

United Nations Conference on Trade and Development

**IMPROVING THE COMPETITIVENESS OF SMEs
THROUGH ENHANCING PRODUCTIVE CAPACITY***

***Proceedings of Four Expert Meetings**



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Preface

Small and medium-sized enterprises (SMEs) are important agents of development throughout the world. Promoting a country's SME sector plays a crucial role in maintaining high employment and income generation and is therefore critical for achieving sustainable growth.

The process of globalization, characterized by fundamental changes in the organization of global production, rapid advances in information and communication technologies (ICTs), and the emergence of multilateral agreements, is significantly changing the international environment. New opportunities have opened up but at the same time new problems and threats have raised new challenges for policy makers in developing countries.

As already mandated by the Bangkok Plan of Action (adopted by UNCTAD X in February 2000) and reaffirmed in the São Paulo Consensus, adopted by UNCTAD XI in June 2004, UNCTAD should assist developing countries in improving the competitiveness of their domestic productive sector. In particular, stimulating the development of SMEs and identifying ways and means for domestic SMEs to meet international standards is vital to enable them to become competitive on global markets.

To this end, UNCTAD has organized four Expert Meetings to discuss specific topics that are considered critical for SME development. The present publication is a selection of papers that were presented during those four meetings and gives an overview of the main issues discussed. Each chapter consists of an issues paper prepared by the UNCTAD secretariat as well as of a selection of national case studies that complement theory with relevant cross-country experiences. The sections end with a summary of conclusions and recommendations by experts.¹

The meetings were organized around the following four main topics:

- **TNC-SME Linkages**

The aim of the Expert Meeting on "The Relationship between SMEs and TNCs to Ensure the Competitiveness of SMEs", held from 27 to 29 November 2000 in Geneva, was to identify how TNC-SME linkages can be mutually beneficial for both TNCs and SMEs, to analyse the determinants of beneficial linkages, as well as to formulate policy recommendations targeted at the creation of strong inter-firm relationships.

The Meeting was organized based on the observation of the increasing tendency of TNCs to source production inputs globally, a trend that suggests that much of the future SME activities will be situated around such TNC production networks.

The national case studies from the Philippines, Venezuela and Ghana provide detailed insights into policies and measures implemented with the purpose of creating beneficial inter-firm cooperation that positively impacts local SME development.

One of the main conclusions reached during that meeting is that the creation of mutually beneficial TNC-SME linkages critically depends on the combination of factors, among which: a host country's overall policy environment; the corporate strategy of TNCs; the availability of local suppliers with competitive costs and quality; as well as on the contributions of the international community.

¹ Full reports of all issues covered in the individual meetings can be downloaded from the UNCTAD homepage www.unctad.org/meetings under the link Commission on Enterprise and Expert Meetings.

- **Financing Technology for SMEs**

The Expert Meeting on “Improving the Competitiveness of SMEs through Enhancing Productive Capacity: Financing Technology”, held from 28 to 30 October 2002 in Geneva, sought to identify possible innovative ways for financing SMEs.

Financing of productive capacity is central to any development strategy, but access to finance is still often restricted. This Expert Meeting considered national policies and programmes that governments could consider to facilitate access to different sources of financing.

In most developing countries banks are the main suppliers of finance. In some, venture capital is becoming increasingly important, particularly for high-technology SMEs. The case studies of China, Ireland and Nigeria illustrate the usefulness of policies and measures implemented by governments to further facilitate access to finance for SMEs.

- **Technology Development and Mastery**

The Expert Meeting on “Policies and Programmes for Technology Development and Mastery, including the Role of FDI”, held from 16 to 18 July 2003 in Geneva, sought to analyse policies and programmes that governments adopted for upgrading SMEs technological capacities.

So far, only a handful of developing countries – mostly located in South-East Asia – have managed to narrow the “technology gap” vis-à-vis developed countries. The studies on Italy, Mauritius and Indonesia illustrate examples where technology has been adapted and utilized remarkably well.

One of the key findings of this meeting was that the drivers for technology development (such as skills development, research and development capabilities, ability to attract FDI, strengthening local enterprises, infrastructure etc.) are closely interrelated. Therefore governments cannot afford to neglect any of the key drivers for technology if they wish to create a virtuous circle for technological development.

- **Promoting SMEs Export Competitiveness**

The Expert Meeting on “Promoting the Export Competitiveness of SMEs”, held from 8 to 10 December 2004 in Geneva, examined different patterns of internationalization of SMEs through exports, and discussed policies and measures that could help strengthen the export competitiveness of SMEs in developing countries. Special attention was devoted to business linkages between SMEs and TNCs, which are increasingly perceived as a way for SMEs to gainfully integrate into the global economy.

The meeting was organized based on the fact that even though SMEs represent the bulk of production, the share of SME exports in many countries still remains marginal.

It was agreed that there is a need to further facilitate SMEs’ access to international markets. The vulnerability of SMEs depends largely on their position in global production networks. The businesses suffering the most from new market conditions are generally those involved in activities at the bottom of the value chain, while enterprises involved in the finalization of products have much higher chances of succeeding.

Case studies on Malaysia and Egypt serve as examples of countries where TNCs, governments and global linkages programmes have demonstrated success in preparing and positioning domestic SMEs to export their products around the world. The case study on

Egypt, for example, gives a detailed overview of the efforts undertaken by different institutions to boost the share of SME exports in the country.

The Expert Meetings confirmed the consensus that emerged during the 1990s on the need for a flexible combination of State intervention and functioning of markets, a finely tuned mix of macro- and micro-policies and public-private partnerships in order to create a dynamic SME sector. As stated in the São Paulo consensus, “building productive capacities and enhancing international competitiveness requires a collective and coherent effort, primarily by the developing countries concerned, but also by home countries, investors and the international community” (para 42).

A handwritten signature in black ink, appearing to read 'Carlos Fortin'. The signature is fluid and cursive, with a prominent 'C' and 'F'.

Carlos Fortin
Officer-in-Charge of UNCTAD
February 2005

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**IMPROVING THE COMPETITIVENESS OF SMEs
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By the UNCTAD Secretariat

IMPROVING THE COMPETITIVENESS OF SMEs THROUGH ENHANCING PRODUCTIVE CAPACITY

UNCTAD Secretariat

THE GENERAL CONCEPT OF COMPETITIVENESS

At the national level

Competitiveness is considered by all countries to be a prerequisite for maintaining high levels of income and employment. Greater competitiveness allows developing countries to diversify away from dependence on a few primary-commodity exports and move up the skills and technology ladder, this being essential in order to sustain rising wages and permit greater economies of scale and scope in production (UNCTAD, World Investment Report, 2002, p. 117). Competitiveness can be assessed at either the national or the enterprise level. At the national level it has been defined as a nation's ability to produce goods and services that meet the test of international markets while simultaneously maintaining and expanding real incomes of its people over the long term (US Presidential Commission on Industrial Competitiveness). The ability to compete in international markets is usually thought to be dependent on macroeconomic policies and conditions (trade policies and exchange rates etc.) as well as on a nation's comparative advantage, that is its factor endowment (land, labour and capital). There are a few exceptions to this. For example, Singapore became the most competitive country in the world by adopting far-sighted policies that invested in institutions and human resources and attracted foreign direct investment (FDI) in order to make up for its lack of natural resources and capital.

It is generally believed that technology development plays an important role in economic competitiveness. However, economists have commonly been wary of, and sometimes openly hostile to, the joining of economic analysis with detailed discussions of technology issues (Efendioglu, 2001). The empirical approaches that economists have adopted tended to measure technology and technical change in terms of their impact on "productivity". The lack of measurable correlation (at least in the short run) between productivity change and technology development made it difficult to properly assess the impact of technology on economic development, growth and competitiveness.

The notion of national competitiveness has been called a "dangerous obsession" by Paul Krugman (Krugman, 1994). He argues that it is sufficient to reject the case for policies favouring high-tech industries on the ground that they are not necessarily high-productivity industries. This is another case of equating technology with productivity and ignoring the "external" effects of technology on the productivity of "user" industries. Technology creation, adaptation and innovation are important, but technology diffusion and use may be even more important for developing countries. New technologies such as information and communications technologies and biotechnologies are cross-section technologies and their application to traditional agricultural, manufacturing and service activities can revolutionize both processes and business methods, increasing both productivity and competitiveness.

Krugman is also sceptical about government capabilities to intervene in imperfect markets, and hence opposes a competitiveness strategy. However, if well designed and applied, a strategy to transit the high road to competitiveness may not become a dangerous obsession but a healthy national development.

Competitiveness is dependent not only on macroeconomic adjustments or natural endowments but also on the ability to achieve high productivity by deploying and using these assets (human resources, and capital and physical assets) in the most effective manner. Getting the macroeconomic

fundamentals right will not necessarily lead to competitiveness, particularly if the enterprise sector is weak, that is if there is little or no productive (supply) capacity. As Porter says, "For sound policies at the macro level to translate into an increasingly productive economy, then parallel microeconomic improvements must take place" (Porter, 2000). New patterns of competition require active micro policies and measures aimed at shaping new industrial locations; and enterprises have to restructure activities and facilities and acquire skilled labour.

According to Porter, the competitiveness of nations depends on their economic creativity. Economic creativity is measured using a technology index (innovation index and transfer of technology index) and a business start-up index (Porter, 2000). The start-up index includes the ease of starting a business, access to loan capital without collateral and access to venture capital.

Some countries do well on the technology index but fall down on the ease of starting a business. In some cases this is borne out by the low rate of employment growth, such as in Europe, where starting a new business can take up to 35 days (see Table 1, Appendix). For example, in the past decade employment growth in France stood at 0.5 per cent per annum and at 0.0 per cent in Germany, while in Italy employment contracted by 0.1 per cent compared with 1.5 per cent growth in the United States, where businesses can be set up in a matter of days (European Commission, 2002).

The concept of systemic competitiveness

Not only is it helpful to separate out and reflect on the relative contributions of both macro and micro policies to competitiveness, but also it is useful to incorporate the notion of "systemic competitiveness" when designing the appropriate improvements in the micro or business environment. The key assumption in systemic competitiveness is that competitive advantages are to a large extent created by deliberate collective action rather than being mere products of the invisible hand of the market.

The concept of systemic competitiveness is characterized by two distinguishing features. First, it emphasizes the significance of the meso level in addition to the micro and macro levels. The meso level includes local systems, both policies and supporting institutions. Second, the most important aspect of systemic competitiveness is the interaction or connectivity among the various actors at the various levels and their collaboration in the design and implementation of policies and support institutions and programmes.

Very interestingly, Lall (2001) proposes a framework illustrating the determinants of enterprise competitiveness which brings to mind Porter's famous "Diamond", but instead of introducing government as an extraneous variable it places it at the centre of the action. Lall's "triangle" of competitiveness shows enterprises interacting with three sets of variables (incentives, factors and institutions), two of which mainly belong to the meso level. From a policy perspective, this means that while macro policies are needed (such as ensuring a stable currency and exchange rates, controlling inflation, promoting open markets by gradual cuts in tariff rates, providing effective infrastructure and protecting property rights), successful industrial development is based also on market-friendly measures for increasing efficiency and interaction of meso-level institutions. These measures should follow a decentralized, flexible, bottom-up and tailor-made approach.

At the enterprise level

According to Altenburg et al. (1998), enterprise competitiveness is the ability to sustain a market position by, inter alia, supplying quality products on time and at competitive prices through acquiring the flexibility to respond quickly to changes in demand and through successfully managing product differentiation by building up innovative capacity and an effective marketing system. The difference between the competitiveness of an enterprise and that of a nation is that the enterprise will cease to exist if it remains uncompetitive for long whereas a nation never goes out of business no matter how badly it is managed or how uncompetitive it is. When a nation loses its competitiveness, this is reflected in its deteriorating welfare conditions rather than elimination from the market.

According to Porter, competitiveness is based on the increased productivity of a nation's enterprises (continuous increases in value-added). To achieve these continuous increases in value-added, enterprises must transform their ways of competing: they must shift from comparative advantages (i.e. low-cost labour, etc.) to competitive advantages, namely the ability to compete on cost and quality, delivery and flexibility. The competitiveness of enterprises depends on the business environment and the sophistication of company operations, including inter-firm cooperation. Getting the business environment right can be looked at from the policy and institutional point of view—are all the institutions and laws in place to create an enabling business environment? Or looked at from the enterprise level – what policies and support structures are necessary for enhancing their capacity?

Competitiveness has been the subject of a number of recent annual reports: UNCTAD's World Investment Report (WIR) 2002, UNIDO's Industrial Development Report 2002/2003, and the Global Competitiveness Reports 1979-2002, published by the World Economic Forum. While each has a slightly different focus (transnational corporations, industrial development, government intervention), they all agree that an important element in improving competitiveness is building domestic capabilities. For example, World Investment Report 2002 states: "If developing countries are to strengthen competitiveness, they will have to strengthen their capabilities, attract and stimulate activities suited to their endowments (or lack of) and upgrade them over time." None of the preceding reports goes into detail about the policies and support programmes that are necessary for strengthening productive capacity at the enterprise level, particularly that of small- and medium-sized enterprises (SMEs). Therefore, in filling out the picture on competitiveness, this report examines the groundwork that developing countries must lay if their domestic enterprises are to become competitive.

The importance of SMEs

In order to get governments to focus on both macro and micro policies, particularly for SMEs, the case must be made for supporting SMEs. While it is generally accepted that SMEs are important contributors to the domestic economy, not many governments have framed policies to enhance their contribution or increase their competitiveness. Most governments do not even have reliable statistics on SMEs. The statistics on SMEs are poor for a number of well-known reasons: lack of a uniform definition, high cost of an industrial census, and the fact that many SMEs do not register and remain outside the formal economy. The European Union (EU) and the Organization for Economic Co-operation and Development (OECD) have probably done the most comprehensive job in measuring the contribution of SMEs to their economies. Table 2 (Appendix) shows the SME share in the total number of enterprises, employment and output in selected developed and developing countries. SMEs usually comprise about 99 per cent of all enterprises, and account for from 44 to 70 per cent of employment and 50 per cent of manufacturing output. The figures for developing countries, although suspect reveal the same situation: SMEs appear to account for 98 per cent of enterprises, 50 to 80 per cent of industrial employment, and 50 per cent of manufacturing output.

Very often the single most important indicator of competitiveness is export competitiveness. This consists not only of higher exports, but also more diversified exports and an increase in their technology and skill content. It also includes "an expanding base of domestic enterprises able to compete globally; thus, competitiveness is sustained and is generally accompanied by rising incomes" (UNCTAD, WIR 2002, p. 117). The ability of SMEs to contribute to export varies widely - between 10 and 60 per cent (see Tables 3 and 4, Appendix). This varying ability to export is in itself an indication of how competitive SMEs can be or not be in the global economy and the fact that specific support measures might be needed to improve their performance.

Main winners in industrial competitiveness

Some experts have described three stages in competitiveness: catching up, keeping up and getting ahead. UNCTAD has recently tracked a number of countries that have done well in overall export competitiveness in terms of rapidly increasing market shares and upgrading into advanced activities (see Table 5, Appendix). Growing market shares show dynamic competitiveness and reveal the ability of a country to "get ahead" in terms of technology and trade (Unctad, WIR 2002, p. 149).

The United Nations Industrial Development Organization (UNIDO) has developed a competitive industrial performance scoreboard that enables one to spot the "winners" or those who are getting ahead. The scoreboard is based on a number of indicators that measure a country's industrial productive capacity and its industrial competitive capability. The industrial competitive capability is measured by manufacturing exports per capita. UNIDO found that only 16 developing countries had upgraded their industrial structure towards technology-intensive products between 1985 and 1998. Industrial production and manufactured exports within the developing world are highly concentrated.

The top five developing countries account respectively for 60 per cent of industrial production and 61 per cent of manufactured exports. UNIDO's in-depth analysis of the drivers of industrial performance allows us to identify "common denominators" in success stories and derive a taxonomy for strategic competitiveness (Efendioglu, 2001).

According to Efendioglu, strategic competitiveness has two main aspects: the ability to stay close to the frontier of technology and of integrated international production systems (getting ahead), and the capability and flexibility to accommodate change in old and new industries (catching up/keeping up).

Among the drivers of competitive industrial performance and capability are the level of skilled labour, technological effort as shown by research and development expenditures by productive enterprises, technology imports and infrastructure. The 16 countries identified by UNIDO have used varying strategies for their industrial performance. Not surprisingly, East Asia has the highest industrial competitiveness capability-outstripping Latin America by a factor of more than two. Domestic technological effort, as measured by R&D financed by productive enterprises, is the most consistent and significant of the drivers, and FDI is gaining in significance.

The analysis of the individual drivers revealed that Latin American lags behind in terms of domestic technological effort. East Asia dominates in almost every variable, while sub-Saharan Africa is consistently the weakest. UNIDO's analysis of industrial performance and its drivers provides possible elements of a strategy for attaining competitiveness (Richard, 2002).

Another finding of importance is that while the performance rankings were fairly stable over time, a few countries managed to take large leaps forward because of their insertion into global production systems for technology-intensive products. While this contributed to their industrial and export growth, for example in the cases of Mexico and the Philippines, this does not mean that they have built the capabilities needed for sustained growth in the future. The developing countries that have built strong local capabilities remain few. Thus, both the UNCTAD and UNIDO studies agree that gains in market shares might be temporary as a result of preferential market access or recent insertion into a supply chain. If gains are to be sustained they must be based on upgrading human skills and technologies.

As mentioned, East Asia dominates the developing world by all performance measures. Another fact that stands out is not only how different the mature "tiger" economies are from the rest of the developing world but also how they differ from one to another. While the drivers have been clearly identified, these countries combined them in many different ways. Thus, experience seems to show that there may be no unique road to industrial success (UNIDO, Industrial Development Report 2002/2003).

At the other end of the spectrum is sub-Saharan Africa. It has lost its already small shares of global industrial production and exports. Its industrialization levels remain very low and the technology composition of both manufacturing value-added and exports has deteriorated over time. This is the only region where this has happened.

According to Lall, divergence and marginalization are strong features in the industrial scene. But industrial development is not a zero-sum game: it is possible for all countries to gain from increased production and trade. Successful industrialization requires countries to link to the global economy and leverage the resources that it offers in order to improve endogenous capabilities and competitiveness. This linking needs strong initiatives, not just passive opening up, and it is essentially up to the countries to build the capabilities needed. Thus, policies and programmes to enhance competitiveness must centre on building productive capacities at the enterprise level within the country.

MICRO POLICIES AND SUPPORT PROGRAMMES FOR ENTERPRISE COMPETITIVENESS

Competitiveness as a long-term strategy

The main goal of a competitiveness strategy is to improve the structural position of the country in the global economy by upgrading current activities and incorporating new skills and capita intensive activities. A national vision should be based upon a consensus among the national stakeholders and an awareness of both the national goals and the steps that have to be taken to achieve them. This should begin with stocktaking in terms of strengths and weaknesses of existing policies, programmes and structures at the macro-, meso- and micro-levels. Then, on the basis of the stocktaking, the stakeholders should design policies and programmes that contribute to increasing the value-added of national production.

The case for government intervention to assist SMEs is based on the fact that numerous market failures prevent domestic enterprises from building capabilities because they cannot access finance, information, technology and markets. Specific policies, programmes and appropriate institutional frameworks are needed to help SMEs overcome these failures. According to Chudnovsky (2001), to transit the high road to competitiveness, firms both large and small in developing countries have to build and continuously enhance endogenous capabilities. These capabilities can be applied to add value to existing activities and to make new products and start new services that can compete in the global economy.

Although a number of enterprise policy instruments have been used in some developing countries, there is plenty of room for identifying and applying measures for the financing of SMEs, including through venture capital; for linkages between foreign and local enterprises; and for the promotion of R&D, technology diffusion, adaptation and mastery. However, most developing countries have neither technology nor enterprise policies and the challenge for them is to adopt them in the near future. Possible policy interventions are indicated in the sections that follow.

To avoid possible coordination failures it is important to create institutions to articulate and lead the multiple efforts to be made at the macro-, meso-, and micro-levels. There is a growing demand for adequate institutions to be designed to deal with technology and enterprise policies that have been largely ignored by the Washington Consensus prescriptions, and that the revival of protectionist practices. in the name of competitiveness be avoided (Chudnovsky, 2001).

Public-private sector dialogue

An effective policy framework for SMEs should begin with stocktaking to identify real constraints and possible solutions. A useful way of identifying such constraints is through public-private sector interaction and dialogue, thus creating an enabling environment and fostering policy coherence. Government needs to recognize and accept the role and status of private sector organizations as partners in development and as the spokesperson of private enterprises.

The quality of such a working relationship between the public and private sectors might even be a competitive advantage for a country in its own right. In fact, it has been suggested that, in an increasingly interdependent world, competition among enterprises is often competition among different systems of government-private sector relationships.

Dialogue should be periodic, representative, that is involving all stakeholders, and have an announced agenda. The timing, participation and location of its occurrence can and should be organized to ensure that the relevant stakeholders are included. It is reasonable that dialogue be more frequent where it is nearest the individual business, that is at the local level (meso level).

SMEs' access to business development services

Over the past decade, governments and international donors have increasingly turned their attention from merely offering financial assistance to providing business development services (BDS) for SMEs, recognizing that financial support alone is not enough for achieving sustained competitiveness. BDS are all types of SME support services, including training, consulting, technical and managerial assistance, marketing, physical infrastructure and policy advocacy. BDS interventions are specifically aimed at helping small enterprises to overcome market imperfections and inadequate access to technology, as well as to operate more competitively and with greater efficiency in domestic and global markets.

There have been important developments and innovations quite recently in the field of BDS, in an attempt to make such services more cost-effective and to reach a larger number of businesses in a sustainable manner. Early BDS interventions consisted of costly and supply-driven services offered by public agencies, which rarely managed to respond to the true needs of the SME sector or to implement strategies for exiting from full subsidization.

In 1997 the Committee of Donor Agencies for SME Development started to develop new guidelines in the design and delivery of BDS, aimed at increasing the effectiveness, outreach and sustainability of BDS interventions. A series of principles for good practices were subsequently endorsed by the international community, among which are the principle of subsidiarity, the principle of market orientation and the principle of cost recovery.

The guidelines are based on the recognition that government institutions should not be direct service providers but should make indirect use of local support structures. When BDS are strategically important but not yet adapted to local needs or acknowledged by target beneficiaries as such, joint efforts by public and private institutions should provide effective institutional responses.

From a policy perspective, it is important to rely as much as possible on the private sector in offering SAE services, in order to minimize market distortions, duplication and inefficiency. Governments should therefore: (a) focus on developing the demand side of the BDS market; (b) replace direct service provisioning with the development of facilitators/intermediaries; and (c) make targeted and time-bound use of subsidies.

When subsidies are needed, as may be the case in the early years of a BDS development, or of particularly disadvantaged target groups, cross-subsidization strategies can be implemented. For example, fees from more profitable, larger SMEs can subsidize poorer SMEs or fees from certain lucrative services such as accounting can subsidize loss-making services such as training. However, subsidies should always be transitional and businesses should cover part of the cost even in the early stages. If this is not feasible, policy makers should have a clear understanding of the justification for long-term public support and be ready to absorb its costs.

There are also important objective requirements in the organization of the delivery of BDS, mainly related to the systemic nature of economic development processes and to their deeply rooted territorial dimension. Evidence shows that often the sub-sectoral, value chain or cluster approach has greater relevance and achieves greater success. BDS can be very costly, especially if provided on a one-to-

one basis, and some of the costs can be reduced by attempting to operate services for groups of similar businesses from the same sub-sector or located close to each other. The services thus provided can be more synergistic and their demonstrative effect more visible when the range of beneficiaries that have common problems and face similar technical difficulties is handled in a collective way.

SMEs' access to finance

Finance has been identified in many business surveys as the most important factor determining the survival and growth of SMEs in both developing and developed countries. Despite the importance of SMEs to the economies of both developing and developed countries, they have traditionally had difficulty in obtaining formal credit or equity. Commercial banks and investors have been reluctant to service SMEs for a number of reasons, including the following:

- SMEs are regarded by creditors and investors as high-risk borrowers because of insufficient assets and low capitalization, vulnerability to market fluctuations and high mortality rates;
- Information asymmetry arising from SMEs' lack of accounting records, inadequate financial statements or business plans makes it difficult for creditors and investors to assess the creditworthiness of potential SME proposals;
- High administrative/transaction costs of lending or investing small amounts do not make SME financing a profitable business.

As a result, commercial banks are generally biased towards large corporate borrowers, which provide better business plans, more reliable financial information, better chances of success and higher profitability for the banks and have credit ratings. When banks do lend to SMEs, they tend to charge them a premium for assuming risk and apply tougher screening measures, thus driving up costs on all sides. Commercial banks in developing countries and countries with economies in transition often prefer to lend to the government and thus the public sector crowds out the private sector. Lastly, there is also the problem of insider lending and/or cronyism, which diverts finance away from SMEs.

In recent years leading commercial banks in developed countries have been particularly successful in servicing the SME market. They have managed to increase the volume and profitability of lending to SMEs while driving down transaction costs and risks. Their strategy has been to improve their core competencies by adopting sophisticated credit techniques such as credit scoring, strengthening management and information systems and developing highly efficient automated processes, efficient marketing and distribution, and developing close ties to clients.

Although the business environment in developing countries and developed countries differs in many respects, the problems of servicing SME customers are similar, namely high perceived risk, problems with information asymmetry and high administrative costs. Therefore, recent innovations in developed countries to improve SMEs' access to credit can provide valuable insights for developing country banks to become more SME-oriented and to increase the volume and the quality of their services to this sector.

To encourage commercial banks to lend to SMEs, central banks and designated financial service regulators must play a proactive role. Government and the central bank must set out a policy framework for channelling adequate funds to the SME sector. In clearly indicating the right direction to lure suppliers of capital, regulators could explore set-aside mechanisms for SMEs (i.e. quotas and targets). Certainly, increased transparency would influence the lending practices of commercial banks. The central bank could require, for example, disclosure of the composition of bank loan portfolios by different categories of borrowers. The government/central bank might also consider a set of special measures for SMEs (guarantee programmes, more user-friendly and transparent disclosure systems, information-technology driven appraisal systems) to reduce the risks perceived by banks.

Combining BDS and finance

Combining financial services with non financial services through partnerships has proved to be an efficient way of enabling banks to lend to SMEs. BDS providers are often better placed than financial institutions to identify potential clients, ascertain their creditworthiness, disseminate adequate financial and accounting techniques, pre-screen project proposals, monitor repayment, exert peer pressure, and maintain one-to-one contacts during the entire payback period. Thus, the complementarity between BDS providers and financial services helps to minimize both the risk and the transaction cost to creditors and investors, and make access to credit and equity less costly and less cumbersome for SMEs.

Access to technology

In a liberalized and open economy, competitiveness increasingly depends on the ability to incorporate new technology and management practices. Since the 1970s, manufacturing production has become extremely complex and knowledge-intensive as investments in intangibles such as R&D, software, design, engineering, training, marketing and management come to play a greater role in the production of goods and services (Mytelka, 1999). This has gradually extended beyond the so-called high technology sectors to reshape a broad spectrum of traditional industries, thereby creating a platform for increased technology accumulation and catching-up possibilities, which has led to the development of a competitive national production capacity in many first tier and second tier newly- industrialized economies (NIEs).

