THE ECOMOMIC AND INNOVATION CONTEXT OF THE MEDITERRANEAN AREA

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Contents

Demographic and economic aspects

The Mediterranean region is experiencing a decrease in population growth rates (that have dropped to less than 2% during the current decade[1]) indicating a significant demographic shift in the area, which is moving from a model characterised by high mortality and fertility rates to one characterised by a more moderate fertility rate and by an increase in life expectancy[2].

Despite the drop in growth rates in recent years, the high rates of population growth of previous decades have had and will continue to have, at least for the next 10-20 years, a strong impact on the population that is economically active due to the considerable segments of the population that are in the younger age brackets. On the one hand, the greater availability of the labour factor represents a good opportunity for growth for the region's economy but, on the other, there needs to be an appropriate context for this to be exploited. In this regard, it is worth noting that the total workforce, which for the eight countries[3] of the southern coast of the Mediterranean was under 20 million in 1960, rose to almost 58 million in 2000 and, according to figures published by the World Bank, will exceed 79 million in 2010 and 98 million in 2020. All this will give rise to the need to create a considerable number of jobs estimated at around 21 million from now till 2010 and another 19 million in the period 2010-2020.

However, these figures underestimate the actual need for new job opportunities because it is also necessary to take into account high levels of unemployment (especially hidden unemployment) and other structural factors, such as the steady decline of the role of the agricultural sector, structural changes in sectors such as the textile industry, volatility in the attraction of foreign investment, poor growth in labour-intensive exports and, in general, the difficulty of repositioning oneself in international markets following an improvement in competitiveness through innovation in new products and services.

In recent years, the GDP of southern Mediterranean countries has witnessed an average growth of around 5%, due to a favourable global economic trend characterised by growth in the oil market, the development of tourism, an increase in foreign investment and immigrant remittances (with the exception of Lebanon, the Palestinian Territories and, to a lesser degree, Syria) and, in 2007, according to World Bank estimates[4], it should exceed USD 100 billion.

Nevertheless, if the figures relating to per capita income are examined, a picture emerges which varies widely and is characterised by large disparities. Indeed, per capita income expressed in purchasing power parity for 2004[5] ranged from USD 3,610 for Syria to USD 24,382 for Israel[6].

[1] This figure relates to the MENA (Middle East and North Africa) countries as a whole – World Bank – Unlocking the employment potential in the Middle East and North Africa - 2004

[2] According to estimates in the UNDP's Human Development Report 2006, the rate of population growth for the period 2004-2015 for countries on the southern shore of the Mediterranean should settle at a figure which is on average less than 2% (with the exception of the Palestinian Territories and Syria with rates of 3% and 2.3% respectively). These same projections envisage an average annual growth in population of between -0.2% for central-eastern European countries and ex-Soviet Union countries, 2.3% for least-developed countries, an average rate for developing countries as a whole of 1.3% (0.5% for OECD countries) and 1.1% at a global level.

[3] Palestine, Lebanon, Jordan, Tunisia, Syria, Morocco, Algeria and Egypt.

[4] World Development Indicators 2006

[5] According to figures in the UNDP's Human Development Report 2006.

[6] The same figure for other geographic areas was between USD 1,350 for least-developed countries and USD 27,571 for OECD countries, with an average figure for developing countries of USD 4,775.

Foreign trade and FDI

The launch of the Barcelona process has led to a change in relations between the two shores of the Mediterranean. The liberalisation of trade in industrial products has become a concrete reality. All products coming from southern Mediterranean countries have access to the European market without being subjected to duties while countries on the southern and eastern shores are progressively reducing their customs tariffs. The agricultural products market is almost operational in that more than 80% of products from southern Mediterranean countries enter the European Union duty-free or with concessional tariffs, while a third of European exports of European agricultural products benefit from tariff concessions in the Mediterranean countries[7].

Despite this, the integration of the Mediterranean area is still at an embryonic stage and intra-regional trade remains below 8% of total trade in the area due to poor South-South cooperation.

In recent years, the Mediterranean Third Countries (MTCs) have made significant progress in freeing up foreign trade through a progressive reduction of tariff barriers, in some cases also accompanied by a reduction in non-tariff barriers. Total trade flows, which had remained stagnant until the beginning of the 1990s, picked up starting from 1995. On average, growth in total trade was 60% between 1995 and 2005, exceeding world trade growth which was 46%[8]. However, this positive development has not substantially altered the world market share of the MTCs. Indeed, this share went from 1.2% in 1995 to 1.3% in 2005[9], remaining in any case below the share held in 1980 (2.3%).

Trade openness, measured in terms of the ratio of imports and exports to GDP, is in growth and is even reaching very high figures, as in the case of Jordan and Tunisia (with figures around 140% and 100% respectively in 2005). However, if we consider non-oil exports alone in relation to GDP, trade openness goes down for all countries in the area, reaching maximum figures of around 30% for Israel and Jordan in 2003, which makes the area much less integrated in the global economy compared to regions such as central-eastern Europe (with figures even as high as 50% in the case of Hungary) and southeast Asia (with figures that, in the case of Malaysia, go as high as 90%).

The EU plays a complex role as principal trade partner of the MTCs, with an overall share of over 50% of their total imports and around 60% of their exports, although a significant drop in the latter can be observed starting from 2001 and in the former already since 1990 (51.2% of total imports in 2004 as against 63.5% in 1980), as a consequence of the greater role assumed by Asian competitors but also of the growing influence of the Gulf economies in the wake of the oil boom and growth in the degree of intra-area integration[10].

The reorganisation of integration between countries in the area and the European Union in recent years seems more significant when seen in the context of existing relations between the EU and

[7] ANIMA – Investir dans la region MEDA, pourquoi, comment? – Notes & Etudes – issue 22, April 2007

[8] According to Eurostat figures (Statistiques en bref – commerce exterieur – 70/2007) for the period 2000-2005, the average export growth rate of the MTCs, calculated in euro, was 7.9% as against an average annual world trade growth rate of 3.6%. It must, however, be stated that this figure was influenced by exchange rates (indeed, the abovementioned world trade growth rate calculated in US dollars was equal to 10%).

[9] Even in terms of exports, the percentage for MTCs with respect to world exports seems modest, despite being in growth and going from 2.1% in 1999 to 2.6% in 2005. The same trend can also be seen in imports which, with respect to world imports, went from 3% in 1999 to 3.2% in 2005. For the same period, for instance, the percentage of Chinese exports with respect to world exports went from 4.8% in 1999 to 9.9% in 2005, while the import share increased from 3.8% in 1999 to 8.2% in 2005.

[10] Taken together, for the EU the MTCs constitute quite a significant partner (representing in 2005 9.5% and 7.5% of total non-EU exports and imports respectively of the EU), on par with that of the rapidly-industrialising countries of eastern Asia but with an influence that is definitely less than that of the United States, the EFTA countries and China.

other geographic areas (namely, the central-eastern European countries). In effect, the long industrial tradition of the latter countries, the overall qualitative level of their human resources, their geographic and cultural proximity and their EU membership prospects, have made this area much more attractive compared to countries on the southern and eastern shores of the Mediterranean for delocalisation processes of labour-intensive production activities.

With reference to the market shares of the principal partners of the MTCs, during the period 1995-2004 the European Union as a whole experienced a drop of almost 8% which obviously involved the main European partners, namely Italy, France and Germany. Those that benefited from this were the emerging Asian economies which experienced growth in their shares of around 9%. Indeed, low production costs due both to high economies of scale and low labour costs favours the large Asian exporters at the expense of local and European products. Added to this is the increase in exports linked to the presence in the MTCs of important Asian investments geared towards exploiting the abundance of certain agricultural and particularly energy-producing raw materials.

In contrast with the intensity of trade flows in a North-South direction is the low level of regional integration between MTCs, with a level of interchange of lower than 10% of total trade[11]. The causes are many; a high level of protectionism with neighbours and administrative constraints of various kinds are among the main ones. A similar technological level between production systems in the area, as well as a competitive specialisation in many agricultural products and the strong impact of natural resources on the economies of various countries on the southern and eastern shores of the Mediterranean, have greatly impeded South-South trade integration processes. Yet this is not solely an economic problem – it is also often linked to political factors.

According to UNCTAD[12], the flow of FDI towards MEDA countries witnessed progressive and strong growth after the crisis in the wake of September 11, 2001. Indeed, FDI went from USD 6,225 million in 2002 to USD 49,309 in 2006, becoming one of the most significant sources of external resources (together with those coming from tourism and from immigrant remittances) and probably became the leading source in 2006[13].

The reasons for this vary widely, including an improvement in internal conditions in many countries (adoption of laws in favour of entrepreneurial activities, the establishment of logistics and technology centres and the pro-active promotion of territories), economic growth in the energy sector (including the launch of new projects in the oil sector, the availability of financial resources derived from oil revenues for reinvestment on the southern shore of the Mediterranean and the devising of infrastructuralisation programmes), the development of banking networks and privatisation programmes, growth in the property, public works and tourism sectors, and - for reasons of geographic proximity on the part of European investors compared to countries such as China and India - greater interest in investment geared towards delocalising sections of the production cycle or investments in the services sector.

According to ANIMA – MIPO (Mediterranean Investment Project Observatory) figures, FDI has been predominantly concentrated in certain sectors which during the period 2003-2006 (taking into account the amounts invested) were: energy, telecommunications, banking and insurance, tourism,

[11] In the past, there were various attempts at economic and political integration without, however, any success being achieved. The last attempt of this nature began with the Agadir Declaration of 8 May 2001, signed by Morocco, Tunisia, Jordan and Egypt, which proposed the creation of an Arab free-trade area between these countries. This commitment became a reality with the signing of the Agadir Accord in 2004, creating a free-trade area between the Arab countries (GAFTA).

[12] UNCTAD – World Investment Report for various years

[13] According to UNDP figures (Human Development Report 2006), as a percentage of GDP, the net foreign investment flow in 2004 reached figures ranging from 0.9% in Turkey to 5.4% in Jordan. In the same year, this percentage for other geographic areas fluctuated between 0.7% in southern Asia to 4% in central-eastern Europe and the ex-Soviet Union countries (1.3% in OECD countries).

public works and transport. At the same time, in relation to capital invested, there was poor investment in the industrial sector (38% of the total for 2006).

In general, during the period 2003-2006, foreign investments of around a quarter of the total of the amount of FDI in the area and 14% of the total number of projects went to the new technology sectors (namely telecommunications, software, electronic components and biotechnology).

In terms of creating jobs, in the period 2003-2006 the tourism sector generated the most (around 2,020 positions per project), followed by public works, transport and property (1,280 jobs per project). The banking and insurance sector, despite the significant amount of sums invested, did not create many jobs overall (around 244 per project) as the large international operators aimed at increasing the productivity level with inevitable reductions in staff. In contrast, good results in terms of employment can be ascribed to the telecommunications sector (around 507 jobs per project), where outsourcing of certain client services and other administrative functions led to the creation of various centres and facilities in the region (especially in Egypt, Tunisia and Morocco).

