO concerning the illiteracy rate in the 15-24 age group – after primary and secondary level – show that a considerable effort has been made over the last ten years to provide education.

In Jordan, illiteracy among young people has almost disappeared and it has been reduced considerably in Lebanon and Turkey. However, it is still higher than 6% for girls in these two countries. It is only 3% for boys, but 12% for girls in Tunisia and, respectively, 5 and 22% in Syria, and 8 and 16% in Algeria. In Egypt and Morocco, these rates are still very high (24% for boys, 38 to 43% for girls).

Very large gender inequalities remain, even though disparities have been reduced in recent years. The fall in illiteracy among the younger generations is the direct consequence of better schooling at primary level, lasting from 5 to 6 years, in both the southern and the northern Mediterranean (Table No 7).

The statistics published by UNESCO (Table No 8) show that net participation rates for primary schools have improved greatly in all the southern countries over the last fifteen years and have moved closer to those of the European Union, where the objective of full education has been more or less achieved, the only notable exceptions being Greece and Ireland.

In the southern countries, only Morocco and Lebanon still fall significantly behind with rates of school participation of, respectively, 74 and 76%. Lastly, whilst the rate of school participation is identical for boys and for girls in the European Union countries, there are still notable differences in the south to the detriment of girls, ranging from 5 to 6 points in Syria and Algeria, to 10 points in Egypt and even 18 points in Morocco, where one girl in three does not receive a school education. In contrast, parity is achieved in Jordan, and Tunisia and Turkey come very close (difference of only 3 to 4 points).

The tables published in UNESCO’s annual reports on the internal effectiveness of primary education systems (Table No 10 for 2000) refer to the percentages of those repeating a school year and of an age cohort (in this case the age cohort in full-time education in 1995) reaching, respectively, the 2nd and the 5th year of the academic cycle.

These comparisons, which must be greeted with certain reservations as to the reliability and harmonisation of the statistical data included, show that school results in the southern Mediterranean countries, with the exception of Egypt and Jordan, are not as good as those within the European Union. The Algerian CNES notes that more than 520 000 pupils fail or are excluded from the school system annually (across all levels) and that the success rate for the primary school final examination was only 79.5% in 2000.

Nevertheless, the pupil-teacher ratio at primary level in the countries on the southern shore is almost twice as high (24-28 pupils) than in the European Union, where it is around 12 pupils (cf. Table No 11).

In conclusion, a significant effort has been made by the southern Mediterranean countries in the last fifteen years to provide primary education, which has cut back illiteracy. This effort must be continued and intensified if illiteracy among the under-25s is to be completely eliminated, paying particular attention to the fight to reduce disparities between males and females, which, although under way, has not yet managed to bring about equality, and between urban and rural areas.

Lastly, nothing has been done to combat illiteracy among adults who have not had access to basic education; this problem needs to be addressed by the Euro-Mediterranean partners with a view to proposing and implementing action programmes for the benefit of such adults. The use of new information and communication technologies by educators, or for their own training, should be examined in feasibility studies.
Furthermore, primary education is an essential basis for the subsequent acquisition of more in-depth knowledge facilitating access to different facets of culture and to the learning needed to carry on an occupation, which itself requires constantly renewed skills.

The acquisition of such knowledge and skills must continue beyond primary level and education programmes are therefore being continually extended, whether it be the duration of initial studies or the new concept of lifelong learning.

What resources can be used to tackle this new challenge of accelerated skill renewal so that the gulf between those who have access to knowledge and those who do not does not widen any further?

The elimination of illiteracy is likely to become an obsolete battle if it does not open up access to these new forms of knowledge for the newly educated.

2. Very unequal educational capacities after primary level

Very large disparities in educational capacities after basic education exist between the European Union States and the States on the southern shore of the Mediterranean.

These disparities concern secondary education, higher education and technical and vocational education. Before reviewing current educational capacity after primary level in the various countries forming the Euro-Mediterranean Partnership, it is useful to compare the resources that each country channels into education policy, in terms of its contributory capacities (which are not the same).

Various parameters can be used to assess the resources deployed for this purpose.

In relation to total public spending, it is very significant (Table No 12) that the southern and eastern Mediterranean States channel a larger share of their budget into education spending (from 13.6% in Syria to 24.9% in Morocco) than the European Union States (9.1% in Italy to 15.4% in Sweden, the average lying between 10 and 12%). These differences can be explained partly by the role played in the northern States by private education, which is not always state-aided, but they nevertheless highlight the political priority that the southern States are attaching to education policies.

As a percentage of national wealth, measured by GNP, the share of public education spending gives more divergent results, but confirms the priority that the southern State are giving to education. For example, Jordan, with a rate of 7.9% (comparable to Israel: 7.6%), and Tunisia, with a rate of 6.7%, are bettered in Europe only by the Scandinavian countries, whilst Algeria (more than 6%), Morocco (5.3%) and Egypt (4.8%) equal the average for the European Union countries (Italy 4.9%, Spain 5%, France 6%).

The pressure that the cost of education exerts on the uses to which the national resources available in each country are put need to be borne in mind here, since education spending naturally has to compete with other social allocations, such as health spending or spending on improved living conditions and public amenities.

Table No 11 shows that in all the countries, both north and south, spending per pupil or student increases markedly after the move from primary to secondary education, and even more markedly after the move to vocational training or higher education.

According to the figures provided by the Algerian CNES, the average cost of a vocational training participant in that country represents twice, and the cost of educating a student five times, the cost of a primary or secondary school pupil.
It is very clear from this that the southern Mediterranean countries, where the cost per secondary school pupil or per student, in relation to GNP per inhabitant, is higher than in the northern countries, will see this pressure increase greatly when more primary school pupils have access to higher levels of education. Longer periods of education are a necessity for their economic and social development, which continues to be strongly correlated with the percentage of students attending a university course that they are able to educate.

The disparities between the two shores of the Mediterranean that can be observed at present in secondary and higher education give an idea of the immensity of the task to be accomplished and the resources to be mobilised for that purpose, if there is to be a real reduction of disparities.

Table No 13, published by UNESCO, which evaluates the average foreseeable number of years of study, obtained by adding the current school participation rates in the different academic levels, reveals a very large gap between the European Union countries, where the average length of study ranges from 16 to 17 years, and the southern Mediterranean countries, where it is no more than 10 years.

Observing the trend over a period of one decade (1985-1996), it is remarkable to note that in the countries of both north and south (with the sole exception of Syria), secondary school participation rates (gross and net) have shown a positive growth, with a particularly spectacular catch-up effect in Tunisia and Portugal, where the rates have doubled, and, very significantly, in Egypt, Algeria and Turkey, where the increase ranges from 22 to 38%.

Similarly, the disparity between the school participation rate for boys and for girls has fallen significantly in Algeria, where it has fallen from 15 to 3 points, in Egypt, from 22 to 10 points, in Morocco, from 14 to 10 points, and in Tunisia, from 14 to 3 points.

