



SMEs in the ESCWA region

- **SMEs are significant economic actors in the region:**
 - Lebanon: ~ 99% of firms are SMEs (< 50 employees)
 - Egypt: 98% of firms are SMEs (< 100 employees) and contribute 80% of GDP
 - Jordan: 98% of firms are SMEs (< 249 employees and under JD 30,000 or about US\$17,000);
 - In GCC: SMEs are firms with less than 100 employees
 - In Yemen: Firms with less than 50 employees are SMEs.
- **SMEs are the main employers** of educated human resources and contribute effectively to elevating the standard of living and empowering the middle class in societies ^[1]
- **SMEs are a major contributor to income and employment generation** for the population at large.

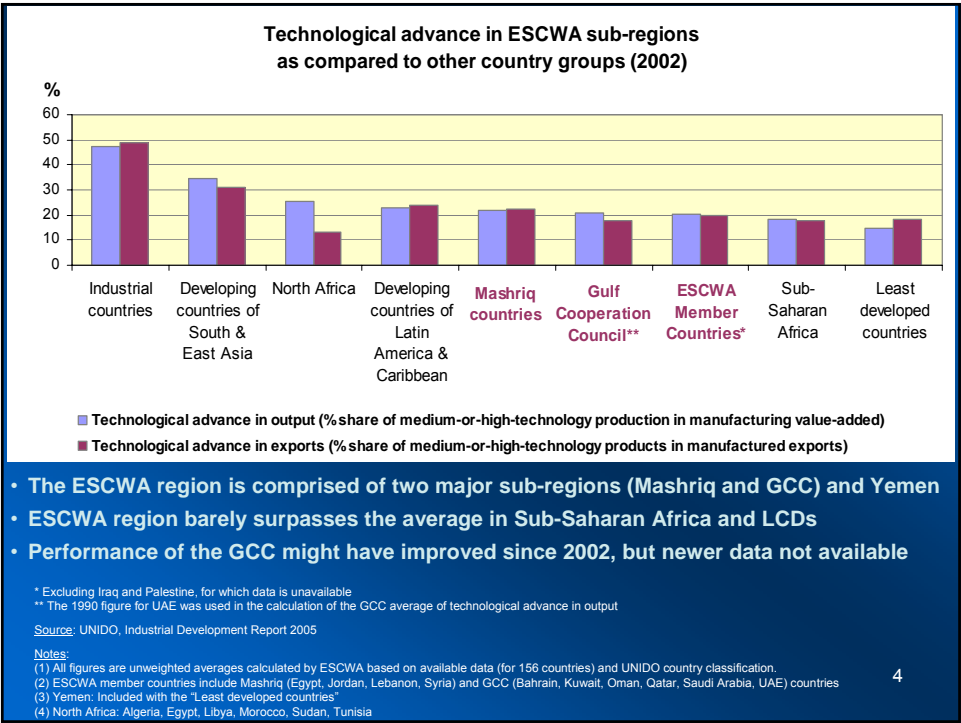
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[1] National Council for Scientific Research NCSR, Republic of Lebanon, National Science – Technology – Innovation Policy STIP, 2006.

SMEs face many challenges

- Globally, competition is increasing due to:
 - Trade liberalization, more open markets
 - Well-informed, more sophisticated consumers
- Regionally, SMEs face:
 - Financial constraints associated with access to finance
 - Human resource constraints due to brain drain and weak linkages between graduates and business needs
 - Legal and bureaucratic barriers, e.g., the cost of doing business, registration procedures, intellectual property
 - Traditional business structures, e.g., family-owned businesses, secrecy
 - Uncertainty and insecurity, which increase risks
 - The technological sophistication of output & exports from the region is below that of most other regions.

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Classification of Sectors by Technological and Skill Intensity		
	High-skill	Low-skill
Manufacturing		
• High-tech	Chemicals Electrical and optical equipment Other transport equipment	Machinery Motor vehicles
• Medium-tech	Refined petroleum	Plastics Minerals Basic metals Fabricated metals
• Low-tech	Publishing	Food Textile Leather Wood Paper
Business services	Trade Telecommunications Finance Other business activities	Hotels and restaurants Transport
Other sectors	Utilities	Construction

Source: World Economic Outlook: Globalization and Inflation, IMF, p.127, April 2006

How can SMEs improve productivity?

- SMEs can improve their productivity by:
 - Lowering production costs by reducing the costs of inputs (e.g., raw materials, land, energy and labor costs)
 - Improving production efficiency and management systems (e.g., reducing transaction costs, improving inventory control, minimizing unwanted by-products)
- Technology creates multiplier effect that can generate additional productivity gains

Technology in SMEs

- “Technology” as defined by Encarta Dictionary:
 - Application of tools and methods: the study, development, and application of devices, machines, and techniques for manufacturing and *productive processes, or*
 - Method of applying technical knowledge; or
 - Sum of a society’s or culture’s practical knowledge
- Types
 - Industrial technologies for manufacturing
 - Environmental technologies
 - Biotechnologies and traditional knowledge
 - Nanotechnologies
 - Information and communication technologies
 - Etc.