NIEs are successful examples of export-led growth based on traditional industries. Initially focused on the manufacturing of clothing and textiles, leather and footwear, plastics and toys, they have switched to the “low-technology side of the high-technology industries”, and some are now leading exporters of technology in the electronics and information technology field (Hobday, 1995). Such linear progress is not necessarily an invariant sequence and is probably very much related to historical and geographical circumstances. The key to sustained growth, however, invariably calls for a structural change from simple to more advanced technologies. When countries are catching up, this consists mainly in problem-solving capabilities that enable firms to improve their productivity and to imitate and adapt products; when countries are keeping up, technological upgrading within the firm and continuous improvements in product quality become crucial in order not to lose recently gained competitive advantages. Finally, when countries are getting ahead, the capability to design and develop new products and processes becomes vital, on the basis of both R&D and continuous innovation efforts.

The ability to acquire, diffuse and master technologies as well as innovate can be achieved in many ways. Two are explored here: clustering and inter-firm cooperation or business linkages.

Clusters

To a large extent, export competitiveness in the SME sector can be increased by cluster formation, especially in traditional and mature industries. The competitive advantage of clustered companies derives from two main sources: the extent to which the knowledge base of these companies deepens and broadens to include design, quality control and information related to markets and marketing, and the establishment of linkages to a wider set of technology inputs and actors.

The success of the cluster model is due to the fact that it is an example of endogenous development based on SMEs, which is strongly rooted in the local communities and often combines competitiveness and social stability. It is also due to the fact that areas with consolidated systems of specialized small firms are generally more likely to create the conditions that increase efficiency and productivity on a long-term basis and therefore to become attractive to FDI.

However, not all clusters are innovative and dynamic. Thus clusters should not be regarded as “silver bullets” of competitiveness strategies. Some of them are caught in the spiral of stagnation and decline, while others never translate their potential into reality and never mature past the embryonic stage. Clusters have been variously defined as sets of economic actors concentrated along a value chain or agglomerations of sectorally specialized agents within a geographically delimited space. While geographical proximity always brings a minimal exchange of information, it does not ensure a process of knowledge sharing or technology capacity-building. Similarly, the presence of passive externalities such as the availability of an appropriately skilled labour pool or the stimulus of emulation does not guarantee the presence of critical actors needed to form a dynamic system, or intense formal and informal cooperation which leads to collective efficiency.

Indeed, policy interventions may play a major role in the field of cluster promotion, but this should be confined to revitalizing only already existing clusters with high growth potential. Local forces have to stimulate the generation of common externalities and the provision of innovative, value-adding services, thereby laying the foundation for endogenous growth. Traditional habits and practices of local actors with respect to innovation and technology are also decisive in the transformation of simple clusters into competitive production systems. Focused measures (e.g. the creation of technical schools, research centres, export promotion boards, quality certification institutes) and trigger mechanisms (e.g. strengthening business associations, subsidizing export initiatives, promoting brand names and new product/location images, establishing strategic alliances among public and private actors) can play a role in stimulating and supporting change, tacit knowledge flows and interactive learning. Successful experience from both the developed and the developing world shows that with suitable help in the form of technological assistance, financial support and a stimulating environment, clusters can produce goods with a high technological content and become competitive on a global scale.

Although clusters are the result of a spontaneous tendency for SMEs of the same or similar sub-sector to locate close to each other, there are also organized efforts to set up clusters from scratch, mainly through science parks or technical incubators – the grouping together of “start-ups” of small businesses usually based on more advanced technologies. Often situated close to universities or research institutes, they benefit from the technological advice and help of faculty members as well as from the more practical administrative support services of the incubator and, in many cases, the interchange with other scientifically or technically minded entrepreneurs. The limitations of such forms of constructed spatial agglomerations, however, are that they often lack effective mechanisms to stimulate networking among the firms artificially clustered, are poorly managed and, even more importantly, contribute little to the growth of the local economy, because of their isolation.

Linkages

Interfirm linkages can be a remarkable source of technology diffusion and mastery. There are many types of linkages-backward, forward, R&D and spillover effects. The most fruitful are the backward linkages between large and small enterprises. In some cases horizontal linkages are established through networking activities and formal and informal cooperation among local SMEs. In other cases, vertical linkages can be fostered with larger corporations that are prepared to offer assistance and advice to small businesses. TNC-SME linkages whereby transnational corporations (TNCs) build up competitive supply chains can help SMEs access new and diversified markets, and information on market trends, acquire and master new technologies and skills, and solve cash flow/finance problems. It is most important that the TNC share its technical road map with the SME so it can reposition itself and be ready for changes in market and technology trends.

The example of countries such as Ireland, Malaysia, Mexico, the Philippines, South Africa and Singapore indicates that the developmental impact of TNC-SME linkages can be instrumental in modernizing and dynamizing local industries. According to UNIDO (2002), these countries upgraded their local productive capacities and enhanced their industrial performance by integrating into the TNC supply chain. Experience shows, however, that this does not happen automatically. It requires a partnership among all stakeholders: government, TNCs, SMEs and their support agencies.

The government must have the vision and commitment to integrate business linkages into its overall development strategy; it must attract the right TNCs; it must ensure that its population has the right skills; it must give economic incentives to both the TNCs and SMEs alike; and it must engage in public-private sector dialogue in order to constantly adapt the strategy to changing conditions. The SME support agencies must give selective support to SMEs to make the SME partnership ready by enhancing their core competencies in terms of management and technical skills. TNCs must adopt a systematic approach to mentoring and coaching SMEs and be willing to delegate to local managers who best know how to work with local enterprises. Probably one of the most successful programmes is the Malaysian business linkage programme, which develops supplier capabilities and competencies and provides business opportunities through partnerships between government, TNCs and SME support agencies.

Financing technology

The role of finance in an enterprise's ability to acquire, diffuse and master technology has largely been ignored. The difficulties that SMEs face in obtaining finance are more pronounced when it comes to obtaining financing for technology investment. The outcome of technology investments, especially in research and development projects, establishing technology start-ups, launching new products or adapting new products, is highly uncertain, with the possible returns to the investment materializing only after lengthy periods.

Technology-based SMEs also have a number of characteristics which are not attractive to the local banking community, namely:

- Their success is linked to difficult-to-value growth potential derived from scientific knowledge and intellectual property;
- The lack of tangible assets in the early stages of their life cycles which may be used as collateral;
- Their products have little or no track record, are largely untested in markets and usually have high obsolescence rates.

These factors imply that they are even more vulnerable than other SMEs generally to asymmetric information about risks and default probabilities given that it is almost impossible for financiers to attach probabilities to the potential outcome of the investments. Financiers sometimes use specialized expert advice to evaluate or appraise technology investments in an attempt to reduce the information asymmetry inherent in this area.

The high risks and specialized nature of the risks involved in financing technology-based SMEs make it difficult if not impossible for commercial banks to finance technology-based SMEs. They can, however, play a useful role in financing technology upgrades for SMEs in developing countries, especially if additional incentives such as loan guarantees are provided.

The more suitable private sector instrument for financing technology-based SMEs is venture capital. Venture capitalists are willing to accept higher risks than banks in exchange for potentially large gains from sales of shares in the company, they do not require collateral and the financing is long or medium-term. However, the requirements for establishing a vibrant venture capital market in a country are very stringent. They include a well-regulated and liquid financial market that provides a mechanism for investors to exit their investments and a large supply of projects/firms with high growth potential. Therefore, venture capital has taken hold only in a very small number of economies (Israel, Taiwan Province of China and the United States).

It is, however, clear that private sector financing on its own is not a sufficient source of funds for technology-based SMEs, especially in countries that have a bank-dominated financial system and weak traditions of equity financing. Therefore, government financial support in some form is needed, for example in the form of grants, loans guarantees and equity stakes, to remedy some of the market failures that exist in regard to financing technology-based SMEs and start-ups. Government involvement is especially needed where uncertainty and long lead times discourage the usual supply of

finance. The risks to government financing, such as creating market distortions, moral hazard and adverse selection, should be closely examined when government intervention is exercised.

ICT and e-commerce

Information and communication technologies (ICTs) have an impact not only on every single branch of industry but also on every service in an economy. ICT is unique in that it affects every firm and organization as well as every function within them. At the present time, institutional and organizational change is lagging behind changes in ICTs. Nevertheless, ICT producing and using sectors have accounted for the bulk of overall productivity growth in a wide range of countries that belong to the Organization for Economic Cooperation and Development (OECD). The real spillover effects are in the user industries. However, to feel these effects it is critical to absorb and use ICT efficiently. If Governments in developing countries do not solve the problems of connectivity, access and skills gap, their SMEs will lack an important tool for attaining competitiveness. For many SMEs, it will either be e-business or no business.

ICTs have the potential to alter economic activity. They can be used to replace traditional means of communication, to manage business documentation and information (databases), to perform usual business operations (inventory control) and to engage in business transactions or e-commerce (business to business or business to consumer). According to the OECD, many start-ups that sold and/or purchased exclusively on-line have disappeared and growth in e-commerce has been less spectacular than predicted. Use of the Internet by SMEs in OECD countries to carry out business transactions remains limited and varies according to the position in the supply chain (customer or supplier). Purchasing is more common than selling among SMEs. Use of the Internet for purchases seems to be sensitive to firm size. The value of Internet sales in 2000 ranged from 0.4 per cent and 1.8 per cent of total sales for the few OECD countries that currently measure electronic sales. Sales via electronic data interchange are at least twice sales via the Internet. The main reason why businesses are not conducting transactions electronically is a perception that electronic commerce is not suited to the nature of their business. SMEs need help to adapt their business processes to e-commerce. This is difficult because of the gap between the current IT skills of workers and those needed by SMEs. To overcome SME reluctance, EU policy makers are considering a number of actions (see Box 1).

Box 1. Potential actions for public Institutions

- Develop a handbook for SMEs on "Electronic commerce: How to do it" (including basic information such as how to reserve an Internet address, etc.);
- Organize road shows on SME-relevant issues, providing clearly structured, easy-to-understand information on the use of the Internet as a means for transactions or on showcase examples from other small or medium-sized companies;
- Open a "service bureau" for SMEs where they can get centralized help;
- Circulate (via national or regional institutions, e.g. the Mittelstandsvereinigungen in Germany) a list of potential contacts and institutions that provide support in specific areas.

Source: Booz-Allen & Hamilton, "G7 Global Marketing For SMEs" First Annual Conference, Bonn, 7-9 April 1997, <http://europa.eu.int/ISPO/ecommerce/sme/reports/wayforward.htm#wayforward>.

While e-commerce in OECD countries is more a question of SME awareness and the ability to adapt traditional business operations, e-commerce readiness in developing countries is still mainly a function of connectivity and access. Connectivity is measured by the number of internet hosts, personal computers, mainlines and mobiles. Access could be measured by the number of Internet users and the cost of a local call. Only three developing countries are in the top 25 in UNCTAD's index of ICT diffusion (see Table 6, Appendix): Hong Kong, China (1st), Singapore (14th) and Republic of Korea (23rd). The index shows that Governments that have formulated and implemented an ICT strategy rank high. Twenty-four out of the top 50 countries have such strategies. Those countries that did not make it into the top 50 and have strategies are Argentina (58th), Peru (66th), Colombia (96th) and India (132nd).

Despite having an ICT strategy, they were dragged down by unusually low connectivity. *Therefore, governments must both formulate a strategy and have the resources to finance it.*

POLICY COHERENCE: DOMESTIC POLICIES AND PROGRAMMES TO BUILD CAPABILITIES AS OPPOSED TO INTERNATIONAL RULES AND PRACTICES

The policy directions indicated so far for achieving competitiveness at the micro level need to be evaluated in terms of their consistency with international and regional agreements. For example, governments might be constrained in their ability to promote micro improvements by macro policies such as structural adjustment policies, the Basel II Capital Accord, the EU rules for establishing a single financial market and the WTO agreement on subsidies, among others.

The new economic model of trade liberalization, privatization, deregulation and FDI as advocated by the Bretton Woods institutions largely ignored the microeconomic conditions for development and SMEs. The prescriptions of the Washington Consensus failed to deliver the expected results in terms of growth, productivity, equity and environmental impact in most developing countries. Development requires not only macroeconomic and political stability but also well-functioning markets and institutions. The Washington Consensus failed to include policies both for institution-building and for microeconomic improvements in the areas of competition, technology and enterprise.

The impact of overly restrictive fiscal and monetary policies can defeat industrial policies and microimprovements. For example, while the International Monetary Fund helped Thailand avert a collapse of its banking system, the policies to save the financial system affected the domestic economy particularly SMEs, far more than anyone anticipated without achieving the main aim, which was to shore up the Thai baht.

Ironically, Japan was more concerned with the state of the Thai micro economy and the ability of Thai SMEs to survive the credit crunch. This was largely because the Japanese understood that the viability and competitiveness of its TNCs rested on the well-being of Thai SME suppliers (Régnier, 2000).

A preliminary analysis of the impacts of the World Bank's Economic and Structural Adjustment Programme (ESAP) undertaken by Zimbabwe from 1991 to 1998 showed that it introduced fundamental changes in the SME sector. First, there was a dramatic increase in the number of urban SMEs and a substantial reduction in the number of rural ones. Aggregate employment in the SME sector increased over the ESAP period, disproportionately in urban SMEs. Second, there was a shift from higher-value formal goods to lower-value informal goods produced by SMEs. It is believed that the decline in the real incomes of potential SME customers resulting from the ESAP led to an increased demand for SME products as consumers substituted away from the higher-priced formal sector goods. Devaluation also caused consumers to buy SME goods instead of pricier imports. Third, there was a relative decline in manufacturing SMEs, partly as a result of the greater availability of imports due to trade liberalization (the weaker Zimbabwe dollar notwithstanding). There was a tremendous increase in the number of SMEs engaged in commerce (especially vending). It could be that retrenched workers turn to vending because the skill requirements are lower. Thus, the ESAP moved Zimbabwe production down the value chain that is in the opposite direction from that needed to improve competitiveness. Fourth, the role of women in the SME sector also changed. Nearly three-quarters of all Zimbabwean SMEs were once female-owned; by 1998 this proportion was just above half. Greater competition from retrenched workers (who were mostly male) may have caused some female-run businesses to fold (McPherson, 2000).

The proposed new Basel II Capital Accord, which replaces the 1988 Accord in 2007, aims to align risks with capital requirements. While the proposal could improve the functioning of financial markets, it may have a negative impact on SME finance in the short to medium term. First, under the new accord, the risk weighting on loans to SMEs could change from the current 100 to 150 per cent because loans to SMEs are perceived as very risky and in general are made against inadequate collateral. However, there is a proposal that the risk weights for SME exposures of less than €1 million be reduced from 100 to 75 per cent. If the risk weights are increased, this will cause the bank to increase the risk premium charged to the SME. The use of ratings to determine the risk weights could also affect SMEs since the cost of providing them with a rating is extremely high. Rating firms will find it difficult to use their current scales and practices to rate SMEs, because they generally lack knowledge of the SME risk profile. If the SME does not have a risk rating, this will increase the risk weights. The higher the bank's risk the higher the reserves required and since such reserves often earn minimal interest, banks will be tempted to avoid SME lending altogether.

Some European SMEs are concerned that the banking sector will apply the new ratings guidelines inflexibly, making new loans expensive and time-consuming. According to KfW every third German company says that it has become more difficult to access bank credit. Basel II forces banks to scrutinize their customers more closely, including estimating a company's probability of default and soft factors such as operational and entrepreneurial risks. Loans will become more expensive and, above all, labour-intensive if banks do not adopt more innovative methods for evaluating SMEs. SMEs complain that demands for timely and detailed financial reports will be too expensive. Likewise, it will be difficult for banks in developing countries to carry the cost of sophisticated internal risk assessment. Basel II assigns a lower capital requirement (a subsidy) to banks with sophisticated internal risk assessments, without paying much attention as to whether these assessments work. Internal processes on their own do not keep banks away from bad loans.

The WTO Agreement on Subsidies and Countervailing Measures (ASCM) might narrow the national policy space to strengthen competitiveness at the enterprise level. The agreement uses four criteria to determine the existence of a subsidy:

- It should be a financial contribution;
- It should be a contribution from a government (or public) body;
- It should confer a benefit;
- It should be specific to certain enterprises, industries, and regions.

Articles 8 and 9 introduced a traffic light mechanism whereby prohibited subsidies (for export or import substitution or contingent on local content) were red light, while yellow light subsidies were actionable and green light subsidies were non-actionable. The ASCM section on non-actionable subsidies has lapsed. This was the result of a decision taken by the developing countries because they thought that developed countries would use them as "safe harbours". This has created an environment that lacks legal security, as governments could be subject to procedural harassment, which could have a detrimental effect on public assistance for technology. Some developing country experts are recommending that the transition period be extended for developing countries on export subsidies and that technology subsidies be reclassified as "non-actionable" exclusively for developing countries. It was also suggested that it is important to negotiate special clauses for SMEs to be included in the WTO Agreements, as this sector is largely neglected in trade agreements and could be seen as a non-distortionary horizontal policy measure.

UNCTAD recommended in WIR 2002 that certain incentives offered to foreign or domestic firms that have a development impact should be non-actionable. Such development impacts would involve the creation of more and deeper linkages, the provision of technology, and the training of local suppliers and their personnel. The distortive effects of such measures could be reduced by open and transparent processes with regular reporting and accounting of the costs of incentives used, accompanied by an assessment of their effectiveness (Hughes and Brewster, 2002).

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Appendix

Table 1: Indicators of administrative burden on enterprises

Setting up a private limited company				
Country	Typical time (days)	Ranking time	Typical cost (Euros)	Ranking cost
United Kingdom	7	1	40	2
Ireland	8	2	445	6
Greece	15	3	1700	14
Denmark	18	4	0	1
Germany	22	5	805	8
Spain	24	6	1590	12
Austria	24	6	2232	15
Sweden	25	8	186	3
Portugal	26	9	600	7
France	29	10	213	4
Luxembourg	30	11	850	9
Netherlands	30	11	885	10
Finland	30	11	252	5
Belgium	32	14	980	11
Italy	35	15	1620	13

Sources: DG Enterprise "Benchmarking the Administration of Business Start-ups", 2002, and DG Competition, in: Commission of The European Communities, "State Aid Scoreboard", spring 2002 update, Brussels, COM (2002) 242 final.

Table 2: Economic Contribution of SMEs in Selected Countries (Shares, %)

Region/ Country (*)	Number of SMEs	Employment	GDP, value added, output
OECD (1)			
Australia	..	70%	30% of GDP
Austria	99.5%	72%	58.2% of manufacturing output
Canada	99.7%	60%	..
Finland	98.5%	52%	40% of GDP
Germany	>95%	70%	57% of corporate value added
Ireland	99%	49%	..
New Zealand	>98.9%	75%	..
Sweden	99%	60%	57% of total value added
United Kingdom	>99%	44–66%	under 40% of manufacturing output
United States	99.7%	50.3%	40% of total economic activity
Asia & Pacific (2)			
Bangladesh	..	80% of industrial employment	5% of GDP
Brunei (2*)	98%	92%	66% of GDP
China	99%	73%	60% of industrial gross output
Hong Kong, China (2*)	98%	60%	..
India	95%	80% of industrial sector	40% of industrial output
Japan (2**)	99%	72% of manufacturing sector	52% of manufacturing output
Malaysia	..	17.5% of manufacturing sector	15% of total output; 17.6% of value added
Pakistan	60%	80% of industrial labour force	15% of GDP
Philippines	99%	45%	28% of valued added in manufacturing
Singapore (2**)	97%	58% of manufacturing sector	41% of manufacturing output
Republic of Korea	99.7%	71%	47.5% of gross output; 49% of value added
Thailand	..	65% in industry	47% of manufacturing value added
LDCs in the region	..	80% of industrial workforce	40-70% of value added
Western Asia (3)			
Bahrain	..	48% of manufacturing sector	21% of manufacturing output
Egypt	90% (3*)	11%	9% of manufacturing value added
Jordan	93% (3*)	41%	..
Lebanon	84% (3*)	78%	67% of manufacturing output
Syrian Arab Republic	90% (3*)	91%	84% of manufacturing output
Latin America (4)			
Argentina	..	44.6% of manufacturing sector	35.9% of manufacturing output
Bolivia	..	26.1%	17.6% "
Brazil	99.2%	66.8%	60.8% "
Chile	99.1%	52.7%	37.1% "
Colombia	92.1%	52.5%	33.3% "
Costa Rica	..	13.2%	12.6% "
Ecuador	84.3%	37.7%	19.4% "
El Salvador	..	17.6%	14.8% "
Mexico	89.7%	44.6%	31.1% "
Nicaragua	98.7%	11.7%	11.2% "
Paraguay	..	41%	31% "
Peru	99.1%	52.5%	36.1% "
Trinidad & Tobago	71.3%	57%	22.6% "
Uruguay	96%	57.9%	39.7% "
Venezuela	93.2%	39.5%	13.8% "
Africa (5) & (6)			
	> 90% of all registered business (5)	16–33% of each country's working age populations work in micro and small enterprises (6)	..

(*) = various years.

Table 2 Cont.: Economic Contribution of SMEs in Selected Countries (Shares, %)

Sources:

- (1) OECD, "OECD Outlook for SMEs: SME Trend and Policy Developments in Individual OECD Countries", 2000; OECD, "Small and Medium-sized Enterprises: Local Strength, Global Reach", Policy Brief, June 2000.
- (2) Economic and Social Commission for Asia and the Pacific (ESCAP), "Prospects and Challenges for Small and Medium-Sized Enterprises in the Asian and Pacific Region in the Context of the Emerging Global and Regional Scenario", Small Industry Bulletin for Asia and the Pacific, No. 31, 2001.
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- (5) M. Albaladejo, "Understanding SME Dynamics in Africa: An Overview of the Current State and Recent Trends", Chapter 2, First Draft, 2001.
- (6) M. McPherson, "Structural Adjustment and Small Enterprises: The Case of Zimbabwe", 2000. Also see Albaladejo for information on Botswana (17% of the population in working age are employed in micro and small enterprises), Kenya (18%), Lesotho (17%), Malawi (23%), Swaziland (26%) and Zimbabwe (27%).

Table 3: Share of SME exports in selected developed and developing economies

	Exports/GDP	Share of SME exports
Denmark	27	46 (M)
Finland	19	23 (M)
France	18	26 (M)
Greece	12	19
Italy	15	53
Japan	12	13.5
Netherlands	47	26
Sweden	25	30
United States	12	31
China	21	40–60
Republic of Korea	27	40
Indonesia	23	10.6
Taiwan, Province of China	44	56
Thailand	29	10
Malaysia	72	15
Singapore	138	16
Viet Nam	7	20

Sources: SME export contribution – OECD country studies. Exports as percentage of GDP - UN country statistics. Note: M = manufacturing only. Exports are direct exports by SMEs. This understates the true contribution of SMEs to exports. <http://www.arts.monash.edu.au/ausapec/smepolic.htm>, (APEC and SME POLICY: Suggestions for an action agenda, Chris Hall, 1995) and Exporter Database, United States (various years).

Table 4: Share of SME industrial exports in selected countries in Latin America

Country / year	Share of SME industrial exports
Argentina, 1995	10.0
Brazil, 1998	22.0*
Chile, 1993	4.9
Colombia, 1997	35.0
Costa Rica, 1997	28.7
Peru, 1994	25.0
Uruguay, 1988–95	17.5
Venezuela, 1996	5.1

* share of total exports.

Source: W. Peres & G. Stumpo, "Pequeñas y Medianas Empresas Industriales en América Latina y el Caribe", ECLAC, 2002.

Table 5: Top 20 export winners, by technology category, 1985–2000

Rank	All sectors	Resource-based manufactures	Non-resource-based manufactures	High-technology manufactures	Medium-technology manufactures	Low-technology manufactures
1	China	Ireland	China	China	China	China
2	United States	United States	Mexico	Malaysia	Mexico	United States
3	Rep. of Korea	China	Malaysia	Taiwan POC	United States	Mexico
4	Mexico	Rep. of Korea	United States	Rep. of Korea	Rep. of Korea	Indonesia
5	Malaysia	India	Thailand	Singapore	Spain	Thailand
6	Ireland	Russian Federation	Rep. of Korea	Mexico	Taiwan POC	Malaysia
7	Thailand	Thailand	Singapore	Philippines	Malaysia	Canada
8	Taiwan POC	Indonesia	Philippines	Thailand	Thailand	Turkey
9	Singapore	Israel	Indonesia	Ireland	Hungary	India
10	Spain	Japan	Taiwan POC	Finland	Indonesia	Poland
11	Philippines	Switzerland	Ireland	Hungary	Poland	Viet Nam
12	Hungary	Chile	Hungary	Indonesia	Czech Republic	Bangladesh
13	Viet Nam	Spain	Spain	Israel	Portugal	Honduras
14	India	Australia	Poland	Costa Rica	Singapore	Dominican Republic
15	Israel	Poland	Turkey	Poland	Turkey	Pakistan
16	Poland	Hong Kong, China	India	Czech Republic	Argentina	Tunisia
17	Turkey	United Arab Emir.	Israel	Turkey	India	Sri Lanka
18	Czech Republic	Mexico	Viet Nam	Malta	Ireland	El Salvador
19	Chile	Iran (Islam. Rep.)	Czech Republic	Spain	Slovakia	Guatemala
20	Portugal	Argentina	Bangladesh	Morocco	Australia	Morocco

Source: World Investment Report 200

Part I

TNC-SME LINKAGES

Issues paper by the UNCTAD Secretariat

Case studies by national experts

ISSUES PAPER

ENHANCING THE COMPETITIVENESS OF SMEs THROUGH LINKAGES

UNCTAD Secretariat

INTRODUCTION

International production – production under the common governance of transnational corporations (TNCs) is growing faster than other economic aggregates. Both the output and sales by the foreign affiliates of TNCs grew faster than world GDP and exports. This has been fueled by the phenomenal growth in foreign direct investment (FDI) flows from US\$ 209 billion (1990) to US\$ 865 billion (1999).¹

The volume of FDI flows to developing countries has also grown dramatically. Their share of global FDI inflows rose from 18 per cent in 1990 to a high of 38 per cent in 1997 and fell to 24 per cent in 1999.² While FDI inflows are unevenly distributed among developing countries, the importance of this source of capital, measured in terms of the ratio of FDI to GDP, is increasing in most developing countries. Moreover, FDI has proven to be the most stable source of capital, proving relatively more resilient during the recent Asian and Brazilian financial crises, than other private capital flows, such as debt and portfolio equity flows.³

FDI not only involves flows of capital but also transfers technology and know-how, which are important for development. TNCs, through their investment activities, can disseminate technologies, technical capabilities and skills, and organizational and managerial practices to their business partners and other firms in host countries, enhancing the competitiveness of these firms.⁴ With the increasing knowledge intensity of production and its implications for competitiveness, product quality, production processes, managerial skills and the capacity for technological innovations of TNCs are improving constantly. As a result, total factor productivity of TNCs tends to be higher than that of local firms in developing countries. This productivity gap has important implications for developing countries. On the one hand, TNCs can serve as important channels for the transfer of technologies, marketing and managerial skills to SMEs. On the other hand, there is always the possibility that TNCs crowded out local firms.

In the current globalization process, new rules of competition are leading to a reorientation of corporate production strategies. Many TNCs are switching from simple one-way organizational patterns of production with their affiliates to more complex forms of global networking with them. Meanwhile, TNCs are specializing in certain core capabilities, at the same time outsourcing the provision of non-core products, processes and services.

Although this reorganization has opened up new opportunities for linkages between TNCs and SMEs through local sourcing, the vast majority of SMEs remain de-linked from TNCs, missing these potential opportunities. Normally local sourcing is preferred because proximity lowers costs, allows for closer monitoring, and gives greater flexibility in changing specifications and in developing new inputs.⁵ In reality, however, TNCs urge their home country suppliers to become global players, raising the barriers to entry for local SMEs in the host countries. TNCs assert that there is no lack of opportunities for them to forge linkages but rather a lack of suitable local SME partners, which would meet TNC's

¹ UNCTAD (1999, 1994).