It is also worth highlighting that the investment flows are characterised by the importance, on the one hand, of public projects (such as infrastructure, education, health etc.) and, on the other, of projects implemented by multinational companies, while a rather modest role was played by projects of SMEs and new business start-ups. This is demonstrated by the average value of projects which grew steadily between 2003 and 2006 (from €30 million to €83 million), a symptom both of the presence of large operators and the large-scale nature of certain projects, especially in the fields of tourism and property (such as mega-resorts and new town centres) with questionable impact in terms of environmental and social sustainability.

As regards the source of these investments, according to the abovementioned ANIMA-MIPO analysis for the 2003-2006 period, there was a sharp drop both in the value and in the number of projects in relation to investments coming from European countries (EU and EFTA countries), which fell from 46.5% and 63.5% respectively of total investment in 2003 to 25% and 43.5% in 2006. This in favour of a sharp increase in flows from the Gulf states which rose from 8.3% in terms of the number of projects and 12.1% in terms of value in 2003 to 21.8% and 36.4% respectively in 2006, thus making them the leading investors in the area instead of Europe.

FDI from Europe is predominantly concentrated in the Maghreb countries with, in general, the major country investors in the area being Spain, France, Greece, Italy, Portugal, Switzerland and Belgium.[14]

It is interesting to note the presence of investment from the Asian region. While still limited in absolute value, the investments have increased by 4.6% in terms of the number of projects and by 0.35% in terms of the value in 2003 to 8.9% and 4% respectively in 2006. FDI from China can be found in all countries of the area (especially in the construction and energy sectors) while Indian and Malaysian investments are focussed on Egypt and South Korean investment on Turkey.

[14] From these countries comes 82% of FDI in the Maghreb, 65% of which comes from France and Spain alone, as well as 57% of FDI in the Mashreq and 48% in other countries in the region, with Turkey attracting the most.

Innovation systems

In general, with the exception of Israel, the MTCs do not play a significant role in the field of technological innovation on a regional level, let alone globally.

Spending on research and development with respect to the GDP is particularly low. For the period 2000-2003[15], the highest figures reached were 0.6% for Tunisia and Morocco. Israel, where this percentage comes in at 4.9%, is an exception. During the same period, the United States spent 2.6% of GDP on research and development, Germany 2.5%, the Czech Republic 1.3%, China 1.3% and India 0.8%.

On average, around 90% of spending on research and development comes from the public sector as against around one third in the European countries.

From the point of view of the spread of new technologies (such as telephone lines, mobile phones and internet usage), the situation seems slightly better, demonstrating the efforts made in the MTCs over the last fifteen years to improve their position in the area of technological supply.

In general, in the majority of the MTCs the research and innovation sectors substantially operate separately. Indeed, on the one hand, highly academic research is carried out, often with modest resources available, by the traditional institutions (ministries, research councils, universities or public centres), and on the other, technological innovation is brought about through operational activities supported by the Ministry for Industry or for the Economy, with cooperation between engineering schools, technology centres (incubator centres and technology parks) and technical and professional centres.

From an analysis of technology centres carried out on the northern and southern shores of the Mediterranean[16], a picture emerges which in the south is characterised by more recent institutions, with less financial resources and less staff than in the north. Furthermore, in contrast with the north where activities are implemented in a vast range of spheres (such as the environment, renewable energy, logistics, aeronautics, multimedia etc.), in the MTCs there is a heavy concentration of activities in the information technology sector, followed by the biotechnology sector. If one then looks at the impact on the creation of employment and the start-up of new businesses, on average in the European countries the technology centres service five times more businesses than in the south, while the "business nurseries" and incubators generate up to two half times more businesses.

A further weak point is the financing system for innovative activities (so-called venture capital). There are various reasons for this including: the existence - alongside commercial risks inherent in the launch of new initiatives - of high country risks, the absence of guarantee systems, a "family"-type business management system which is suspicious of external investors and the narrow outlook of local stock markets which is not conducive to the mobilisation of investments.

The situation clearly differs from country to country. On one side there is Israel, a pioneering state in the field of new business development financing, while on the other side there are countries such as Morocco, Turkey and Tunisia and, to a lesser degree, Egypt, Lebanon and Jordan, where the venture capital market has begun to develop. Finally there are Algeria, Syria and the Palestinian Territories, where this market is still at an embryonic stage[17].

[15] UNDP – Human Development Report 2006

[16] ANIMA – La Méditerranée intelligente – Innovation, poles technologiques et attraction de l'investissement – Nov. 2005

[17] According to ANIMA, there are around 100 venture-capital funds operating in the MTCs, to which can be added another 150 investment funds and 150 investment companies in Israel.

On the northern shore of the Mediterranean, however, the venture capital market is relatively developed with an annual amount of investment that in 2004 was worth around €10 billion. Nevertheless, these countries are lagging when compared with the northern European countries (for instance, in 2006, private equity investment as a percentage of GDP was 0.61% in France, 0.34% in Spain and 0.31% in Italy, as against 1.258% in the United Kingdom and 1.437% in Sweden, while the European average was 0.596%). Central-eastern European countries, on the other hand, recorded percentages which were below the European average.[18]

The percentage of hi-tech exports[19] over total exports provides an indicator of results in the field of innovation. According to UNDP figures relating to 1990 and 2004 respectively, Israel is the country with the highest percentage value and is in growth, going from 10% to 19%. The other countries in the area have much lower figures though it is worth mentioning the performance of Tunisia, which has gone from 2% to 5%, and especially of Morocco, which has gone from almost zero to 10%[20]. In these latter two countries, it is the electrical components sector which has played a significant role, recording percentages with respect to total exports of 10% for Morocco and 11% for Tunisia in 2000[21].

Another interesting indicator in relation to innovation and technological development is that of technology-oriented FDI. According to ANIMA-MIPO figures for the period January 2003-February 2005, technology-oriented FDI to MEDA countries represented 14% of the total in terms of the number of projects (almost double the FDI directed towards the new member states of the EU). The investments mainly comprised financial transactions (such as start-up acquisitions, purchase of phone network licences and the creation of venture-capital funds) and, secondly, the creation of private centres for research and development.

In terms of sectors, the ICT (Information and Communication Technologies) sector received the lion's share with around two-thirds of projects, followed (with much lower shares) by the financial or business services sector (11%) and by the pharmaceutical and biotechnology sector (10%). The source countries of this FDI were the United States and France (with 31% and 26% of the total respectively) while the most significant beneficiary countries were Israel (33%), Morocco (21%) and Algeria (13%).

In recent years, there have also been considerable efforts made to create innovation-friendly infrastructure, such as technology parks, incubator systems, venture capital funds and SME and young entrepreneur training services (particularly in Tunisia and Morocco).

As regards the creation of technology parks and incubator systems, for instance, certain practical initiatives are currently in the process of being set up in various countries such as in Morocco, Jordan and Tunisia. Tunisia is a particularly interesting case, since it is the country in which innovation has been most widely placed at the top of the political agenda, especially in President Ben Ali's programme for the period 2004-2009. Among the various activities, the Ministry for Industry, Energy and SMEs is responsible for the development of technology centres. According to forecasts, there should be 12 established by 2009. As at 2006, there were two operational, six were being built and the others were at the study stage[22]. The Tunisian technology centres are positioned

[18] EVCA – European Private Equity & Venture Capital Association – Annual Survey 2006

[19] The UNDP includes computers, pharmaceutical products, scientific instruments and electrical machinery as hi-tech products.

[20] Looking at the figures for other countries, in 2004 this percentage was 32% for the United States, 30% for China and 29% for Hungary. For other European countries, the percentages were lower (with figures around 8% for Spain, Portugal and Italy).

[21] Arab World Competitiveness Report 2002-2003

[22] The El Ghazala (Communication Technologies) and Gammarth (Cinematography) technology centres are operational; those at Borj Cedria (Energy, Materials, Biotechnology and the Environment), Sidi Thabet (Biotechnology for Health and Pharmaceutics), Sousse (Mechanics and Electronics), Sfax (IT and Multimedia), Monastir (Textiles and clothing)

at the regional level and their objective is that of bringing together businesses, research laboratories and training institutions and centres that operate within the territory in accordance with the model for regional innovation systems.

The existence of such experiences in countries on the southern shores of the Mediterranean is undoubtedly positive from the perspective of developing networking systems for the various parties involved in innovation processes (such as local institutions, research centres, businesses etc.).

In general, however, while there is quite significant potential (such as the existence of sectors of excellence in certain countries, a good qualitative level of human resources in the scientific and technical fields, a spread in large cities of new communications systems, etc.), there are considerable lags due to the previously-mentioned scarce resources allocated to research and development, an insufficient qualitative level of the existing technology centres, cultural mistrust towards innovation, the weakness of technical and financial support institutions and a still insufficient development of entrepreneurship. Despite a good qualitative level of human resources in the technical field, the weakness of the innovation systems leads to a substantial brain-drain of researchers and hence an impoverishment of resources in terms of human capital. The table which follows summarises the key strengths and weaknesses of the MTCs and also identifies opportunities and threats.

and Biserte (Agricultural food industry) are at the construction stage; the technology centres at Médinine (exploitation of the desert and desert resources), Jendouba, Gafsa and a site yet to be determined with a focus yet to be decided, are still at the study stage.

Strengths	Weaknesses
• A strong commitment to the Euro-Mediterranean partnership, based (non-exclusively) on free trade • The start of a structured process of national development plans linked to association agreements • The existence of programmes of administrative reform, of programmes dedicated to SMEs and innovation support services (such as incubators and venture-capital funds) • Progress in the industrial evolution of the main economic sectors • Abundant natural resources in terms of crude oil, gas and chemical reserves • Coastline, landscape, historic and cultural heritage, good climate and a tradition of hospitality • Positive prospects for growth and high potential of sectors such as tourism • Improvement in FDI reception conditions in terms of the availability of service areas, relatively modest salaries for engineers, the existence of incentives, of support for investment by the EIB and the associated mechanisms • Identical or similar time zone to that of Europe	• High dependence on exports of primary produce or other low value-added activities (such as agriculture, crude oil, gas and chemical products) • Highly-developed public sector • High level of bureaucracy • Difficult access to financing • Lack of business culture • Low level of private investment • Low level of economic diversification • Low level of public sector investment in science and technology education and R&D • Poor mobility of personnel in higher education and research • Fragmentation of existing R&D infrastructure • Non-identification of strategic priorities in science, technology and innovation • Low level of innovation-related management skills in the public and private sectors • Negligible investment of the private sector in R&D • Lack of water • Low level of participation in higher education
Opportunities	**Threats**
• Growth in trade thanks to the creation of a Euro-Mediterranean free trade area • To move up the value chain in the sectors of crude oil and gas and chemical products • Agricultural production, tourism and services • Exploitation of the current restructuring of European industry (delocations) • Exploitation of the trend in developed countries to delocate intensive service tasks to high-skill low-wage countries (call centres, help desks, back-office procedures, communications, design, development and even basic research) • Exploitation of the Mediterranean diaspora in Europe and the rest of the world	• Political instability and religious fundamentalism • Social malaise as a result of the high level of poverty and unemployment as well as a perceived prosperity gap between higher and lower income groups • Conflict over access to water • Failure to accumulate strategic capacity in the planning, implementation and evaluation of the programmes • Lack of integration of human resources, R&D and innovation policy with the economy • Absence of a demand-driven R&D culture • Inability to strike the right balance between short-term priorities and longer-term challenges of modern and open-knowledge economies

SWOT Analysis of innovation in MEDA area (Source Trend Chart)

Moving on to consider the countries on the northern shores of the Mediterranean, it is noticeable that innovation is less developed overall than in northern Europe.