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Technology in SMEs

- Technology provides following benefits for enterprises of all sizes:
 - Increased savings in total costs of operations
 - Improved decision-making and better business continuity
 - Improved coordination with supply chain trading partners and customers
 - Consistent and efficient production of goods based on desired specifications
 - Appropriate management of plant-floor based on collected data
 - Deeper understanding of the revenue-generation operations
 - New career opportunities in more creative and value added activities
 - Better information flows for aligning activities at every level
- **Role of technology in improving SME productivity has been widely proven**

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Models for Harnessing Technology in SMEs

- SMEs have succeeded in deploying suitable technologies through one, or a combination, of the following business models:
 - *Turnkey solutions* imported from technology suppliers
 - *Home grown innovations* & technology-based products
 - *Customization* and adaptation of existing off-the-shelf products and tools
 - *Outsourcing and securing sub-contracts* for technology-based services and supplies
- These models will be discussed in detail later during the meeting.

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The Enabling Environment

- **Government policy interventions** that can facilitate harnessing of technology by SMEs involve the strengthening of the enabling environment for private enterprise development
- **Elements of an enabling environment include:**
 1. Human resources
 2. Research and development
 3. Financing
 4. Legal framework
- ❖ Care must be taken to differentiate during planning, monitoring and assessment of impact of interventions on SMEs as compared to larger enterprises or the private sector at large, and clearly define policy intervention goals.

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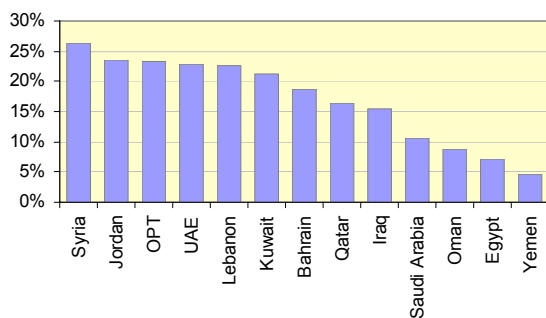
1. Skilled Human Resources

- There exists a positive correlation between education and economic development
 - An educated workforce stimulates higher rates of innovation
 - **Inter-disciplinary thinking is a way to foster innovation**, with most innovations emerging from the transfer of knowledge about new technological developments between sectors
 - Innovation yields the ability to develop and sell increasingly complex goods and services
 - **Linkage between product development and service provision (e.g., operation & maintenance) is a way to increase diversification, income and profitability**
- SMEs tend to have a more flexible management and labor structures, which can allow for easier networking and exchange between units and opportunities for innovation.

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1. Skilled Human Resources *(continued)*

Graduation rates from scientific and engineering programs (1997-2004)



Source: ملاحق إحصائية والتقارير التنموية المستندة لقطاعات مختارة في منطقة الإسكوا (6) E/ESCWA/SDPD/2005/Booklet.6

- In 2004, literacy among youth between 15 and 24 years was over 90% in most ESCWA countries [1]

- The Arab region spends 5.4% of GDP per year on public universities and colleges, compared with 5.0% in industrialized countries and 3.8% in developing countries [2]

- The appropriateness of skills and knowledge gained by university graduates in the region does not necessarily match needs of local businesses – results in brain drain or underemployment

- Support for Start-Ups and Entrepreneurship also needed

[1] UNDP Human Development Report, 2004

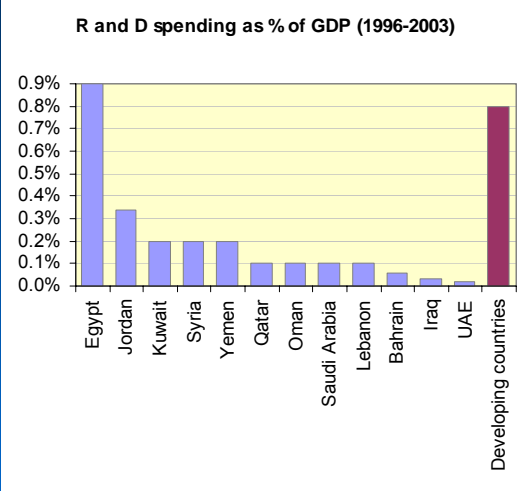
[2] The State of Science in the World, UNESCO Science Report 2005

2. Relevant Research & Development

- Technological innovation has been increasingly the outcome of scientific research
- More than 30% of annual revenues in manufacturing derive from new or improved products ^[1]
- “Neither companies nor countries can ‘free-ride’ on science elsewhere” ^[1]
- Most Arab scientists are still concentrating on the agriculture and health sectors
- R&D must deliver:
 - Improvement of industrial information and technical consulting services
 - Creation of legal and organizational frameworks triggering incentives for industrial development
 - Well-prepared entrepreneurs and innovative high value added products
 - Solutions to problems and needs with regional context for the global markets

[1] National Council for Scientific Research NCSR, Republic of Lebanon, National Science – Technology – Innovation Policy STIP, 2006.