² UNCTAD (1999:20).

³ UNCTAD (1998: 14-15).

⁴ UNCTAD (1995: 148-190).

⁵ UNCTAD (1999).

corporate standards or international standards of production. For local SMEs, “partnership readiness”, a prerequisite for mutually beneficial linkages with TNCs, often remains an elusive objective because SMEs lack information, experience, contacts and above all, the human and financial resources to implement urgently required changes in the managerial systems and technological base of their enterprises. The challenge for developing countries is to ensure that such linkages occur and they contribute to the growth and competitiveness of SMEs and the development of the economy as a whole. Toward this end, a set of specific policies and measures are required.

Most of the policies which governments could adopt to forge linkages lie within the realm of creating an enabling business environment for both the TNCs and SMEs. The general policies and support measures for “growing” SMEs have been the subject of the previous four expert meetings and their conclusions and recommendations are contained in *Development Strategies and Support Services for SMEs*. In addition a special roundtable on TNC-SME Linkages for Development: Issues, Experiences, and Best Practices was convened during UNCTAD X in Bangkok, Thailand. It explored how the development actors, including those from the corporate sector, can contribute to building linkages between TNCs and SMEs. Panelists included policy makers, CEOs and business association representatives.

The main focus of the roundtable discussion was on various ways and means to deepen the quality of FDI and the development impact of TNCs. Government representatives outlined special policies, which they had adopted to promote linkages. For example, job creation was at the forefront of Ireland’s economic policy and the main focus of business development agencies such as Enterprise Ireland Agency. The Indian Government in reacting to the winds of global change focused its policy initiatives on assisting industry and SMEs to benchmark themselves against global standards. Five decades of sustained policy support and a number of promotional and institutional agencies helped Indian SMEs to come of age. In Thailand basic policies ensured that the state provided industry with physical infrastructure, technological resources and manpower development. Local content requirements were an important factor in giving local firms access to TNC technology. Other Asian governments and States (Republic of Korea, Malaysia, Taiwan Province of China) have included various incentives in the form of tax breaks, preference in public contracts, and soft credit lines for both TNCs and SMEs to intensify relations and technology transfer.

It is not the intention of this paper to dwell on policy issues and responses but rather to cover new ground by examining practical support measures or best practices to promote linkages that can be undertaken by governments, meso-institutions and firms particularly within the context of public-private sector partnerships. This approach is mandated by the Bangkok Plan of Action, para. 119, which requires UNCTAD to analyse links between SMEs and TNCs.

VARIOUS TYPES OF LINKAGES AND SPILLOVERS: OPPORTUNITIES AND RISKS

Linkages and spillovers between TNCs and SMEs may be categorized into four main types:

- *Backward linkages with suppliers*: TNCs source parts, components, materials and services from suppliers in the host economy. The effect of such linkages on local SMEs depends on the quantity and types of supplied inputs, the terms of procurement, and the willingness of TNCs to transfer knowledge and build a long-term relationship with SMEs. Supplier linkages range from arms-length market transactions to very close, long-term, inter-firm cooperation.
- *Linkages with technology partners*: Some TNCs initiate common projects with local SME partners. These projects may take various forms of equity or non-equity linkages, including joint ventures, licensing agreements and strategic alliances. Although inter-firm technological alliances are a typical phenomenon of OECD countries, which host most of the world’s innovative companies, the number of inter-firm technology agreements involving partners from developing countries is

increasing.¹ Some host countries require foreign investors to take on local partners in joint ventures or to license technology to local firms. In other cases, linkages with technology partners arise voluntarily, because both parties identify complementarities and anticipate benefits from such partnership. While some consider these linkages to be a subset of backward linkages, they are fundamentally different in terms of the degree of independence of the local firm from its transnational partner.

- *Forward linkages with customers:* The first and most important forward linkages developed by TNCs are with marketing outlets. TNCs outsourcing the distribution of brand name products often make considerable investments in the performance of their marketing outlets, e.g. restaurant chains, automobile or petrol companies. The second is with industrial buyers. TNCs producing machinery, equipment or other inputs sometimes offer after-sales services beyond the usual advice on how to use and maintain the purchased good. The third type refers to linkages in which a TNC produces goods for secondary processing, mainly commodities.
- *Other spillover effects:* These include demonstration effects, human capital spillovers, and other effects particularly on competitors. Demonstration effects occur as TNCs introduce new, more efficient ways of doing things, providing showcases for innovation. Local entrepreneurs may imitate TNC products and management techniques or gain access to non-traditional markets. This may happen as a spontaneous or unconscious process or as a planned and systematic exercise. Human capital spillovers occur when TNCs train personnel beyond their own needs or when their experienced personnel move to local firms or form new spin-off companies. Effects on competitors occur when TNC affiliates face some competition from local firms. As TNCs typically hold a strong market position vis-à-vis local rival firms, they may have a strong, positive or negative, impact on the performance of the latter. TNCs may set new standards and create a healthy competition that stimulates innovations throughout the whole industry, but they may also out-compete established local firms.

The four types of linkages presented above may have very different impacts on the development of the host country and its local SMEs. Given the breadth of the topic of linkages, this paper examines in greater detail those cases in which SMEs are partnered with TNCs as suppliers since these may have the deepest impacts and are the hardest types of linkages to promote.

A. Backward linkages with suppliers

The economies of developing countries are often characterized by polarized enterprise structures where only large and small, but no middle-sized firms exist, along with technological heterogeneity, and segmented goods and labour markets between them. A stronger integration of their SMEs into modern supplier chains can make an important contribution towards improving the enterprise size structure. A well-balanced structure of enterprise sizes may emerge where the economies of scale in production are ideally combined with the flexibility of small enterprises. SMEs can profit from this situation in a number of ways. The large enterprises, being their customers, open up new markets for them, often facilitate regular sales and growth, which permits economies of scale. Such links may relieve them of marketing tasks and provide an important impetus for modernization.

Yet, not all supplier relations are equally beneficial to SME development. In most cooperative ventures, suppliers depend on the customers. Quite often there are a great number of suppliers and only few customers, resulting in a situation when existing suppliers can be replaced by others when they lack specific capabilities. In such a case, the bargaining position of suppliers is extremely weak, and the risk of suppliers' engaging in ruinous competition is high. The customer is then in a position to appropriate the major share of all benefits resulting from specialization, while the suppliers have to absorb costs and risks.

¹ According to the MERIT/ UNCTAD database, 6.2 per cent of the 3,984 agreements recorded in the 1990s involved firms from developing countries, compared to 4.9 per cent in the 1980s (UNCTAD 1998:27).

Depending on the advantages that a supplier offers to its client, four types of relations may be distinguished. Each of them implies different opportunities for SME development.

- *Productivity gains*: The main motive of a TNC for outsourcing products and services is that the supplier SME is able to produce better or cheaper products than itself. If the underlying rationale of the customer is to make use of technological specialization and/or economies of scale of the supplier, the latter has a relatively high autonomy over product design and will be responsible for improvements. Since the supplier produces a specialized complementary input for the customer, the latter cannot easily play one supplier off against another. This gives the SME a certain degree of bargaining power. The most privileged suppliers are those which achieve technological leadership in their field and are thus able to negotiate high prices, or innovation rents, for their products. In addition, the specialized supplier gains access to a reliable market, provided the customer remains viable. Intra-industry linkages based on mutual specialization usually go beyond arms-length transactions, toward the coordination of delivery times, product standardization, joint research, and so on. Such agreements would guarantee a long-term commitment on the part of the customer.
- *Factor-cost advantages*: The suppliers tend to have access to cheaper basic factors, mostly lower labour costs, due to the informality of the workshop or a non-unionized workforce. If a TNC customer establishes a relationship with a supplier only to cut wage costs, the terms are usually far less beneficial for the supplier. The supplier can only survive if it achieves leadership on a cost basis. When the production process is standardized and the necessary technology is available to many competitors, price competition is usually fierce, forcing firms to continuously cut costs. Unless suppliers achieve extraordinary increases in productivity, they are obliged to reduce profits, wages and labour standards.
- *"Passive" (numerical) flexibility*: Occasional sub-contracting for the purpose of increasing production in the case of demand peaks usually does not provide a sound basis for SME development. The supplier has to accept short-term contracts and cushion fluctuations in demand through varying working hours. As a result, there is little stability and security for the supplier, which can easily lose its investments if the customer does not receive orders in excess of its own capacity. Moreover, the customer often transfers the cost of inventory to the supplier. Due to the instability of such relationship, neither the customer nor the supplier's management will show a long-term commitment to invest in machinery or workforce skills.
- *"Active" (functional) flexibility*: In some cases suppliers are able to respond to fluctuations in demand by way of functional, rather than numerical, flexibility. This means that they can rapidly switch production processes and flexibly modify the quantity of output. Preconditions for such a flexible system of production are multi-skilled workers, programmable multi-purpose machines and a flexible shop-floor organization. Under such circumstances, subcontracting may be beneficial for the supplier, even if demand is unstable.

14. TNC customers tend to prefer stable, long-term relations with a limited number of reliable SME suppliers, as unstable supplier relations are usually not compatible with rising standards in quality and reliability. As a result, increasing barriers to entry exist for potential SME candidates. Such pressure improves working conditions and opportunities for technological upgrading within a select group of SME suppliers. Yet, even these linkages are not automatic and depend on specific policies and measures.

B. Linkages with technology partners

Corporate joint ventures, technology licensing and other forms of inter-firm alliances offer advantages to all the firms involved through information sharing, joint problem solving, cooperative resource sharing and collective implementation among them. From the perspective of SMEs in developing countries, these linkages are mainly seen as mechanisms to gain access to technological and managerial know-how, as well as to take advantage of the foreign partner's international reputation. Moreover, partnership may limit their financial exposure. The latter reason also holds true for the foreign partners, who are eager to share costs and financial risk especially in the first years of operation in a new, unfamiliar market, taking into account that such markets often involve high risks.

Besides financial considerations, the main advantages of taking up a local partner are related to familiarity with the local way of doing business, including the political and institutional dimensions as well as knowledge of and access to markets.

Joint ventures and other technological alliances have proliferated, particularly in new technologies and the automobile industry. The reasons for undertaking such alliances include: the high costs and risks of R&D and technology development; the need to pre-empt other competitors by undertaking R&D rapidly; benefits from a mutual exchange of complementarities in R&D expertise; and a reduction of the time required to develop a product. Technology alliances by TNC systems can also involve the transfer of R&D related and other activities for one group of products to other firms, including in developing countries, so that the TNC system's operations at home can concentrate on products appropriate for high-income markets. Such alliances can also involve SMEs in home or host countries, where these firms gain access to capital equipment and other resources of TNC systems.² However, such partnering may be fragile and risky. Success to a great extent depends on local partners' ability to bargain before entering an alliance and continuously renegotiate the conditions throughout existing cooperation. At the same time, local SMEs should upgrade technologically and sustain substantive advantages which make them irreplaceable for the foreign partner, such as control of distribution channels, access to continuing sources of technology, control of export channels, etc.

In many cases, alliances between TNCs and developing country SMEs are fraught with difficulties due to the fact that partners often have different expectations and pursue separate and often conflicting goals. Local partners try to gain as much access as possible in terms of the specific knowledge and technology of their foreign counterparts. Yet, these assets are at the core of competitive advantages of any company, especially in the case of rapidly developing, knowledge-intensive industries. Therefore, the technologically more advanced partners try to avoid any leakage of specific knowledge relevant to their market position. On the other hand, the need of TNCs for access to local authorities, institutions, and markets are relatively easily met. In other words, the information access and the bargaining power are not shared evenly between the partners. Consequently, the benefits of the weaker one, usually the local SME, are likely to be limited.

C. Other spillover effects

TNCs sometimes transfer know-how to local SMEs not directly linked to them as suppliers, as a result of unintended spillovers.

Demonstration effects. TNCs often introduce new market channels, management techniques and ways of inter-firm division of labour. Local companies observe these innovations and copy or adapt them to their own needs. Demonstration effects help the local business community

- *to gain access to new export markets:* When TNCs open up new export markets and prepare the field for local followers, the latter may benefit from the reputation that the pioneering exporters have built up for local products and from established trade channels.
- *to introduce new management techniques:* TNCs often utilize advanced concepts of industrial organization. Since management techniques in many developing countries need substantial upgrading, the role of TNCs as showcases is especially relevant in this field. TNCs are much more willing to transfer knowledge about management techniques than production technologies. This is because management techniques are usually not specific to business activities and thus not considered core capabilities, while the leakage of specific production technologies may jeopardize the potential to gain innovation rents.
- *to increase inter-firm division of labour.* As more concentration on core capabilities and increasing specialization continues among firms, outsourcing of non-core capabilities and inter-firm alliances, such as research alliances, technology licensing and franchising, are rapidly gaining importance. Yet, specialization in stages of the value chain and cooperation with complementary firms are still much

² UNCTAD (1995:155-156).

less frequent in developing countries than in industrialized countries. Foreign investors in developing countries can increase inter-firm division of labour.

Most of these transfers occur without active involvement of the TNC but rather through copying of ideas. However, more conscious and systematically organized processes aimed at exploiting demonstration effects, such as company visits and benchmarking programmes, have recently increased.

Human capital spillovers. TNCs usually have more advanced equipment and more up-to-date production processes as well as higher quality standards than local companies. As a result, they place higher demands on their workforce and invest more in employee training. New management techniques emphasize total quality, including propagation of work ethics, quality awareness and corporate identity, putting more importance on human capital investment.

Most TNC affiliates in developing countries now offer regular training courses, ranging from basic courses on motivation or accident prevention to more specialized training in quality management, operation and maintenance of modern equipment, logistics, etc. Specialized workers are sometimes given training in the parent companies or other TNC affiliates abroad where they can apply new techniques, experience different business cultures and learn foreign languages. In other cases, TNC personnel are seconded to the local SMEs.

Even if employees do not participate in training activities, they may acquire certain skills, attitudes and ideas just by working in a plant that conforms to international production standards. Other employees leave the TNC affiliate or the related SME and set up new SMEs. Some TNCs are thus “invisible colleges” which make substantial contributions to skill formation in the host country.³

Effects on competitors. TNCs entering a developing country’s market may induce local companies to improve their production systems. In this sense, competition is an important driving force for local firms’ technological learning. On the one hand, if the local competitors lag far behind TNC standards, FDI may drive these firms out of the market, attaining oligopolistic market power and hindering endogenous technological development. In such an environment, TNCs can quite often secure their market positions without making efforts to continuously improve their performance. On the other hand, if local companies are able to compete seriously with the TNC affiliates, the latter are forced to bring in new technologies to restore their advantages.

Blomström, Kokko and Zejan (1994) show that there is a statistically relevant positive correlation between the technology imports of TNCs and the local competitor’s investment and output growth.⁴ The ability of potential local rivals to survive the competitive pressure of TNCs and respond with improved performance depends on several factors. Among them are the technological gap between TNCs and local firms, the entrepreneurial ethos of the latter, policy support available to them, size and structure of the local market, and the aggressiveness of TNCs.

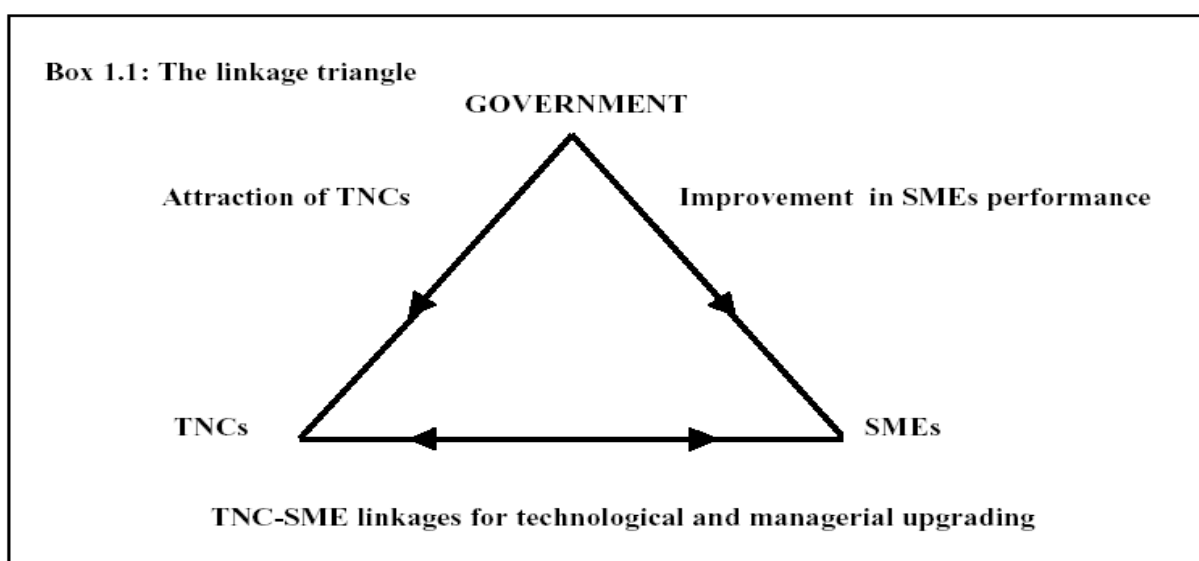
UNDERLYING DETERMINANTS OF LINKAGES BETWEEN TNCs AND SMEs

The intensity of TNC-SME linkages and the ability of countries and individual firms to exploit them for technological upgrading vary greatly, depending on three sets of factors:

- the existence and efficiency of supporting public policies and measures that increases domestic SME investment and facilitates technology transfer and skills development;
- the TNC corporate strategy, which may be conducive to local SME development; and
- the existence of SMEs which are able to meet high TNC standards or at least have the potential to achieve such standards within a short learning period.

³ E.g. Best (1999:25) for the case of Malaysia.

⁴ Blomström, Kokko and Zejan (1994).



A. Role of policy and support measures

As the global economy becomes more open to international business transactions, countries increasingly have to compete for foreign investment. Many of them have relaxed restrictive FDI policies that could effectively deter TNCs from investing in host countries and have begun liberalizing their FDI framework. However, it is obvious that merely opening the door to FDI will not result in the country's economic development. Host countries usually formulate development strategies to promote growth, competitiveness and diversity within their economies. The promotion of SMEs should be part of this general strategy. The question is, however, what is the central objective? Is it to promote growth and competitiveness or to advance social goals such as poverty alleviation?

Governments must determine in which sectors and niches their national comparative advantages lie and then attract TNCs which can assist in developing these sectors and niches based on their corporate global policies. It is advisable to move from general investment policies and promotion programmes towards specifically targeted ones. A study conducted by Wells and Wint shows that promotion was highly cost-effective when sector-specific investment promotion is combined with firm-specific research and customized advertising. In contrast, general advertising campaigns tend to yield fewer results.⁵

While many developing countries focus on a combination of low factor costs to attract FDI, such as labour and natural resources, as well as general infrastructure, these are basic and generalized factors which are usually not sufficient to sustain long-term competitiveness. In order to achieve technological upgrading, advanced and specialized factors of production must be developed which would encourage TNCs to transfer their technology to local firms. These include specific human-capital formation with a high percentage of engineering, science and business studies and logistics infrastructures. Developing countries are likely to benefit from economies of specialization and agglomeration by building up an experienced pool of specialized labour as well as a network of cooperating firms in complementary fields.

Since competitiveness increasingly depends on the ability of firms to learn and master technological development, and since these are cumulative processes which generate significant externalities, there is much scope for market failure. Hence, a strong rationale for market interventions exists in the area of support measures. Yet, these interventions have to be carefully considered and moderated to minimize the risks of inefficiency and failure. Therefore, the relevant question is not whether or not to support and guide FDI and enterprise development, but rather to what extent intervention is required under the specific circumstances of a given country.

⁵ Wells and Wint (1990).

The optimum level of intervention depends mainly on the development level of the host country, the strength of its administration, the competitiveness of local suppliers, and the insulation of government from cronyism. Moving towards a more active and interventionist role of government requires a high degree of administrative efficiency and implies considerable risks.

In particular, interventionist policies to enhance linkages and spillovers between TNCs and local SMEs should always respect the principle of subsidiarity according to which responsibility is best exercised closest to a given situation. This implies that support measures should, wherever possible, be offered by private entities which operate at a decentralized level and are, thus, close to the customer. In other words, it must be clearly understood who can do what best among the various development players, including governments, meso institutions, and TNCs. The current general consensus in the international community favours minimal public sector interventions and largely restricting them to improving the general, legal and business framework for private-sector activities, to providing the basic logistics infrastructure and education, and to stimulating a market for business service providers.

B. TNCs corporate strategy

TNCs pursue different corporate strategies, which are usually closely related to their economic motives for operating in the host country. In the past, foreign investors operating in relatively closed domestic markets often developed substantial supplier linkages, not only because quality requirements were less rigid and economies of scale less relevant, but also because host countries often imposed domestic-content requirements. By comparison, investors seeking resources or focused on export-oriented industries created relatively few linkages, but these linkages with local suppliers were more competitive and sustainable.⁶

Beside the locational motives for investing in a given developing country, many other aspects shape the corporate strategy and the TNC's willingness to develop linkages with local SMEs. These include the degree of technological sophistication of the TNC and the economies of scale attained, the length of time operating in a host country, the geographic proximity and transaction costs between the TNC and its affiliates, the TNC's market position, such as whether operating in price-sensitive markets or enjoying high innovation rents, and the trade policies of the host country; i.e. whether inputs can be easily imported.

TNC's willingness to develop linkages is also influenced by its corporate culture, which, in turn, reflects cultural features of the TNCs' home country. For example, several studies have shown that United States and European electronics and computer companies have used their south-east Asian affiliates for specialized production in a global division of labour, therefore beginning a process of systematically upgrading the technology, improving quality control and expanding managerial responsibilities of their subsidiaries. Japanese TNCs, on the other hand, have maintained higher value-added operations in Japan, while transferring only lower-end processes to their foreign affiliates. In the automobile industry, managers of United States companies are free to expand exports even at the expense of their own parent company, while Japanese parent companies explicitly restrict exports of their foreign subsidiaries.

Extensive outsourcing usually requires building up long-term partnerships and investing in comprehensive supplier development schemes. Depending on their strategy, TNCs may form foreign enclaves with almost no local spillovers (e.g. many apparel companies in Free Production Zones), but they may also create new productive capabilities and opportunities, increased technological diversity and induce technological learning in its business environment. The development impacts are more common in industrialized countries where more innovative SMEs exist to fill in the many "interstices" created by dynamic TNCs. Yet, some of these aspects may be observed in developing countries as well.

⁶ Reuber et al. (1973:152 et seqq.); Dunning (1992: 450 et seqq.).

Box 1.2: Key features of TNC strategies that coincide with deepening linkages*

- Investment driven by the search for strategic capabilities and assets rather than for cheap natural resources, low wages or protected local markets;
- Expansion of the pool of technical and organizational knowledge available in their host country through in-house education and training of workers and managers;
- Participation in public-private partnerships to improve the skill base of their host region;
- Stimulation of continuous innovation inside the company and in its environment;
- Incorporation of local personnel in management and the adoption of products and processes to local markets, norms and values;
- Generation of new business opportunities in related fields beyond reach;
- Business models based on networking and inter-firm cooperation;
- Comprehensive outsourcing strategies;
- Act of system integrator initiating and coordinating production networks;
- Cooperation with other enterprises based on a vision of synergetic long-term partnerships rather than short-term interests;
- Decentralized corporate decision-making and empowered local management to authorize independent sourcing and new product development;
- Provision of affiliates with R&D facilities;
- Fast growth based on productivity dynamics rather than use of additional factors of production. Commitment to the local business community and willingness to share their experiences without jeopardizing the company's core competencies.

*Partly based on Best (1999)

Government can enlist the support of certain TNCs in building linkages because many profit-seeking TNCs are concerned with the issues of corporate responsibility since they live in a media-driven world. They understand that they need an implicit license to operate in their societies. All societal groups are expected to perform certain roles and functions that can change overtime. Expectations related to TNCs are undergoing unusually rapid change due to the expanded role of these enterprises in the global economy. The social contract stipulates that with power and rights go certain responsibilities.

Some TNCs interpret the concept of corporate social responsibility (CSR) in a broad sense; that is, they have an understanding and acceptance of obligations, which go beyond those of shareholders and include obligations to other stakeholders. A number of TNCs act on the basis of their own company-wide policies and well-defined principles rather than on ones which are externally imposed. For example, UNILEVER's corporate philosophy is based on its desire to be an integral part of society as a contributor. TNCs, which have a broad interpretation of CSR, consider their impacts on other groups outside of shareholders such as employees, managers, suppliers, customers, and even competitors, local communities and governments. Stakeholder theorists point out that many parties affected by institutional corporate activity may have neither the economic ability to signal their needs through market mechanisms nor the political power to ensure their representation through government regulation. These situations can, therefore, invoke the subsidiarity principle where both a firm's capability and its impact on those around it become critical factors in determining the nature and the degree of a corporation's responsibilities.⁷

⁷ In the wake of the Asian financial crisis, a number of local suppliers of Toyota in Thailand faced severe liquidity problems. Toyota realized that without a stable network of local suppliers, its own existence was at risk, and thus initiated various support measures in order to keep its supply chain afloat. The actions undertaken by Toyota Thailand included price adjustments to mitigate adverse effects of the exchange rate fluctuations, advanced purchases to increase turnover, compensation of excess inventory stemming from declines in orders, job transfers from local companies to local joint ventures to utilize excess capacity, and an increase in the volume of local inputs at the expense of imports. Muramatsu (2000).

C. The competitiveness of local SMEs

When TNCs were asked what their most important criteria were for partnering with an SME, they first mentioned attitude; the SME must have the will to succeed and the will to transform.⁸ Furthermore, the SME must have its own strategy or vision for the future, as well as good financial management.

In global production chains, different types of supplier relations do not contribute equally to the development of a competitive SME sector. Depending on the innovative capabilities of the SME suppliers and the motives of the TNC customers, three main types of supplier relations may be distinguished. Barriers to entry are lowest in the first and highest in the last.

Low-cost suppliers with limited organizational capabilities. The suppliers do not possess specific knowledge-based factors and are usually less efficient than their customers or other potential suppliers in terms of production processes and product quality. Yet, lower labour costs or their willingness to accept unstable demand conditions may outweigh these deficiencies, especially in technologically simple and labour-intensive activities. Although most TNCs prefer to work with more or less formalized suppliers that meet basic labour standards, those suppliers may in turn employ second-tier sub contractors in the informal sector.

Low-cost suppliers mastering modern organizational principles. Compliance with quality standards is becoming more and more important, especially where production is associated with a company or brand name. Even if supplier relations are cost-driven, most TNCs will not compromise on quality. Failure of a single supplier may threaten the customer's competitiveness and reputation. Therefore, more and more TNCs expect their suppliers to accept rigid guidelines concerning quality, cost and delivery (see Box 1.3). In many cases, suppliers are obliged to implement quality management strategies and to become certified by Good Manufacturing Practice (GMP) or ISO standards. Outsourcing of this kind is still motivated by considerations of production costs, for example, in order to avoid investments in costly specialized equipment for certain inputs (e.g. auto parts, machine tools). The supplier does not necessarily possess exclusive know-how and may still be replaced by in-house production. Yet, the more the supplier specializes in certain operations, and the more experience it gains, the more likely the relationship evolves from one-way subcontracting to a two-way partnership. Barriers to entry in the form of technical expertise, capital costs, or costs of certification may be relatively high for this type of supplier.