However, the gap between school participation rates in the north and the south is still very wide and the disparities have not been eliminated. Thus, in 1996 in the European Union, with the exception of Portugal, where the school participation rate is still only 78%, this rate lay between 86% (Ireland) and 99% (Sweden), with strong convergence towards an average rate of 90%.

On the other hand, in the southern Mediterranean States this rate is lower than 60% in Algeria, Tunisia, Turkey and Morocco, and is only 67% in Egypt.

The situation is much more worrying in higher education, where disparities are even more marked (Table No 14).

Looking at the number of students per 100,000 inhabitants, the differences are of the order of 1 to 3 between the Maghreb countries and the average for the European Union countries (1 107 to 1 341 students per 100,000 inhabitants on the one hand, 2 600 to 4 400 on the other). This difference falls to 1 to 2 for Egypt and Syria, with, respectively, ratios of 1 895 and 1 559 students. Only Lebanon, with a ratio of 2 712 students, has figures comparable with those in the bottom bracket of the European Union Member States, and even higher than those for Germany.

In terms of the historical trend (Table No 15) over one decade (from 1985 to 1996), only two southern countries, Turkey and Tunisia, have more than doubled the ratio of their students. However, at the same time, this ratio has fallen substantially in Lebanon (-17%) and Syria (-9.7%).

In Algeria, the growth rate (55%) lies between that of France (52%) and Italy (58%), whereas this rate is only 10% in Egypt and 39% in Morocco, rates that are much lower than those of the majority of European Union countries, which range from 41% to 75%, with, at the two extremes, virtual stagnation in Germany and an explosion in Portugal (trebling of the relative number of students).
These rates are likely to reverse in future because of the different demographic dynamics in the north and the south (more young people as a percentage of the total population in the south), provided that there is a genuine will in the countries most affected to give priority to raising the level of education for their future elites and provided they have the financial and human resources to achieve this.

Table No 14, which gives the gross enrolment rate for students (i.e. the ratio between the number of students, irrespective of their age, actually enrolled in higher education and the population within the five-year age group that follows secondary school leaving age) shows the size of the gap to be bridged between southern and northern countries with regard to access to higher education.

In the European Union countries, this gross enrolment rate increased considerably between 1985 and 1996 and ranges from 47 to 56%, with a few exceptions at the two extremes (39% in Portugal, 41% in Ireland and 74% in Finland), but the countries that were furthest behind in 1985 have made the most progress.

Progress has been much slower in the southern countries, where the highest growth rates are only just above 20% in Egypt and Turkey and fall to between 11% and 13.7% in the Maghreb countries.

These figures do not take account of students from these countries who continue their studies in European or North American educational centres, but we know that many of these students will remain abroad at the end of their studies, representing a major loss of skills for their countries of origin that is detrimental to their development if it is on too large a scale.

Another well-known difference between north and south relates to the gender of students. Whilst in the south the enrolment rate for boys is still up to one third higher than the rate for girls, exactly the opposite is true of the European Union countries, the only exceptions being Germany, Greece and the Netherlands.

3- Education that is not always in keeping with the new economy

The distribution of students and graduates by broad field of study is interesting, since it makes it possible to evaluate the extent to which educational systems match the needs of economic and social development. This match is far from being achieved in some countries, as is shown by the contribution from the Algerian CNES, which points to dysfunctions reflected by a high number of unemployed graduates, in particular among those majoring in arts subjects and law.

Table No 16, taken from the World Education Report published in 2000 by UNESCO, must be interpreted with caution, since the distribution of students among the different fields of study may sometimes display some vagaries or uncertainties, in particular among education and arts subjects.

Despite this difficulty, this comparative table reveals some significant trends.

First of all, as regards the field of study of technology, which encompasses the exact and natural sciences, engineering and agricultural science, there is a fairly strong convergence within the Euro-Mediterranean area around a percentage of enrolled students of 25-31% (17 of the 23 countries studied, in both the southern and northern Mediterranean, fall within this range). Algeria has a very high enrolment rate in this field of study (50%), as does Finland in the European Union (37%).

On the other hand, in the Mediterranean countries, Egypt (15%), Lebanon (17%) and Turkey (22%) have much lower rates, as does the Netherlands in Europe.
For the medical sciences, there is a much sharper contrast in results, with a very wide dispersion of enrolment rates. Whilst the median rate is between 9 and 11, only 9 countries out of 23 fall within this range, including three (Algeria, Jordan and Turkey) in the southern Mediterranean.

The most significant differences can be found, for the lowest rates, in Morocco and Lebanon (3%), Ireland (5%), Portugal (6%) and Israel (6%) and, for the highest rates, in Sweden and Belgium (13%), and particularly Finland and the United Kingdom (16%).

The distribution of students according to gender is extremely informative. On the one hand, it confirms that there are fewer young women in higher education in the southern countries, with the lowest rates in Turkey (38%), Morocco (41%) and Egypt (42%), compared with 47% in Jordan and 49% in Lebanon.

On the other hand, in some European Union countries there are a large number of women in higher education: France (55%), Sweden (56%) and Portugal (57%). These are average results for all fields of study, but gender disparities are very marked in some fields.

Medicine has become a field of study where there is a large majority of women in all European Union countries, with rates above 80% in the Scandinavian countries (Denmark and Finland), 70% in Sweden, the United Kingdom, Portugal, the Netherlands and Spain, and 60% in the other European countries, with the exception of Italy (57%).

Six countries on the southern shore have a rate equal to or higher than 50%: Algeria (50%), Tunisia (55%), Jordan (54%), Lebanon (53%), Turkey (64%) and Israel (69%).

To a lesser, but still very significant extent, the increase in the number of women studying education, the arts, law and human science also needs to be highlighted. This trend may be a cause for concern if it is accompanied by lower pay for women after leaving university, which can be seen, moreover, in both northern and southern countries. Some commentators even go as far as to refer to a relative pauperisation of the fields where women predominate (education, health, law).

However, there is clear-cut under-representation of women in the fields of study of science and technology. This is true of both the northern and the southern countries. The percentage of women enrolled in these fields is rarely higher than 33%: in Ireland (34%), Italy (35%), Algeria and Jordan (36%), Portugal and Lebanon (37%).

The conclusion is obvious: restoring a balance between the fields of study in keeping with job opportunities, strengthening the field of science and technology, and establishing better gender harmonisation within each of the fields, should be a common concern for all the Euro-Mediterranean partners with a view to meeting the medium-term objectives of the Barcelona Declaration.

Adaptation to labour market requirements and, more specifically, efforts to find the best possible match between education and job opportunities, must be a central concern of school systems after the basic education provided by primary schools.

This is a major concern in institutions that chiefly offer technical and vocational education and even in general educational institutions that alternate theoretical education and practical in-company training, as tends to be the case in Germany.