2. Relevant R & D (continued)



Source: ملاحح قطرية وإقليمية للتقنية المستعملة لقطاعات مختارة في منطقة الإسكيا (6) قطاع العلم والتكنولوجيا E/ESCWA/SDPD/2005/Booklet.6

- Developing countries devoted 0.8% of their GDP to R&D against 2.4% in rich countries ^[1]
- India spent 0.5% of its GDP on R&D in 2000 and increased it to 2% in 2007 ^[2]
- Figures indicative of R&D spending by the public sector (in the Arab countries, only 1% of reported R&D investment comes from the private sector)
- Egypt targeting 1% spending on GDP through proposed new S&T council

[1] UNCTAD, The Least Developed Countries Report 2007: Knowledge, Technological Learning and Innovation for Development.
[2] UNESCO (2003), Global Investment in R&D Today

3. Partnering Finance

- Finance is needed to secure investments in:
 - Modernization of existing SMEs in order to sustain the survival struggle of these organizations
 - Innovative new technology based **start-ups**
 - Technology retrofitting packages of **existing production facilities**, including processing and monitoring tools
- In the ESCWA region, finance of equipments is difficult unless guaranteed by real estate or alike
- **Banks find alternative investment opportunities (e.g. real estate and raw materials) more lucrative**
- Government-driven intervention and subsidies to support private enterprises common in the region, but better targeting of SMEs (based on SME business structures) needed.
- Situation is not unique to the ESCWA region
 - Over the last 25 years only 3.9% of World Bank loans to developing countries targeted science and technology[1]

[1] UNCTAD, The Least Developed Countries Report 2007: Knowledge, Technological Learning and Innovation for Development.

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3. Partnering Finance (continued)

- In the ESCWA region, SMEs can benefit from Islamic banking institutions in seeking investments for technology in both existing enterprises and start-up ventures
 - Partner in the enterprise with all risks and rewards
 - No secured interest rates [1]
- Islamic Banking in ESCWA region has tended to be biased against agricultural and industrial ventures [2]
- In the last 5 years, many investment banking institutes have opened up in the region targeting new start-ups especially technology based:
 - 2005, Bahrain Venture Capital Bank targets “*fundamentally sound and well managed SMEs across multiple industry sectors with strong growth potential.*”[3]
 - 2006, UAE Injazat Technology Fund “*functioning totally within Islamic laws and aims to invest in promising technology start-up companies in MENA*”[4]

[1] The Muslim banking world faces the challenge of expanding internationally while remaining true to Islamic principles, By Nasser M. Suleiman, <http://www.nubank.com/islamic/governance.pdf>.

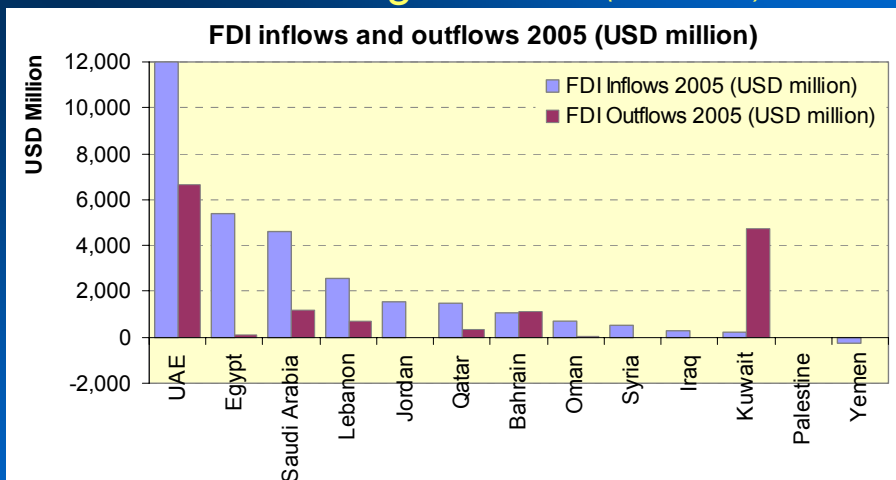
[2] Islamic Banks and Investment Financing, Rajesh K. Aggarwal, Tarik Yousef, Journal of Money, Credit and Banking, Vol. 32, No. 1 (Feb., 2000).