The *European Innovation Progress Report 2006* identifies Sweden, Finland and Switzerland (non-EU) as the leading states in Europe for innovation, followed by Germany and Denmark.

The map below shows the innovation situation in 27-member Europe as well as other countries in the area not belonging to the European Union (Iceland, Norway and Switzerland), divided into *leading countries, countries with average performance, countries that are catching up* and *countries that are losing ground*. The ranking comes from the European Innovation Progress Report 2006 prepared on the basis of the Summary Innovation Index - SII 2005 and its growth rate[23].

As can be seen, none of the European Mediterranean countries is in the leading countries group, which are instead located in a single band stretching from Finland to Switzerland. Only France and Italy come within the countries with average performance, which in turn are concentrated in central Europe. The remaining Mediterranean countries are in the same group as the new member states, ranking among the countries that are catching up (Portugal, Greece, Cyprus and Malta) and among those that are losing ground (Spain). Each country exhibits specific strengths and weaknesses and needs and opportunities[24].

In particular, the average position of France (which comes in at ninth in 25-member Europe), can be broken down into related strong points in the area of knowledge creation and support for innovation drivers (this term meaning those capable of stimulating innovation), while the main weak point can be found under the heading "innovation and entrepreneurship", due primarily to investment in ICT that is lower than average and poor cooperation between SMEs in relation to innovation. The situation is decidedly worse in Italy ranking last among the countries with average performance (12th in 25-member Europe), which only witnessed an improvement in its ranking due to the entry of 10 new member states. The main weaknesses relate to innovation drivers and the link between innovation and entrepreneurship. Although ranked, in terms of trends, among the countries that are losing ground, Spain's position nevertheless seems acceptable, given that it has registered a reasonably balanced performance in all the categories considered. The country ranks 16th in 25-member Europe. Its main weakness can be found in the relationship between innovation and entrepreneurship, and its major challenges for the future are identified as being in the area of investment in further training, expenditure on innovation and the development of hi-tech businesses[25].

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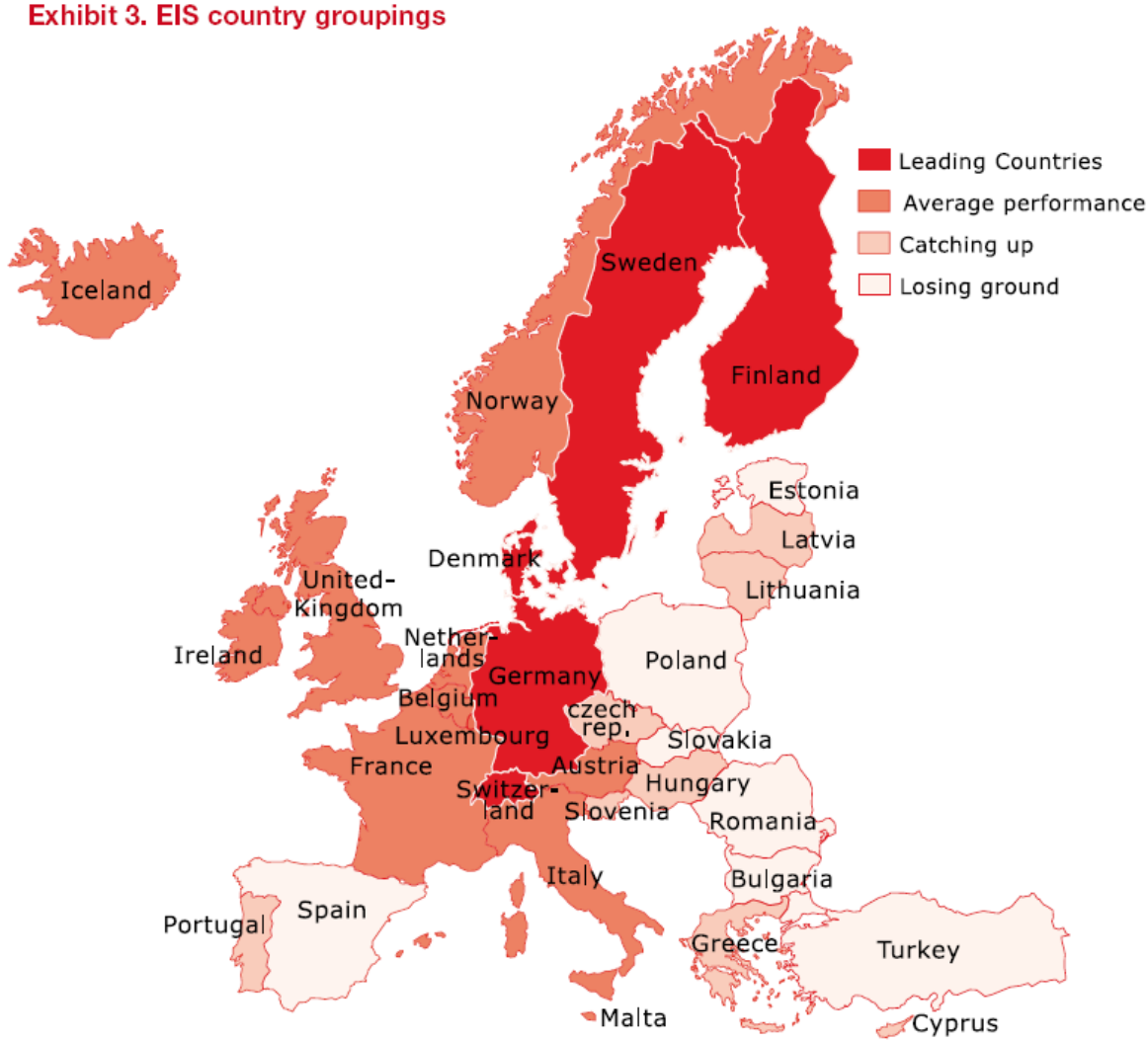
[23] The Summary Innovation Index – SII is calculated using re-scaled values of the data, where the highest value within the countries considered is set to 1 and the lowest value to 0. The rate is calculated as the percentage change between the last year for which data is available and the average of the preceding three years, after a one-year lag. The three-year average is used to reduce year-to-year variability; the one-year lag is used to increase the difference between the average for the three base years and the final year and to minimize the problem of statistical variability.

[24] The elements taken into account are specifically: innovation drivers (graduates in scientific disciplines, population with tertiary education, broadband penetration rate, participation in further training and youth training), knowledge creation (public expenditure on R & D, private expenditure on R & D, percentage of R & D in medium to hi-tech sectors, businesses that receive public funds and university R & D financed by business), innovation and entrepreneurship (in-house innovation of SMEs, innovative SMEs which work together with other SMEs, spending on innovation, venture capital, ICT expenditure and SMEs that use non-technological changes), applications (employment in hi-tech services, export of hi-tech products, sale of new-to-market products, sale of new-to-firm products and manufacturing employment in medium to hi-tech sectors) and intellectual property (different kinds of new patents).

[25] Among the Mediterranean countries which form part of the "catching up" group, the performance of Portugal is below the European average for all items considered with the exception of innovation and entrepreneurship and with particular difficulties in relation to innovation drivers. Greece is ranked 23rd in 25-member Europe, with particular weaknesses in relation to applications and intellectual property. Cyprus comes in at 17th position with particular weaknesses in terms of human capital, employment in hi-tech services, technological exports and intellectual property indicators. Malta boasts good performance in relation to innovation and entrepreneurship indexes thanks to hi-tech

Exhibit 3. EIS country groupings

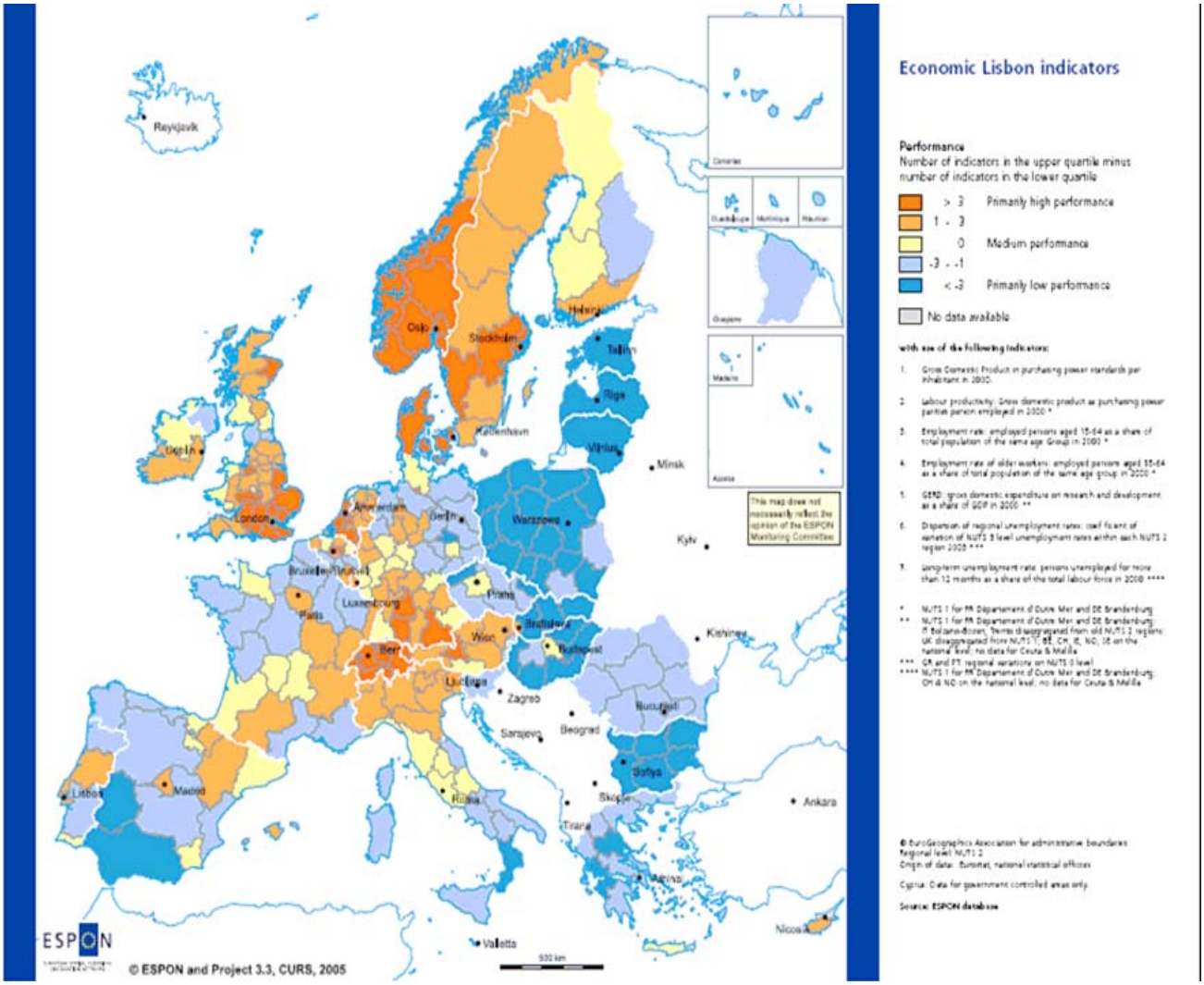


Source: *European Innovation Progress Report 2006*

The following chart shows some Lisbon strategy indicators at regional level[26]. The chart points out not only the diversification inside every country but also the lower performances of Mediteranean European regions and new accession country compared to Northern European regions. The regions with the best performances are in Switzerland, Austria, Germany, Belgium, Netherlands, Luxembourg, United Kingdom, Denmark, Norway and Sweden.

exports, but these are due to the weighting of a single business given the small size of the economy. By contrast, private expenditure on R & D is all-but non-existent and public spending is only at 28% of the European average.