Technical and vocational education provided in specialised institutions shows disparities between the northern and southern countries. As is shown by Table No 17, considering the number in technical and vocational education in relation to the total number in secondary education, the average rate increased from 12.1% to 15% in the south between 1980 and the mid-1990s, and from 22.9% to 30.4% in the north, which means that the differences have widened and have not been reduced.
These average differences conceal very large-scale discrepancies within the two sub-groups. For example, in the south, whilst Egypt and Turkey are on a par with the European average, Algeria, Morocco and Tunisia are in a ratio of 1 to 5 compared with that rate.

In the European group, Ireland, Portugal and Greece are in a ratio of 1 to 3 or 1 to 2 in relation to the average rate. It is therefore clear that in a large number of southern countries, and indeed some southern European countries, technical and vocational education represents a weak link, which must be strengthened considerably.

In its contribution, the Algerian CNES draws attention to the gravity of the situation in that country. Whilst demand for education is very high, since it covers the needs resulting from lost schooling (across all levels) estimated at 500,000 pupils, unemployed young people, who represent 80% of the 2,300,000 unemployed people surveyed (3 or 4 of whom have not had an education leading to a qualification even though they have a primary and/or secondary level education) and the needs of adults who have suffered redundancies or who have to adapt to changes in their jobs, the machinery that can be called on to respond to the challenge is highly inadequate and does not make it possible to address the most pressing demands.

Furthermore, the CNES notes that the geographical location of educational structures is determined more by administrative rules dictated by administrative divisions than by objective criteria linked to the natural and economic vocations of the regions. This has meant that the training system has been geared more towards the education system to try to make up for lost schooling than towards the world of employment and its demands.

Whilst parity between girls and boys has almost been achieved within existing structures (45% girls in 2001), the CNES regrets that evening courses and distance learning, with, respectively, 4.98% and 3.03% of the total number of students, are poorly represented, even though they offer considerable prospects because of their flexibility and their low cost. These prospects must be explored, in particular through the use of new information and communication technologies.

In addition, insufficient account is taken of one group, disabled workers, who represent only 0.25% of enrolled trainees, but whose number is growing very sharply, having increased from 586 in 1999 to 8,111 in 2001, and 1,000 additional places are to be created.

Lastly, according to the CNES, the existing apparatus does not take sufficient account of the qualification requirements of the labour market (in residential training, information technology still accounts for only 15.15% of trainees and 22.15% of apprentices) and the raising of the level of education for those seeking training. The proportion of level 5 vocational training graduates (higher technician) is only 5%, which is far short of the demand from businesses.

It should also be noted that, since 1991, private vocational training courses have supplemented public courses and offer a teaching capacity of 46,000 places, compared with 188,000 places in the public sector, which is far from negligible.

The Algerian example illustrates perfectly an awareness of the need for certain countries substantially to increase their teaching capacities in technical and vocational education and to achieve a better match between the training provided and the competence profiles stemming from new job opportunities.

4- The degree to which new technologies have penetrated societies reveals a gulf between the two shores of the Mediterranean, which has to be reduced in order to achieve real convergence in levels of economic and social development
a)- A situation marked by very large disparities

If, despite their imperfections, we refer to the general indicators published by the major international institutions and measuring differences in economic and human development, the gulf between the two shores of the Mediterranean appears to be very large.

First, with regard to national income per inhabitant, in dollars, expressed in terms of purchasing power parity, there is a remarkable convergence between the European Union countries, where the level of this indicator is between $24,000 and $28,000 in 2001, with a lower level in only two countries, Greece ($17,860) and Portugal ($17,270).

The level achieved by Israel ($19,330) is close to the European level, and the level in Singapore, described as an Asian dragon, is equal to the European average. However, all the European Union countries are some way behind the United States, where this indicator is $34,870, a difference of between 24 and 45%, depending on the European country.

In the countries on the southern shore of the Mediterranean, the average income per inhabitant, in terms of purchasing power parity, is 4 to 5 times lower than the lowest level in the European Union, and even 7 times in Syria, where it is lowest, and more than 6 times in Morocco and Egypt.

The human development indicator devised by the UNDP is a composite indicator, which integrates various arbitrary parameters (life expectancy at birth, adult literacy rate, school participation rate, GDP by inhabitant based on purchasing power parity) and which could give appreciably different results if other parameters were used.

The drawback of this indicator is the fact that it integrates slow developing factors, such as the literacy rate or life expectancy at birth, which place the most backward countries at a disadvantage in international comparisons. Nevertheless, placing the emphasis on two important factors in economic and human development – health and education – is a good indicator of the current disparities and therefore helps to highlight the work that must be done to remedy the situation.

Thus, the most recently published table (see Table No 18a) classifies the 173 countries in the world into three groups: the group of countries with high human development (for which the indicator is equal to or higher than 0.800), which comprises 53 countries, the group of countries with medium human development (indicator between 0.500 and 0.800), which comprises 84 countries, and, lastly, the group of countries with low human development (indices between 0.275 for Sierra Leone and 0.500), which consists of the 36 poorest countries.

Not only are all the European Union countries, including the ten future new members, included in the first group, but the 15 current Member States are all in the top part of the group, as is Israel, whilst all the other countries on the southern shore are classified in the second group, which also includes Romania and Bulgaria, as well as Russia.

If we consider the trend of this indicator over the last 20 or 25 years, however, it can be seen that the gaps are being narrowed, with much higher growth rates in the southern countries (40% or more in Algeria, Tunisia, Morocco and Egypt) than in the countries on the northern shore (rates between + 9 and + 13%, with the exception of Portugal, at + 19%).
However, the gaps are still very large, since the indicator for the southern countries at the top of their group, Lebanon, Turkey, Tunisia and Jordan, is at the same level as the indicator for Portugal (the bottom European country in this classification) 25 years ago.

b)- Can the technological revolution, by diffusing innovation more widely in all sectors of society and the economy, accelerate convergence between the levels of economic and social development on the two shores of the Mediterranean?

The answer to this question raises a challenge if we look at the present situation.

The UNDP has recently devised a technology achievement index (TAI), against which the same criticisms can be levelled as against the human development indicator, in particular the arbitrary choice of the parameters used to calculate the index.

The parameters selected are the number of patents granted to residents (per million inhabitants), receipts of royalties and licence fees (in dollars per 1000 inhabitants), the number of computers connected to the Internet (per 1 000 inhabitants), high and medium-technology exports (as a percentage of total goods exports), the number of telephones (land lines and cellular), electricity consumption (kWh per inhabitant) and, lastly, the mean number of years of schooling and the gross tertiary science enrolment ratio.

Nevertheless, because many of the parameters used refer to recent technologies (Internet) or older technologies (fixed-line telephone), this indicator is an interesting basis for analysis. Since some parameters, such as the number of computers connected to the Internet, or cellular telephones, are likely to evolve very quickly, this indicator is more volatile than the human development indicator, but is it not one of the fundamental characteristics of the current technological revolution to bring about greater variation in the use of the factors of production and in the respective situations of individuals, social groups or States?

In the light of this index, the UNDP classified 72 countries for which meaningful data could be collected in four groups (Table No 19).