⁸ During the "UNCTAD International Meeting on Technological and Managerial Upgrading of SMEs through Linkages with TNCs" held in Penang, Malaysia on 8-9 August 2000, TNCs were asked their views on what they regarded as the most important characteristic in potential SME partners.

Box 1.3: Xerox- Requirement for SMEs to be accepted as suppliers

SMEs willing to supply parts to Xerox affiliate must:

- accept Xerox guidelines concerning quality, cost and delivery;
- implement *just-in-time*-delivery;
- accept that inventory belongs to the supplier;
- accept *pay after use*;
- take 100 per cent responsibility for parts and accept penalties for non-performance;
- develop a methodology of continuous improvement;
- accept a company survey conducted by Xerox personnel, analysing (among other things) the internal organization, conditions and layout of plant, quality management, products, equipment, technical resources, input materials, sourcing strategy, production costs, secondary activities, clients, evaluation of performance by clients and trade union activities;
- promise to solve problems detected;
- established electronic communication with the client;
- develop joint strategies and action with Xerox;
- apply the same principles to second-level suppliers.

Source: Extract from a Xerox document prepared for Mexican suppliers (Xerox 1997).

Innovative specialist suppliers. Suppliers in this category, especially those in technologically complex activities such as electronics and automobiles, are required to invest in R&D on their own in order to constantly improve their products and participate in joint innovation projects with their TNC customers. They build up specific expertise that the TNC cannot easily replace with in-house resources. Barriers to entry in this segment of innovative suppliers are high. As very few SMEs in developing countries are capable of developing innovative technologies, the increasing degree of specialization between TNCs and SME suppliers sometimes leads to the formation of transnationalized enterprise clusters, with leading suppliers from OECD countries following their principal TNC clients to production sites in developing countries.⁹

In summary, the linkages based *exclusively* on low wages and labour standards do not foster technological learning and productivity growth, and thus rarely create a basis for sustained competitiveness. If firms want to embark on a “high-road” strategy of technological upgrading that allows them to move into activities with higher returns, local SMEs must be able to meet the following criteria:

- to have the desire to succeed and commitment for continuous learning;
- to achieve minimum efficiency standards and continuously improve these standards;
- to analyse their own strengths and weaknesses, and set forth strategies to enhance their comparative advantages;
- to identify suitable TNC partners, with which a sustainable linkage may be anticipated;
- to carefully negotiate contracts which are favourable in the long run, taking into account the fact that framework conditions and partner relations usually change over time;
- to be able and willing to transform themselves according to the needs arising in the partnership; and
- to contribute specific assets to the TNC partners, e.g. not only familiarity with local politics and government regulations as well as knowledge of local markets, which may erode as TNCs learn to handle the local way of doing business, but also new advantages.

Many SMEs, particularly in LDCs, are not able to meet these criteria. Hence special support measures are required and are outlined in the following chapter.

⁹ See Altenburg and Meyer-Stamer (1999: 1703 et seqq.) for this tendency to form clusters of transnational corporations.

BEST PRACTICES

A number of innovative approaches to creating linkages have been undertaken by TNCs such as Hitachi, Intel, Motorola, Philips, and Toyota to name a few. Many useful lessons were learned about successful linkages and partnerships during a three-day workshop jointly organized by Intel and UNCTAD in Malaysia on "technological and managerial upgrading of SMEs through linkages with TNCs."¹⁰ Twenty-six case studies from seven Asian countries illustrated various practices used by TNCs to upgrade SMEs. Those innovative approaches which are analyzed in this chapter did not spring up spontaneously. It is important to highlight the role of the Penang Development Corporation (PDC) in promoting linkages. The basic principal and winning formula of PDC was to initiate "smart partnerships" in manufacturing among TNCs, SMEs, and government.

TNCs increasingly tend to perceive the building up of complex SME supplier networks as a long-term investment. They are influenced both by cost considerations and by reliability considerations. SMEs can play a very important role in ensuring that TNCs remain globally competitive. The ability and capacity of SMEs to provide world-class services and products in the supply chain reduces the cost and dependency of TNCs on imported materials. As corporations strive to reduce cost and cycle time in the ever competitive global economy, TNCs are compelled to assist the development of their local suppliers to grow in tandem with their business. Thus, they are willing to provide substantive amounts of human and financial resources to strengthen the competitiveness of the SME partners. The case studies presented at the workshop suggest that best practices include:

- the facilitation of SMEs' access to TNC innovation centers;
- the assignment of TNC staff including engineers and management consultants to SMEs; and
- the phased upgrading of productive capacities starting with operations and plant layout and moving on to design capability, flexible manufacturing, ISO certifications and R&D capabilities.

Most importantly, TNCs entered into a partnership with the government to upgrade skill levels. A case in point is the Penang Skills Development Centre (PSDC) which is the result of a strategic alliance between the State Government of Penang, industry (i.e., TNCs and local firms), and academia. PSDC is a one-stop human resource development centre established in 1989 to address the shortage of sufficiently skilled manpower. The State Government provides the political will and physical infrastructure. Industry members provide the leadership, course guidance and equipment. Academia provides training materials and teacher training. Although initiated by the State Government through the PDC and aided by academia, management expertise and administration are left to the industry.

All enterprises that are members of PSDC send a qualified representative to the PSDC training committee. Among its many tasks, this committee prepares a yearly training calendar of courses to be conducted, monitors, evaluates and obtains feedback on their effectiveness. As a result, PSDC's training reflects the needs of the industry and its courses are able to figure prominently in member companies annual training plans.

PSDC industry members pool their resources together to help plan, design and conduct an extensive range of training programmes directly relevant to immediate and forecasted needs. This enables the PSDC to offer the most cost-effective training for industry and at the same time bridge the gap between skills taught in public institutions and skills required on the job. *Such tailored skills development training is an important factor in a SMEs' ability to absorb technology and engage in continuous innovation.* A recent UNCTAD study shows a very weak relationship between basic education (up to the tertiary level) and the technology intensity of exports. The conclusion was that TNC involvement contributes more to competitive skills than basic education especially where the TNCs do both on-the-job training and collaborative classroom training as happens at PSDC.¹¹ State-of-the-art equipment, computer hardware and software donated by industry and the government enables PSDC trainees to learn using the same industry-standard tools found in modern factories. Since 1989 PSDC has already trained 60,000 workers from TNCs and SMEs. Main programmes include short-term programmes in a variety

¹⁰ The workshop took place in Penang, Malaysia on 8-10 August 2000.

¹¹ UNCTAD (forthcoming).

of technical subjects, apprenticeship programmes in engineering as well as a three-year technical engineering degree for school leavers, a bachelors degree in engineering, a masters degree in engineering business management or microelectronics, and a professional IT qualification programme.

One of PSDC's most innovative programmes, which directly build linkages between TNCs and SMEs, is the global supplier programme (GSP).¹² Its objective is to develop and upgrade capacities of local companies through training and linkages with TNCs. Again, the programme is a joint effort between the State Government and industry. The State Government provides certain financial incentives, industry shares resources and expertise, and the SMEs make a commitment to undertake transformation. The programme consists of two initiatives: basic training in critical skills and linkages with TNCs. In the first part manufacturing and material suppliers are trained in critical skills and competencies to adopt and use new technologies. In the second part of the programme, TNCs adopt local companies and "handhold" them for upgrading in leadership skills and technology. This initiative calls for investment of time and commitment by both the large corporations and SMEs. The success of this mentoring or coaching becomes apparent when suppliers have attained the level of competency to become global players themselves. An important part of the linkage programme is the periodic assessment and review of the SME by the TNC and benchmarking to remain on track.

SMEs in the workshop also mentioned that the sharing of knowledge with TNCs about market trends was crucial for keeping up with their partners. Also TNCs had helped SMEs develop other business opportunities outside of the linkage programme. The State Government, in particular, encouraged TNCs to engage in business match-making and to broker strategic alliances. SMEs said that it was important for TNCs to allow the SMEs to support TNC operations elsewhere outside the host country in order to go global.

This blueprint for growing competitive SMEs seems to have had an impact on job creation, income generation, exports and enterprise internationalization over the past ten years. The State Government has provided the basic educational and logistic infrastructure. Government, TNCs, SMEs and academia have entered an alliance to bridge the gap between formal education and the skills needed by the market place by creating the PSDC. The Centre has developed specific programmes for getting SMEs partnership ready and TNCs have nurtured and mentored SMEs in this programme. In the end the host country has harvested additional benefits when the SMEs have gone global.

In general, the best practices showcased by the case studies are guided by the principle of subsidiarity. Lessons learned are that the conditions for success include:

- Governments must act as catalysts by providing and continuously improving logistics and educational infrastructure, particularly for the development of engineering and management skills. The enabling business environment must be founded on a meaningful and continuous public-private sector dialogue, so that the public sector understands the business needs of TNCs and SMEs alike. Investment policies and promotion measures must target those TNCs which are committed to development and willing to enter supplier development programmes.
- The public and private sectors, as well as academia, must work together to create "meso" institutions, such as skill training centers, to facilitate transfer of technology and to achieve the capacity for continuous innovation.
- TNCs act as agents of change or anchor companies working with SMEs for technological and managerial upgrading by adopting SMEs and coaching them in continuous improvement. They must provide business opportunities with other international partners. TNCs, with their vast potential, can facilitate universal access to information technology and the capacity to embrace new methods of commercial transactions, including e-commerce.

¹² PSDC (2000a).

- SMEs must have the commitment to compete, to survive and to succeed. Moreover, they must have a vision of their own evolution and be prepared to change their mind set in line with new opportunities and requirements. They must focus on core competencies, while at the same time must be flexible, willing to learn and be committed to continuous improvement.
- The creation of linkages between TNCs and SMEs must be based on trust, confidence and long-term vision. It requires open communication, a regular flow of critical information and sharing of knowledge concerning all aspects of development that are essential for productive partnerships.

POSSIBLE ISSUES FOR DISCUSSION BY EXPERTS

Policies and measures for attracting FDI and for enterprise development are interrelated, and cannot be considered in vacuum. Hence governments' policy vision and strategy on enterprise development will influence FDI attraction and vice versa. In providing an enabling business environment and in its dialogue with the private sector, the government must have a clear vision of why, how and which part of the enterprise sector needs to be promoted. Some national and donor-driven SME programmes providing indiscriminate assistance to SMEs in traditional activities where they do not possess competitive advantages vis-à-vis large firms might be of little help when it comes to coping with the ongoing structural change.¹³ The challenge is to establish a core group of dynamic SMEs. This calls for selective policies and programme measures. To be effective, such programmes and measures should be part of a holistic and coherent policy framework, which takes into account the different and complementary roles of government, the private sector and the international community. The expert meeting may wish to reflect on the following sets of issues that will require the commitment and partnership of all development actors.

A. The role of the government¹⁴

The occurrence of TNC linkages and spillovers relies on the creation and further development of an enabling business environment. Such an environment is characterized by:

- The existence of a sound legal, regulatory and tax framework;
- The continuing availability of a skilled labour pool through education and training programmes;
- A well developed infrastructure, especially transportation and telecommunication;
- A continuing public-private sector dialogue on programmes for effective enterprise development; and
- The encouragement of TNCs to create supplier links via targeted investment policies.

In this context governments could also adopt a comprehensive set of selective support measures to promote linkages. Criteria for selection include the competitiveness of sectors in which potential partner firms operate, the dynamism of particular SMEs in that specific sector and their capacity to specialize in activities which complement that of potential TNC partners. Such proactive partner selection does not have to be limited to local SMEs.

Equally stringent, though differing, selection criteria could be used for the identification of TNC partners: that is, which TNCs, in the view of the government, are likely to have a positive impact on development; in other words, does the firm either pursue development strategies, or could it foreseeably contribute to the development goals and targets set by the government.

¹³ For example, it should be noted that fast-growing SMEs in innovative areas rarely grow out of the existing stratum of micro- and small firms, since they usually face various internal barriers to growth, including lack of managerial capabilities, technical expertise, skilled workforce, capital, and growth orientation.

¹⁴ As noted in the beginning of this paper, it was not the intention to once again focus on government policy. However, at this point, it is useful to start the conclusion on practical measures with a brief summary of the policies, which are pre-conditions for taking action to promote linkages at a number of levels.

Once governments have gone through the stage of identifying those strategic enterprise sectors and investors, support measures have to be put in place in order to make the local enterprises partnership-ready.

Questions to be asked at this stage include:

- Once a business enabling environment has been created, what other specific policies could it adopt which would promote TNC-SME linkages?
- How does the principle of subsidiarity influence the extent of government intervention?
- What role does public-private sector dialogue play in formulating policies and support programmes?
- What is the scope for meso institutions?
- Should government intervention be restricted just to remedy market failures in the areas of information, labour, capital, and technology?
- To what extent do present and future trade and investment commitments limit the scope for special support measures?
- Under what criteria would economic incentives be appropriate for building linkages?

B. The role of the private sector

Business Associations

Business associations have an important role to play in facilitating and enhancing the formulation of SME-TNC linkages. The effectiveness of their role is directly related to the level of public-private sector dialogue established. Important measures taken by the business associations, not only to support and complement governmental policies and measures but also to tailor them more appropriately to the needs of the enterprise community, should include:

- Advice to the governments on the formulation of appropriate policies and strategies;
- Development of networks among suppliers, clients, business development support agencies, financial institutions, government offices, and NGOs;
- Assistance in pre-selection of potential local firms as suppliers to TNCs by preparing updated catalogues of enterprise profiles, supplying a maximum of clear and relevant information on the existing and potential capabilities of enterprises interested in partnering ventures;
- Fostering partnership between TNCs and local SMEs through improved contact between them, by organizing fairs, exhibitions, and other trading events, facilitating participation in such events, or disseminating information on the advantages of creating links as well as on existing support mechanisms and governmental programmes; and
- Partner preparation by providing institutional assistance required for SMEs' capacity upgrading, vertical and horizontal matchmaking.

Business associations can also contribute to the SME-TNC partnership development through mitigating negative impacts of such development on the society. For example, local firms may be informed of the risk of unwanted westernization, or loss of traditional crafts and skills. Moreover, unsustainable competition among local firms could be avoided through close collaboration with the associations. For example, measures could be introduced to discourage damaging cost cutting practices or supplier pyramids, where local firms are at the bottom.

TNCs

The existence of competitive SME suppliers is beneficial for TNCs. In order to foster the network of competitive local suppliers which are capable of maintaining long-term partnerships with TNCs, they could establish corporate strategies to facilitate SMEs' access to TNC innovation centers and engineers; train SMEs employees through rotational assignments of qualified technical and management staff from TNCs to SMEs and vice versa;

- Gradually upgrade the productive capacities of SMEs from operations to technological capabilities;
- Participate in adoption, mentoring, coaching programmes;
- Share knowledge with local partners regarding market trends;

- Support local partners financially or facilitate their obtaining bank loans; and
- Help local partners develop other business opportunities abroad.

Once the government has created an enabling business environment, the private sector should consider:

- What other forms of support do they need to partner with local firms?
- Is there a preferred form for partnership? Subcontracting, joint ventures, strategic alliances?
- What qualities do they look for in a partner?
- What are the requirements for entering their supply chain?
- Does the company have a stated company-wide policy on local partnering?
- What is the most likely motivation for forming local partnership? Company policy? Economic sector or activity? Local conditions or requirements?
- What benefits do TNCs realize from local partnerships?
- What type of specific programs do they have in place to create such linkages?

C. The role of the international community

As a major source of employment and, thus, income, local SMEs in developing countries are considered to be engines of economic growth. Particularly, in the globalization process where many societies in the developing world are in the process of adjusting to its impact, local firms are seen as the source of dynamic economic and social change. The international community can work towards achieving an equitable economic, social and political balance by:

- Initiating and developing dialogue on elements for an international environment conducive to the creation of sustainable, equitable TNC-SME linkages which are likely to have positive impacts;
- Creating international models for TNC-SME linkages, through exchanges of experiences and dissemination of best practices with the participation of relevant stakeholders in the process; e.g. TNCs, SMEs, governmental agencies and institutions, and civil society;
- Complementing national, regional and sub-regional efforts for investment promotion in general;
- Eliminating barriers to SME growth and export expansion, such as export barriers, discriminatory rules of competition, quality, health and sanitary standards; and
- Increasing support for technical cooperation in entrepreneurship development and institutional capacity building.

Other questions can be raised in the context of the global environment on foreign direct investment:

- Should the global compact of the Secretary-General be expanded to include the impacts of TNCs on development?
- How do regional integration agreements affect the likelihood of creating linkages with local firms versus firms in the region?
- What role can international organizations play in strengthening local institutional capacities to provide support programmes for SMEs?

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THE PHILIPPINES' EXPERIENCE IN THE METAL INDUSTRY THE CASE OF METAL CAST

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Metalcast was established in 1993 as a manufacturing group engaged in Aluminium die casting, precision machining and tool and die fabrication. The company caters to Original Equipment Manufacturers (OEMs) to the automotive, motorcycle, electronic and other related industries for both the domestic and export markets. Our current transnational company (TNC) customers include, among others, Daimler-Benz/Telefunken, Ford, Kawasaki, Honda, Sharp, Shimadzu.

After three years of operation, the company was able to establish export markets in the US, Japan and Germany. Products exported are components for satellite communication, automotive, electrical and lighting fixtures. The company is categorized as medium-sized with an export volume of over a million dollars per year and an average production of 40 tons of castings per month.

Main production facilities are programmable logic controlled die casting machines, computer and numerically controlled machining centers, and various high precision quality equipments. The factory is situated in a 13,000 sqm lot with a covered area of over 3,000 sqm. It employs over a hundred workers (direct and indirect) and operates 24 hours a day, six days a week in three shifts.

Metalcast Corporation was established in the pursuit of a vision of creating an organization with a corporate culture that can be at par with global competition. The development of attitude, mindset, appropriate values and skills were the priorities. The company has adopted an amorphous (flexible) organizational structure that can respond to the most urgent requirements of the customers. The central value instilled in its personnel is that the customer is "Kami-sama", (Japanese term for "god" but an unforgiving one).

RATIONAL AND OBJECTIVES FOR TRANSNATIONAL COMPANY LINKAGES

- Market growth
- Application of new technology
- Organizational development

The domestic demand for precision Aluminium castings in the Philippines is very limited, given the fact that local Original Equipment Manufacturers (OEMs) are still at the take-off stage. It is the transnational OEMs operating in the Philippines that are supporting small and medium enterprises (SMEs) through their local content regulation purchases. However, despite these foreign investments, the volume of demand is not yet sufficient to sustain a modest and sustainable growth for the industry. The export market or linkages with offshore transnational companies is a must to attain economies of scale that can bring about a competitive status and justify constant expensive investments in new technology.

The majority of the SMEs in the Philippines employ general use or jobbing type machines for batch processing that are inappropriate for mass production. The company with the same set up is limited to accepting low volume, high value and labour intensive orders. This situation prevents us from employing cost efficient mass production technology.

Therefore, as a strategy for internal growth, we embarked on a direction of seeking demanding buyers in terms of high quality, high volume, competitive price and strict delivery schedules to serve as a "pull" for change and development in our capabilities. We started this programme by catering to Matsushita's computer floppy disk drive housings, Daimler Benz/Telefunken Microelectronics' (TEMIC) automotive parts and Kawasaki's motorcycle engine components. These TNCs are operating in the country. The effect was dramatic in that, with the assistance of TNCs, systems, procedures, new technologies and a new concept of organization had to be employed to be able to satisfy their requirements. The linkage

with Matsushita and TEMIC promoted the corporation and the organization to a level where they can compete globally. We became familiar with their corporate visions, values, systems and ways of doing things to maintain and establish a long term and beneficial business relationship: As the saying goes, "We are only as good as our customers." Satisfying a category "A" customer, the supplier transcends to their category. With the high volume demand of Matsushita and TEMIC's zero defect programme and the similar demands and strict delivery schedules by Kawasaki, the company was able to justify investments in new generation computer controlled machinery and up to date quality control equipment. This made our company at par with our toughest local competitors and further improved both our jobbing as well as our mass production process capabilities. With these accomplishments and track record, Metalcast Corporation became very marketable with TNCs here and abroad.

APPROACHES IN ESTABLISHING LINKAGES WITH OFFSHORE TNCs

- Employing the services of international purchasing offices operating in the country;
- Commissioning of agents in the international market;
- Participating in international and local trade fairs;
- Qualifying for registration in government trade offices, foreign chambers of commerce programmes and other international organizations;
- Referrals by existing foreign customers.

The company's efforts in linking up with offshore TNCs are primarily due to management's networking. Initially, we requested the service of international purchasing offices operating in the Philippines to match our company with customers in the United States and Japan. This was accomplished after years of quoting prices for dozens and dozens of inquiries, negotiations through fax and customer visits. The company also participated in international and local trade fairs and qualified for registration in government and industry promotional programmes. Foreign customers searching for suppliers have started communicating with us on the prospect of establishing a business relationship. Most of these foreign companies come from small and medium-sized customer enterprises in the US and Japan, which are exploring importation or offshore sub-contracting to reduce cost, to maintain and expand their present market.

The Philippine Government, especially the Department of Trade and Industry, was included in the company's marketing network through extensive representation by participating in consultative and export project development programmes. The creation of a database for the industry, information and promotional materials funded by the government and highly subsidized trade fair participation contributed significantly to our market promotion and expansion. Foreign chambers of commerce like the European Chamber of Commerce, UNIDO and industrialized countries' trade missions and other forms of assistance like the Philippine-Germany Trade Development provided the company with insights, valuable information about the international market and initial communication with potential customers.

APPROACHES IN ESTABLISHING LINKAGES WITH TNCs OPERATING IN THE COUNTRY

- Constant "knocking at doors";
- Endorsement by satisfied customers, individuals and other institutions;
- Networking with government agencies, industry associations and suppliers;
- Upgrading production facilities, developing and implementing accepted quality systems;
- Accepting very competitive target prices as a spring board.

Establishing links with TNCs in the country is similar to penetrating the export market. The company had to contend with the prevailing attitude of TNCs that local suppliers were not capable and reliable in satisfying their requirements. Confidence in our technical and process capabilities and the ability to adopt and understand their culture or ways of doing things became a major obstacle. We had to constantly follow up on our proposals to get their attention and to be seriously considered or accredited as a supplier. The company had to be visited many times, evaluated, re-evaluated, and audited using various parameters. Investments in the upgrading of processes and systems had to be made before a

consideration for a modest purchase order could be expected. On average, the cycle from the proposal stage to purchase order stage takes as long as two years.

Referrals by satisfied customers, credible suppliers and other individuals were utilized as an effective approach simply because it gives immediate confidence in the customer and assurance that the referred supplier company can deliver.

MAJOR PROBLEMS AND OBSTACLES IN LINKING WITH TNCs OPERATING IN THE COUNTRY

- Confidence problem with local suppliers;
- Competition from TNCs home-based sub-contractors and suppliers and those who relocated in the country;
- Requirement ISO Certification or passing company audit with parameters based on ISO elements;
- Highly competitive or unrealistic target prices;
- Efficiency and volume price discounts or yearly cost down policy;
- Just-in-time delivery;
- Inappropriate and unnecessary high quality specifications;
- Availability of universal standard materials.

As mentioned, the primary consideration of most TNCs is confidence. Their initial basis for our competence and process capabilities is our track record. For a young company like Metalcast it was very hard to convince the potential customer since our list of accomplishments, at that time, was very modest. The company compensated by hiring experienced Filipino managers and supervisors from foreign die-casting companies operating in the country, the immediate development of ISO and customer based quality systems manuals and the acquisition of appropriate machinery.

TNCs like Fujitsu, Matsushita, Honda, Toyota as a policy and a strategy require their major home-based subsidiaries, suppliers and sub-contractors to relocate their operations in the same area. This approach made the TNCs disinterested in developing local suppliers for immediate employment. Local vendor surveys were done only for identifying potential suppliers, their core competence, analyzing the competitiveness of current suppliers and identification of “spare tires” in case of failure with their current suppliers. Critical parts and components needed for production are generally imported from their home countries. However, the company was able to establish a business relationship with these companies because of competitive prices brought about by our currency depreciation that made importation prohibitive. Even though this established business relationship did not satisfy our financial targets because of very competitive target prices, it significantly contributed to our track record and internal growth in terms of organizational, systems and process development.

Target prices given are of the global standard and costs that were derived from a specialized and mass produced operation. In many cases, target prices based only on quotations gathered from many sources and not validated in actual production. Our pricing was based on the efficiency of general use machinery and traditional cost accounting methods making our quotations initially uncompetitive. The company had to adopt target costing methods in which overhead and variables are scrutinized in detail for cost reduction, control and budgeting, re-invent production processes, invest in specialized machinery and equipment, assume that a modest profit margin can be generated from efficiency improvements and reduction of wastage.

The practice of efficiency and volume price discounts or cost down policy of TNCs had adversely affected the stability, direction and profitability of the company. A cost down of 5 to 15 per cent per year on the prices of our products made us re-evaluate the feasibility of going into high volume projects or continuing the relationship with some of our current TNC customers. This yearly cost down policy is very prevalent in the computer parts and the automotive industry where miniaturization, integration, rapid development or changes in technology and the “less material more intelligence products” were the orders of the day. Metalcast Corp. had to redirect its focus on servicing niche product customers (pumps, compressors, communication equipment, motorcycle engine parts etc.) where prices are more realistic and stable, have longer product obsolescence period and captive markets.

Prior to a business relationship, most TNCs require ISO 9000 certification or at least the company has to be in the process of certification. The most basic request that is often made is to pass their vendor's accreditation audit which is usually based on ISO 9000 procedures and sometimes of a higher standard like the European Car Parts Manufacturing Standard in the case of Daimler-Benz/Telefunken Microelectronics (TEMIC). A quality manual is a must. Developing such intricate methods, procedures and systems with the stated and implied quality requirements of TNC customers takes time and qualified staff to accomplish making it financially worth for an SME like us.

Strict delivery schedules were also imposed. The "just-in-time" delivery approach is a common requirement of TNCs, especially in the domestic automotive industry. However, local raw material suppliers could not perform against the system and prevented the company from fully implementing the real essence of JIT. The company was able to remedy the situation through the implementation of JIC (Just-in-case) strategy. This strategy is based on projecting and producing at risk the customer's requirement ahead of the schedule without a purchase order and keeping a sizable inventory of finished goods on hand. Late delivery penalties imposed are far more expensive than the carrying cost of the product and the opportunity cost of a slow material inventory turn over.

As for technical problems, most of the issues encountered by the company were on quality specifications especially with Japanese TNCs. Their quality requirements are sometimes no longer realistic or logical as related to the function of the part or the product. Close dimensional and visual quality tolerances required are applied to all specifications and do not give consideration to the problems in production and degree of difficulty (process capability) of attainment. This resulted in a high rejection rate and wastage. American TNCs, on the other hand, employ a more rational approach or concept of quality. The key element of the approach is determining the correct quality specification in relation to the function or usage of the product. Carefully selected and only necessary critical specifications are emphasized as a condition for quality acceptance. The rest of the specifications are given practical tolerances. For European TNCs, quality requirements do not only focus on the dimensional and visual specifications but also on the preference on DIN material quality standard and selection. Finding a material specification equivalent to DIN is a difficult undertaking in the country considering that the norms applied and demanded by most of our customers are ASTM or JIS specifications.

In terms of the business climate or environment, the lack of suppliers of quality materials and supplies presented a big hindrance in developing products. Most of the materials and supplies required by the customers are imported and have to be purchased in bulk to be economical. The delivery time of the importation sometimes takes as long as three months. Accurate and detailed planning and ample financing is necessary. Government bureaucracy and regulatory mindset further complicate this problem. Other business climate problems affecting operations are unstable currency, high interest rates or charges on foreign denominated transactions, expensive transportation / freight cost and diminishing supply of skilled workers.