[26] The European Commission and European Council have set up a sequence of indicators to measure the achievement of Lisbon Agenda. 14 indexes are utilized to get an accurate evaluation and an actual monitoring of countries improvements. On this chart only seven indicators have been considered because for the other seven the regional data weren't available. These indicators are: per capita GNP, per worker GNP, employment rate of aged workers, national expenses for R&D, the dispersion of unemployment regional rates, the long period unemployment rate.



Like the previous chart, an area with high performances begins with Stockholm region, through Norway, Denmark (with the addiction of a region in Eastern Scotland), South East England, Benelux and Germany up to Switzerland and some Austrian regions. We can find some regions with high performances also in Portugal, Ireland, France, Italy, Finland, Slovakia and Cyprus.

Innovation policies in South Med Countries

Research and development, particularly as performed by central R and D institutions, is considered the main source of technological innovation in the Arab region. R and D activities in the Arab countries have been popular and effective in the more traditional disciplines. Indeed, the prevalence of research organizations that specialize in agriculture and related subjects, including forestry, water and irrigation research, is noteworthy. Equally significant are the research organizations that specialize in health and related disciplines, as well as education, management and economics. However, research organizations in the field of engineering, including computer engineering, microelectronics and energy technologies have a lesser share of R and D activity.[27]

Within the context of affiliations of R and D organizations in the Arab region, the majority of institutes are Government-funded, followed by university institutes and, trailing far behind, private R and D institutes.

An analysis of R and D expenditure in Arab countries reveals that the resource levels allocated to R and D are meagre, particularly in non-GCC countries.

A point that is not revealed by available statistics is the fact that a substantial proportion of R and D expenditure is allocated to salaries and wages for researchers and support staff.[28]

R and D activity in the region is very fragmented. There is a clear need to coordinate and streamline science and technology activities in order to reduce duplication and conserve R and D resources. These issues are expressed in almost all policy documents and related pronouncements. In some countries, coordination committees have been set up for this purpose, and efforts have been made to undertake joint R and D at national and regional levels. However, these efforts remain insufficient.

Technology alliances with technology holders from outside the region are evident in some member countries but have remained the exclusive preserve of the larger enterprises. Furthermore, they appear to generate little or no spin-off for national innovation systems.

There are potential areas to develop RDT networking in the Arab region. According to ESCWA (Economic and Social Commission of Western Asia)[29] these area are first of all agriculture, agro-food technologies, water desalination and new materials technologies.

Other equally important areas include, among others, biotechnology, particularly agricultural biotechnology; and ICT-based educational systems.

Agriculture

As far as agriculture is concerned, a recent ESCWA survey [30] was undertaken to assess and identify areas of complementarity and overlap in agricultural R and D projects in major universities of three countries, namely, Jordan, Lebanon and the Syrian Arab Republic. This in turn will allow the identification of potential focus areas that are ripe for networking endeavours at national and regional levels. Agriculture was chosen for its relevance to the Arab region as a major economic sector.

Results of the survey have indicated that a level of duplication in agricultural research exists between the universities in Jordan, Lebanon and the Syrian Arab Republic, in the fields of animal science, plant science, natural resource management and food science research. Despite these

[27] ESCWA, "Science and technology policies for the twenty-first century" (United Nations, 1999), E/ESCWA/TECH/1999/4

[28] ESCWA, "Science and technology policies for the twenty-first century" (United Nations, 1999), E/ESCWA/TECH/1999/4

[29] ESCWA – Networking Research, Development, Innovation in Arab Countries – United Nations 2005

[30] H. Chahal, "Survey of agricultural research and development activities in Lebanon, Syria and Jordan" - 2004.

duplications, no substantial attempts to collaborate in research projects have been reported. This can be attributed to the physical distance between the universities, the lack of information on the projects being implemented by each university, or simply the lack of incentive or motivation to establish partnerships and create networks.

Research networking creates synergies, reduces duplication in efforts and provides a better use of scarce financial resources. In addition, complementarity in competences, as well as in equipment and laboratories could be used to the advantage of collaborating parties to raise the quality of research results.

Agro-food technologies

The complex and varied challenges posed by the development of the agro-food industry, which remains essentially a relatively new and employment-generating field in many Arab countries, are also important reasons for instituting collaborative approaches to technology acquisition and dissemination. It is through such technology inputs that efficient use of resources can be made and constraints overcome.

Benefits attained by improving modern technology inputs to the agro-food industry in Arab countries will exceed their boundaries, thereby limiting the migration of unskilled and semi-skilled labour, and allowing wider opportunities for productive trade and exchange of expertise between these countries and their European neighbours.

Arab universities and industries possess potential capabilities in terms of manpower, as well as scope for market development and technology dissemination, with substantial opportunities for socio-economic returns.

Water desalination[31]

Water desalination technologies play a crucial role in socio-economic development in a number of

Arab countries. Desalinated water is an essential and often only source of freshwater in several of these countries. In addition, rising living standards and high population growth have created a substantial market for desalinated water.

Large-scale thermal desalination technologies have been in use in the region since the 1950s. In 2001, Arab countries were home to some 1,750 desalination plants, incorporating a range of capacities and a number of technologies. Significant funds have gone into erecting, refurbishing and running these plants over the past 50 years. Given that many of these plants are currently nearing the end of their useful life, there is therefore a growing need for the wider dissemination and further R and D of desalination technologies.

Current desalination research in the region tends to focus on achieving a better understanding of existing processes and interactions between process parameters. While this is of intrinsic value, research geared towards the development of innovative designs is needed. A certain amount of such research has to be conducted in areas closer to basic science than to applied science, thereby necessitating closer cooperation at international and regional levels.

Well-formulated research programmes in this domain can provide bases for future technology development and could be supported by concerned stakeholders, whose participation could improve their position with respect to the acquisition of future technologies.

Success can be achieved in terms of reducing desalination costs and disseminating appropriate technologies by building R and D capabilities, and by reinforcing and expanding research efforts

[31] ESCWA, "Water desalination technologies in the ESCWA member countries" (United Nations, 2001), E/ESCWA/TECH/2001/3.

through networking with universities, research centres, companies and other sources of technology in both developed and developing countries outside the region.

New materials technologies[32]

The plastics industries in some Arab countries date back to the early 1960s. Given the versatility and relatively low cost of raw materials for the plastics industry, a large base for manufacturing plastics has developed in most Arab countries, some as joint ventures with foreign companies. This base covers local and regional needs, with a few firms capable of competing on the international market. Some of these industries cover special applications for the region, including, for example, the membrane manufacturing for desalination filters in Saudi Arabia.

The plastics processing technology has evolved considerably in the past two decades, with changes introduced in raw materials and processes that have forced established firms to modernize their equipment in order to remain competitive.

One of the difficulties faced in this area is the missing link between R and D establishments and plastics industries in Arab countries. Specifically, whenever they are carried out at universities and research centres, R and D activities do not typically relate to the needs of local industries.

Another significant challenge is that higher education and training of technical personnel in new material technologies, particularly in plastics, is virtually non-existent.

Greater efforts are required in the region to enhance technical and postgraduate curricula by incorporating new materials subjects, establishing related specializations and promoting university-industry linkages.

Regional integration of the operations of national industries can solve many of the problems faced by emerging as well as established operators in Arab countries. Concerned governmental departments, aided by national and regional associations and chambers of industry and commerce, could facilitate such integration through appropriate legislation, tariff structures and support for enterprise activities. The role of major manufacturers in facilitating such integration cannot be overemphasized. Moreover, new institutional structures, including R and D networks, technology parks, technology incubation schemes and high technology industrial clusters, are often more effective when conceived as part of industrial free zones.

Additionally, such structures stand to play a significant and growing role in the acquisition and dissemination.

Here we analyse some interesting cases of innovation policies and programmes in some South Mediterranean countries.

Turkey: challenges and opportunities [33]

Turkey is facing the challenges associated with the rise of the knowledge-based economy and the subsequent importance of innovation for economic growth and competitiveness, at a time when the basic foundations of political and economic stability have not yet been fully secured.

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[32] See ESCWA, "Review of science and technology in ESCWA member countries", Issue no. 4 (United Nations, 2001), E/ESCWA/TECH/2001/5.

[33] ANIMA - Innovation, Technology Centres and Investment Attraction in the Mediterranean – Notes & Documents n°9 – November 2005

IKED (International Organisation for Knowledge Economy and Enterprise Development) - Strengthening Innovation and Technology Policies for SME Development in Turkey - *Opportunities for Private Sector Involvement* – December 2004

Although Turkey has made impressive progress since the financial crisis in 2001 there is the continued widespread perception of an instable economic environment which discourages both domestic and foreign investors from the Turkish market.

As far as the innovation system is concerned Turkey's position is low on both global and European indices ranking innovation and competitiveness. The R&D expenses have increased from 0.45% of GDP in 1996 to 0.64% in 2000, but they remain at a low level (in 2000, these expenses represented 1.9% within the EU-15). The share of the private sector in R&D is also low (33.4%, against 64.5% for the EU-15 in 2000).

At the moment 11 science parks have been created by the universities and researches centres (among them ESBAS based in Izmir is one of the largest in the Mediterranean basin and stretches over more than 2,900 hectares). These structures are co-financed by private funds and by the World Bank.

Besides several universities and the Kosbeg (the governmental agency charged with the promotion of SME's) have created 12 incubators (called "Technology Development Centres " or Tekmer), which host 160 enterprises, located in the technical universities.

In general the national innovation system shows some problems among them: a very little collaboration between university (or other public sector research) sectors and industry, or other important stakeholders; an inadequate spreading of knowledge and e-preparedness through ICT (Turkey has low average computer usage and internet penetration levels); a prevalence of highly labour-intensive and low technology-intensive industries with consequences in terms of competitive advantages.

These challenges require a national strategy to enhance innovation capacity, in which improved conditions for SME-development must constitute a critical element. The main items are represented by:

- forming a more coordinated and functional structure for innovation policy governance;
- improving the national ICT infrastructure;
- developing local/regional action plans for innovation;
- fostering better conditions for SME growth and entrepreneurial activity;
- strengthening the supply chain of financial resources and investors;
- facilitating foreign direct investment and strengthening absorptive capacity of the domestic economy from spill over effects;
- strengthening economic and political stability and rule of law;promoting increased awareness of and participation in EU Programmes.