The first group, called leaders, comprises 18 countries for which the value of the technology achievement index is higher than 0.500. The top position in this group, which includes 9 European Union countries and Israel, is held by Finland, which leads the United States, Sweden, Japan and South Korea. In the top three countries, the number of computers connected to the Internet (more than 125 per 1000 inhabitants) and electricity consumption (more than 11 800 kWh per inhabitant) are particularly high.

The second group, called potential leaders, comprises 19 countries, including 4 southern European countries (Spain, Portugal, Italy and Greece), for which the index is between 0.350 and 0.500. In these countries, receipts of royalties and licence fees are considerably lower than in the countries in the first group, as is the number of computers connected the Internet (from 16.4 to 30.4 for the four European countries in this group), and, to a lesser extent, electricity consumption per inhabitant.

The third group is called dynamic adopters (of new technologies) and comprises 26 countries, including 4 southern Mediterranean countries, with, in decreasing order of technological achievement index (falling for this group between 0.200 and 0.350), Tunisia, Syria, Egypt and Algeria. China and India are also in this group.

In this third group, the number of patents granted to residents and receipts of royalties and licence fees are zero or extremely low, the mean number of years of schooling and the gross tertiary
science enrolment ratio are very much lower than those observed in the first two groups, the number of computers connected to the Internet is not known or is negligible, and the number of telephone subscribers is still low (8 to 15 times less than in Greece or Portugal).

Lastly, the fourth group, comprising 9 countries, includes the States of sub-Saharan Africa, Pakistan, Nepal and one South American State (Nicaragua), for which all the components of the technological achievement index are extremely low and which can therefore be regarded as being marginal users not only of new technologies (Internet), but also of older technologies (telephone).

Four southern Mediterranean countries, Jordan, Lebanon, Morocco and Turkey, are not included in this classification, because of incomplete data, but on the basis of the partial indices collected, they would normally be placed in the third group, the dynamic adopters.

Lastly, the UNDP surveyed 46 technopoles and major centres of technological innovation, showing a very uneven distribution of centres of knowledge across the world: 13 are in the United States, 16 in Europe, 2 in Japan, 2 in Singapore, 1 in India, 3 in China, 1 in South Korea and 1 in Malaysia (or 10 in total in Asia), 1 in Canada, 2 in Brazil, 1 in Australia, 1 in South Africa, 1 in Tunisia and 1 in Israel, i.e. only 2 for the countries on the southern shore of the Mediterranean.

Two other partial indicators confirm these inequalities with regard to scientific and technological capacities.

The share of research and development expenditure in relation to GNP (Table No 20) is extremely low in the southern Mediterranean (from 0.2 to 0.5%), whereas it is generally between 2 and 2.8% in the north, with the exception of Italy (0.5%), Portugal (0.6%) and Spain (0.9%), the lowest rates, and Sweden (3.8%), the highest. The European rates are comparable to the rate in the United States (2.6%).

The substantial share of businesses in the financing of research and development expenditure is generally between 50 and more than 60% in Europe and the United States, whereas it is non-existent or lower than one third (Turkey) in the southern countries.

This is the outward expression of a vicious circle. The weakness of the industrial or services fabric in the southern countries and the predominance of small businesses with very limited financial resources mean that research and development funding depends almost exclusively on the public sector, which, because of the macro-economic adjustment programmes imposed by the international financial institutions, cannot make up for the shortcomings of private businesses.

The private sector can become effective and develop operating margins that allow it to invest in research and development only if it has access to the innovations and technologies introduced by businesses in the more advanced countries.

If we consider the number of scientists and engineers employed in research and development per 100 000 inhabitants, the discrepancies are enormous and range from a ratio of 1 to 6 in relation to the European average in the case of Egypt, to 1 to 20 for Tunisia and 1 to 25 for Jordan.

These different figures give a very good picture of the gulf, in terms of knowledge production and diffusion, that separates the countries that the UNDP classifies as leaders or potential leaders and those who, in the absence of adequate infrastructures, are at present only adopters of innovations produced elsewhere. Reducing inequalities in levels of technological development inevitably involves a gradual closing of this gulf.
What is the Euro-Mediterranean Partnership’s contribution today, and what could its contribution be in the medium term, in addressing this challenge, which is one of the central objectives of the Barcelona Declaration: building an area of shared prosperity on both sides of the Mediterranean?

III – Implementing a co-development strategy, in order to allow the countries on the southern and eastern shores of the Mediterranean to take full advantage of the positive impact of new information and communication technologies: a major challenge for the Euro-Mediterranean Partnership.

A – The strategic role of NICTs

The World Human Development Report 2001, published by the UNDP, stressed the strategic importance of NICTs for human and social development. The report concluded: ‘Developing countries should not forever be held hostage to the research agendas set by global market demand.

If any form of development is empowering in the 21st century, it is development that unleashes human creativity and creates technological capacity. Many developing countries are already taking up the challenge to make this happen. Global initiatives that recognise this will not only provide solutions to immediate crises but also build means to cope with future ones.

The ultimate significance of the network age is that it can empower people by enabling them to use and contribute to the world’s collective knowledge. And the great challenge of the new century is to ensure that the entire human race is so empowered — not just a lucky few.’

Furthermore, the most recent report by FEMISE (a network bringing together economic and social research institutes on the two shores of the Mediterranean, whose objective is to analyse the different problems facing the Euro-Mediterranean Partnership and to make proposals for action), adopted in Marseilles in July 2002 following a meeting of the working group of its steering committee, strongly emphasises a new growth strategy for the partner countries based on the concept of the ‘knowledge-based economy (KBE)’.

The FEMISE report states: ‘being integrated into the knowledge-based economy is undoubtedly the best means to take the shortest path to history. Otherwise, the gap will be even greater than when the previous industrial revolution took place, and might perhaps even threaten some fundamental features of civilisation.’ It goes on to give a precise definition of this new concept of knowledge-based economy. Its novelty is to generate a self-maintaining growth process, in which the stock of knowledge is less important than its rate of renewal, and which is a far cry from the scarcity paradigm on which many economic theories are based, since the basic resource, knowledge, is a priori unlimited and renewable.

The central process of the KBE is learning, which allows knowledge to be constantly renewed and then diffused in all sectors of society. In this type of economy, the high-tech sectors and services are the main creators of jobs. In addition, organisational structures, whether businesses or educational systems, must constantly adapt to the permanent evolution of knowledge, which increases the need and the demand for education.

The FEMISE report places particular emphasis on the difficulty of making the change to a knowledge-based economy, which requires fundamental upheavals of existing structures, compatible with the economic transition in which the southern Mediterranean countries are engaged. This limits considerably the public authorities’ options for intervention in order to make such changes socially
acceptable. Lastly, according to FEMISE, there is a need for a coordinated national strategy [and] decentralised mechanisms that will drive economic actors and civil society to adopt and use these systems for the long run, and to consolidate linkages between them.

In order implement such strategies, it is essential, in the context of behavioural and institutional rigidity, to identify the mechanisms that could promote change. With this in mind, education policy (initial and lifelong) plays a fundamental role, since it is clear that a knowledge-based society cannot come into being ‘unless the greater part of any society is capable of interpreting and selecting the information available at the global level’.