TNCs were more interested in doing business in other South-East Asian countries such as Thailand, Malaysia and Singapore because of political stability, availability of competent suppliers and sub-contractors and fast growing domestic market. Unlike in the Philippines, especially after the Marcos regime, the political climate was volatile and not very conducive for investments or operations expansion. This factor of confidence greatly contributed to the poor performance of SMEs linking with the international market or customers.

STRENGTHENING OF LINKAGES WITH TNCs

The basic elements in strengthening the relationship with TNCs are delivering the products at the stated and implied quality specifications, the right quantity at the right time, maintaining the best price the industry can offer and developing a good personal relationship. However, with global competition, technology advancement and shift of business and management paradigms, these elements are no longer the only ideal basis of a productive and long-term business relationship. Competitive suppliers should prepare themselves not just as a good provider of products or services but a dynamic and innovative provider of SOLUTIONS. These solutions can be in many forms such as taking charge or actively participating in the research and development, design, engineering, interfacing of systems and

procedures, streamlining of order to delivery process and other activities that can increase productivity and reduce overhead expenses for both the customer and the supplier.

For companies that are servicing offshore TNCs, their level of performance and reliability in delivering products should be as if they are competitive local suppliers. In addition to the above, appropriate packaging of products, international and local freight cost and arrangements, insurance, import and release documentation, warehousing and actual delivery to the customer's door should be included in the supplier's product delivery process and its final pricing. In this manner, we can truly say that our products or services have real value added or provide solutions.

In offering "solutions" to TNC customers Metalcast Corporation implemented an integration project of other related and needed services in our production process. Together with our parent company, ARCO Metals Products Inc., investments in computer-aided design equipment (CAD-CAM), complete tool and die fabrication, component assembly line and product surface preparation and painting were established. This direction taken might be contrary to the trend of specialization and focusing on core competences. The undertaking was necessary because of this situation, where similar and reliable support services were not available to TNCs, the company's operations were hindered. As the saying goes, "one man's meat may be another man's poison". Regarding the relationship of SMEs and TNCs, the reality is that there is no best approach or best form, only an appropriate relationship based on actual situations.

SMEs, KNOWLEDGE COMMUNITIES AND TNCs IN VENEZUELA

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INTRODUCTION

In Venezuela, two basic events constitute the seminal contribution to an albeit small but growing group of SMEs to devise new ways to survive in a harsh environment, brought about by years of macroeconomic and political volatility, high transaction costs and lack of cohesive sectoral development policies.

The Venezuelan experience with knowledge community dynamics is characterized by the following events:

- The introduction of franchising in the 1990s;
- The foundation in 1995 of Petroleos de Venezuela's corporate university C.I.E.D ("Centro Internacional de Educación y Desarrollo") with the mission to leverage the corporate knowledge by identifying and coaching knowledge community processes and dynamics;
- Petroleos de Venezuela's Joint Productivity Effort programme or "Esfuerzo de Productividad Compartida- EPC" unveiled in 1999.

FRANCHISING IN VENEZUELA

Even when the idea of standardizing production of goods and services under a name brand has started much earlier in the hotel industry by training local staff according to foreign standards, franchising in Venezuela really started in the early 1990s with the introduction of the first McDonald's outlet as an investment alternative for small entrepreneurs. It took a higher profile during the period in which professional staff started to really increase the ranks of the unemployed in the wake of the 1994 financial crisis that affected new hiring in general.

According to estimated figures released to the press by Venezuela's franchise trade association "PROFRANQUICIAS", there were only 30 affiliated businesses in 1998. By the end of 2000 the number of affiliates is expected to increase to 140 affiliates owning of 1260 facilities and employing 60,000 workers.

The value of franchising as a human development mechanism in Venezuela is due to its direct effects such as:

- Provides for the transfer of technology and know-how to local entrepreneurs and its employees;
- Aligns the activity itself with a set of backward and forward linkages whose products or services must conform to determined standards, leveraging the overall value chain;
- Gives employees the opportunity to acquire general and specific skills through courses and on the job training, increasing its personal marketability.

Indirect or spillover effects:

- Provides a benchmark for competing firms producing alternative products and services;
- Provides a demonstration effect by way of propagation of quality standards, work ethics and good asset maintenance, adaptable by other firms;
- Upgrades the quality of life by ameliorating otherwise downtrodden neighbouring areas;
- Increases quality awareness within consumers and society at large.

INTERNATIONAL CENTRE OF EDUCATION AND DEVELOPMENT (CIED)

Globalization and complex systemic factors are leading to rapid changes in PDVSA's corporate environment. These have fostered worldwide changes in learning processes across firms and countries. Today, according to empirical research, 80 per cent of relevant learning processes take place through networking experiences or on the job, while the remaining 20 per cent comes through formal education.

CIED (Centro Internacional de Educación y Desarrollo / International Centre of Education and Development) was founded by PDVSA as a corporate university in 1995 with the mission to serve as a vehicle to assist in the development of individual and organizational skills and competences with the goal to leverage organizational performance.

This approach implicitly holds the following key elements:

- A high degree of commitment, from the highest levels down to the lower echelons of corporate hierarchy, in order to ensure the adequate levels of training and employee's personal development;
- Development of core competences using learning and curricular maps;
- Promote collective knowledge generating direct and spillover effects that stimulate active involvement from all involved in the organizational and personal learning processes;
- The implementation of best practices, the intensive use of strategic alliances with renowned educational institutions, as well as the use of educational mass technologies;
- Extend CIED's mission and principles to the corporation's subcontractors and suppliers, the education institutions and the private productive sector as a whole.

CIED has a unique structure among its peer training centers; it encompasses three major units:

- A managerial and executive development unit: Its purpose is fostering integral strategy development as well as managerial skills suited for fast changing environments.
- A technical skills development unit. Its curricular activities look to strengthen employee learning and knowledge transfer processes in areas covering prospection and exploration, production, engineering, maintenance programmes, marketing, petrochemicals, IT, telecommunications, environmental and corporate safety.
- Industrial skills formation activities unit: Its aim is to train and certify specific skills in the areas of mechanics, instrument maintenance, electricity, special welding and sailorman ship techniques. The curriculum emphasizes operational efficiencies, safety procedures and environmental protection.

CIED's corporate headquarters are located in Caracas. It fulfils its tasks aided by information and documentation centres, real time videoconferencing and online research activities. It operates with an annual budget of approximately US\$ 38,5 million. Infrastructure includes twelve buildings distributed all over the country's main cities and where PDVSA has specific operational activities. It totals 170 classrooms, three amphitheatres, and a huge amphitheatre with the capacity for 400 attendants, five information centers, 37 labs, four simulators and 67 workshops. During 1999, it administered a total of 6585 training courses and seminars to a total of 88 057 attendants, from within PDVSA and client firms, and the activity is set to increase even more in the future.

Furthermore, CIED established strategic alliances and covenants with outstanding national and international corporations such as INTEVEP (Petroleum research institute Venezuela), Honeywell, Schlumberger, as well as world-class educational institutions such as the Instituto de Estudios Superiores de Administración - IESA-Venezuela, Universidad Católica Andrés Bello, UCAB-Venezuela, Universidad Central de Venezuela, UCV University of Tulsa, Texas A&M, Harvard, Wharton School and Center for Creative Leadership to name a few.

THE EPC INITIATIVE - PETROLEOS DE VENEZUELA PDVSA

PDVSA is among the biggest oil companies in the western hemisphere and Venezuela's most important foreign exchange generating enterprise, as well as the biggest contributor to Venezuela's government fiscal revenues. Its business plan has far reaching implications because its investment spending programmes greatly influence the country's rate of GNP growth, salaries and domestic price structures. At present PDVSA challenges are three-fold:

- Maintain its prominent place as a world class player in the face of rapidly shifting players in the energy markets;
- Maintain and improve its role as the main catalyst of the private industrial sector development efforts; and
- Satisfy the state's fiscal objectives.

To meet these challenges, PDVSA is restructuring itself along the lines of identifying and leveraging core competencies, aligning its supply and value chains with those competencies of its partners and suppliers to create increases in the firm's physical and human value. The strategy becomes more important in the face of facts and tendencies that have been identified in both the global energy market: and within the country:

1- Global market environment

- Competition for market share among major global players coupled with projected increases in demand and greater efficiency in consumption patterns;
- Consolidation via mergers (BP Amoco-Arco and Exxon-Mobil) to attain operating synergies, finance R&D efforts, attain important cost efficiencies and exert influence in energy markets;
- Environmental pressures originating from government, communities and consumer groups alike to come up with green combustibles and products conforming to stringent regulations;
- New substantial oil reserves in the Caspian Sea, Africa and the Gulf of Mexico.

2- Local market: factors

- The private oil sector includes approximately two thousand firms presently operating at almost 50 per cent capacity, depending primarily on PDVSA's business plan for developing their own strategies, generating goods and services entering PDVSA's supply chain;
- Global energy demand growth prospects and associated local demand assures the necessary elements to activate economic growth via demand and income multiplier effects.

Petroleos de Venezuela's (PDVSA) has unveiled its "EPC" programme, an acronym for "Esfuerzo de Productividad Compartida" or Shared Productivity Effort. This programme looks to foster a shared vision that will contribute to the development of new relationships among PDVSA, the government, labour unions and the private sector. In order to achieve the following major objectives:

- Increase the value of the firm by developing strategic alliances, sharing risks and benefits under specific cost and value benchmarks;
- Ensure the coherence of partners and suppliers to a common ethics charter, information sharing and confidence;
- Integrate its supply chain to its value chain creation process by educating partners and suppliers according to quality and operational standards;
- Achieve important cost reductions;
- Increase own's productivity and competitiveness, as well as that of its suppliers and partners.
- Contribute to increase its export capacity and that of the related private sectors;
- Increase its contribution to Venezuela's GDP growth.

EPC's MECHANISM

1. Optimize total costs by examining cost structures that feed into the supply chain. The cost structure is based upon the ABC (Activities Based Cost) methodology.
2. Identify the industrial sectors that need to be strengthened and developed if inexistent.
3. Support strategic alliances with partners and suppliers developing knowledge communities as the main vehicle to propagate technologies and best practices among different projects, so as to create permanent working and communication channels among participant firms and institutions.
4. Integrate the supply chain to the value creation chain process by:
 - Demanding an early presence of suppliers and partners in the project design and execution;
 - More efficient use of resources;
 - Reduction of production and delivery cycles; and
 - Increase operating efficiency.
5. Increase demand for private oil sector goods and services so as to achieve:
 - Increase in employment;
 - Increase in capacity usage;
 - Income generation; and
 - Regional and national growth.
6. The key sectors and firms serving them should be evaluated gathering background information on:
 - Output capacity;
 - Export potential;
 - Environmental and macroeconomic policies influencing operations;
 - Data on population and educational needs for each region where investments are to take place; and
 - Define parameters on qualitative aspects of required supplies, such as product specifications, quality, terms of delivery, pricing structures, areas of presence, expertise and actual status on each.
7. Assess key segments associated with key industrial partners in the following areas with the following characteristics:
 - a) High capital, knowledge and technology inputs, e.g.:
 - Automation services;
 - Well maintenance and well productivity analysis;
 - Computerized prospecting;
 - Telecommunications;
 - Instrument development; and
 - Simulators.
 - b) Medium capital and high raw material inputs:
 - Engineering services
 - Inspection; and
 - Plant firing and stoppage procedures.
 - c) Medium capital and high labour inputs:
 - Engineering;
 - Construction; and
 - Backup services.
 - d) Low capital requirements and high labour inputs:
 - Equipment;
 - Drilling clay;
 - Chemicals; and
 - Cement.

8. Creation of task force teams by projects to these ends PDVSA has identified key industrial areas where a stable demand profile would project itself during the time horizon of EPC programme:
- a) Consulting services:
 - Geophysical and seismic surveys;
 - Well characterization; and
 - Integrated optimization analysis reports.
 - b) Maintenance:
 - Well servicing;
 - Infrastructure operations and maintenance;
 - Plant maintenance; and
 - Security, health, environmental and operational reliability projects
 - c) Infrastructure projects:
 - Engineering, procurement and construction services;
 - Project management; and
 - Automation projects.
 - d) Physical assets:
 - Drilling equipment and parts;
 - Drilling clays and chemicals;
 - Pipes and accessories;
 - Pumps;
 - Valves; and
 - Steel Tanks.
9. Creation of task force teams:

In this phase, knowledge communities covering PDVSA, private sector and government will contribute to:

- a) Accelerate individual and organizational learning dynamics;
- b) Share and propagate best practices; and
- c) Ensure that each team leader applies the concepts developed within a similar framework in the projects for which they are to be held responsible.

CONCLUSIONS AND RECOMMENDATIONS

Venezuela is in the phase of rethinking its development strategy. The economy is starting to grow moderately, helped by its oil revenues, which are expected to boost aggregate income, making its effects in private and corporate demand in a relative short period of time. Moreover, the country has the necessary wherewithal to improve its situation, not only in terms of its natural resources, but also in terms of its physical and human capital. However, in light of the above facts and situations, it is possible to conclude the following:

1. Firms, universities and institutions that constitute centres of excellence, could provide the critical mass for the turnaround process, if they manage to solve the issues of lack of political will, coordination and communication limiting them.
2. Increasing competitiveness not only includes specific economic sector linkages, but also a form of viewing individual education and values. It is concerned with policies fostering learning and qualitative growth. It also involves restructuring the individual and society, in its working and learning habits and methods.
3. The government's strategy in the matter is yet to be defined. The government at both central and regional level still does not have a coherent strategy on how to foster and develop TNC-SME linkage policies. Government, SME trade associations are still struggling to feel comfortable with the intangible nature of competitiveness and value creation after years of viewing the SME development under the basic prism of, aiding a handicapped sector with employment creation schemes and dealing with working capital financing themes. To be fair many developing countries are undergoing the same learning process and any significant progress must come through in time and through education.

4. The oil sector, specifically PDVSA has the knowledge application framework and logistics to provide guidelines and coaching to the rest of the economy.
5. Governmental entities and institutions promoting TNC-SME linkage policies via knowledge communities can – and should – take centre stage if the country is to transform itself in a competitive way.

Having described the existing issues and problems affecting SMEs and on the other hand, the programmes and available institutions and mechanisms to link meso institutions, SMEs and TNCs, the following recommendations must be put into practice in order to make synapses function by way of leveraging corporate knowledge in favour of SMEs development:

TNCs

Foreign direct investment and SME growth should go hand in hand by promoting policies encouraging:

- The inclusion of local SMEs in the firms' supply and value creation chain under specific qualitative guidelines.
- Help worthwhile SMEs, part of a TNCs value creation chain become bankable. This can be done by, among others, approving risk lines in favour of the SME against its outstanding performance contracts, and under the mentoring TNCs overall risk relationship with its local banking institutions. The SMEs could obtain lower financing costs than on a stand alone basis.
- Integrate private institutions and universities into the TNCs value creating processes by interacting with local academic staff through seminars and exchanges in specific managerial and /or technical skills building needed that can be replicated without necessarily putting at risk proprietary information.
- Allow SME access to TNCs knowledge sharing systems by allowing SME managerial and technical staff to interact with colleagues in TNCs through exchange programmes and tutorial seminars designed to upgrade specific SME administrative, production and logistical areas.

SMEs and SME trade associations

1. Consolidate SME trade associations, to increase negotiating leverage and eliminate duplication of effort.
2. Integrate existing initiatives on competitiveness by developing coherent relationships among the various private, government and educational institutions. In this way efforts will make the most efficient use of resources.
3. Actively seek TNCs guidance and counsel for increased performance and efficiency by allowing TNC engineers and technicians on site inspections of SME production premises.

Meso Institutions – CIED

1. Meso institutions across the country should carefully evaluate the CIED experience, team up and allow to be coached in the relevant areas that could benefit regional economic growth.
2. Develop countrywide knowledge communities by developing information systems linking universities, SMEs, SME trade associations and TNCs with meso institutions.
3. Act as matchmakers identifying possible synergies among SMEs and firms through the information system in place.
4. Evaluate regional economic potential in terms of population and educational needs as well as production and export potential of each relevant industry.
5. Ultimately, this initiative should be replicated on a global scale through a web of regional institutions across various countries moulded around CIED and similar blueprints:
 - a. Regional institutions should achieve economies of scale by pooling knowledge sharing processes benefiting SME-TNC linkages.
 - b. It could amplify the scope and radius of SME-TNC linkages, and also in SME-SME through horizontal link communities.
 - c. Create a virtual market by way of informing on potential demand and supply on specific skills, products and services.
 - d. The resulting intra- and inter-regional interface would combine and leverage corporate skills building with existing natural comparative advantages achieving geometrical

growth in the quality of learning processes and economic integration processes among trading blocks.

- e. Such a structure should count on assistance from UNCTAD, the World Bank, IFC, World Trade Organization prominent knowledge management institutions, and universities.

Government Policy

1. Attracting knowledge investment must be among the highest priorities of government policy on growth, and as such should be an integral part of the foreign investment agenda competitiveness and SME skills building potential must integrate with net present value calculations when evaluating and comparing foreign investment proposals. Sometimes and understandably underdeveloped countries value more foreign exchange reserve accumulation and fiscal alleviation than fostering SME-TNC linkages. Limiting factors have to do with their higher perceived risk profile limiting full access to world capital markets, structural deficits tendencies limiting financing alternatives and myopic bureaucratic structures.
2. Promote knowledge creation and knowledge communities through tax, subsidy and market incentives whenever possible and by validating accounting rules to reflect human capital stock creation.
3. Promote lower transaction costs linking regional and central government agencies with efficient information systems.
4. Promote all IT software programming workshops and seminars that benefit SMEs and agro industrial sectors so as to make non urban population comfortable with its use through soft loans, direct subsidies and/ or tax breaks.
5. Promote better knowledge transfer systems together with the telecommunications industry by fostering efficient communication infrastructures at accessible cost so as to allow for intensive use of internet virtual libraries and real time conferencing for educational purposes by universities and other similar institutions.
6. Promote preferential treatment of all purchases of computer hardware of SME businesses located in special economic zones and industrial parks.
7. Intensify the promotion of technology parks, and strategic alliances with world class technology and knowledge organizations, so as to serve as breeding grounds for future IT professionals.
8. Promote access to information technology and learning techniques to all population sectors from their first years of schooling.

Other

1. The banking industry should strive to lower its intermediation costs, so as to increase the percentage of bankable population and increase efficiency.
2. Provide basic banking training to SME management in treasury and financial products to help them become bankable partners.

LINKAGE POLICY AND BEST PRACTICES IN GHANA

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There are a number of structural weaknesses and imbalances in the industrial sector in Ghana, including a concentration of industrial activity in few locations and weak linkages between industry, agriculture and other sectors. The relatively few large firms, local ones and TNCs, operate with little linkage with the small- and medium-sized enterprise (SMEs) segment.

Measures currently being put in place to help improve the economic situation of the SMEs include the building of producer networks, producer groups and partnerships.

Sub-contracting and partnership exchange schemes are being discussed to enhance the competitiveness of the local industry. In this connection the database necessary for the successful implementation of such schemes is being compiled. A private sector association, the Association of Ghana Industries is running the scheme.

Notwithstanding their large numbers, the SME sector is generally weak. Most SMEs operate only with its owner-manager who makes all the major decisions. In his/her absence, activities slow down considerably. His/her limited formal education makes it more difficult to access and use new technology, gather market information and access credit from mainstream institutions. They suffer from weak management skills and inadequate systems, including poor record keeping and internal controls. They also lack the technical know-how and financial resources needed to acquire state of the art technologies and equipment required to improve productivity and to become internationally competitive. Furthermore most SME operators are reluctant to work in groups where they exchange experiences and obtain "peers support".

These weaknesses prevent many small enterprises from scaling up in size and graduating into more formal, medium-sized business activities. They also make them unattractive to TNCs. There are therefore very little formal relationships between the TNCs and the SMEs.

For SMEs, the competitive pressure of globalization brings about the need to come together in order to survive and grow. The formation of trade associations and industrial groups/clusters are accordingly being promoted. Four clusters - food and fish, textiles/garment, wood and packaging - are currently operational. Some TNCs have been late outsourcing some of their inputs from a few SMEs which are partnership ready.

SUPPORT TO SMEs

Various public agencies have been put in place to support the promotion and development of SMEs. A few are briefly described below.

National Board for Small Scale Industries (NBSSI)

The National Board for Small Scale Industries (NBSSI), the apex body overseeing the development of the MSE sector was set up in 1985. The Board, among others, provides business and management advisory services and credit, promotes entrepreneurship development and women.

GRATIS

Ghana Regional Appropriate Technology Industrial Service (GRATIS) was set up in 1987 to provide technical support to SMEs. Functions of GRATIS include development and transfer of appropriate technology, demonstration of new marketable products and processes, training of masters and apprentices, facilitation of equipment acquisition through high purchase schemes, etc. Through its network of Intermediate Technology Transfer Units (ITTUs), established in all the ten regions, GRATIS

was able to reach over 15,000 beneficiaries (clients, customers and trainees) in 1998. Women constituted 53 per cent of the beneficiaries. In the same year, the ITTU Clients Association had a membership of nearly 5,000.

Ghana Standards Board

The Ghana Standards Board (GSB) was established in 1967 as the national statutory body, with the overall responsibility for ensuring that goods and services are of acceptable quality. The Board promotes standardization in industry and commerce, establishes quality standards in goods for both domestic consumption and exports, undertakes product and system certification schemes and organises training programmes. The Board is currently ISO 9000 certified.

Association of Ghana Industries (AGI)

The Association of Ghana Industries (AGI) was established 1958 and has currently an active membership of 250 enterprises, mainly in the manufacturing sector. AGI serves as the central organization for the promotion of Ghana industry and seeks to influence legislative and other public measures that affect the industrial sector. It offers a number of services to members, including management training and business plan preparation, market fairs, trade delegations and export promotion.

A number of NGOs have emerged in recent years to provide support to the SME sector in various ways, including management product development, marketing, financing and targeted support to women.

POLICY COHERENCE

Policy formulation has become the collective responsibility of all stakeholders, public and private, including TNCs. Platforms are provided for the discussion of policy issues and consensus building. Representatives from the private sector meet government officials under the chairmanship of the Vice-President every six months to discuss matters of common interest.

The Ministry of Trade and Industry and other Ministries also hold quarterly meetings with the private sector to collectively discuss and resolve issues. There are also frequent inter-Ministerial meetings. These platforms contribute largely to the harmonization of policies and coherence.

BEST PRACTICES

Although the development of formal relationships between TNCs and SMEs for the competitiveness of the latter is weak, some initiatives have been taken by some TNCs to integrate SMEs into their supply chain, largely at the lower level, for their mutual benefit. Some such known cases are cited below.

Unilever Ghana Limited:

Essential Oil

Unilever Ghana Limited was importing essential oil for the manufacture of its soap. About ten years ago it promoted the growing of citronella for distillation into essential oil. Unilever initially provided planting materials, distillation equipment technical assistance and bought back the oil. Over time, the technology spread, and many SMEs joined in on their own accord. Unilever now procures its essential oil locally and therefore contributes to job creation, foreign exchange savings and transfer of technology to the rural poor.

Palm Oil

Unilever also has investments in palm oil plantations to produce palm oil for its production. It supported the development of out grower schemes to support its plantation. These out growers supply the factory with crude palm oil for refining. The plantation(s) and the out-growers produce over 15,000 tons of palm oil for processing annually. This year, Unilever commissioned a new plant at a cost of about US\$ 13 million to refine the crude oil.

Spices

Over the past years, Unilever entered into a relationship with a small scale food processor, Flokan Company Limited, to produce and supply some of its basic ingredients for the manufacture of Unilever spices. The relationship has been mutually beneficial and the company's contract has increased over time leading to an expansion in Flokan's plant in 1999.

Nestlé Ghana Limited:

Nestlé Ghana Limited has entered into an agreement with a small scale fruit juice producer, Anthena Foods, for the supply of juices for the manufacturing of new fruit juice beverages. Nestlé will bring its technology and quality standards to bear on Anthena's operations to ensure its juices meet the required specifications. Anthena Foods demonstrated its capacity to perform and this attracted the attention of Nestlé.

Coca Cola Ghana Limited:

After its expansion in 1996, Coca Cola embarked on an ambitious marketing drive. The company registered many small scale firms to vend its products. It provided ice chests with tables and umbrellas and refrigerators for out door and indoor sales of its drinks. The facilities were provided on credit. The introduction of the marketing scheme contributed to Coca Cola's share of about 60 per cent of the soft drinks market in Ghana. It also provided jobs to about 4,000 people increased competition in soft drink vending.

Others:

A lot of technology transfer, human capital development, marketing, input outsourcing, etc. is taking place through FDI in the economy. To a large extent however, this has not yet been "formalized". Outsourcing of cleaning services, catering, maintenance, etc. is also increasing.

SUMMARY OF CONCLUSIONS AND RECOMMENDATIONS BY EXPERTS

TNC-SME Linkages

The discussions of this Expert Meeting focused on how business linkages between TNCs and SMEs can influence the ability of firms to successfully compete in global markets as well as on policy recommendations and measures that facilitate the creation of beneficial inter-firm relationships.

The experts agreed that in the new business environment, characterized by a growing importance of international production networks, SMEs can benefit from increased access to capital, management, technology, and new markets. While integrating into global production networks opens up new business opportunities to local firms, TNCs can maximize their performance by drawing upon a diversified network of highly specialized SMEs. The experts concluded that the creation of strong TNC-SME linkages has become highly important for both, SMEs and TNCs to successfully integrate into the global economy.

However, despite these potentially positive effects, strong TNC-SME linkages are often difficult to realize. One problem that has been identified by the experts is that some local SMEs with limited production capacities tried to compete with TNCs in the same sector rather than concentrating on complementary or niche products. Furthermore, many SMEs missed opportunities for linkages with TNCs because they could not meet corporate and international standards for production in terms of price, quality, delivery as well as health, labour and environmental standards.

It was underlined that in order to create and strengthen beneficial TNC-SME linkages an integrated approach including host countries governments, TNCs as well as contributions of the international community was needed.

Particularly, the following policy measures and contributions were recommended from different stakeholders:

A. Recommendations to Governments

- Target investors who could have a positive developmental impact on the local economy and who have a corporate vision and mission to promote such impacts;
- Create an enabling business environment, including a legal and regulatory framework;
- Provide physical and educational infrastructure, particularly for the development of engineering and management skills;
- Develop specific linkage policies that encourage TNCs to create opportunities for outsourcing, franchising, technology partnerships and spillovers to the local community;
- Assist SMEs to invest in appropriate technology and R&D; and
- Foster Public-Private Partnerships (e.g. create support institutions such as skill training centers).

B. Contributions of TNCs

The experts recognized the contribution that TNCs can make to the local economy by facilitating the managerial and technological upgrading of small and medium-sized companies. Public-private partnerships can, inter alia, create support institutions for which TNCs and local business share the responsibility and leadership. The experts identified a number of measures from TNCs for the promotion of linkages, including:

- Mentor programmes for SMEs to coach them in total quality management and continuous improvement of quality and processes;
- Provide SMEs with access to TNC innovation centers and corporate training programmes;
- Make available engineers and management consultants;

- Assign staff temporarily to SMEs;
- Have regular consultations to assess the progress;
- Share relevant information about market trends and future plans;
- Allow SMEs to support operations outside the host country; and
- Provide them with additional business opportunities through business matching, brokering of strategic alliances, trade fairs and road shows.