[3] VC-Bank, Bahrain, www.vcbank.com.

[4] Injazat Technology Fund, UAE www.injazatfund.com.

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3. Partnering Finance *(continued)*



- FDI often used as indicator of technology transfer, but care should be taken since SMEs often not the recipient of FDI, thus interventions to stimulate FDI or assessments that monitor this indicators are biased towards larger enterprises.
- FDI *outflows* also source of technology transfer as much (if not more) than inflows

Source: UNCTAD, World Investment Report 2006

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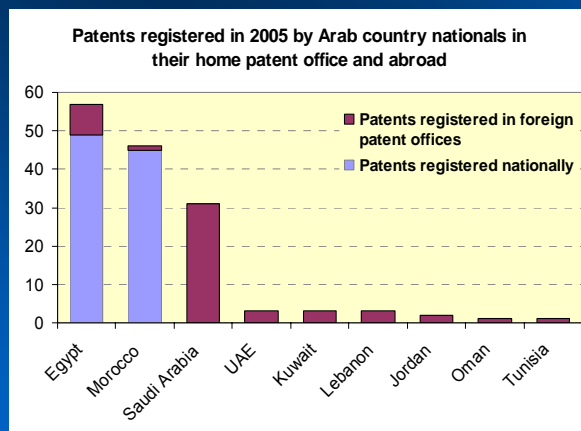
4. Strengthened Legal System

- SMEs, especially family-owned ones, face difficulties with regard to completing legal and bureaucratic procedures (e.g. registration, licensing)
- Advancements were made in the region in terms of legalizing e-business and e-government transactions
- Advancements were also made in terms of legislating intellectual property rights (IPR):
 - IP can be a hidden asset and a source of wealth for SMEs ^[1]
 - Relatively a few patents or intellectual outputs have been reported, protected, or registered in the ESCWA region
 - IPR enforcement is weak: penalties represented a small portion of the alleged illegal gains, therefore future criminal acts not deterred
 - There is intellectual production in ESCWA region, however, there is hindrances and lack of interest in registering intellectual property

[1] Patents: Tapping the Potential of Innovative New Products: www.wipo.int/sme/en/documents/wipo_magazine/06_2002

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4. Strengthened Legal System *(continued)*



Source: WIPO Patent Report: Statistics on Worldwide Patent Activity (2007 Edition)

[1] UNCTAD, The Least Developed Countries Report 2007: Knowledge, Technological Learning and Innovation for Development.
[2] WIPO Patent Report: Statistics on Worldwide Patent Activity (2007 Edition)

- Between 2000-2004, while developing countries filed annually an average of 172,000 patents, rich countries filed more than 1 million patents ^[1]

- Not a single country in the region, nor collectively the ESCWA member states as a region, made it among the top 20 in terms of registered patents per resident in 2005 ^[2]

- Having a patent office is not sufficient, culture of stimulating knowledge & commitment to protecting it key.

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Key players

- Actions taken by three key players influence the capacity of SMEs to access, incorporate, harness, and develop new technologies towards improving their productivity and competitiveness:
 - Government, including public research centers
 - Private sector, including SMEs and associated business support organizations & service providers
 - Universities and technical institutes

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Forging & Fostering Linkages

- Aligning priorities and actions between the three key players will yield a winning scenario
- The role of each player and the inter-linkages between them should be considered when drawing up the recommendations of this meeting

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graph TD; Gov[Government<br/>•Legislation<br/>•Incentives<br/>•Policies]; Univ[Universities<br/>•Education<br/>•Tech. training<br/>•Research]; Priv[Private sector<br/>•Investments<br/>•Innovation<br/>•Initiatives]; C([•Productivity<br/>•Competitiveness<br/>•Economic growth]); Gov <--> Univ; Gov <--> Priv; Univ <--> Priv; Gov <--> C; Univ <--> C; Priv <--> C;
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In formulating and assessing Policy Interventions: Target SMEs

Assessment stages & levels of analysis for industrial policy interventions

Activities and Processes	Outputs	Outcomes (Purpose)	Impacts (Goal)
Process and output level assessment		Outcome and impact level assessment	
Policy Intervention	Changes in Policy Environment	Changes in Firm and Business Performance	Changes in Pro-Poor Econ Growth & Sustainable Development

- This logical framework can assist in helping policy advisers to tune policy interventions in a manner that looks at direct and indirect needs of SMEs

Source: Pinder, Kirkpatrick and Mosedale (2005a), p. 12 and ESCWA, *Impact of Industrial Policies on SME Competitiveness*, 2007.

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Thank you!

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