The objective is clearly laid down. The major problem that arises is putting it into practice. With this in mind, what contribution can and must the Euro-Mediterranean Partnership make in its own regional context?

This knowledge and know-how diffusion strategy, as the essential basis for any economic and human development policy, can succeed only if it makes it possible both:

- to bridge the gulf that exists between the two shores of the Mediterranean with regard to access to education (initial and continuing), research and development, centres of scientific excellence (universities and technopoles), and global web-based networks;
- to strengthen the economic and social fabric of the countries on the southern and eastern shores, placing particular emphasis on SMEs, micro-enterprises in the informal sector and non-profit-making associations.

Its success is also dependent on the introduction of a global policy framework to promote innovation, responsibility among economic and social actors, and initiative and entrepreneurship.

B – How can parity be created between the two shores of the Mediterranean with regard to access to sources of knowledge?

The objective set at the United National Millennium Summit, to eradicate juvenile illiteracy completely by 2015 by providing general access to primary education for all children of both genders, is certainly an essential precondition, but it certainly cannot constitute an ultimate objective and further action will have to be taken.

The acquisition of an initial basic education is only one stage in knowledge acquisition, a way into the knowledge-based society. The capital acquired must be constantly maintained in order to allow the person holding it to adapt to increasingly rapid developments in scientific and technological knowledge.

Furthermore, those who do not have the opportunity to acquire this basic education must not be excluded from the world of knowledge, hence the importance of lifelong learning, which is becoming ever more vital in a changing world, if not a world in permanent revolution.

Lastly, a purely quantative objective would be extraordinarily simplistic and inappropriate for the needs of the modern world. The quality of the education provided is a major asset for success at school and social and professional integration.

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1 FEMISE Report.
Each person must learn to learn, whether it be purely intellectual education (general culture) or more pragmatic vocational training corresponding to the demands of the labour market.

Education centres, whatever the level of education they offer, cannot satisfy this qualitative requirement if they are isolated from centres of research and development, which are being structured increasingly around technopoles, bringing together universities, public and private research establishments and innovative businesses. The disparities between north and south are most marked in this sector.

The UNDP report for 2001 reveals that in 1998, with 19% of the world population, the 29 OECD member countries devoted $520 billion to research and development (or almost 40% more than the combined GNP of the southern Mediterranean countries, excluding Israel). These same countries account for 91% of the 347 000 patents issued in 1998.

The gap is huge and makes it essential to set up technopoles and centres of excellence on the southern shore, which will take time and should therefore be a high priority action. In the meantime, there is a very urgent need to reinforce facilities for access to the existing Internet networks of universities and research centres in the southern Mediterranean. Links have already been established, but they need to be made denser, by encouraging the setting up of one or more Euro-Mediterranean virtual universities, creating synergies and facilitating close cooperation between teaching and research staff on the two shores of the Mediterranean.

These virtual universities, open to businesses and civil society, could be network coordinators and play an important interface role in the diffusion of knowledge to all sectors of society.

To this end, it is necessary to take the following measures:

1. **Conduct a fundamental reform of education systems to respond to the needs of a knowledge-based economy.**

   The rigid characteristics of current education systems, which are providing only a partial response to the demands of the new technology revolution, are explained in the contribution by the Algerian CNES and are analysed in considerable detail in the FEMISE report. Such characteristics are not specific to the countries on the southern shore, since some of the dysfunctions observed can also be seen in certain European Union countries.

   Among other things, the education systems are generally ineffective, which is reflected in:

   - high rates of those repeating years at primary and secondary level, often leading to selection by failure at the higher education level;
   - the tendency to replicate systems driven by teachers, resulting in preference being given to generalist fields of study to the detriment of science and technology fields, and long studies compared with short studies that would respond better to the needs of the economy;
   - the resulting devaluation of vocational subjects and continuing education, which serve as a net for those excluded from the generalist school system;
   - the failure to take into consideration development of skills and professional experience.

   There is also a specific problem stemming from the absence of a coherent language teaching policy. The proper use of new technologies requires a good knowledge of several languages: the mother tongue or mother tongues (in countries that practice bilingualism), which allow roots to be laid in a
culture, a lingua franca, which will increasingly be English, and if possible one or more of the languages of the economic or cultural partner countries.

Policies of exclusive use of Arabic in teaching, which have been implemented in some countries, have had detrimental effects where they have led the learning of other languages to be discontinued, without really reinforcing what would have been desirable, a good use of Arabic, rooted in a regional culture that it would have helped to reinforce.

The number of books translated into Arabic is extremely low (300 books each year according to the Arab Human Development Report published by the UNDP, which is five times less than in Greece), particularly in scientific subjects. The consequence of these policies has been social segregation between students who have learnt foreign languages, generally belonging to the ruling classes, who have the opportunity to pursue higher education studies in Europe or in North America, and the majority of pupils finishing secondary education, who are discriminated against if they know only Arabic. It is possible to teach several languages, provided this starts at primary level, and this should allow intensive use of new technologies.

Lastly, in the absence of close links between the education system and the economic sphere, many graduate students are unemployed, a phenomenon that has been aggravated by the decline in job opportunities in the public sector following the implementation of structural adjustment policies, which are not adequately compensated for by jobs in the private sector.

The growth of school attendance in primary and lower secondary education, which has called for considerable budget resources over the last two decades, and the demand that is beginning to become evident in business, where the economy is diversifying, require a fundamental reorientation of secondary and higher education institutions, and vocational subjects, in order to deal with both student pressures and the needs of business.

The most recent FEMISE report recommends:

- the upgrading and development of vocational training courses;
- bridges between vocational training and general education;
- the development of vocational training in SMEs;
- incentives to develop private training centres;
- the use of tax incentives to develop these centres;
- development of teaching methods;
- the generalisation of ‘external’ assessments of performance in vocational training centres.

The FEMISE report also highlights the virtual non-existence in the partner countries of facilities that offer employed persons lifelong training in order to update and renew knowledge and to manage the risks inherent in change and in integration in an increasingly globalised world.

In order to rectify this situation, the FEMISE report recommends a number of courses of action:
- to fight illiteracy, using the media and new information and communication technologies, and to ensure that every pupil who has completed compulsory education possesses a raft of basic knowledge that can be improved or renewed at a later stage on in order to be able to adapt to technological developments.

A second chance should be offered to the victims of school failure:

- to upgrade and enhance limited technical or vocational accredited skills in relation to the qualification provided by the certificate, which requires long-term institutional instruments, which are expensive and concentrated almost exclusively in big cities and can therefore reach only an elite minority;

- the maximum use of NICTs in teaching and accreditation, so as to obtain a better dissemination of teaching content while lowering the costs of accreditation and, on the other hand, to develop an educational software industry, as is the case in Egypt;

- lastly, lifelong continuing education is above all a matter of individual will which must be encouraged and reflected in salary and promotion benefits, in particular access to managerial levels, for employed persons who embark on this process.