Tunisia - The National Programme for Research and Innovation (NPRI) [34]

Conscious of the significant role of public scientific and technological research in reinforcing the innovation dynamic within Tunisian enterprises, the Ministry of Scientific Research, Technology and Competency Development has set up a National Programme for Research and Innovation (NPRI).

This programme aims at valuing the potential of human skills and technological resources within public research structures in order to meet the need for technological innovation by Tunisian enterprises. It allows at the same time to strengthen researchers' activities and reinforce the collaboration between enterprises and research structures.

This programme consists therefore in:

[34] For details you can visit the web site of Ministry of Higher Education, Scientific Research and Technology of Tunisia http://www.mrstdc.gov.tn/

- favouring collaboration of SME and technical centres[35] with research structures (research centres, laboratories and research units) in order to improve the quality of products and the competitiveness of the production tool;
- easing the transfer of technologies and setting up an efficient tool for providing financial help to technological developments and innovation through relevant and federating projects;
- providing suitable conditions for researchers and industrials to develop their ideas and projects by getting the most out of their unique approaches and skills, as long as mutual respect for each other's role and independence is maintained.

The financing of NPRI projects is granted following a tendering process.

NPRI concern Research and Innovation Projects carried out in collaboration between one or many research structures (research centre, laboratory, and research unit) and one or many industrial partners. The participation of technical centres in these projects as research partners or coordinators is greatly wished.

In order to be eligible, the project must:

- associate one or many public research structures and one or many industrial firms with the participation of a technical centre;
- demonstrate a significant innovation;
- demonstrate an economic impact;
- demonstrate a potential for application in the short run.

The first call for tender took place in 2004.

Seven projects were kept on the basis of this call for tender, in which 4 technical centres, 7 research units and laboratories and 9 firms take part. The seven projects are programmed to run over two years.
The Ministry of Scientific Research, Technology and Competency Development announces the second call for tender with the collaboration of research structures (units, laboratories and research centres).

Morocco innovation policy [36]

The financial effort granted to research in Morocco has recently experienced a substantial increase and the share of GDP for research reached 0.7% in 2002, then 0.79% in 2003. The Ministry charged with the scientific research has launched the programme "Innovation and the competitiveness of enterprises", aiming to encourage enterprises to collaborate with the universities and the public research establishments (3 million euros for the year 2000/2001).

From its side, the Ministry of Industry, Commerce and Modernisation of the Economy (MICMAN) seeks to support the creation of innovating enterprises through the development of reception and back up structures for incubators of innovating enterprises, with the assistance of the Moroccan

[35] The technical centres are public establishments placed under the supervision of the Ministry of Industry and Energy. They are eight and work at sectoral level providing technical assistance to enterprises in the industrial sectors concerned in Tunisia and supplying essentially technical information. Their role is important in terms of the dissemination of innovation, but limited for the creation of enterprises. The technical centres also carry out missions of expertise for the administration, the diagnosis of the modernisation of SMEs and training sessions for company executives.
[36] ANIMA - Innovation, Technology Centres and Investment Attraction in the Mediterranean – Notes & Documents n°9 – November 2005

Network of Incubation and Spin Offs (RMIE). The aim of this network is to accompany and support innovating and viable enterprises creation projects through an incubation and spin off approach.

The MICMAN also acts in the domain of financing and fiscal aid destined for start-ups, as well as the introduction of a network for the dissemination of technology, which facilitates the exchange of information between enterprises, universities, technological service providers (with the help of the Ministry charged with the scientific research, the Moroccan Association for R&D and French Cooperation): Neighbourhood services are offered to accompany the enterprise and help bring out its industrial development and/or technological needs by means of pre-diagnoses, an information system exclusive to the network and a financial incentive called Prestation Technologique Reseau (PTR).

To attract FDI to the high technology sectors, Morocco adopted the Investment Chart in 1995. It grants foreign investors with an investment programme which provides for the transfer of technology, the possibility of concluding with the Moroccan State special contracts which assure them the public support for some expenses (acquisition of land, external infrastructure and occupational training necessary for the accomplishment of the investment programme).

Incubators, enterprise nurserie and science parks

The programme for the creation of nurseries/incubators was launched in 1999 but the creation of these structures has only been effective since 2001. These nurseries are either generalists or specialists in ICT.

Twelve incubators have been created by a certain number of higher education establishments in the town of Rabat, Marrakech, El Jadida, Tangiers, Agadir, Oujda and Beni Mellal. These incubators are small and generally host a reduced number of start-ups (a dozen). The incubation process also takes advantage of the support of the RMIE, synergising the means of the partners associated with this network including French Cooperation.

The Casablanca-Tecnopark is very large structure (29,000 m2, 35 persons employed, 128 enterprises present in the nursery and 189 project since its creation), specialising in ICT (many call centres, IT service companies) and generalist enterprises.

Other initiatives

The project Pro-TIC proposes to put “50,000 Moroccan enterprises on the Net in 2008”. The project has set four objectives for the period 2005-2007:

- accompany the SMEs in their technological modernisation so as to improve their management and production system;
- increase the rate of penetration of ICT in the industrial and commercial sector;
- develop on-line services and generalise their use by SMEs, in particular in the domain of electronic administration (fiscality, procedures,etc.)
- The dissemination of the culture of electronic commerce and access to markets through internet.

On-line pilot projects have been defined, for example, a hub for tourist bookings, a textile market place, the dematerialisation of public purchasing, a central buying office to supply SMEs or a system of food traceability.
The Industrial Engineering Network (RGI) is made up of research workers, university students and teachers and industrial engineers. The missions of the RGI are to accompany the enterprises in all their internal efforts to improve their productivity, the training of the entrepreneurs, the company executives and students in industrial engineering techniques.

Egypt R&D policy [37]

A national innovation policy is in the process of being defined while the national research programme is run by the Academy of Research and Scientific Technology, which depends on the Ministry of Scientific Research . At the same time, important research activities are undertaken by the Ministry of Agriculture and the national research establishments, subsidiaries of the Ministry of Scientific Research (48,6% of research workers belongs to agricultural sector, 17% to health and only 8% to industry). These organizations play a major role in research activities in Egypt, compared with universities. The contribution of the industrial sector remains very limited.

Clusters

The following initiatives has been taken to encourage links between industry, research establishments and the universities:

- five cluster have been created by the Ministry of Scientific Research in varied fields (basic chemical products for the pharmaceutical industry, the bronze/glass industry an iron ore processing) These cluster group 167 companies and 123 universities and research centres;
- other projects aim at encouraging regional clusters, such as the furniture manufacturing cluster at Damiette, or the sheet metal fabrication workshop at Meet-Ghamr. Furthermore, efforts are being made to create clusters in the new industrial towns such as Sadate City10th of Ramadam City or Sixth of October City.

Incubators

A network of 12 incubators has been developed since 1995 by the Social Fund for Development in Egypt (SFD), with 15 supplementary projects for incubators currently under study. The objective is to develop a significant network which will facilitate the competitiveness and the productivity of the SMEs. The incubators, of three different types (scientific and technological; business; industrial), are housed by educational and research establishments for technical and scientific back-up and supported financially by the Ministry of Communication and Information Technologies (MCIT). In reality, their activities are still very little developed.

The Nile University of Technology (NileTech) concentrates on applied R&D, as well as the training of future entrepreneurs and executives for Egypt.

Finally, Idea developers is the leading private integrated incubator in the region for financing the development of enterprises and technologies. Installed within Smart Village, the company offers both venture capital financing for starts-ups and the entrepreneurial and operational expertise required to accelerate their growth.

Technopark

Smart Village is another MCIT initiative, which aims at providing a leading edge technological environment so as to attract services companies to Egypt. Situated in a 130 hectare park in a Cairo suburb Smart Village offers a high-tech infrastructure (broad band internet, technological and administrative services), the exoneration from tax for ten years and other advantages of the law 8/197 on investment.

Jordan: the case of Education Initiative [38]

With a high level of unemployment (estimated between 15 and 20 percent), a young population (34 percent are under 14 years of age, and there is a median age of 23 years), and a low per capita income (US$4,700 in 2005), the political leadership in Jordan is convinced that the real wealth is in

[37] ANIMA - Innovation, Technology Centres and Investment Attraction in the Mediterranean – Notes & Documents n°9 – November 2005

[38] World Economic Forum - The Arab World Competitiveness Report 2007

young people. It has therefore championed innovation in the educational system in the country through the use of technology. Through the Jordan Education Initiative (JEI), the country's main objectives are to enable its students to compete globally in the knowledge economy, train teachers and administrators to use technology in the classroom, and guide students through critical thinking and analysis. Today, the JEI is being replicated in Rajasthan, India (launched in November 2005), the Palestinian territories, Bahrain, and most recently Egypt (launched in May 2006), as well as in other countries.

The JEI runs parallel to and shares dependencies with two existing national programs in Jordan: 1) the Education Reform for the Knowledge Economy (ERfKE) program, a reform program supported by World Bank; and 2) the National Broadband Learning and Research Network, a nationwide high-speed broadband network connecting all of Jordan's public schools, universities, community colleges, and community access centers, which reached 1.5 million learners by the end of 2006.

The JEI initiative was officially launched in June 2003 by the World Economic Forum's IT and telecommunications industry governors to transform public education through technology in Jordan. In addition to the Forum, which sponsored the JEI, the initiative has over 45 organizations that include 25 international private-sector partners, especially in the ICT sector; 17 local establishments; and 11 government agencies and NGOs.

It has four major objectives:

- improve the delivery of education in Jordan through public-private partnerships;
- unleash the innovation of teachers and students through the effective and efficient use of ICT;
- build the capacity of the local ICT industry;
- create a model of reform that can be used in other developing and emerging countries.

Two distinctive features set this initiative apart from others. First, it is an ambitious blueprint that uses technology as a catalyst to innovate in the educational system and accelerate Jordan's development into a knowledge economy. Second, it is an application of ICT through a public-private partnership.

These partnership arrangements have been win-win situations for the JEI and the country in general. Public schools have benefited tremendously from what the private sector has contributed in terms of skills, innovation, project management, technical expertise, and so on. Rewards to private-sector entities are in the form of strengthening their reputation and polishing their image within society, yielding a long-term return on social capital and social investment. For the private sector in particular, an effective educational system is critical for economic growth and social development, in building a skilled labor force, and improving productivity. But the ultimate winner in this educational public-private partnership initiative is the group of students and teachers, especially in public schools, who are having their schools fully wired and equipped and their human resources fully trained and skilled.

Another major objective of the JEI initiative is to help the country build a model of education reform and innovation that can be exported to and/or replicated in other developing countries as pointed out previously.

Notwithstanding the discernible accomplishments of this initiative, unfortunately the JEI still lacks a set of formal performance evaluation criteria for impact assessment in terms of ensuring access, improving quality, and providing the right teaching. Another challenge that has to be addressed is capacity building and cultural change management, both at the micro and macro levels. The role of the private sector does not stop at offering financial and technical support; it really has a role to play in defining the standards of education and in offering internship and training programs.