C. Contribution of the international community

It was highlighted that while many international organizations have promoted SME development, few have actually worked in the area of TNC-SME linkages. Such programmes could make SMEs more partnership ready and could have more of an impact if the coordination between donors and beneficiaries would be better organized.

The experts recommended that the UNCTAD secretariat should:

- Put together a checklist of principles of best practices to strengthen competitiveness by promoting linkages for interested governments, TNCs, SMEs, and support institutions;
- Continue its research on the impact of foreign direct investment on industrialization, local entrepreneurship and the development a business friendly environment; and
- Engage in further study and discussions on topics a) upon which there was no agreement such as the impact of economic incentives and subsidies on TNC-SME linkages, and b) where great interest was expressed such as financial services and successful programmes for replicating TNC-SME linkages in regions which have not yet benefited from them.

Part II

FINANCING TECHNOLOGY FOR SMEs

Issues paper by the UNCTAD Secretariat

Case studies by national experts

ISSUES PAPER

FINANCING TECHNOLOGY FOR IMPROVING SME COMPETITIVENESS

UNCTAD Secretariat

BACKGROUND ISSUES

This note explores different types of financial mechanisms that are in place to finance technology-related investments, especially those of small and medium-sized enterprises (SMEs) in both developing and developed countries. The focus of the note is on public- and private-sector mechanisms that provide direct financing to enterprises and that could be considered “best practices”.¹ The UNCTAD secretariat has also prepared an extensive background paper that examines in more detail financing technology for SMEs.²

This note examines financing that is commercially oriented (i.e. investment for enhancing the productive capacity of the enterprise). Such investment includes investment in research and development (R&D), in new processes and products and in upgrading existing processes and products. Technology investment could be for technology acquisition, mastery and/or innovation.

A. Impediments to financing SMEs

One of the most commonly cited problems by SMEs in both developed and developing countries is the difficulty of gaining access to financing at a reasonable cost. Traditional commercial banks and investors have been reluctant to service SMEs for a number of well-known reasons, which have been explored in numerous expert meetings.³ These reasons include the following:

- SMEs are regarded by creditors and investors as high-risk borrowers because of their insufficient assets and low capitalization, their vulnerability to market fluctuations and their high mortality rates;
- Information asymmetry arising from SMEs’ often inadequate accounting records, financial statements and business plans makes it difficult for creditors and investors to assess the creditworthiness of potential SME proposals;
- The high administrative/transaction costs of lending or investing small amounts do not make SME financing a profitable business.

In recent years significant progress has been made in developed countries in the area of SME financing. Commercial banks have adopted new technologies, such as credit scoring, that have reduced the costs of lending to SMEs while improving banks’ ability to assess the risks involved. Increasing competition for customers in developed countries has driven banks to focus more on SMEs and to introduce products and services that are better tailored to them.

Nevertheless, especially in developing countries, SMEs remain an underserved market segment, with the majority of commercial lending going to the government or to large established enterprises, while internationally driven finance programmes tend to focus on micro lending.

¹ Best practices should be understood as a learning tool rather than a normative concept. Their identification involves determining what works in a given situation, what lessons can be learned and what is replicable.

² Dossani R and Kenney M (forthcoming). Providing Financing for Technology-Based SMEs: A Report to the United Nations Conference on Technology and Development. New York and Geneva, United Nations.

³ See, for example, the UNCTAD Expert Meeting on “Improving the Competitiveness of SMEs in Developing Countries: The Role of Finance, Including E-Finance, to Enhance Enterprise Development” (Geneva, October 2001).

The difficulties that SMEs face in obtaining financing are more pronounced when it comes to obtaining financing for technology investment. The outcome of technology investments, especially in cases of R&D projects, establishing technology start-ups, or launching or adapting new products, is highly uncertain, with possible returns materializing only after lengthy periods.

Following are the key characteristics of the so-called new-technology-based firms (NTBFs) identified in literature:⁴

- Their success is linked to hard-to-value growth potential derived from scientific knowledge and intellectual property.
- In the early stages of their life cycle, they lack tangible assets that may be used as collateral.
- Their products have little or no track record, are largely untested in markets, and usually have high obsolescence rates.

These factors imply that NTBFs are even more vulnerable than other SMEs to asymmetric information about risk characteristics and default probabilities, given that it is almost impossible for financiers to attach probabilities to the potential outcomes of the investments.⁵ Financiers sometimes use expert advice to evaluate or appraise technology investments in an attempt to reduce the information asymmetry inherent in this area.

B. The importance of technology acquisition, mastery and innovation for SME competitiveness

“Lack of financing and appropriate technology is clearly a major handicap to developing country producers and exporters, and it inhibits developing countries from deriving full benefits from their trade rights. Many solutions being proposed in the post-Doha programme will be viable only if financing is available.”

Rubens Ricupero, 18 February 2002, Geneva

The notion that lowering trade barriers would bring increasing levels of trade to developing countries has proved to be somewhat inaccurate. With the exception of Asia, developing countries have not seen any significant growth in their exports to developed countries (see Table 1). This has led to the realization that opening up to international trade will not by itself increase the share of developing-country exports in the world markets. Action at the micro level is needed to build up the productive capacity of the firms so that they can take advantage of these trade opportunities. Special efforts to enhance the competitiveness of SMEs are required to achieve this goal.

Table 1: Value and Share of Developing-Country Exports in Total World Exports

Region		Year		
		1990	1995	2000
Africa	Billions US\$	82.0	81.9	112.8
	Percentage	2.4	1.6	1.8
Asia	Billions US\$	589.3	1096.5	1551.4
	Percentage	16.9	21.4	24.5
Latin America	Billions US\$	144.7	225.2	344.1
	Percentage	4.2	4.4	5.4

Source: UNCTAD Handbook of Statistics 2001.

⁴ Bank of England (2001). Financing of Technology-Based Small Firms (www.bankofengland.co.uk/hightech2001.pdf).

⁵ Mani S and Bartzokas A (2002). *Institutional Support for Investment in New Technologies: The Role of Venture Capital Institutions in Developing Countries*. Maastricht, The United Nations University/ INTECH Discussion Paper 2002-4. (www.intech.unu.edu/publications/discussionpapers/2002-4.htm).

The two most important ingredients to enhance the competitiveness of SMEs are access to finance and to the new technologies. Without access to new technologies, SMEs in developing countries will continue to use outdated modes of production and will not be able to meet international quality requirements. Without access to finance, SMEs will not be able to make the necessary technology investments to innovate or even update their production processes or products so that they could compete in global markets.

To become and remain competitive, SMEs need to move away from being passive receivers of technology. In the past, technology was thought of as a package that could be acquired in the marketplace. Now it is understood that even using it effectively requires some tacit knowledge. Therefore, technology is not simply a package that an SME can purchase off the shelf in order to become productive:⁶ its effective harnessing involves a cumulative process of learning. To merely acquire and use technology, SMEs do not need to be particularly innovative. To master new technologies, however, they need to have in place a system that is receptive to innovation. In some countries, SMEs are extremely active in R&D and in developing new and innovative products. For example, many of the recent Internet based technologies would never have emerged without the highly innovative, flexible small enterprises that pioneered these technologies. Besides access to finance, SMEs in developing countries also need access to information and skilled labour in order to develop such technology capabilities.

Developing countries often face special difficulties in the commercialization of research results. Although high-level scientific research is undertaken by universities and research institutes in developing countries, it rarely leads to commercially oriented products. In some cases, the research results achieved through joint collaboration with foreign investors have been commercialized by the partners from developed countries because they have the necessary financing and market access. There is clearly room for improvement in this regard in developing countries, and new mechanisms for financing technology could play a very important role both in upgrading technology and in commercializing the results of R&D.

Table 2: Sources of R&D Funding in Selected Countries (1995)

Country	R&D spending as % of GDP	Source of Funds					
		Business enterprises	Government	Higher education	Private Non-profit	Funds from abroad	Not distr.
Tunisia ¹	0.30	55.5	32.3			4.0	8.2
Mexico	0.33	17.6	66.2	8.4	1.1	6.7	
China	0.61	2.8	91.0	5.7		0.5	
Chile	0.67	20.2	68.5			11.3	
India ²	0.73	24.0	75.0	1.0			
Brazil	0.84	20.8	43.9				35.3
Italy ²	1.03	43.7	50.2			6.1	
Germany ³	2.31	61.4	36.7	0.3		1.6	
Finland	2.46	57.7	37.4	0.4		4.5	
United States	2.61	59.4	35.5	5.1			
Republic of Korea ²	2.71	84.0	15.9				
Japan ⁴	2.96	81.7	18.2			0.1	

1) 1997. 2) 1994. 3) 1993. 4) 1991.

Source: UNESCO

⁶ Hallberg, K. and Bond, J. (2002). *Revolutions in Technology for Development* (worldbank.org/html/fpd/technet/revol.htm).

Table 2 shows R&D spending in selected countries. Obviously, developed countries spend a lot more on R&D than do developing countries. However, some newly industrialized countries are doing quite well in terms of overall R&D spending. The Republic of Korea is one of the leading countries in the world in terms of R&D spending as a percentage of gross national product (GNP). Countries such as Brazil, Chile, China and India come very close to the level that Italy spends on R&D. Brazil is set to increase public financing for R&D to US\$ 2.5 billion (close to 1 per cent of GDP), which brings it even closer to the developed countries' levels.⁷ Nevertheless, in absolute terms developed countries still outspend developing countries by a large margin in terms of private- and public-sector R&D. This places developing-country enterprises at a disadvantage when they compete with technologically more advanced products. However, it should be noted that in the past some high spenders on R&D, such as the former centrally planned economies, nevertheless did not have commensurate success in bringing products to market because of a lack of entrepreneurial ability.

It is also clear that the role of private sector R&D in developing countries is relatively small, with government doing most of the R&D spending. The low level of private sector R&D mirrors the difficulties that developing countries face in establishing mechanisms and channels to mobilize private-sector savings that could be invested in technology-related projects. For example, in many developed countries pension funds have accumulated large pools of private savings that are a major source of funding for venture capital investments. In developing countries, such pools of private-sector savings are still underdeveloped. The figures in Table 2 also point to difficulties that developing countries have in transforming R&D-related spending into commercially oriented products.

PRIVATE-SECTOR FINANCING OF TECHNOLOGY

This note first analyses financial mechanisms in the private sector and then treats public-sector programmes. This split is, however, not very strict in the sense that private- and public-sector schemes are in many ways interrelated. Therefore, reference is made, when appropriate, to public-sector initiatives that have an impact on private-sector initiatives.

Private-sector financing for SMEs can be categorized into internal and external financing mechanisms. Both are important channels for financing technology investments. Large enterprises make significant R&D and other technology investments, with funds generated internally from retained profits. This section focuses on external financing, such as bank loans, leasing and equity-based financing (e.g. venture capital).

A. Banks and special-purpose lending institutions

There are a number of technology-related investments in which banks could play a very useful role. These include upgrading of existing machinery by SMEs and the acquisition of proven new technologies. Here banks face difficulties similar to those in SME financing in general (see the discussion above in section A). In addition, banks' aversion to high risk will cause them to avoid technology investments that have long gestation periods; uncertain outcomes; outcomes that are difficult to value even if successful; or outcomes that quickly might be overtaken by the next wave of innovations.

⁷ Aguiar Patriota G. de (2002). Public Policy for Science and Technology in Brazil. Presentation to the WTO Working Group on Trade and Transfer of Technology, Geneva, 12 June.

Possible solutions could be similar to those used by SME-oriented banks:⁸

- Technology benchmarking using the technology appraisal services of agencies such as ENTAS (European New Technologies Appraisal Service) to reduce the technology information gap within the bank so as to improve the evaluation of technology-related projects and the pricing of loans for them;
- Developing new and more flexible financial products better adapted to the technology-related projects of SMEs;
- Providing training and consultancy services in the area of financing technology to customers and bank staff members; and

- Striking partnerships with business development service providers specializing in technology evaluation.

The European Union in 1991 launched “The Technology Performance Financing (TPF) Pilot Project”, which focused on technology financing by commercial banks. Its objectives were to:

- Increase the involvement of commercial banks in technology financing by encouraging them to experiment with technology performance financing (TPF) as a new product in their portfolio;
- Enable the participating banks to share experiences and good practices in financing technology projects; and
- Promote the adoption of new technologies by SMEs and help new technology-based firms enter the market.

Participating commercial banks agreed to test the extension of the technique of third party financing, used widely in the energy sector, to technology. The TPF technique allows the financing of a new technology based on its performance. The European Commission provided a partial guarantee to cover the technology risk of the financier, as well as a contribution to the set-up costs of the system. The financing of technology projects originated from the participating banks own resources. Although the TPF pilot project and the Community’s support for participating commercial banks ended in 1997, most of the participating banks continue to finance technology projects and have proven to be open to such opportunities.

A number of commercial banks in Malaysia have special programmes to provide financing for SMEs. For example, the Hong Leong Bank Bhd has a programme called SMILE (Small & Medium Industries Loan Express) that is specially designed to help businesses upgrade their operations by providing financing for the purchase of industrial machinery or to build new business premises. The services provided by the bank include, among other things, asset-financing packages with a flexible fixed loan repayment scheme, trade financing and working capital loan packages and management consultancy services and training programmes.

In other cases, countries have created special-purpose institutions when commercial banks do not provide enough financing for technology investments. The Malaysian Industrial Development Finance (MIDF) is a private-sector development financing institution in Malaysia listed on the Kuala Lumpur Stock Exchange. It assists in the creation, expansion and modernization of industrial enterprises, encouraging and promoting the participation of private capital. It provides financing in the form of long- or medium-term loans (5 – 15 years) or leasing and industrial hire purchase facilities for equipment, heavy and light machinery, plant and other related equipment; and provides managerial, technical and administrative advice.

⁸ The UNCTAD Expert Meeting in October 2001 on “Improving the Competitiveness of SMEs in Developing Countries: The Role of Finance, Including E-Finance to Enhance Enterprise Development” examined these issues extensively. See also UNCTAD (2002), Best practices in financial innovations for SMEs (2002) (UNCTAD/ITE/TEB/Misc.1/Rev.1).

B. Technology leasing

In developing countries, equipment leasing has received increasing attention as a possible strategy for allowing SMEs to access advanced equipment in order to upgrade their operations. An important advantage of equipment leasing is that *the leasing company generally makes the latest equipment available and ensures that it is suited to the task at hand*. The lessor usually relies more on the user's ability to generate enough cash flow to make lease payments, rather than relying on other assets as collateral. Moreover, if the equipment supplier is the one extending the lease, it may be able to better understand and monitor the lessee (though often the lease is held by a financial institution that may be ineffective at monitoring). Because a lease is focused on the cash flow generated by the equipment, a lack of credit history is less important than in the case of a loan. Also, the equipment itself becomes a significant portion of the collateral. Another benefit is that, in most countries, the costs of a lease are tax-deductible because they are an expense.

C. The role of stock markets in technology financing

In the previous section it was noted that bank lending is not suitable for all types of technology financing, especially for high-risk technology investments. Here the role of risk capital comes into play, whether in the form of equity financing, venture capital, angel investment or corporate venturing. However, an important prerequisite for the efficient use of this form of capital is a highly liquid, well-functioning stock market.

An increasing number of countries have established secondary stock markets that are designed to help new technology-oriented companies obtain equity financing. The leading example is NASDAQ in the United States, which is expanding to Europe and Japan with similar regional exchanges. Europe also has a number of new market stock lists where the criteria for listing are less stringent than on the main bourses. Examples include the Neuer Markt in Germany and the Nouveau Marché in France. In Asia, examples include MESDAQ in Malaysia, KOSDAQ in the Republic of Korea and SESDAQ in Singapore.

Establishing a stock exchange that is able to provide efficient and transparent pricing and is sufficiently liquid and deep to support the formation of risk capital can, however, be very difficult. It requires a regulatory environment with relatively strict laws for reporting results and with government having powers to enforce the regulations. It also requires a sufficient number of investors willing to invest in the market, such as pension funds, as well as companies that are able and willing to list on the market. Many stock exchanges established in developing countries and in smaller developed countries have not really generated enough liquidity and depth to operate efficiently. Nevertheless, a number of stock exchanges in emerging countries have achieved impressive levels of market capitalization and turnover.

D. Venture capital firms⁹

A report by the OECD¹⁰ described venture capital as a critical component for the success of high-technology firms and recommended that all governments consider strategies for encouraging venture capital. Venture capital has indeed played an important role in the United States over the past 50 years in promoting start-ups and new companies in high growth sectors that otherwise would not have received financing due to the high risks involved. The National Venture Capital Association (NVCA) estimates that venture capital funding increased from US\$ 20 billion to US\$ 100 billion between 1998 and 2000 and then fell to US\$ 38 billion in 2001. Prominent companies such as Apple, Cisco, Federal Express, Intel, Oracle, Staples and many others have received venture-backed financing at early growth stages. The venture capital industry grew rapidly during the 1990s, particularly in electronics/software and biotechnology, and it is widely thought to have contributed significantly both to

⁹ This section draws on research in Dossani R and Kenney M (2001), *Creating an environment: Developing venture capital in India*, BRIE Working Paper 143, April; and Dossani R and Kenney M (forthcoming), *Providing Financing for Technology-Based SMEs: A Report to the United Nations Conference on Technology and Development*, New York and Geneva, United Nations.

¹⁰ Organisation for Economic Co-operation and Development (2000). *A New Economy? The Changing Role of Innovation and Information Technology in Growth*. Paris, OECD.

the strong growth of the high-technology sector and to the growth of the economy in general. The fall of high-technology share prices in 2001 has also hit the venture capital industry.

The numerous factors behind the success of the venture capital industry in the United States include a strong entrepreneurial culture; strong university-based research in the sciences and engineering, with links to the private sector, notably clusters of high-technology firms in California and Massachusetts; and well-developed financial and equity markets.

The role of government, both direct and indirect, has been significant in promoting the venture capital industry in the United States. For example, policies promoting a stable macroeconomic and financial environment as well as policies to invest heavily in university-based research in sciences and engineering have indirectly contributed to the success of the venture capital industry. The most important instance of direct government involvement was the Small Business Investment Act of 1958 authorizing the formation of small business investment corporations (SBICs). This enabled individuals to form SBICs with private funds through which they could receive up to US\$ 300,000 of Small Business Administration (SBA)-guaranteed money for an investment of US\$ 150,000 in private capital. There were also tax and other benefits. Many of the now-illustrious venture capital firms, such as Sutter Hill Ventures and Institutional Venture Partners, began as SBICs.

There are signs that venture capital is starting to play an increasingly important role in some developing countries, although it is still a relatively new phenomenon in many countries. Nevertheless, venture capital is almost completely confined to Asia, while in Latin America and Africa the availability of such funding is very limited.¹¹ The most successful case of venture capital funding in Asia is Taiwan, Province of China, where venture capital has grown to be a significant provider of capital for technology based SMEs. By the early 1980s, it leveraged its success in becoming a low-end supplier of electronic parts to transnational corporations to become a major locus of entrepreneurial activity. In 1983, after a visit by government officials to high-technology regions of the United States, the local government resolved to develop a venture capital industry and passed legislation extending a variety of incentives to individuals willing to invest in professionally managed venture capital firms. The most significant incentive was a tax rebate of up to 20 per cent for local individuals provided they maintained their venture capital investment for at least two years.

Another important feature of the rebate is that it permitted overseas investments as long as a benefit to Taiwan, Province of China, could be demonstrated. This resulted in strengthened linkages with Silicon Valley. One difficulty with the initial programmes was that only individuals were allowed to take advantage of the tax rebate. In 1991 the statute was revised to allow corporate investors the same rebate, and a dramatic increase in investment followed. To further the growth of the venture capital industry, the local government invested funds in venture capital firms on the condition that private investors matched them. The growth of the venture capital industry is clear evidence of the policy's success. The only study examining the benefits of the tax rebate policy was by Wang,¹² who found that the multiplier effects of the government's use of tax deductions to encourage venture capital were "ten-fold or above" between 1990 and 1992.

The Republic of Korea has had a very different experience in its attempts to create a venture capital industry. In 1982 the Korean Development Investment Corporation (KDIC) was established as a limited liability joint venture among seven Korean finance firms and several international financing institutions. KDIC's investments were concentrated in electronics-related fields. The other areas receiving significant funding were chemicals and machinery. In 1986 the Republic of Korea enacted more laws to encourage the formation of venture capital firms. Very quickly, more than 50 venture capital firms were established. However, they experienced only limited success, as there were few suitable investment opportunities.

¹¹ Mani S and Bartzokas A (2002). *Institutional Support for Investment in New Technologies: The Role of Venture Capital Institutions in Developing Countries*. Maastricht, The United Nations University/INTECH Discussion Paper 2002-4 (www.intech.unu.edu/publications/discussionpapers/2002-4.htm).

¹² Wang L-R (1995). Taiwan's venture capital: Policies and impacts. *Journal of Industry Studies*, 2 (1): 83-94.

The Korean venture capital industry only came into its own after 1994, when the chaebols (large Korean corporations) were permitted to create venture capital subsidiaries. To encourage the development of the venture capital industry, the Government also launched its own venture capital funds and created a programme to provide matching funds for venture capital limited partnerships. In the late 1990s, the Korean venture capital industry dramatically reduced its use of loans. Even after the KOSDAQ downturn beginning in 2000 and the difficult international situation, in 2002 the Korean venture capital industry remained relatively robust because of Korea's improved economic situation and the deregulation of the financial markets.

Although there are some success stories, it has proven very difficult to develop a strong venture capital industry in developing countries, despite a range of government measures such as tax incentives, loan and equity guarantees and direct loans and equity investment. The requirements for creating a viable venture capital industry are stringent:

- It is necessary that there be a constant flow of entrepreneurial firms capable of extremely rapid growth;
- The entrepreneurs must be willing to sell significant equity to outsiders and also willing either to be acquired or to participate in a public offering;
- There must be a market for firms;
- There needs to be a sufficiently flexible labour market so that top-quality managers and technologists are available to staff a growing firm.

If any of these conditions are entirely missing, or if more than one of them is only marginally met, then it will be difficult to form a viable private venture capital industry. Beyond these conditions, in many developing nations it is necessary to consider other preconditions of a more general nature, such as a relatively stable monetary and banking system, strong rule of law and respect for contracts, and a myriad other macroeconomic conditions the lack of which hampers the development of venture capital.

Given the above requirements, it is questionable whether venture capital is an appropriate response to the needs of technology financing in many developing countries. The preconditions can be too demanding. Possible difficulties range from cultural factors, legal systems and entrenched institutions to a lack of adequately trained personnel. In addition, venture capital so far has had sector-specific success, taking hold in the electronics and biotechnology industries but failing in agriculture and low-value-added industries. Special incentives may be needed to promote venture capital in developing countries.

A review of private-sector initiatives confirms that most developing countries have functioning banking systems. However, what policies and measures are necessary to entice commercial banks to lend to SMEs, and particularly to SMEs that want to invest in new technology? Would government loan guarantees and/or technology advisory services decrease the perceived risks of these investments? Or should governments instead encourage the establishment of special-purpose institutions and give up the commercial banks? The conditions for establishing a venture capital market are stringent even if a developing country already has a viable stock market. Should governments give special incentives to venture capitalists and exercise special controls over venture capital funds? Should they provide matching funds? Or should they rely on leasing as a more viable option to bank lending and venture capital?

GOVERNMENT SUPPORT FOR FINANCING OF TECHNOLOGY

The *World Investment Report of 2002*¹³ identifies the following categories of government incentives for investment:

- *Financial incentives* such as grants, subsidized credits and insurance at preferential rates;
- *Fiscal incentives* including tax holidays, tax reductions or exemptions on profits, capital, labour, sales, value added, particular expenses, imports and exports; and
- *Other incentives* such as subsidized infrastructure, subsidized utilities, market preferences, various kinds of regulatory incentives linked to ownership and other preferential treatment.

These categories cover a plethora of various types and forms of incentives that have been used by government to promote technology investments. Many government schemes combine elements of all three categories. This section will provide some examples of financial and fiscal incentives provided for technology investments (the category of other incentives is beyond the scope of this note).

There are differences in how governments organize the provision of grants, subsidies and other financial incentives. The overall responsibility may reside with a ministry of sciences and technology or the equivalent, but responsibility is also often split to reflect the competencies of different ministries. Responsibility may also be delegated to national agencies, regional administrations or specialized funds or schemes. It is difficult to draw conclusions as to what is the most effective way of organizing support for technology.

Governments consider a wide range of criteria when providing financial assistance for technology. Obvious ones include a project's technical merit or commercial potential. However, also usually considered are social issues such as promoting certain regions or disadvantaged entrepreneurs. Of course their needs to be a balance between both types of considerations, but the guiding principle should be that projects receiving assistance should have the potential to become commercially viable.

Many question whether there is a case for government intervention to support SME access to financing for technology-related investments. However, a recent study by the National Bureau of Economic Research¹⁴ concludes that "there is fairly clear evidence, based on theory, surveys, and empirical estimations, that small and start-up firms in R&D-intensive industries face a higher cost of capital than their larger competitors and than firms in other industries". This points to the existence of a market failure, which could justify government intervention in the area of technology financing for small enterprises.

Market failures are often caused by positive externalities that the market cannot fully capture. For example, there is a case for government support when the public benefits outweigh those that are privately appropriable in terms of job creation, exports, cluster development or development of indigenous technology.¹⁵ Externalities may result from scale effects, learning processes or technology spillovers. Incentives may also be used to attract a "first mover investor"¹⁶ or compensate for deficiencies in local infrastructure. Whenever governments provide financial or fiscal relief, they should try to ensure that the benefits to recipients are linked to performance. Programmes should operate in an open and transparent way, with regular reporting of and accounting for costs.¹⁷

¹³ UNCTAD (2002): *World Investment Report 2002*. New York and Geneva.

¹⁴ Hall BH (2002). *The Financing of Research and Development*, NBER Working Paper No. 8773. Cambridge, Mass., National Bureau of Economic Research (papers.nber.org/papers/W8773).

¹⁵ Dossani R and K M (2002). *Providing Financing for Technology-based SMEs: A report to the United Nations Conference on Technology and Development* (Geneva: United Nations), forthcoming.

¹⁶ Moran TH (1998). *Foreign Direct Investment and Development: The New Policy Agenda for Developing Countries and Economies in Transition*. Washington, D.C., Institute for International Economics.

¹⁷ Hughes A and Brewster H (2002). *Lowering the Threshold: Reducing the Cost and Risk of Private Direct Investment in Least Developed, Small and Vulnerable Economies*. London, Commonwealth Secretariat, Economic Affairs Division.

Types of financial incentives

Governments can provide various forms of direct financial assistance to enterprises to promote technology. Perhaps the most typical of these are grants or awards. Matching grants are usually preferable since they can improve the efficiency of the government intervention. In some cases the enterprise might be required to repay the grant; for example, in Israel R&D grants are repaid to the government in the form of royalties if a project reaches a commercially viable stage.

Another fairly common way of subsidizing technology is through soft loans. The loan can be provided to the enterprise directly by a government agency or through a financial intermediary. In the latter case, the government could provide the funds to the intermediary as a loan, or it could provide some sort of interest rate subsidy to compensate for the difference between the market rate and the subsidized rate. Another form of subsidy to promote lending to technology is a government guarantee for a loan, as was the case in the European Union pilot programme to promote lending by commercial banks for technology-based projects that was discussed in the area of financing technology in section II-A.

Other ways for a government to provide funding for technology-related investments include equity participation (e.g. through government venture capital funds) or the more indirect form of government procurement (e.g. a government agency could purchase technology-related products from local SMEs at subsidized prices).