It is essential to mobilise the social actors, business managers and trade unions on this objective.

The Economic and Social Councils recommend this approach.

2. To focus fundamental and applied research activities more on meeting the needs of developing countries and to remedy the gaps in the market, which primarily meets only the needs expressed by the effective demand.

The 2001 UNDP report on new technologies sets out some of these priorities with regard to research aimed at meeting the needs of the poorest countries.

a) In medicine, vaccines need to be developed to combat malaria, the HIV virus and tuberculosis, thereby meeting the need to combat the most serious pandemics, as well as vaccines enabling the eradication of more localised epidemics, such as sleeping sickness and onchocerciasis (river blindness).

b) In agriculture, a whole range of research programmes should be initiated in order to make available to farmers in developing countries new varieties of staple foods (maize, sorghum, cassava) that are suited to the agro-climatic conditions in those countries and thus to fight against the scourge of malnutrition, which affects a large part of sub-Saharan Africa. Those food crops, including in the Mediterranean area, are too often neglected in favour of export crops, which bring in currency but, at the same time, worsen the global food balance as a result of the high rise in imports of staple foods, which are not produced in sufficient quantity or quality in the absence of appropriate incentives.

c) In digital technology, it would be desirable to encourage applied research to develop low-cost computers, wireless connectivity, and prepaid chip-card software for the development of e-commerce.

d) In the energy sector, the development of low-cost fuel cells and photovoltaics, allowing the decentralisation of the electricity supply, at low economic and environmental costs, and the fight against the rural exodus.
e) **Water treatment, irrigation and sea water desalination technologies are also very important for the region.** The creation of several centres of excellence in the Mediterranean area, based around these new forms of ‘applied development research’ and linked to research centres in the north that are also working on these matters, but not as a priority, would be a huge incentive to develop a new type of research partnership on the two sides of the Mediterranean.

f) **At the same time, this requires a more general thinking about the (public and private) resources for the financing of such research programmes and an equitable management of intellectual and industrial property rights stemming from filed patents.**

At present, the TRIPs Agreement (Agreement on Trade-Related Aspects of Intellectual Property Rights), concluded under the auspices of the WTO, authorises States, in order to combat monopoly situations and proven restrictions of competition, to issue compulsory licences allowing businesses to manufacture products patented by others (generic pharmaceutical products, for example). Experience shows that these safeguard clauses, which seek to circumvent excessive protection, are used only by the most developed countries, since the less developed countries do not have the necessary legal and technical institutions and skills. These countries should be given effective help to create the necessary instruments and, along the same lines, to put into effect the provisions of the many cooperation agreements that seek to promote technology transfers from north to south. In the absence of such provisions, research in the south will continue to be weak and driven almost exclusively by the dominant countries in the north on the basis of their commercial interests.

Lastly, there is the question of the financing of research that cannot be covered by market mechanisms.

As can be seen from the UNDP report, the sums to be raised ($10 billion worldwide) are not unobtainable, if the political will really exists. It would be sufficient to earmark for non-commercial research some of the additional investment that States and international institutions undertook to devote to developing countries at the Earth Summit and a fraction of the funds from the conversion of the national debt which these same States and institutions have made it possible to release in order to accompany and rectify the negative effects of structural adjustment policies.

This public financing should be supplemented by private financing from foundations and businesses, which could usefully be encouraged by appropriate tax incentives.

The Economic and Social Councils concur with this analysis, which tallies with their concerns.

3 - **Give priority to mobilising a maximum amount of resources to support the rapid development of NICTs in all the countries on the southern shore of the Mediterranean**

As an extension of the basic action to raise the level of skills, and the ability to acquire new skills, of the human capital of each country – the high priority of which has been highlighted in the above discussion – more targeted measures should be taken to step up the use of NICTs by as many people as possible.

This policy targeted on NICTs requires coordinated implementation of four lines of action:

- setting-up of essential telecommunications structures;
- planning of the installation of terminals enabling maximum web access throughout national territory;
- training of trainers;
- incentives to develop a content industry (software).

a) *The modernisation of telecommunications infrastructures and their extension to the entire national territory are not only essential for encouraging more widespread use of NICTs, but are also one of the essential conditions for all outside investors who wish to develop their activities in the southern Mediterranean.*

All economic actors, whether domestic or foreign, must be able to enjoy network access, in keeping with their needs, which is reliable and provided at a reasonable cost, i.e. competitive compared with other possible locations.

This objective must be achieved by introducing competition between operators (which rules out any public or private monopoly), together with public service obligations, laid down in terms and conditions, which the independent regulatory authorities must enforce. Most of the partner countries in the southern and eastern Mediterranean have begun the necessary public sector reforms of telecommunications in order to open the sector up to competition.

The European Union is supporting these radical changes by financing a specific programme from the MEDA fund, called NATP (New Approaches to Telecommunications Policy), which has funding of EUR 2.15 million.

This original programme seeks to develop exchanges of experience and information between the partners by organising annual regional conferences and training sessions with a view to providing political decision-makers and regulators with the tools that they need to devise and implement their reform programme.

The information and communication component of this project is also important, the main element being the setting-up of a virtual observatory for Mediterranean telecommunications, which will allow exchanges between those involved in the different activities, and with a wider audience. This is therefore aimed at current and future operators in the telecommunications sector, investors, users (trade and industry, consumer associations), experts, academics, journalists and trade unions, i.e. the main actors in civil society.

Whilst this programme is likely to promote the development of private financing of telecommunications infrastructure, particular attention will nevertheless have to be paid to financing the public service obligations imposed on operators. It is necessary to ensure that the needs of those who are disadvantaged (by their level of income or by their remoteness from large urban areas) and who do not satisfy the private operators’ usual criteria for financial profitability, are met. Government action and public financing will probably continue to be necessary.

b) *the tables of statistics on which we commented earlier show a very large gap between north and south with regard to the number of Internet-connected computers available to the population.*

It would be wrong to imagine that a simple price reduction for these computers (which, as experience has shown, become very quickly obsolete in terms of their capacities and have to be renewed frequently) will be sufficient to reduce the considerable gaps that currently exist. Despite the constant fall in their price, such hardware is still inaccessible to all those who have only a few euro per day to meet their vital needs and who still form the majority of the population of the southern countries.
It is therefore necessary to help these countries to devise and implement programmes to introduce Internet-access computers into facilities that enable their collective use, such as libraries, which already promote the collective provision of more traditional media, in the form of books.

Teaching establishments, from school to university, are natural places for these terminals; this already takes place in most developed countries, which have set the objective of having such equipment in every school in their territory from primary level.

This choice is even more justified in the case of emerging and developing countries, since, unlike in developed countries, pupils do not have the opportunity to use the personal computers belonging to their parents at home, since the parents do not have such computers, which creates new inequalities.

As the UNESCO World Education Report (1998) very rightly stresses, the introduction of computers in schools not only has the benefit of developing education in the use of NICTs among pupils, but, provided that other conditions, which we will examine later (teacher training and development of educational software tailored to education programmes), are satisfied, it also offers new teaching tools that will make it possible to improve the effectiveness of the education provided.