Analysis of competitiveness in key sectors

From an analysis of the structure of exports of the MTCs[39], the fundamental role played in the economies of individual countries by mining products (hydrocarbons, minerals etc.) becomes evident, which in 2002 actually represented 99% of Algeria's exports. Another crucial sector is that of textiles and clothing, which supplied more than 30% of Morocco's exports and more than 40% of Tunisia's. To a lesser degree but still significant is the agro-industrial sector, especially for certain countries (such as Morocco and Lebanon, where it provided 23% and 21% respectively of total exports).

Thus, the participation of the southern Mediterranean area in the global economy is principally based on the key role played by two economic fields of activity which are particularly volatile and subject to cyclical fluctuations. First and foremost, energy-producing and agricultural raw materials and secondly the significant flows of tourists, which have been the only true factors of internationalisation in the basin throughout these years. To a much lesser degree, however, the participation has involved manufacturing and agro-industrial districts, for the most part centred around traditional-type processing. One of the problematic aspects of the MTCs' trade relations with all their partners is precisely the high degree of concentration of exports[40] and imports and the heavy polarisation of the structure of comparative advantages, which leads to greater trade vulnerability and volatility when faced with possible demand shocks.

In this regard, trade liberalisation plays a key role insofar as it contributes to increasing the possibility of diversification in respect both of the trading partners and the mix of goods and services when combined, however, with accompanying measures to create an ability to absorb innovations.

The most important industrial sector for the MTCs was the textiles and clothing sector. On average, it represented between 20-50% of exports from the area, principally directed towards European countries, and employed between 30-50% of the total workforce. The major producers are Turkey (which provides about half of Mediterranean production), Tunisia, Morocco, Egypt and Syria and, to a lesser degree and more recently, Jordan. Each country has specialised in certain products: Turkey, Morocco and Egypt in knitwear, Turkey and Tunisia in denimwear and t-shirts for Turkey, Syria and Egypt. Among the 300 large businesses that operate at a global level in this sector, 19 are from Turkey, 2 are Egyptian, 2 are Israeli and one is Syrian. The presence of cheap labour and the

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[39] World Economic Forum - Arab World Competitiveness Report 2002-2003

[40] Using the Hirschman-Herfindahl index, a measure of the concentration of exports, we can see that in 2004 exports were much more concentrated than in 1990. Even the concentration of imports increased in some countries (Egypt, Israel and Lebanon) or remained constant in others. An index provided by UNCTAD and calculated to a four-figure level of product disaggregation using the following formula:

$$NH_i = \frac{\sqrt{\sum_{j=1,n} (x_{ij} / \sum x_{ij})^2} - \sqrt{(1/n)}}{1 - \sqrt{(1/n)}}$$

Where: x_{ij} = exports of product j from country i
n = number of products

Although the very high figures relate only to the oil-producing countries such as Algeria and Syria (0.6), even the other figures are high (between 0.2 and 0.6) when compared both with European countries and with developing countries such as China, Mexico and eastern Europe (around 0.1 in 2004). There was an inverse trend to the global one: compared to 1990, the change in the concentration of exports increased in various countries except for Jordan, where there was a marked reduction from a relatively high figure (from 0.3 to 0.1), and in Morocco and Tunisia, which remained stable (around 0.3). Egypt, Lebanon, Israel, Algeria and Syria increased the concentration of their exports while India, Mexico, Bulgaria and Romania recorded, in contrast, a marked decline in the index which was already much lower.

geographic and cultural proximity to European markets are the sector's assets. Nevertheless, the strong growth in Asian competition, especially after China joined the WTO and with the phasing out of the Multifibre Accord, has made profound changes aimed at improving the competitiveness of the sector necessary in order to face these challenges.

Agro-industry also represents a specialisation sector for the area (in some countries the percentage of the population employed in the agricultural sector is almost 50% of the total), although only Turkey and Syria have reached food self-sufficiency. There are modernisation measures in progress with the aim of improving quality levels, especially in relation to support infrastructure taking into account the strong dependence on climatic factors. Europe is the leading trade partner as regards grain, dairy products, sugar and meat, while the trade balance is in favour of the MTCs for fruit and horticultural products. On the other hand, intraregional trade remains fairly modest except between Jordan, Lebanon and Syria.

The agro-industry sector

The agro-food value chain may be defined as the range of activities associated with the processing of agricultural products into food products, as well as all other activities which provide edible goods, with the exclusion of the activities of processing agricultural products into no-food products.

According to this definition, the agro-food value chain covers an extremely vast domain, from farm production to distribution to the final consumer. In general the problem for the development of agro-food sector in the MEDA countries is organically linked to the remainder of value chain.

Moreover the agro-food industry is currently exposed to an important wave of innovations which concerns products (development of enriched or improved foods, new types of conditioning or packaging, research into new tastes and/or return towards authenticity, improvement in the practicality of products, etc.) and process (implementation of processes environment and safety friendly, automation, improvement of the logistic chain, etc.). This effort involves a significant reinforcement of the R&D expenditure element of physical investments. As a result of this phenomenon the agro-food industry gradually loses their status of a industry light in labour and approach those activities which are more intensive in knowledge, capital and skilled labour. This evolution may represent a sizeable challenge for the MEDA countries industries, often originating from almost craft sectors, employing a still scarcely trained labour force and where the research and innovation culture is hardly present.

Any analysis of the current situation agro-food industry in the MEDA countries leads to a contrasted diagnosis.

Certain weaknesses are a cause for concern: production which represents hardly 1,5% of the world total, to feed nearly 4% of its population; a trade deficit which increase regularly; a particular shocking imbalance for oil seeds and cereals especially basic elements for the poor populations of these regions, a rather strong food dependence for certain countries, such as Egypt and Algeria; a very poor market share in "downstream" goods – which provide a better return – of the sector (processed products).

As for the long perspectives, they remain a continuing cause for concern, with demographic growth increasing needs while the environment is being degraded (growing shortages of water, desertification of land and sea).

Nevertheless, certain facts stand out as being relatively encouraging. Firstly, two countries, Turkey and Morocco, are already net exporters, making a large contribution to the positive balance of the region in three segments, fruit and vegetables, bottled or canned goods and meat and fish. Other countries, overall in deficit, make significant surpluses in certain areas, such as Israel for fruits and

vegetables and Tunisia for animal foodstuffs.

As for the potential, it is considerable: 23 million hectares of irrigated arable land in Turkey; a real dynamism in the agro-food sector in Morocco, which alone represents one third of the country's industrial and one fifth of its exports. In the other countries more limited but nevertheless real opportunities exist.

However there are handicaps such drought, low level agricultural productivity, unbalanced quality of the tools of industrial production, non-standardised products, weakness in the logistic chain and the packaging industry, atomisation of the offer, shortage of financing means, isolation of certain agricultural areas linked to the mediocrity of the infrastructures.

To tackle the problem of firm size, companies with a real industrial dimension must be encouraged, and in fact a private local capitalism is starting to appear in countries like Turkey, Israel, Egypt and Morocco. The need to call upon foreign investment seems equally necessary to provide, mainly through the multinationals, the financial, technical and industrial means to modernise the sector.

On this level the results are so far limited: the top 100 food industry multinationals today only have 160 subsidiaries in the countries of south Mediterranean, compared with more than 2,000 in Western Europe and 400 in eastern Europe.

As regards as the attractiveness of foreign firms is concerned the competition from other developing regions (Asia and the East Europe countries notably) is very much alive. So as to improve thei attractiveness, the MEDA countries have to orient their action, in cooperation with their partners from the North, around four central themes: the gradual creation of a Euro-Mediterranean trading and cooperation space; the modernisation of the local business environment and the upgrading of the enterprises; an inventory and the exploitation of the local agro-food potential for export and for domestic needs; the implementation of a promotion-prospecting policy aimed at the exploitation of overall Mediterranean potential.

Source: Anima studies n°16 -Overview of agro-business and food sector in MEDA - 2005

The tourism sector represents an essential part of the GDP of countries in the area. The number of tourists never ceases to increase (with the exception of 2002 due to the September 11, 2001 attacks) with around 44 million arrivals in 2004 (764 million at a global level). The sector undoubtedly enjoys considerable benefits such as the variety of supply (seaside, cultural etc. tourism, while some markets possess a potential which is almost untapped such as in Syria and Algeria) and the geographic proximity of the main countries of origin of tourists (two-thirds being European). It also has problems to confront such as, among others, the much-needed improvement in hotel infrastructure.

However, for the future of the area, the public works, construction, water and environment sectors must also be taken into consideration, including because of population growth and urbanisation. Currently, supply is still insufficient, particularly in terms of urban (especially school and health buildings), road and industrial infrastructure.

Even the automobile, aeronautical and mechanical sector could provide important jobs thanks to the delocalisation of European production, especially in the automobile industry (where countries such as Tunisia, Morocco and Turkey currently represent preferred destinations for this delocalisation).

In the ICT field, there are opportunities which are currently underexploited (for instance, the as-yet limited spread of the internet) due to shortcomings of the existing infrastructure, particularly in rural areas, except for Israel and, to a certain extent, Turkey.

Due to improvements in the standard of living, the consumer goods sector offers good opportunities. Currently, the market for these products is still in its infancy and little-structured.

Local production is not directly in competition with imported products in that it is geared towards the low-income earning brackets of the population who cannot afford to buy brand-name or luxury goods. Egypt and Tunisia, among others, have expressed a wish to modernise the sector and there is a widespread desire among local businesses to develop partnerships with foreign businesses.

The health sector has also benefited from the improvement in the standard of living of the population, with the expansion of access to basic health-related services to all in the MTCs. Consequently, the pharmaceutical sector also offers good prospects for development. The chemical sector is in recovery in the Mediterranean area with a particular role being played by Tunisia and Morocco in the production of phosphates and by Turkey for mineral chemicals.

Finally, in the biotechnology sector, Israel remains the country of excellence.

Prospects for innovation and internationalisation policies in the Mediterranean regions

The close link between internationalisation (attraction of foreign investment, trade in goods and services and human mobility) and innovation represents a fundamental characteristic of development processes in the Mediterranean area. Indeed, the reduced cost and good quality of local human resources as well as the relative closeness to the main European markets represent important factors for supporting the internationalisation process and ensuring the presence of hi-tech-oriented FDI (for instance, in sectors such as software and pharmaceutical research), that are in turn capable of ensuring the transfer and spread of innovation in the territories. Foreign businesses seek contexts that are conducive to innovation in order to adapt and improve their products (this is true for European businesses – such as Renault, Lafarge and Siemens – who subcontract certain research activities in the MTCs to their local-level production units) or divide up their research, experimentation and production activities across various units to exploit specific local-level benefits (as in the case of transnational businesses such as ST Microelectronics).

However, the new attractiveness of the Mediterranean area which has emerged in recent years requires interventions aimed at ensuring not just the continuity of flows but also the quality of FDI as an economic multiplier in terms of creating spill-over effects, such as employment and the spread of innovation at the local level. Hence, to this end, it is necessary to improve the local industrial and training system, foster investment in infrastructure required for economic activity, identify realistic industrial priorities that may serve to define an effective territorial marketing campaign concentrated on certain sectors (which will vary according to the relevant territory), and implement programmes and actions capable of enhancing human and natural resources in the area.