Government schemes to promote technology cover a range of investments, from R&D to upgrading existing plant and equipment. A variety of instruments are used. This document gives examples first for technology upgrading in Malaysia and Tunisia and then for financing R&D in the United States, the European Union and China.

Penang, Malaysia, has 34 technology financing schemes for SMEs. Three of these include the following:

- The *Industrial Technical Assistance Fund (ITAF)* was set up in 1990 to prompt SMEs to upgrade their technical capabilities in areas such as product development, design, quality and productivity enhancement. Assistance is given in the form of grants, with 50 per cent of the project costs borne by the government and the remainder by the applicant.
- The *Modernization & Automation 2 Scheme (MAS)* is a soft loan scheme aimed at promoting the use of modern technology processes by Malaysian-owned SMEs. The scheme assists SMEs in the acquisition of new machinery and equipment. Loan amounts are up to RM1 million and up to 75 per cent of the machinery or equipment purchased, with an interest rate of 4 per cent p.a. and loan periods of 5–10 years.
- The *Normal Loan Scheme* offers project loans, leasing, and share financing. The scheme offers lease financing of machinery and equipment for a minimum amount of RM100,000, at 5 per cent interest and for a maximum period of 5 years. With regard to share financing, the scheme offers to take up equity in companies for amounts ranging from RM100,000 to RM5 million, with an interest rate of 5 per cent and a maximum period of 5 years.

In Tunisia, the Government provides financial incentives to new entrepreneurs. These comprise capital grants, grants for studies, technical assistance fees and expenses relating to the acquisition of sites or premises necessary for the implementation of industrial projects, and equity participation. New entrepreneurs may receive the following benefits: a capital grant of 10 per cent of the cost of the equipment, up to a ceiling of D100,000; a government grant towards defraying the cost of the project study (this grant is set at 70 per cent of the cost of the project and may not exceed D20,000); a minimum equity participation granted to manufacturing and service-sector projects; and payment by the Government of a third of the price of the land or premises required for the project, up to a ceiling of D30,000.

The Government also subsidizes training expenses involved in the acquisition of technology and technological expertise. These include payment of up to 50 per cent of the cost of human resource training in connection with technological investment, up to a ceiling of D125,000; training expenses include registration fees, transport and accommodation costs and other training-related outlays. They are paid from the budgeted funding of the Ministry for Vocational Advancement and Employment.

The *United States Small Business Innovation Research (SBIR)* programme aims to increase government funding to small high-technology companies for R&D with commercial potential. The specific aims include stimulation of technology innovation in the small-business sector; increased use of this sector to meet the R&D needs of the Government; increased use of minority and disadvantaged individuals in this process; and expanded commercialization of the results of federally funded R&D. In Phase I, SBIR awards up to US\$100,000 towards the expense of evaluating a concept's scientific or technical merit and feasibility. If the project is deemed promising, it can receive up to US\$750 000 in Phase II. To promote the commercialization of R&D, the Small Business Administration (SBA) operates a computer database to link SBIR awardees with venture capital firms. Further, a pilot programme, the Small Business Technology Transfer (STTR) programme, provides funding for research proposals that are developed jointly by a small firm and a scientist in a research organization. Since its inception in 1982, approximately US\$8.6 billion in awards have been made for more than 50,000 projects. One in four projects has resulted in the sale of new commercial products or processes.¹⁸

In the European Union, the Community Research and Development Information Service (CORDIS) is hosting a new service to help SMEs benefit from European research funding. Innovative SMEs can apply for research funding through the SME Specific Measures scheme. In the first stage, SMEs receive an Exploratory Award, which covers part of the cost of conceiving and preparing a complete project proposal to one of the RTD programmes. In the second stage, there are five different types of project proposals that may be prepared using an Exploratory Award:

- *Cooperative research projects (CRAFT)*: These enable groups of at least two SMEs with similar technical problems and without adequate in-house R&D capabilities to engage third parties ("RTD performers") to carry out most of the research on their behalf.
- *RTD projects or collaborative research projects*: These are open to enterprises possessing the internal capacity to undertake their own research; at least two enterprises must pool their efforts.
- *Demonstration projects*: These are designed to prove the viability of new technologies on completion of the research phase, where the technologies concerned still face technical and technological uncertainties and are thus not yet ready for marketing.
- *Projects that combine research and demonstration activities in respect of new technologies*.
- *Innovation projects*: These are pilot projects resulting from research where transnational transfer of a technology is involved.

As table 2 indicates, governments provide the lion's share of funding for R&D in developing countries. In China most research institutes are state-owned, and most of the country's research programmes are financed by the Government. A new initiative will allow research institutes that carry out Government-sponsored research projects to claim ownership of the intellectual property resulting from such research. The measure represents a significant shift in the management of science and technology in China, and it replaces the current practice according to which the results of all Government-sponsored research belong to the state. The new approach follows current practice in other countries by allowing the intellectual property rights to remain with the scientific personnel in order to promote the commercialization of R&D. This could encourage, for example, the formation of science based companies.

¹⁸ Organization for Economic Co-operation and Development (2000). *Small and Medium Enterprise Outlook, 2000*. Paris, OECD.

B. Types of fiscal incentives

Nearly every nation in the world uses fiscal and tax incentives to encourage R&D and investments in sophisticated machinery and there are also specific programmes for SMEs. These incentives can include tax holidays, credit rebates and various accounting procedures such as accelerated depreciation.

In a recent study of legal measures and tax incentives for R&D in India, Japan and the Republic of Korea, Pawan¹⁹ shows that already in the early 1950s Japan began tax incentive programmes for technological development. In the Republic of Korea, efforts to encourage R&D were not launched until the late 1960s. Under Korean law, firms are allowed to retain funds (up to 20 per cent of total income before taxes) for technology development, and these profits are not taxed. This is a very powerful benefit since it encourages firms to reinvest 20 per cent of their profits in R&D. The private sector in India was encouraged to undertake R&D only in the late 1970s when, for example, the Government created an enhanced investment allowance for plant and machinery. India also has a weighted tax deduction equal to 133 per cent for in-house research.

Costa Rica, like many other countries, provides "free trade zone incentive packages" to attract foreign direct investment (FDI), especially into the electronics sector. The free trade zones offer advantages such as exemption from import duties, taxes of profits, export taxes and other taxes as well as various subsidies (e.g. for training programmes). These free trade zones have indeed been very successful in creating an electronics industry in Costa Rica. Since 1997, some 190 firms have operated in the free trade zones. The greatest success for Costa Rica has been Intel's decision to invest more than US\$ 400 million to establish a semiconductor base in the country. The fiscal and financial incentives, although probably necessary, were not sufficient to explain Costa Rica's success in attracting FDI into its electronics sector. Many other countries offer packages that are financially more generous. Costa Rica had the advantage of political stability, a commitment to economic openness and an excellent education system. The efforts of CINDE, Costa Rica's national promotion agency, as well as political support from the president of the country played an important role in the process.

In Malaysia, Pioneer Status and Investment Tax Allowance (ITA) incentives are given to companies engaged in manufacturing and in some other sectors such as agriculture and forestry. "Pioneer Status" exempts the company from the payment of income tax for 70 per cent of statutory income for a period of five years. Companies engaged in high-technology activities can qualify for Pioneer Status or ITA on the basis of a special list of Promoted Activities and Products. The tax exemption can apply to up to 100 per cent of statutory income for high-technology companies.

Small-scale companies are eligible for incentives provided under the Promotion Investment Act of 1986. They are granted Pioneer Status automatically if they manufacture products or participate in activities listed as promoted products; they receive full exemption from customs duty on raw materials, components, machinery and equipment, if these are not available locally. The Industrial Adjustment Allowance Incentives (IAA) targets companies that undertake industrial adjustment programmes. The IAA provides an allowance of up to 100 per cent of capital expenditures.

There is considerable debate over the relative effectiveness of financial versus fiscal subsidies. Cash grants may be more effective since they cut the initial costs of an investment, while a tax holiday kicks in only when an enterprise starts making a profit. Thus, financial incentives may be the better option for promoting investments that are uncertain and long term. However, in many cases it is easier for cash-strapped developing countries to give tax holidays. This, however, works best to differentiate among countries that have already established enabling business environments. Thus, while developed countries are able to choose among financial and fiscal incentives, developing countries may have to rely on the latter.

¹⁹ Pawan S. (1998). Legal measures and tax incentives for encouraging science and technology development: The examples of Japan, Korea and India. *Technology in Society*, 20 (1): 45–60.

CONCLUSIONS

This note has explored the public - and private-sector mechanisms that provide technology financing to enterprises. Many creditors and investors are reluctant to lend to SMEs because of perceived high transaction costs and high risks. Such reluctance results in market failures. Technology financing can be both risky and demanding. Given the added uncertainties attached to investing in technology, SMEs face a double hurdle in accessing financing.

Regarding private-sector financing, traditional creditors are often ill equipped to evaluate and appraise opportunities in connection with technology investments. In addition, commercial loans are not always appropriate for technology investments. Equity-based financing, especially venture capital can play a useful role. However, the conditions for establishing a venture capital industry are stringent and most developing countries would have great difficulty meeting them. Added to these usual difficulties are the recent failures of high technology companies and the collapse of high-technology markets, which have made even the most willing creditors and investors reluctant to invest in this sector for the foreseeable future.

Thus, the rationale for public -sector intervention in the form of subsidies and incentives is better than ever before. What options do developing countries have in choosing between financial and fiscal incentives? In many countries, government policy is biased against SMEs and favours large enterprises, particularly in the area of subsidies and incentives. Therefore, what targeted interventions and safeguards should be adopted to ensure that public mechanisms are cost-effective and do not lead to further market distortions, moral hazard, or outright corruption?

There is also the additional issue of whether these subsidies and incentives comply with World Trade Organization rules in the medium and long term. In the interest of policy coherence between the national and international levels, effective and permissible interventions need to be designed. International organizations, particularly financial institutions, can assist in designing, funding, and implementing these policies. Whatever policy space or grace period developing countries have in promoting technology investment should be exploited as effectively and imaginatively as possible in order to grow competitive SMEs. These last considerations are beyond the scope of this note and might be the logical next step in the exercise.

FINANCING VENTURE CAPITAL IN A DEVELOPING ECONOMY: THE CASE OF CHINA

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BUSINESS DEVELOPMENT AND VENTURE CAPITAL INVESTMENT STRATEGIES

Generally speaking, a successful business usually undergoes the following four stages from beginning to its full success:

1. Seed stage, where the products based on ideas are being developed. The future operation pattern for the business is also still at the 'idea stage'. The business has only recently been set up, and even though the products have turned out to be successful, the business is not yet ready to enter the market.
2. Start-up stage, where the new products have been successfully developed and the preparatory work for market entry, such as certain licenses, is roughly finished. The business needs a sufficient amount of capital to develop the market, to bring the production capacity to an adequate level, and to establish an organizational structure for operation and production management.
3. Growth stage, where the business has successfully developed a market for its products; market share has increased; the operating income and profit have also increased and production has further expanded.
4. Mature stage, where the business and its products are already fairly competitive and well known, its operation and management are formalized, and the business can accumulate capital, as well as borrow from financial markets to develop further.

Businesses need little capital at the seed stage, and some business angel capital may be enough to keep it running. Some banks may even provide small loans knowing they would not suffer too much if that small loan was lost. However, businesses at start-up and growth stages usually need a lot of money. At this stage, it is not possible to tell if the venture will succeed and if growth can be sustained. So the capital provider at this moment has undertaken the greatest risk. Banks, considering risk management, do not like to lend to businesses that are in their start-up and early-growth phases, and the businesses are yet not qualified to go public or issue debt. At this stage businesses need funding mostly from venture capital providers to take on high risks. Once a business has succeeded and developed rapidly, venture capital companies will share a handsome return.

Investment strategies should seek to, first to diversify the investment so as to reduce risk, second to invest professionally and get involved into the venture businesses development.

CHINA'S VENTURE CAPITAL INSTITUTIONS AND THEIR INVESTMENT CAPACITY

According to a survey of relevant institutions, China presently has about 160 companies engaged in the venture capital business. This figure does not include the intermediaries for project recommendation nor those for foreign venture capital institutions. These 160 companies have a total registered capital of RMB 21 billion, and 60 per cent of them are located in Beijing, Shanghai and Shenzhen.

China's venture capital companies' investment portfolio

In China the main form of venture capital business is direct equity investment; institutions also provide loan interest subsidies and loan guaranties. In the last few years, the venture capital business in China has boomed both in numbers of companies and in the volume of funds.

Present venture capital exit mechanism in China

Among the main exits for venture capital are now merger and acquisition, equity share sales at a premium, going public and getting listings on stock markets for small businesses abroad. In Beijing, for example, some venture capital institutions have made their exit by trading the intellectual property rights at the technology trading market, going public and listing at stock exchanges abroad. In 1999, two companies listed at the secondary market of Hong Kong Stock Exchange, and five listed at NASDAQ in the US. In Xi'an, many venture capital companies exited by selling at the technology trading center, by management buy-backs or by indirectly going public by taking over a listing company. Generally speaking, however, China's exit mechanism for venture capital is still inadequate.

THE MAIN SOURCE OF CHINA'S VENTURE CAPITAL AND THE SIGNIFICANCE OF CDB'S SUPPLEMENTARY FUNDING

The US pension funds, insurance funds and mutual funds provide an abundant source of venture capital. These funds only place a small part of their money in the venture capital investment and put the remainder into low-risk assets, so their venture capital investments do not present high risk for these funds and the overall risk for these funds is well under control. But in developing economies, the social insurance system is often incomplete; there are only small and weak pension and insurance funds, or none at all. In developing economies capital markets are usually underdeveloped and mutual funds are fairly primitive. So for the developing countries there is no American-style venture capital source.

Business start-up activities backed by venture capital, and especially high-tech businesses, are the main means for developing countries to promote technology and accelerate economic growth. They represent hope for catching up with developed economies. Because of the lack of venture capital sources and inadequate legal and taxation environment, business start-up activities in developing economies are far less than in the developed ones. Developing countries therefore have to find more capital funding sources that are matched to their own specific situations.

China's main source of venture capital fund

In the past, only China's State-owned sector had a retirement and health care insurance system and it was employers or the government who would pay for it. In recent years, China has restructured its social insurance system, and the new retirement pension and healthcare insurance institutions have been founded. However, with the fund collected in and paid out almost at the same time, it was unable to accumulate funds for investment, let alone the venture capital funding. China's capital market was only developed in the past few years, and the number and funding capacity of its institutional investors are all inadequate; mutual funds are just in the process of being set up and are very weak, so they have no venture capital investment at all.

Most of China's venture capital institutions were set up after 1998. The bigger ones are invariably set up and owned by local governments. Most of the money they manage comes from local public financial funds. Local governments provide support to venture capital institutions by direct allocation of local public financial funds and allocating equity shares in high-tech businesses. In such cases, the equity was usually obtained through public financial contributions in previous years.

A new perception of venture capital investment and risk

Venture capital companies invest in the equity of SMEs at the start-up and early growth stages. Among those SMEs in which investments are made, only a small portion will succeed and even fewer will be able to achieve rapid growth. Quite a lot of investment will be lost as these start-ups fail; this means that venture capital companies take a high risk for every project. But, as the investment is made in the SMEs at start-up and growth stages, once the project succeeds and achieves rapid growth, the return rate on venture capital investment is much higher than that on investments in mature companies. If venture capital companies have the right investment strategies and a sound asset management, they can make profits from successful projects and therewith diversify their overall risk.

For well-managed venture capital companies, the main characteristic is that the individual investment risk is high but the company's total investment risk is low. The venture capital company can reduce its overall risk on its portfolio and accrue a higher return than from a loan. That means a venture capital company can borrow debt to finance its investments. By keeping debt limited the company can expand its total assets and its investment capacity.

Key factors for a well-managed venture capital company are: a) investment diversification, to ensure that each project takes only a relatively small portion of the whole portfolio, and b) professional investment. In order to achieve the latter, the venture capital company should be familiar with the projects and the industry's prospects before it decides upon and selects investment projects. Further key factors are c) a deep involvement in the operation and management of the business it invests in, this includes hiring good managerial, accounting, and marketing staff as needed, to help the business improve operation and management; and d) knowing how to exit a project, and determining the right timing to exit. A bank can use these guidelines to evaluate the venture capital companies and support the qualified ones with long-term loans.

CDB's experimental supplementary funding for venture capital

The China Development Bank (CDB) is the biggest policy-oriented bank in China. It raises long-term funds by issuing debt debentures in capital markets. Its mandate is to direct and lead capital investment into key industries where the State gives emphasized support. Based on the perception of venture capital and the risk as stated above, in the past couple of years, CDB has tried to help SMEs develop by providing long-term loans to venture capital companies. The loan duration can be as long as ten years, with longer grace periods during which the borrowers do not need to repay the principal. After a grace period borrowers should repay the loan principal in installments. CDB has produced guidelines on CDB High-Tech Venture Loans Management. To reduce the risk, CDB demands that venture capital institutions applying for a loan should a) have a registered capital no less than RMB 50 million; b) the total loans should not exceed 70 per cent of its capital; c) each project can take up a CDB's loan for no more than 10 per cent the total loans; and d) the number of projects using CDB loans should be more than ten with a certain number of projects as investment reserve. CDB also examines the venture capital company's organizational structure, its operation mechanism, its decision-making procedure, its assets portfolio, and its credit guaranty (financial status and funding capacity of the guarantor company). The venture capital company should have a portfolio of invested businesses at different development stages. Its total investment in businesses at seed and start-up stages should not exceed 60 per cent of its total loans.

Up to now CDB has lent a total of RMB 640 million to Beijing Technology Venture Capital Corporation, Xi'an High and New Technology Industry Venture Capital Corporation, Tianjin Teda Technology Venture Capital Corporation, Chongqing Technology Venture Capital Corporation (see Table 1). These companies have capital in a number of projects in information technology, biotechnology, new materials, energy technology, automation and advanced manufacture technology, as well as other industries which fall in the category of officially designated key industries.

The impact of CDB loans on venture capital

Considering the nature of venture capital, CDB has provided financial consultancy services along with its hi-tech venture loans and taken part in the post-loan management of the business in which they have invested; it has helped those businesses to restructure and reform, to fix their operation and management mechanism, to adjust their capital structure and to improve their portfolio, and to set up regular investors. With CDB's help, those companies have improved their project structure and financial status, and have also obtained government and social funding; they have also taken over more quality assets of high and new technology and some cash capital input. For example; the Xi'an High and New Technology Industry Venture Capital Corporation and Chongqing Technology Venture Capital Corporation have increased their registered capital from RMB 50 million and RMB 13 million to RMB 150 million and RMB 230 million, respectively. The success rate of projects has also risen.

Table 1: CDB's loans to projects receiving venture capital

Venture Capital Companies	Seed Stage	Start-up Stage	Growth Stage	Mature Stage*
Beijing Tech VC	30		60	10
Xi'an High and New Tech VC	10.55	40.42	38.12	10.91
Tianjin Teda Tech VC	22	53.9	24.10	
Chongqin Tech VC	10.80	39.5	33.20	16.50

* mature stage means investment in listing companies

China's SMEs are the most active economic entities and present the most important solution for the employment problem. Helping SMEs during the start-up and growth stages has become an essential part of China's SMEs policy, and the State has implemented many supportive measures since 1999. But because of some coherent problems with SMEs, especially for those at start-up and grow-up stages, such as inadequate disclosure, SMEs often face many difficulties in financing. Venture capital, with its increasing presence in China, is a new and important way of financing SME development. According to data from authorities, venture capital has invested RMB 10 billion in SMEs over recent years, a great impetus for SME development.

Most of China's venture capital comes from the government, as public financial funds are limited. Furthermore China has no American-style venture capital sources, so the venture-capital source in China is quite limited. In such a scenario, CDB's supplementary funding for venture capital is obviously very important. While CDB has always tried to avoid and reduce risk, it has lent RMB 640 million in total to venture capital companies. By acting as financial adviser for the venture capital companies, CDB has helped businesses to restructure and reform, to improve their assets portfolio and management system, and to adjust capital structure. CDB's supplementary funding has also helped these venture capital companies to attract more funding. CDB has just begun its supportive funding for China's venture capital. It will provide more funding in the future for China's venture capital companies as well as for SMEs.

Policies implemented by the Chinese government to encourage venture capital and SME development

China's Ministry of Science and Technology and Ministry of Finance issued provisional regulations on technology SMEs innovation fund in 1999, with a view to helping technology innovation among SMEs. This is an indication that the Chinese government has begun to strengthen its support for SMEs at the start-up stage instead of at the expanding and mature stages, as it did before.

In 1999, in the policy framework and guidelines for encouraging and promoting SMEs, the Ministry of Finance laid out five measures to encourage venture capital and SME development. These were: to actively encourage technological innovation, to increase the fiscal and taxation support, to widen the financing resources, to quickly establish a credit guaranty system, and to improve social service organizations.

Furthermore, in 1999 the Chinese State Council issued a decision on enhancing technology innovation and promoting high technology and industrialization. This document pointed out that China should foster a capital market that is favourable to development of high-tech industries, and gradually establish a venture capital mechanism. In the same year, the Council issued some guidelines about establishment of a venture capital mechanism, and set out the clear framework for domestic venture capital development.

The State Commission of Planning and Development is urgently drafting a set of provisional regulations on venture capital fund management. These regulations will take lessons from the relevant regulations on venture capital organizations in other countries and regions, but will take China's situation into account. They will break down some legal barriers in the present company law and business partnership law by introducing regulations on the fund's organizational form, investment percentage limits, investment patterns, fund finance and taxation. It will lay down a legal foundation for venture capital funds' management and operation.

Besides the central government policies and regulations in promotion of venture capital, some local governments have also implemented certain policies and measures related with venture capital to promote local venture capital development.

SME FINANCING IN NIGERIA

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This short paper will review the current constraints with SME financing in Nigeria and the Government's recent mandatory requirement for banks to allocate ten per cent of their pre-tax earnings for SMEs.

MAJOR IMPEDIMENTS TO SME FINANCING IN NIGERIA

A. Lack of focus of financial institutions is mainly due to:

1. Relatively thin capitalization, which makes them conservative about their lending practices;
2. Exorbitant interest rates by the local banks that SMEs are unable to afford, where these banks condescend to lend to the SMEs;
3. Preference for financing large enterprises at the expenses of SMEs owing to difficulties in accessing the risk of SME and the higher administrative costs of lending to them;
4. The repayment period tends to be too short for medium-term projects, which require two to five years on average for payback;
5. The money market is notoriously short term in nature as medium- to long-term capital markets are still underdeveloped. The savings culture is minimal while the bulk of the funds derive from the government's capital and recurrent expenditures that are notoriously irregular in disbursements and very short term in nature. The volatility in interest rates that is endemic in such unstable money market exposes the SMEs to great rate risk that they are often unable to absorb in the pricing of their goods and services;
6. The banks' loan officers often lack the experience necessary to evaluate loans for SME projects; and
7. The weak credit histories of prospective customers often make them poor candidates for loans.

B. Poor basic Infrastructure

The country's poor power and water supply, the limited telecom services and poor roads make it difficult for the SMEs to operate. Where they do, additional costs are incurred in the provision of these basic infrastructures that cannot be recouped given their relatively low economies of scale.

C. Inconsistent government monetary and fiscal policies

Inconsistent policies are mainly due to:

1. Lack of political will due to pressure by strong interest groups to ban certain goods that are imported into the country and compete with items that would have been produced, or are being produced by SMEs. Nigeria e.g. imported US\$ 500 million rice in 2001, a basic grain that can easily be grown in the country and whose ban would stimulate the financing and development of many industries in the important agricultural sector;
2. Frequent changes in fiscal policies that do not engender confidence for local or foreign investment, as investors regard these inconsistencies as a major risk for any medium to long term planning; and
3. Monetary policies that have consistently depreciated the local currencies while keeping interest rates high.

Inadequate enforcement of the local tariffs that facilitate smuggling of goods that compete with locally produced equivalents that consequently become uncompetitive. SMEs are most vulnerable here as Nigeria is often a dumping ground for most primary manufactured goods that would have been produced by these SMEs - candles, clothing, creams, OTC drugs, plastic goods and packaging, etc.

D. Products that are yet unable to compete in world markets

Products are not able to compete in world markets because of:

1. Low economies of scale, high production costs;
2. Relative poor quality of products.

SME FINANCING FROM TEN PER CENT PRE-TAX BANKING ALLOCATION

The myriad of financing options available to SMEs in most developing countries is largely undermined by some or all of the constraints noted above for Nigeria. This was a major factor for the government's decision to look inward and mandate the allocation of the banking sector's 10 per cent pre-tax earnings exclusively for the financing of *SMEs*. While this decision has been highly applauded and the fund has grown to well over Naira 12 billion (about US\$ 90 million) by June 2002, SMEs have yet to begin to reap the rewards of this captive finance.

The reasons for this are not far fetched. Banks do not consider SMEs a priority and do not have the capacity to devote to this sort of lending that they still perceive as risky. Most banks have also been lulled into a false sense of security in that the ten per cent pre-tax allocation is treated as a reserve in their balance sheet - that will be recovered someday! The mentality is that it is preferred to make this mandatory allocation, than to lend to an SME where the chances of a loss are very high. So long as earnings are artificially high (as is the case for the Nigerian banking sector) growth and share price are unlikely to be compromised by this government edict.

SME OPTIONS FOR TAPING INTO THE FUND

While the banks have the first option to disburse their allocations to their SMEs customers, other private sector initiatives are now being considered to expand the scope of this fund (that should grow by over US\$ 100million / annum). These include:

1. The establishment of an enterprise investment fund to make loans or equity investments available for SMEs;
2. Establishment of venture capital fund for SMEs;
3. The set up of a privatization fund to encourage the domestic private sector to take over potentially profitable public sector enterprise, of which a state or Federal Government is divesting itself of. This could be through direct equity participation redeemable shares, loans and provision of warehousing facilities;
4. Provision of seed money of about Naira 50 million (about US\$ 350,000) for each local government area. Products with export potential such as crafts, processed foods, etc. would be identified and produced with the help of experts for export market both at regional, continental and global levels.

All of the above would be difficult to implement without management training of SMEs, an area that has consistently been the weakest link in the quest for financing of SMEs over the world. Financial institutions have begun to create special teams focused towards the analysis of SME credits and risks but their efforts have to be complemented by teaching SMEs the basics of how to run their shops, i.e. to learn about accounting, inventory controls, marketing, purchasing, human resource management, budgets, planning, etc. the key variables that financial institutions and lenders would want to feel comfortable with before lending. This is one area that such multilateral agencies as UNDP, WTO, UNCTAD, OECD, etc. must focus on with regard to either conducting such training workshops or funding such workshops that are organized by the private sector. Examples of such capacity building institutions in Nigeria include Fate Foundation, Lagos Business School, Enterprise Nigeria Foundation, Center of Management and Development etc.

Institutions involved in this can be assisted financially in their efforts to design and disseminate “best sustainable development training and sustainable development of small and medium sized enterprises”. This would improve the supply of management training for the SME sector as a way of increasing their productivity and competitiveness. Attention in these workshops and the necessary follow-up value added consulting services should be given to:

5. Promoting sustainable market-driven solutions to management training for SMEs;
6. Testing new methodologies and products in management training and sustainable development;
7. Leveraging public and private sector resources necessary to create and disseminate successful models and environmentally sustainable solutions and, fostering the creation of a network of management and sustainable development training providers throughout the country to encourage mutual leading and collective innovations for SMEs.