Private businesses and bodies (municipalities, libraries etc.) that have digital equipment could, under conditions to be defined, develop forms of education in the use of NICTs, open to a wider group than those attending schools, which would allow Internet access also to be offered in more popular social environments, such as cybercafés, which are already very successful in some southern countries.

In return, the schools or universities that have the necessary equipment should be ‘open’ to all those who wish to familiarise themselves with the use of NICTs or to improve their ability to use NICTs in order to obtain, by opening up sources of access to new knowledge, a maximum impact in terms of synergies and spin-offs.

c) The training of trainers, in sufficient numbers and capable of disseminating education in the use of NICTs as quickly as possible, is an essential requirement for the development of NICTs and their diffusion in society.

This requirement comes in a variety of different forms, depending on whether training is provided as part of the education system or within the framework of economic and financial activities, or civil society in the broader sense.

In the first case, universities and teacher training colleges are on the frontline; in the second case, the appropriate initiatives must be taken by public and private companies, councils, associations and trade unions.

The political authorities that decide education policy, at national or local level, have a responsibility to ensure that education in the use of NICTs is an integral part of education programmes, if possible from primary level, and to make provision for the necessary training for teachers and trainers. Those authorities can encourage the private sector to develop education in NICTs by offering suitable incentives, in particular tax incentives.

d) Development of a ‘content’ industry (software) tailored to the specific needs of the southern countries, which is currently virtually non-existent, is an enormous challenge that can be taken up only through highly intensive north-south cooperation.

This requirement applies mainly to software developed for educational purposes. The content available on the market in the developed countries cannot be adapted as such to the needs of the southern countries, as is stressed in the above-mentioned UNESCO report. As has already been seen
with traditional school textbooks, these teaching tools must be integrated into a linguistic and cultural context that is familiar to learners, which means that they are conceived specifically with reference to that context and not just transposed from tools conceived in a very different context.

Such tools can be developed only by multidisciplinary teams, including specialists from the different subjects taught, linguists and teaching specialists. Before being able to be shared widely, allowing essential economies of scale, the development of such software must be based on expensive research and development work and experimentation with pilot projects to test that work.

This work may appear to be impossible, on account of its scale, but if it is done, it will bring considerable progress in terms of both quantitative (development of new forms of telelearning for those excluded from the school system) and qualitative improvements and effectiveness of the education systems of the southern Mediterranean countries, and constitutes a major asset for the broadest possible diffusion of NICTs. Its success depends on stepping up both north-south cooperation and south-south cooperation, since the experience of each party is useful to everyone.

For all these reasons, the Economic and Social Councils that have cooperated in this report propose that this major challenge – the creation of a digital content industry in the south – be regarded as one of the priorities for the Euro-Mediterranean partnership.

4 – Promote the networking of the main knowledge-sharing centres, the key to success for the introduction of NICTs in Mediterranean societies.

The revolution introduced by NICTs, compared with the information technologies of the last century (radio, television, telephone), consists in both their multimedia nature, combining written text, sounds and images that can be disseminated in real time, and the possibility of interactive communication, also in real time.

The maximum impact is achieved where the different actors in society that are linked to the information highways are networked and can exchange data at any time, that is to say not only information, but also experiences, opinions, queries and uncertainties, which are known to be the main driving force behind scientific discoveries.

The initiative taken by the European Commission, under the auspices of the partnership, to develop the Euro-Mediterranean Information Society, the EUMEDIS programme, should therefore be welcomed; it responds very specifically to this objective of setting up knowledge-sharing networks on both sides of the Mediterranean.

This initiative is the culmination of the work done by experts following the Ministerial Conference held in Rome on 30 and 31 May 1996 on the central theme of ‘The Building of the Euro-Mediterranean Information Society’.

Since the 26 projects selected for financing under the EUMEDIS programme began only at the beginning or in the course of 2002, it is not possible evaluate their impact and results, but they nevertheless share common characteristics, irrespective of the sectors in which they are applied, which appear to be well suited to the objective pursued: an intelligent use of NICTs (not as gadgets) in Mediterranean societies.

The pilot projects all have a broad regional base, bringing together a sizeable number of partners on both sides of the Mediterranean, which is very encouraging. However, participation by the partners in the north of the European Union (United Kingdom, Germany, Scandinavian countries) is much less than by the countries bordering the Mediterranean, which is regrettable and should be rectified in the
future, if Euro-Mediterranean cooperation is really to be seen as a major political issue for the whole of the European Union, in particular after its enlargement to the east.

The projects selected also seek to deliver immediate benefits to the communities of target users: hospitals (health sector), training and research centres (education sector), businesses, and more specifically SMEs (innovation and e-commerce sector), tourism operators and museums (tourism sector). In this connection, the sponsors of these projects, and in particular professional federations or public authorities, have a key role to play if experience is to be shared very widely and to benefit as many people as possible. This is a fundamental point in the ex-post evaluation of projects, which should, moreover, make it possible to achieve the objective of self-financing of the networks set up at the end of the trial period, which receives considerable support, amounting to almost 80% of the MEDA funds.

The EUMEDIS programme is an ambitious and innovative regional cooperation initiative in a key sector for the future economic and social development of the partner countries, the appropriation of new information and communication technologies by the greatest possible number of economic and social actors.

Its success will depend to a very large extent on the support that it receives both from national and local political and administrative authorities and from the different partners in civil society, which will be both its actors and principal beneficiaries.

5 – Promote mobility between the two shores of the Mediterranean for students, teachers and researchers, an essential requirement for education in and diffusion of NICTs

a)- Encourage mobility in higher education and research

The networking of knowledge-sharing centres will be fully effective only if it is accompanied by increased mobility among educators and learners.

In this field, the European Union has conducted experiments among the Member States that have proven to be very innovative and highly successful. For example, the ERASMUS programme, which seeks to promote exchanges of higher education students, incorporating periods of study outside their countries of origin into their university courses, now involves 100 000 students, with an outstanding degree of satisfaction among participants.

At the same time, the European Union developed the TEMPUS programme to develop cooperation in the education sector, first with the CEECs (central and eastern European countries), then with the States of the former USSR, and more recently with the Mediterranean partner countries. This programme includes mobility incentives, but pursues the broader objective of modernising the education systems of the partner countries.

The interest shown in this form of cooperation by the Mediterranean partner countries is evident, since all have asked to benefit from it under the financing provided by the MEDA programme, amounting to EUR 41 million, or 13% of all funds granted to the education sector, which is a considerable proportion in so far as TEMPUS relates only to higher education.

Even more recently, the European Union has launched a new initiative, called ERASMUS WORLD, which was examined by the European Parliament in its April part-session and which applies to all third countries. The Mediterranean partners will therefore have access to the programme, though not exclusively.