In general, a sustainable development outlook necessitates a new positioning of the MTCs in international markets, through production diversification combined with endogenous development aimed at reducing the vulnerability of local economies vis-à-vis international competition. All this entails a shift of production structure towards hi-tech sectors and a greater technological content in traditional activities.

The challenge of preparing the industrial sector for the free trade area in 2010 could represent a favourable opportunity for the development of innovation. In this regard, it is worth noting the importance of measures such as cooperation agreements in the fields of science and technology signed by several MTCs with the European Union aimed at integrating them within the Framework Programme on Research and Development[41].

[41] Such agreements have been entered into with Tunisia, Morocco, Israel and Turkey. They are based on the following principles: mutual benefit; reciprocity; non-discrimination; fair participation in intellectual property rights; access for

The development and spread of innovation requires a favourable environment and the creation of a coordinated system at national level. Although it is still quite difficult to talk in terms of national systems for innovation, important steps forward have been taken towards devising and implementing innovation policies. This is particularly true of countries such as Morocco and Tunisia, where clear innovation policies have been issued with a certain degree of coordination and complementarity between various policy areas including industry, SME development, science and technology, research and further training.

Nevertheless, a Euro-Mediterranean research and innovation community capable of competing and integrating itself at a global level for the most part still needs to be developed. To this end, the development of networks and links at various levels would seem necessary between scientific disciplines, between research and industry and between the various institutions involved in innovation and local development on both sides of the Mediterranean.

Joint research and innovation projects within the Euro-Mediterranean region should be linked to global networks and, hence, requires the creation of synergies, which would enable activities to be upsized and a greater degree of internationalisation to be achieved, representing further success factors in the field of technological innovation.

Important too is the role that local economic systems could play in improving the production and economic structure. The active presence of local actors should ensure the enhancement of local specificities with a greater degree of international openness and innovation (a hybridisation between local and global knowledge), in order to achieve more competitiveness in external markets. ICT could constitute an important factor in networking SMEs in glocal systems and value chains (see the box at the end of this chapter).

In this regard, the increasing internationalisation of markets could offer opportunities in terms of facilitating the creation of Euro-Mediterranean value chains which could represent an important integration factor between the northern and southern shores of the Mediterranean Basin and within a global context. These chains, if based on fair trade and cooperation could contribute effectively to the development of the technological and production capacity of less advanced systems.

Support for the creation of these value chains and the development of translocal innovation systems can also be nurtured via decentralised cooperation. In general, decentralised cooperation would seem to be a suitable vehicle for technology transfer, local capacity building and contributing more effectively to the knowledge economy. It could also help establish and revitalise local innovative capacity and creativity, often untapped and underutilised.

Local communities, well-targeted strata of the population, micro-enterprises and SMEs could greatly benefit from various forms of support for their innovative activities through appropriate decentralised funding, the availability of various technical services, training, the dissemination of information, expert advice and so on.

At the decentralised level, and with help from counterparts in the north, Regional and Translocal Innovation Systems (RISs and TISs) can be envisaged which build on the potential of the region. Through appropriate schemes, SMEs, micro-enterprises and cities can contribute to building innovation systems more effectively.

Mediterranean partners to certain specific EU programmes and vice versa to research and development programmes of the MTCs for European researchers; expansion of scientific and technological cooperation and partnerships; creation of a network of national contact points for each of the thematic priorities in the 6th Framework Programme; and regional planning of science policies.

By way of example, during the course of the 5th Framework Programme, Tunisia developed 52 research projects establishing 74 partnerships which involved Tunisian institutions and more than 200 with European institutions with the participation of 168 Moroccan, Egyptian, Turkish, Jordanian, Algerian and Palestinian partners.

The role that immigrant communities, which exist in many countries on the northern shores of the Mediterranean, could play in developing and reinforcing social capital in the area is probably underestimated at present. Making the most of the opportunity that their presence affords can be achieved not only by encouraging the use in their countries of origin of skills and experience acquired in their destination countries, with the aim of limiting the negative effects of the brain-drain, but also by supporting migrants as active participants in innovative projects involving both their countries of residence and countries of origin.

A particularly significant role could be played in the development of innovation by women and youth. In recent years, the Middle East and North Africa have invested in women's education, increasing their productive potential and earning capacity. However, obstacles to women's increased participation in the labour force - which still remains the lowest in the world - strongly suggest that the region is not benefiting from the potential returns on this investment[42]. In general, in public life, cultural, legal, social, economic and political factors impede women's equal access to education, health, job opportunities, citizenship rights and representation. In private life, traditional patterns of upbringing and discriminatory family and personal status laws perpetuate inequality and subordination[43].

However, active participation by women in state, social, and economic institutions could help introduce new ideas and innovation into the region's development processes and contribute to overall better governance by increasing institutional responsiveness and accountability[44].

Moreover, prospects for young new entrants to the labour market are poor and, even in higher-growth countries, young workers face difficulties in securing jobs[45]. Yet the reasonable education level and greater openness of young people could constitute important drivers of innovation for the region.

In conclusion, there is a potential in the MTCs that needs to be exploited despite the existence of structural lags and weaknesses. There is a strong desire on the part of these countries to create various forms of international labour division to go beyond the subcontracting role of European or global businesses, thereby specialising in higher value-added and higher innovation-oriented sectors. This entails a new form of Euro-Mediterranean economic relations, where innovation and internationalisation through cooperation between local systems can play a decisive role.

Policy recommendations to promote innovation in ICT

1) *Encourage innovation in small- and medium-sized enterprises*
   In particular, attention needs to be focused on: educational investments to provide training and attract students to new ICT career choices and to support teachers' professional development; support for developing SME-oriented software and a robust local software industry; incentives

[42] World Economic Forum - The Arab World Competitiveness Report 2005

[43] According to the Arab Human Development Report, a tight job market, slow job creation and the spread of women's education, along with society's irrational preference that men should take what jobs there are, have combined to increase the unemployment of women, especially educated women, even in Arab countries that import non-Arab workers. The State has also progressively withdrawn from economic and service activity and limited government employment, which previously represented the preferred form of employment for women and a bastion of their rights. As a result, the region is witness to an abundance of qualified female human capital suffering from above average rates of unemployment. Another factor that disempowers women economically is the bias in labour practices against women when they do work, particularly in the private sector, which has reduced women's relative earnings (UNDP – Arab Human Development Report 2005).

[44] World Economic Forum - The Arab World Competitiveness Report 2005

[45] World Economic Forum - The Arab World Competitiveness Report 2007

to research and development (R&D) in technology-related services and innovative business practices; and publicity campaigns to inform and educate SME owners about the innovative potential of new technologies.

2) *Introduce innovative financing approaches*
In particular, notable ways of encouraging private and foreign investment, especially recommended by the World Bank, include:[46] awarding competitive subsidies (competitive bidding for the award of cash subsidies to technology providers can stimulate private investment by lowering up-front risk); aggregating demand (pooling government departments' and agencies' technology purchasing needs and soliciting competitive tenders can stimulate the private sector to invest in new infrastructure and services); and providing private funding guarantees (governments can develop loan guarantee schemes, such as those operating in Europe, to encourage private lenders to finance technology investments).

3) *Lower administrative obstacles to encourage investment*
Although some countries have made significant recent progress in improving the business environment for entrepreneurs, conditions are far from ideal and administrative burdens can especially hinder innovative ventures.

4) *Public-private partnerships*
In general, the region has few successful public-private partnerships, though there are signs of change Over the past few years, Egypt and Jordan have encouraged investments and partnerships in technology projects. Egypt has convinced international companies, such as Microsoft and Cisco Systems, as well as national companies, to participate in multimillion dollar investments. Jordan has forged partnerships between its software development sector and international companies to increase software exports to developed countries.
The large scale and cost of infrastructure investments, the specific technologies and their implications for future development are all sound reasons for Arab countries to explore new financing, partnerships and regional initiatives to share resources and expertise.
Public-private partnerships are well-suited to long-term technology investments where risk is higher than other opportunities that typically attract private investors, such as real estate or commercial trading.
However, such partnerships require new sets of negotiating and oversight skills for governments to be able to participate effectively. Because the Middle Eastern technology sector is in the early stages of development, foreign companies must participate to transfer knowledge and expertise. Until a full set of IPR (intellectual property rights) and patent protection laws are promulgated and enforcement is raised to the standards of developed countries, attracting foreign partners will be difficult and time-consuming.

5) *Innovate by sharing best practices*
Even if there are several innovative initiatives that could serve as models for best regional practices and possibly extend to other forms of cooperation and mutually beneficial endeavours, regional sharing of knowledge is not common among Middle Eastern countries.
A promising route to encourage innovative regional projects would be to start developing formal institutional channels to share information about best practices.
Recognizing the importance of regional cooperation, in 2003 the United Nations Development

[46] Wellenius, B. 2006. "Extending Communication and Information Services: Principles and Practical Solutions." In Information and Communications for Development: Global Trends and Policies, ed. P. Guislain, C. Zhen-Wei Qiang, B. Lanvin, M. Minges, and E. Swanson, pp. 41–55. Washington, DC: World Bank.

Programme announced an initiative, Information & Communities Technologies for Development in the Arab Region (ICTDAR), to assist all Arab countries to improve their ICT capabilities.

In addition to the above, other measures which would support the development of innovation are the opening up of markets in the ICT sector, the sharing of regulatory and legislative information, the monitoring and measurement of development and innovation within and across the countries, and the encouragement of entrepreneurial opportunities such as offshore call centres and so on.

Source: World Economic Forum - The Arab World Competitiveness Report 2007

ANNEXES

Economic performance

Countries	GDP (PPP US$ billion) 2004(a)	GDP per capita 2004 (PPP US$)	GDP per capita annual growth rate	
			1975-2004	1990-2004
Israel	**165.7**	**24,382**	**1,9**	**1,6**
Lybia (b)	**29.1**	**5,073**	**-**	**-**
Jordan	**25.5**	**4,688**	**0.5**	**0.5**
Tunisia	**77.2**	**7,768**	**2.3**	**3.2**
Turkey	**556.1**	**7,753**	**1.8**	**1.6**
Occupied Palestinian Territories (c)	**3.5**	**1.026**	**-**	**-**
Algeria (d)	**213.7**	**6,603**	**0.1**	**0.9**
Syria	**67.1**	**3,610**	**1.1**	**1.5**
Egypt	**305.9**	**4,211**	**2.6**	**2.5**
Morocco	**128.5**	**4,309**	**1.4**	**1.1**
China	***7,642.3***	***5,896***	***8.4***	***8.9***
United States(e)	***11,651.1***	***39,676***	***2.0***	***1.9***
Developing countries	**24,127.9**	**4,775**	**2.4**	**3.0**
East Asia and Pacific	**11,327.5**	**5,872**	**6.1**	**5.8**
South Asia	**4,650.6**	**3.072**	**2.5**	**3.3**
Central and EasternEurope and the CIS	**3,545**	**8,802**	**-**	**0.9**
OECD	**32,007.9**	**27,571**	**1.4**	**1.4**

Sources: UNDP - Human Development Report 2006

a) PPP stands for Purchasing Power Parity
b) Data are in US$
c) Data are in US$ and refer to 2003
d) Estimates are based on regression
e) In theory, for the United States the value of GDP in purchasing power parity (PPP) US dollars should be the same as that in US dollars, but practical issues arising in the calculation of the PPP US dollar GDP prevent this.

Trade composition

Countries	Imports of goods and services (% of GDP)		Exports of goods and services (% of GDP)		Primary Exports (% of merchandise exports)		Manufactured exports (% of merchandise exports)		High-technology exports (% of merchandise exports)		Terms of trade (1980= 100) (a)
	1990	2004	1990	2004	1990	2004	1990	2004	1990	2004	2004
Israel	**45**	**49**	**35**	**44**	**13**	**5**	**87**	**94**	**10**	**19**	**118**
Libya	**31**	**36** (b)	**40**	**47** (b)	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Jordan	**93**	**80**	**62**	**48**	**44**	**28**	**56**	**72**	**7**	**5**	**99**
Tunisia	**51**	**48**	**44**	**45**	**31**	**22**	**69**	**78**	**2**	**5**	**80**
Turkey	**18**	**35**	**13**	**29**	**32**	**15**	**68**	**85**	**1**	**2**	**94**
Occupied Palestinian Territories	**-**	**49** (c)	**-**	**86** (c)	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Algeria	**25**	**26**	**23**	**40**	**97**	**98**	**3**	**2**	**-**	**1**	**75**
Syria	**28**	**34**	**28**	**35**	**64**	**87**	**36**	**11**	**-**	**1**	**-**
Egypt	**33**	**29**	**20**	**29**	**57**	**64**	**42**	**31**	**-**	**1**	**50**
Morocco	**32**	**39**	**26**	**33**	**48**	**31**	**52**	**69**	**-**	**10**	**109**
China	***16***	***31***	***19***	***34***	***27***	***8***	***72***	***91***	***-***	***30***	***78***
Hungary	***29***	***68***	***31***	***64***	***35***	***11***	***63***	***88***	***-***	***29***	***84***
United States	***11***	***14 (c)***	***10***	***10 (c)***	***21***	***14***	***75***	***82***	***34***	***32***	***112***
Italy	***20***	***26***	***20***	***27***	***11***	***11***	***88***	***88***	***8***	***8***	***132***
France	***23***	***26***	***21***	***26***	***23***	***17***	***77***	***83***	***16***	***19***	***-***
Spain	***20***	***29***	***16***	***26***	***24***	***21***	***75***	***77***	***6***	***7***	***121***
Developing countries	**24**	**36**	**25**	**39**	**38**	**22**	**59**	**74**	**-**	**24**	**-**
East Asia and Pacific	**33**	**52**	**34**	**56**	**23**	**11**	**73**	**86**	**-**	**33**	**-**
South Asia	**13**	**23**	**11**	**21**	**27**	**24**	**71**	**76**	**-**	**4**	**-**
Central and Eastern Europe and the CIS	**28**	**44**	**29**	**46**	**32**	**13**	**-**	**55**	**-**	**10**	**-**
OECD	**18** (c)	**22** (c)	**17**	**21**(c)	**20**	**17**	**77**	**80**	**18**	**18**	**-**

Sources: UNDP - Human Development Report 2006

a) The ratio of the export price index to the import price index measured relative to the base year 1980. A value of more than 100 means that the price of exports has risen to the price of imports

b) Data refer to 2002

c) Data refer to 2003

Structure of MEDA exports by industrial sector – 2002

Category	Tunisia	Jordan	Lebanon	Marocco	Egypt	Syria	Algeria
Minerals & chemicals	**25%**	**40%**	**33%**	**23%**	**43%**	**81%**	**99%**
Clothing & textiles	**41%**	**14%**	**4%**	**34%**	**24%**	**7%**	**-**
Fresh & processed food	**9%**	**16%**	**21%**	**23%**	**19%**	**9%**	**-**
Basic & misc.manifacturing, non electrical machinery & transport equipment	**7%**	**17%**	**37%**	**5%**	**14%**	**-**	**0%**
Consumer electronics & electronic components	**12%**	**3%**	**2%**	**10%**	**-**	**-**	**-**
Leather & wood products	**7%**	**8%**	**3%**	**5%**	**0%**	**1%**	**-**
Value of good exported in € million	**6,208**	**2,0103**	**758**	**7,871**	**4,967**	**4,510**	**23,380**

Source: Data taken from "The Arab World Competitiveness Report 2002-2003" – World Economic Forum. It is based on trade data for the year 2000

Main products traded between the EU and the SMCs (millions of euro), in 2005

Products most imported by the EU	**Products most exported by the EU**
Algeria	
Petroleum 9,975	Road vehicles 1,407
Natural gas 5,573	Other transport equipment 1,071
Egypt	
Petroleum 1,583	General industrial machinery and equipment 657
Natural gas 752	Other transport equipment 555
Israel	
Non-metallic mineral products 1,944	Non-metallic mineral products 3,452
Vegetables and fruit 629	Road vehicles 929
Jordan	
Other transport equipment 140	Telecommunications and sound-recording and reproducing apparatus and equipment 305
Fertilisers 38	Road vehicles 207
Lebanon	
Non-metallic mineral products 18	Petroleum 576
Metalliferous ores 17	Medicinal and pharmaceutical products 213
Morocco	

Other transport equipment 2,354	Other transport equipment 2,710
Articles of apparel and clothing accessories 2,288	Textile yarn, fabrics, made-up articles and related products 1,182
Palestinian Authority	
Crude animals and vegetable materials 3.8	Road vehicles 31
Crude fertilisers 0.3	Power-generating machinery and equipment 9
Syria	
Petroleum 2,555	Petroleum 421
Articles of apparel and clothing accessories 83	Machinery for particular industries 242
Tunisia	
Articles of apparel and clothing accessories 2,479	Textile yarn, fabrics, made-up articles and related products 1,276
Machines et appareils électriques,n.d.a. 1,067	Electrical machinery, apparatus and appliances n.e.c.846
Turkey	
Articles of apparel and clothing accessories 8,170	Road vehicles 6,793
Road vehicles 5,834	Machinery for particular industries 2.838
PPM 10	
Petroleum 16,165	Road vehicles 11,134
Articles of apparel and clothing accessories 13,465	Electrical machinery and apparatus n.e.c.6,359

Source: Eurostat

Foreign direct investment

Countries	**Net foreign direct investment inflows (% GDP)**	
	1990	**2004**
Israel	**0.3**	**1.4**
Lybia	**-**	**-**
Jordan	**0.9**	**5.4**
Tunisia	**0.6**	**2.1**
Turkey	**0.5**	**0.9**
Occupied Palestinian Territories	**-**	**-**
Algeria	**0.1**	**1.0**
Syria	**0.6**	**1.1**
Egypt	**1.7**	**1.6**
Morocco	**0.6**	**1.5**
China	***1.0***	***2.8***
Developing countries	***0.9***	***2.7***
East Asia and the Pacific	***1.7***	***3.4***
South Asia	***-***	***0.7***
Central and Eastern Europe and the CIS	***-***	***4.0***
OECD	***1.0***	***1.3***

Source: UNDP - Human Development Report 2006

Sources of FDI in the MEDA region

In No. Of projects per region of origin	No. projects 2006	% projects 2006	% projects 2005	% projects 2004	% projects 2003
UE-27 + EFTA	**343**	**43.5**	**49.9**	**56.0**	**63.5**
USA/Canada	**142**	**18.0**	**16.4**	**16.6**	
Gulf States and other MENA countries	**172**	**21.8**	**14.8**	**11.7**	**8.3**
MEDA-10	**46**	**5.8**	**5.6**	**4.4**	**4.6**
Asia-Oceania	**70**	**8.9**	**8.8**	**8.5**	**4.6**
Other countries	**15**	**1.9**	**3.1**	**2.9**	**2.5**
TOTAL	***788***	***100***	***100***	***100***	***100***

In €million per region of origin	flows 2006	% flows 2006	% flows 2005	% flows 2004	% flows 2003
UE-27 + EFTA	**16,248343**	**25**	**46.3**	**55.3**	**46.5**
USA/Canada	**20,073**	**30.9**	**18.6**	**8.0**	**27.3**
Gulf States nad other MENA countries	**23,701**	**36.4**	**20.0**	**19.5**	**12.1**
MEDA-10	**2.261**	**3.5**	**3.9**	**0.5**	**13.8**
Asia-Oceania	**2,588**	**4.0**	**5.4**	**5.6**	**0.3**
Other countries	**186**	**0.3**	**5.8**	**11.1**	**0**
TOTAL	***65,058***	***100***	***100***	***100***	***100***

Source:ANIMA-MIPO

Technology diffusion and creation

Countries	Telephone mainlines (a) (per 1,000 persons)		Cellular subscribers (a) (per 1,000 persons)		Internet users (a) (per 1,000 persons)		R&D expenditures (% of GDP)	Researchers in R&D (per million people)
	1990	2004	1990	2004	1990	2004	2000-2003 (b)	2000-2003 (b)
Israel	**349**	**441**	**3**	**1,057**	**1**	**471**	4.9	**1,613**
Libya	**51**	-	**0**	-	**0**	**36**	**-**	**361**
Jordan	**78**	**113**	**-**	**293**	**-**	**110**	**-**	**1,927**
Tunisia	**37**	**121**	**-**	**359**	**0**	**84**	**0.6**	**1,013**
Turkey	**122**	**267**	**1**	**484**	**0**	**142**	**0.7**	**341**
Occupied Palestinian Territories	**-**	102	**0**	**278**	**0**	**46**	**-**	**-**
Algeria	**32**	**71**	**-**	**145**	**0**	**26**	**-**	**-**
Syria	**39**	**143**	**0**	**126**	**0**	**43**	**-**	**29**
Egypt	**29**	**130**	**-**	**105**	**0**	**54**	**0.2**	**-**
Morocco	**17**	**44**	**-**	**313**	**0**	**117**	**0.6**	**782**
China	***6***	***241***	***-***	***258***	***0***	***73***	***1.3***	***663***
Hungary	***96***	***354***	***-***	***863***	***0***	***267***	***0.9***	***1,472***
United States	***545***	***606***	***21***	***617***	***8***	***630***	***2.6***	***4,484***
Italy	***394***	***451***	***5***	***1,090***	***-***	***501***	***1.2***	***1,213***
France	***495***	***561***	***5***	***738***	***1***	***414***	***2.2***	***3,213***
Spain	***325***	***416***	***1***	***905***	***-***	***336***	***1.1***	***2,195***
Developing countries	**21**	**122**	**-**	**175**	**-**	**64**	**1.1**	**416**
East Asia and Pacific	**18**	**199**	**-**	**262**	**-**	**91**	**1.7**	**740**
South Asia	**7**	**35**	**-**	**42**	**0**	**29**	**0.7**	**132**
Central and Eastern Europe and the CIS	**125**	**-**	**-**	**455**	**0**	**139**	**1.0**	**2,204**
OECD	**390**	**491**	**10**	**714**	**3**	**563**	**2.5**	**3,108**

Sources: UNDP - Human Development Report 2006

a) Telephone mainlines and cellular subscribers combined form and indicator for Millennium Development Goal 8

b) Data refer to the most recent year available during the period specified