The ERASMUS WORLD programme, which the European Parliament rapporteur proposes to rename ERASMUS-MUNDUS, in order to replace English, the international lingua franca,
with Latin, the old, universal language of culture, is very ambitious, since it proposes to set up European Union masters courses, involving at least three higher education establishments from three different European Union Member States.

These masters courses would be open to students from the European Union and from third countries. Students could receive grants amounting to EUR 1 600 euros per month, as could academics who teach or conduct research as part of selected masters courses.

The programme provides for the possibility of partnership agreements between European Union masters courses and higher education establishments in third countries in order to allow reverse mobility, from the European Union to the third countries. However, these partnership agreements are not compulsory, which is certainly regrettable and gives the initiative a slightly elitist and unilateral character.

Whilst the European Union’s desire to attract the best students from third countries to these universities, like the United States and Canada, is wholly legitimate, this should not exempt it from developing partnerships with the students’ countries of origin in order to strengthen the higher education structures in those countries.

The Euro-Mediterranean Economic and Social Councils have a duty to support the recommendation made by the European Parliament rapporteur, Mrs de Sarnez, to give preference, in selecting European Union masters courses, to those that have concluded such partnership agreements.

The higher education centres in the Mediterranean countries that are involved in the TEMPUS programmes, should be asked, as a matter of priority, to conclude this type of partnership with the future European Union masters courses. It is absolutely essential for the mobility of students, teachers and researchers to be in two directions in order to strengthen the capacities of the southern countries. With this in mind, it would be necessary for periods of study completed in third countries to be able, under certain conditions to be defined under partnership agreements, to be recognised in university courses, as is the case within the European Union.

b) – Extend mobility to other types of education, in particular vocational training for young people and lifelong learning for adults who have already entered active working life

The TEMPUS programme extended to the Mediterranean partner countries is directed mainly at higher education, as is the ERASMUS-MUNDUS programme, whereas considerable needs in terms of vocational training for young people and adults have been identified in those countries. The experience gained by the European Union in this field should be made available to the Euro-Mediterranean partnership.

The LEONARDO DA VINCI programme, dealing specifically with vocational training for young Europeans, has been given very considerable funding (EUR 1 150 million) for its second phase, from 1 January 2000 to 31 December 2006. In its initial phase, from 1995 to 1999, this programme mobilised EUR 750 million and paved the way for the mobility of 130 000 people in training, mainly young people.

Furthermore, the GRUNDTVIG strand of the SOCRATES programme is aimed specifically at lifelong learning for adults and will receive 7% of the total programme budget, or almost EUR 13 million, for the period 2000-2006.

The Euro-Mediterranean Economic and Social Councils propose that the Mediterranean partner States that so desire should be able, under the auspices of the MEDA programme, to participate in the European LEONARDO DA VINCI and GRUNDTVIG programmes.
c) – Ensure that European public financing to support education courses outside learners’ countries of origin serves as a catalyst for additional public financing under bilateral national agreements or decentralised cooperation agreements and for private financing from foundations, businesses or professional organisations, such as chambers.

The European initiatives that have been described in the above paragraphs have had the great merit of opening up very promising avenues, with regard to education courses, based on the mobility of educators and learners. However, they are victims of their own success and are coming up against the limits of the European Union budget, whether with regard to internal or external actions.

It is therefore necessary to seek additional financing from:

- European Union Member States, which have a manifest interest, in order to extend the reach of their own education systems, in encouraging these forms of mobility by providing grants to students or applicants for training.

- local authorities, under decentralised cooperation agreements, in order to reinforce the development measures conducted, which will be fully effective only if they include a substantial educational element.

- large private foundations, businesses and professional organisations that are active in the education sector and that can develop sandwich training courses or offer courses leading to business qualifications or help to finance mobility by offering grants.

The European Training Foundation, which is based in Turin and which can provide technical assistance for vocational training programmes developed for the Mediterranean partner countries, could be given an active role in promoting mobility, for example by creating an exchange market (mobility opportunities and requests) on its Internet site.

d) – Adopt a visa policy that promotes the mobility of all persons involved in the Euro-Mediterranean partnership

The mobility of students, teachers and researchers requires travel facilities, which are often hampered at present by visa formalities.

For all persons involved in the partnership and the exchanges associated with it, the Euro-Mediterranean Economic and Social Councils propose that these formalities be relaxed considerably, for example by the grant of a long-term visa (of up to five years), allowing frequent return trips between the European Union and the Mediterranean partner States, in a south-north direction and in a north-south direction.

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CONCLUSION

The issue of access to NICTs for the countries on the southern and eastern shores of the Mediterranean under conditions that do not marginalise them, but, on the contrary, enable them to make up the gap in economic and social development, must become one of the main priorities for cooperation...
and for the Euro-Mediterranean partnership. It makes the full integration of these countries subject to the global priority of knowledge.

Whilst, in adopting the Lisbon strategy in March 2000, the European Union rightly stressed the development of human resources in order to adapt to and to face the challenges of globalisation and the technological revolution, this requirement is even more pressing in the southern countries because of their demographic situation and the existence of a large young population, which has an insufficient education at present. On the other hand, the European countries, whose population is ageing, must face the prospect of a decline in their working population.

There is therefore a real, and already perceptible, risk that the most developed countries will draw in skills, in particular among young people from the southern countries. Those southern countries would have to bear the costs of the initial education of those young people, without receiving the benefit when they begin their working life and could contribute to the economic development of their country.

It is therefore vital to ensure that the raising of the level of education among young people, or employed persons receiving continuing training, goes together with a reinforcement of the economic and social fabric, promoting employment in the country of education.

This requirement relates to the increase in direct investment flows (including in education) and technology transfers to the southern countries, which was one of the major objectives of the Euro-Mediterranean Partnership initiated by the Barcelona Conference, but which has taken a long time to be put into practice.

Whilst mobility of persons is beneficial in itself, since it allows experience and knowledge to be renewed, it can have very detrimental social consequences if it is always in the same direction, from the poor countries to the rich countries. The rich countries are likely to have real difficulties in accommodating these flows of immigrants humanely and in ensuring their integration under the best possible conditions. The poor countries lose a substantial part of their life blood, which could accentuate their backward development, if only because their national market does not develop sufficiently and, as a result, does not attract foreign investors, or even domestic investors.

With this in mind, the impact of new information and communication technologies on job creation cannot be dissociated from job location. How do we ensure that NICTs not only create more jobs, but also contribute to an equitable geographical distribution of those jobs, and the activities that are linked to them? This is a new and enormous challenge facing Euro-Mediterranean cooperation.

It can be taken up only if the southern and eastern Mediterranean countries that so desire can participate in the Lisbon strategy, which will have to take into account their specific characteristics, as in the case of the future Member States of the Union (CEECs).

However, this participation in the Lisbon strategy will be successful only if it is part and parcel of an overall cooperation policy, taking full account of all the strategic variables of development (macroeconomic balance, social and geographical cohesion, good governance, modernisation and stability of the legal and institutional framework, strengthening of entrepreneurship, gradual integration of the informal sector into the economy), which should increasingly be the key focus of the Euro-Mediterranean Partnership.