PUBLIC SECTOR INITIATIVES FOR FINANCING TECHNOLOGY IN IRELAND

Fionán Muircheartaigh
Chief Economic Advisor, Enterprise Ireland

TECHNOLOGY TRANSFER, INVESTMENT AND FINANCE

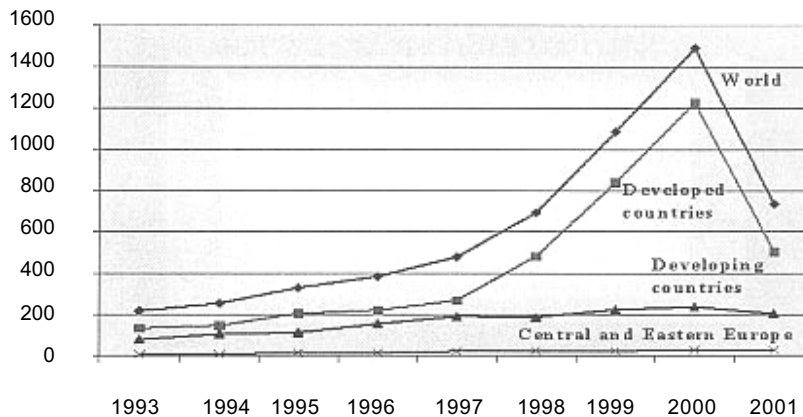
What is technology transfer?

'Technology transfer' is traditionally focused around manufacturing, products and processes of manufacture. I prefer a more broadly defined concept as the development of new or improved products or processes, and their incorporation into an economic or social activity. Effective technology transfer should increase productivity, by introducing new or improved products, by increasing value, reducing costs or both. Its ultimate object is to increase profitability, competitiveness and thereby the welfare of consumers and workers / producers.

Technology transfer is seen in Ireland as a critical component – but only a component of the industrial and economic development process. It has been receiving increasing attention within an overall approach, which is centered on comprehensive company development.

One traditional way of looking at technology transfer in industrial development is to look at investment. Capital investment in industry can be used as a proxy of technology transfer. Investment often embodies technology, and thus FDI can serve as an effective vehicle for technology. The yawning and growing chasm between FDI in developed and developing countries continues to increase the technology deficit under which developing countries labour.

Figure 1: Global inflows of FDI 1993-2001(US\$ Billions)



Comparative international figures show Ireland has enjoyed high levels of foreign direct investment per head over the last ten years. This direct investment has been the major source of investment in technology in industry in Ireland. But to get an overall picture one must look at the structure of industry, because investment, and its associated technology and innovation vary greatly by industrial sector, by company size and by ownership of firms.

Table 1: Inward FDI Performance Index: Ratio shares global FDI to global GDP

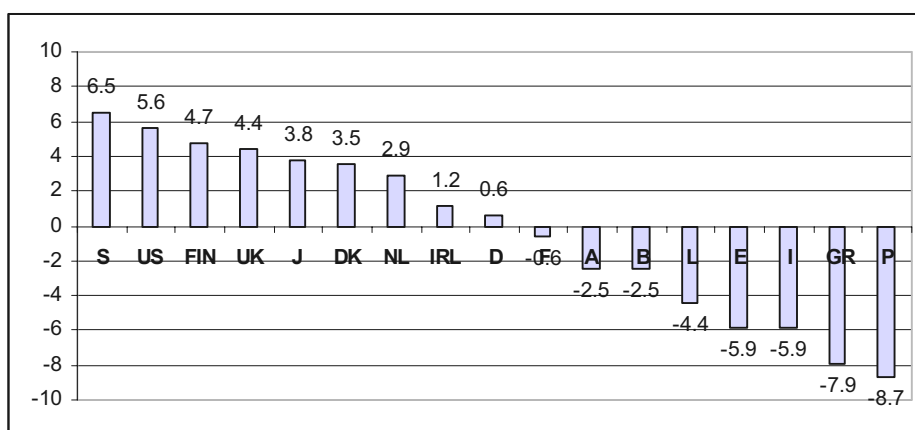
Rank	Economy	Ratio share FDI to share global GDP 1998-2000
1	Belgium & Luxemburg	13.8
2	Hong Kong, China	5.9
3	Angola	5.1
4	Ireland	5.1
5	Malta	4.6

Source: UNCTAD Investment Report 2001

Public Interventions to support Technology transfer

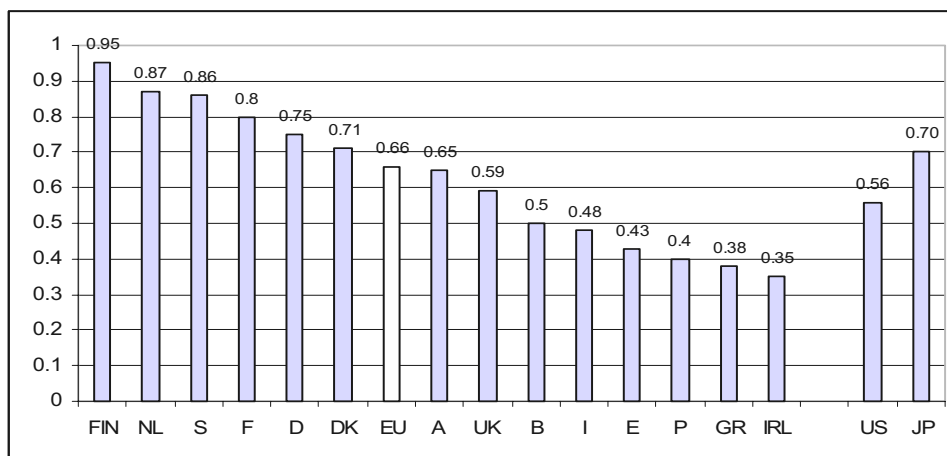
The latest data published by the EU suggests that Ireland is an average, but not an outstanding performer in the area of innovation and the transfer of technology using common indicators of technology (the European Innovation Scoreboard indicators). They are broken down into four categories, human resources, creation of knowledge, transmission and application of knowledge, and innovation finance, output and markets.

**Figure 2: European Innovation Scoreboard (overall index 2001)
Tentative Summary Innovation Index**



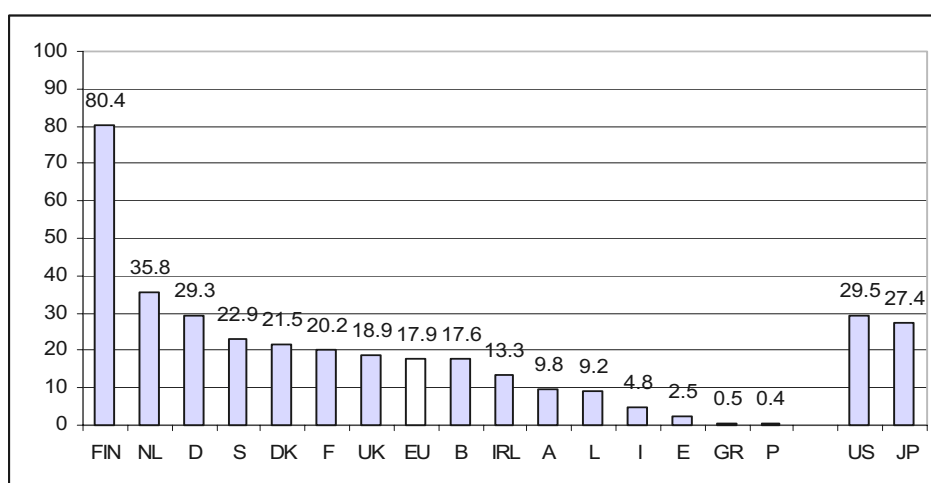
R&D is financed in a number of ways: Government Research and Development Expenditures (including higher education research) GOVERD, and business expenditure on R&D (BERD). The comparative figures show that in 1999, Ireland was a poor performer in the GOVERD league table of the EU, as per the innovation - spending only 0.35 per cent of GDP (see Figure 3). This is the lowest proportion on the scoreboard. While business expenditure on R&D was also below average, it was not as much out of line as government R&D. It fell far short of US and Japanese levels.

Figure 3: Public R&D expenditures (GOVERD and HERD) (as a percentage of GDP)



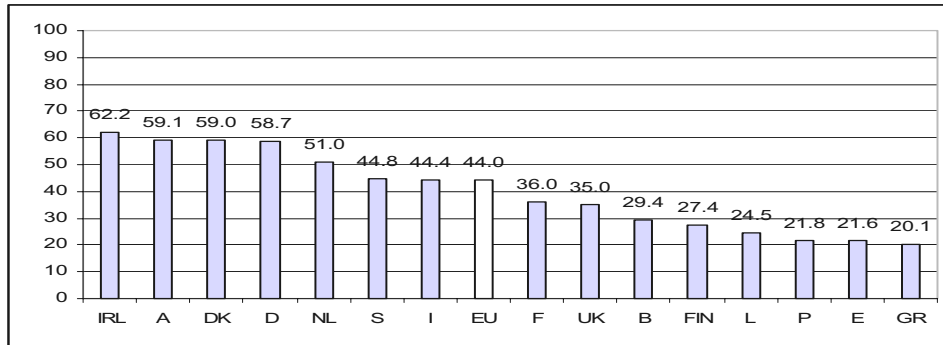
Particular weakness has been identified (e.g. in the knowledge creation area) which are now being addressed by specific programmes. This is illustrated by the dearth of high-tech patent applications to the European patent office. This indicator on high-tech patent applications reveals a low performance for Ireland. A major new programme of funding of basic research has been initiated, which it is hoped will address both the knowledge creation and human resources dimension of innovation in Ireland.

Figure 4: EPO high-tech patent applications (per million inhabitants)



On transmission and application of knowledge, and innovation finance there are some better scores. Ireland ranked first on the European Innovation Scoreboard on the measure of SMEs innovating in-house.

Figure 5: SMEs innovating in-house (as a percentage of manufacturing SMEs)



Ireland also scored well on manufacturing SMEs involved in innovation cooperation. These are agreements covering innovation cooperation with other independent enterprises or institutions.

TECHNOLOGY AND FINANCE IN IRELAND- ENTERPRISE IRELAND’S ROLE

Enterprise Ireland’s remit is to “...help Irish industry build competitive advantage, profitable sales, and sustainable employment”. Enterprise Ireland (known as EI) was established in July 1998 as the Government agency whose mission was to help indigenous industry grow and develop. It brought together the Industrial Training Board, the Trade Board and Forbairt, the Indigenous Industry Development Authority. The idea was to encourage and help companies to take an integrated approach to development, which embraced all the essential functions of company, from strategic management, through markets and product development, technology, human resources and finance.

This change also embraced a shift in emphasis with certain sectors showing a new vitality, in particular indigenous software, media and communications products, electronics, consumer foods, and some branches of industrial goods and engineering. There is also a systematic effort being expended on the development of industries related to the indigenous natural resources - food, timber etc.

There were also significant structural changes. Most important were FDI acceleration, significant growth in Irish based industry investment, the emergence of a number of Irish-based MNCs, Irish Venture funds were established, and serial entrepreneurs emerged.

What does the EI client base look like? It is concentrated in the more traditional industries (food, timber, engineering and non-metallic minerals, but it is also increasingly represented in the software, information and education technology, and media industries. The bulk of the clients are small, but average size is growing. 98 per cent of its clients have fewer than 250 employees, although about 40 per cent of the sales and exports come from the non-SME sector.

Table 2: The EI Client Base (in per cent)

Employing	Companies	Sales	Exports	Jobs
Under 10	19	2	3	2
10-50	63	25	21	33
50-250	16	35	35	34
250+	2	38	41	30
Total	100	100	100	100

What programmes does the Government have to encourage R&D?

Programmes to encourage transfer of technology have for long been a part of the Government strategy for industrial and economic development. But these are only a part of the Government's approach to the development of enterprise. Initially these focused on export sales, and then on the support of capital investment. In the 1980s and 1990s, there was a growing appreciation of the importance of 'the economic environment', which included the general burden of taxation, the cost of essential services, and the competitive environment. At the level of the firm the increasing importance of human resources and of new and improved technology and innovation has come to a centre stage. Enterprise Ireland is the agency that assists Irish industry with the identification, introduction and financing of new technologies.

Government policy stimulates technology through research, education and industry specific measures. Resources of about €2 billion will be applied to this purpose in the period 2001-2006 under measures agreed with the European Commission in Ireland National Plan.

The traditional sources of finance for companies are own resources, bank loans, equity and financial support by the government development agency. Enterprise Ireland is the agency that organizes and administers the last of these lines of resources. Most companies in Ireland, both Irish and overseas rely on their own resources for the vast bulk of their financing of research and technology. Smaller companies and in particular early stage developing companies can find it very hard to raise resources from the commercial lending institutions. To encourage the acquisition of technology Enterprise Ireland supports clients in three ways:

1. It provides grants towards the cost of R&D projects;
2. It may provide loans or equity directly to assist in the financing of such projects;
3. It has fostered and supported the growth of venture capital funds to increase the funding available to growing industry.

Enterprise Ireland does this as part of a wider strategy that is aimed at identifying promising research areas, commercializing research conducted in education establishments, and delivering technology solutions to the companies that it supports.

How does it commercialize and deliver research?

First it works with universities to ensure a flow of ideas and knowledge in relevant areas. As part of this it supports applied research aimed at bringing ideas to commercial reality, and innovation partnerships which link colleges and companies.

The main elements in delivering technology are: encouraging new start ups, working with existing companies to identify and use the best technologies, human resource development policy, and a conscious programme of bringing innovations to the regions. This approach has involved a complete change for Enterprise Ireland in its approach to technology. The traditional functions of calibration, testing, and standards, have been replaced with the introduction of technology advisors, who work to identify the technology challenges facing clients, and how these might best be met.

Grant schemes

Enterprise Ireland has a number of grant schemes, which are designed to encourage and support research, development and innovation by firms. They support projects, the acquisition of equipment, and various kinds of co-operation with third level educational institutions. The key schemes are outlined below.

The RTI Competitive Grant scheme is a key action under the Government's Operational Programme for the Productive sector and part of the National Development Plan 2000-2006. The scheme supports commercially focused, industry led projects in product and process development (expenditure is greater than €95,000). A grant of between 25 and 45 per cent of eligible expenditure is available, depending on company size and its location in Ireland, up to a maximum of €440,000. The aim of this scheme is to increase the level of high quality research and development in businesses in Ireland. Typically, the kind of scheme supported under the RTI competitive grant scheme would be high quality, risk intensive R&D projects, which are essential for companies to establish or to maintain their overall competitiveness. Projects can relate to either product or process development.

Research & Development Capability Initiative- the basis of this scheme is to increase the level of R&D infrastructure. The initiative covers additional resources, such as, R&D staff, equipment, etc. Like the RTI schemes, a grant of between 25 and 45 per cent of eligible expenditure is available.

Innovation Partnerships- EI support for collaboration on applied research projects, with commercial application, between Industry and third level colleges.

Regional Business Incubation Space- the programme's aim is to strengthen regional innovation infrastructure by facilitating the provision of incubation and commercial R&D space for the establishment of high potential start-ups. Local Institutes of Technology play an important role here.

Basic Research Grant scheme for Third level Institutions- these schemes have been developed to stimulate original scientific research and expertise within the third level sector. The amount of money expended in these schemes in 2002 is estimated at €16 million.

And what level of activity does this generate? Our client survey suggested that last year 2,500 of our clients were engaged in R&D at some level. While the majority of these were engaged in very modest programmes the increasing focus and financial support should considerably enhance technology acquisition. It should also be noted that over half of EI client companies spend less than €30,000 per year on R&D.

Financing of research in this way is tantamount to financing technology in the medium term. Increasingly acquisition of knowledge and application of that knowledge is becoming ever more important. This aspect is expected to play an increasing role in the work of industrial development and support in the years ahead.

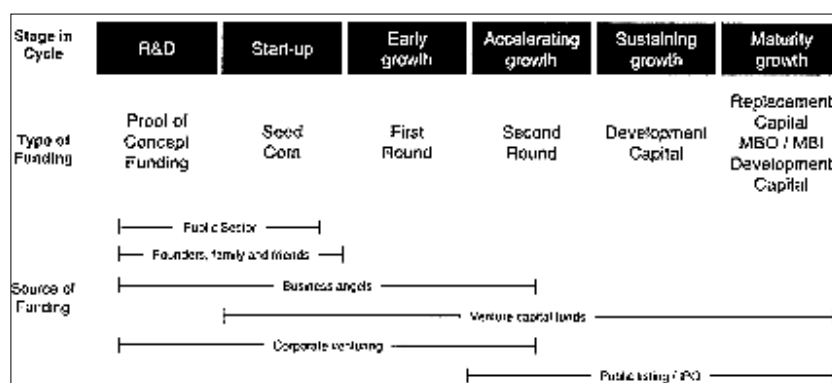
Equity and Venture Capital

Enterprise Ireland also invests in some of its client companies, where it is satisfied that such investment is justified. Equity may be in the form of ordinary shares. Loans can be provided in the form of redeemable preference shares. The nature and extent of such investment depends on the commercial evaluation, and the other sources of funding available to promoter. However, companies still need sources of equity and for this reason Enterprise Ireland got actively involved in the establishment and development of such funds in the 1990s.

Venture capital funds

Irish banks and financial institutions were often reluctant to invest in Irish industrial and service businesses. In the mid- 1990s, shortly after Enterprise Ireland was set up, it was decided that something should be done to encourage a venture capital industry in Ireland. Venture capital requires many of the societal arrangements of traditional equity funding, such as developed financial and accounting systems in companies, and reasonably reliable and trustworthy accounts. But even this was inadequate to encourage private investment in emerging, and particularly start-up industry. The earlier the stage of development of the enterprise the more difficult it was to finance.

Figure 6: Sources of equity finance and business development



In response to this, and in partnership with the European Union, Enterprise Ireland encouraged the establishment of venture capital funds. It entered partnerships with private equity holders who were prepared to invest matching sums of private finance in new and emerging industry.

The European Commission was very supportive of the initiative of Enterprise Ireland to establish a seed and venture capital initiative under the operational programme for industrial development. 1994-1999. The aim was to “develop a venture capital market to provide SMEs with much needed venture capital - filling an existing equity gap”. Fifteen Partnership funds were created between Enterprise Ireland and the private sector offering not only funding for these companies, but also badly needed skills to help them accelerate their growth.

A recent evaluation of the programme by Nottingham University Business School in early 2002 concluded that, “95 per cent of investing companies (in the study) confirm that they would not exist or would have developed more slowly without the venture capital investment”. The key to the success has been the establishment of commercial arms length structures, with co-responsibility in the form of risk sharing on an equal basis with the privately invested funds.

CONCLUSIONS

The introduction and financing of technology faces many challenges; in Ireland we are becoming increasingly aware of the challenges involved for our enterprises. The Irish approach is many faceted, but it involves substantial financial support to research, to education at third level and to industry. Specific financial supports are in place, and a new structure of venture capital funds has been developed by Enterprise Ireland in partnership with the private sector. It is likely that the optimal development programmes will place increasing emphasis on the acquisition and dissemination of knowledge, to reflect the substantial advantages to society of accelerating technology acquisition. Unfortunately this is an expensive business, which will further disadvantage developing nations unless specific programmes are introduced by the international community to help them with the process.

SUMMARY OF CONCLUSIONS AND RECOMMENDATIONS BY EXPERTS

Financing Technology for SMEs

The Expert Meeting on “Improving the Competitiveness of SMEs through Enhancing Productive Capacity: Financing Technology” considered national policies and programmes in both the public and private sectors to finance the technology that small and medium-sized enterprises (SMEs) need in order to compete in the global economy. In this context, the discussions focused on the following issues: main challenges and responses for financing technology; banks, equity and venture capital as a source of technology financing; the need for government intervention and the compatibility of government measures with international obligations.

The experts highlighted the following factors as problems and/or challenges that SMEs face in financing technology.

- Lack of appropriate government policies for SME finance;
- Information gaps between suppliers of finance and the SME sector;
- Creditworthiness of SMEs;
- Reluctance of banks to service SMEs because of perceived high risks;
- Lack of financial and fiscal incentives for loans and equity capital; and
- Consistency of international requirements or national measures for financing technology.

In order for SMEs to better access finance, the following points were discussed in detail:

Banks as a source of technology financing

The experts noted that in most developing countries the main suppliers of finance were banks. It was emphasized that a number of commercial banks were modifying their credit capital appraisal system so that they could better reach the SME sector. However, despite those innovative mechanisms in SME lending, it was agreed that there was still a general tendency among banks to shy away from providing loans to SMEs because of perceived high risk and the associated costs of dealing with SMEs.

The experts recommended that future policy measures are needed in order to encourage SME lending. These could include:

- Removal of interest rate caps;
- Grant of tax incentives (i.e. lower rate of tax on banks' SME income);
- A legal system that allows financial institutions to obtain and enforce security; and
- Partial loan guarantee programmes in which the government and banks share the risk in SME lending.

Equity and venture capital

The participants agreed that venture capital had played an important role in financing high-technology start-ups in some countries, but the conditions for setting up a viable industry were very stringent. Nevertheless, some examples from developing countries were presented where significant progress had been made in promoting venture capital as a source of SME financing.

The experts considered the following elements as critical for establishing a successful venture capital industry:

- Provision of a definite policy framework with the respective government choosing between an intervention and a non-intervention approach;
- Regulatory framework with guidelines;
- Encouragement of foreign investors;

- Grant of tax incentives to individuals, corporate entities, and insurance companies for making investments in venture capital funds;
- Provision of working capital by banks; and
- Strengthening of synergies with R&D

Furthermore, the impact of the International Monetary Fund's structural adjustment programmes in reducing the national policy space of governments for supporting venture capital was emphasized. It was noted that there is a need to develop a tool kit or road map that developing countries could use when promoting the formation of venture capital. This tool kit should be tailored to national conditions.

Government intervention

In many developed and developing countries institutional rigidities have resulted in market failures. In particular, the risks posed by the development and diffusion of new technologies with great uncertainties and long lead times require long-term capital that the traditional suppliers of capital are not willing to provide. It was agreed that in such a situation the justification for government intervention is particularly strong.

Compatibility of Government measures with international obligations

The experts largely debated the compatibility of government measures with international agreements. It was noted that compliance with WTO rules was an important aspect of a coherent national trade policy framework. It was pointed out that the section of the Agreement on Subsidies and Countervailing Measures' (ASCM) on non-actionable subsidies has lapsed but proposals to reintroduce this category had been presented in the current negotiations.

The experts recommended that:

- Export subsidies should be eased for least developed countries (LDCs);
- Technology subsidies should be re-classified as "non-actionable";
- The use of international standards should be examined, as well the options for lower licensing costs for LDCs, based on their ability to pay.

Furthermore the experts considered the following issues as important to be addressed in trade negotiations:

- A revision of WTO rules regarding intellectual property rights, so as to make them less restrictive of developing countries' access to technology and know-how;
- An examination of heavily subsidized government-sponsored national innovation systems;
- Negotiation of WTO rules that help developing countries support and implement national innovation systems;
- Make use of the Internet as a tool for trade promotion and development.

The experts concluded that many countries had adopted SME programmes, with varying degrees of success; however, much more could be achieved with innovative financing schemes. Developing countries should ensure that WTO rules did not further limit their freedom regarding government policies and measures in support of SMEs.

Part III

TECHNOLOGY DEVELOPMENT AND MASTERY

Issues paper by the UNCTAD Secretariat

Case studies by national experts

ISSUES PAPER
**POLICIES AND PROGRAMMES FOR TECHNOLOGY
DEVELOPMENT AND MASTERY, INCLUDING
THE ROLE OF FDI**
UNCTAD Secretariat

INTRODUCTION

This issues paper presents an overview of the drivers of technology development and the main policy options that governments could consider in order to improve competitiveness and to move up the technology ladder. It examines:

- Policy changes conducive to moving up the technology ladder, including for technology transfer;
- Technology development and mastery to meet international norms and certification;
- Financial and fiscal measures to promote collective action among institutions and agents (home and host Governments, support agencies, large and small firms, and networking among small firms) for “linking, leveraging and learning”.

A separate Background Report for the Expert Meeting compares the experiences of six economies to illustrate how these policies may actually work in practice. Three Asian economies (Malaysia, Singapore and Taiwan Province of China) that boosted their levels of technology development from 1985 to 1998 are contrasted with three African economies (Ghana, Senegal and Uganda) that were less successful. The Background Report summarizes key conclusions and possible policy options in the Appendix of Policy Options.

THE TECHNOLOGY LADDER: THE UNIDO COMPETITIVE INDUSTRIAL PERFORMANCE INDEX

Components

Given the different dimensions to technology development, there are different ways of defining and measuring technological development (CSTD, 2002). How do we define the technology ladder? The United Nations Industrial Development Organization (UNIDO) has developed a framework benchmarking national abilities to produce manufactures competitively and to provide the structural inputs for sustained industrial growth. The Competitive Industrial Performance (CIP) Index measures competitive industrial performance in four components:

1. Manufacturing value added (MVA) per capita;
2. Manufactured exports per capita;
3. Share of medium- and high-tech (MHT) activities in MVA – measuring the technological structure of MVA;
4. Share of medium- and high-tech products in manufactured exports – measuring the technological structure of manufactured exports.

CIP index focuses on manufacturing industry and export performance and their technological structure. This focus on export performance is justified since “it is now widely accepted that growth prospects for developing countries are greatly enhanced through an outer-oriented trade regime and fairly uniform incentives” (Krueger, 1997). Export promotion strategies have largely replaced import substitution policies as a means of overcoming the challenge posed by small domestic markets¹ and exploiting economies of scale in production through access to larger global markets. Manufacturing

¹ Identified as a problem for some developing countries, for example in UNCTAD's Investment Policy Review of Uganda.

and exporting are activities that are increasingly essential for participation in an ever more closely integrated world economy.

The technology ladder

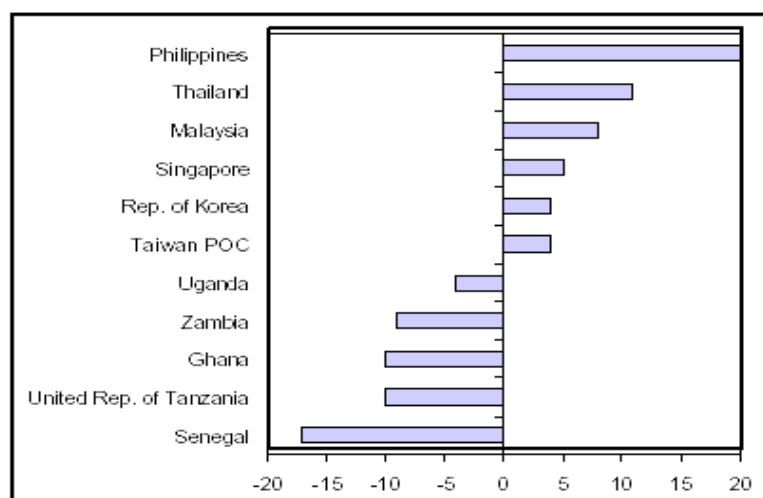
The technology ladder is defined by the CIP Index as export and manufacturing performance, with added recognition for medium- and high-tech activities. At the very least, the development of manufacturing capability represents economic diversification for developing economies specialized mainly in the production of primary commodities. High-tech activities are activities closely associated with strategic competitive advantage, in allowing economies to get on to the technology ladder and to improve their technological development. Specialization in high-tech activities offers opportunities of participation in higher-margin value-added activities, greater technological development and learning and entry into the fastest-growing segment of world trade¹ (various analyses by Lall; UNCTAD, 2003a).

However, these benefits are far from easy to realize and far from automatic, especially for developing countries that lack resources and institutional capabilities to capitalize upon such opportunities. High-tech activities are subject to rapid technological change and obsolescence and often require large, high-risk investments. Even where technologies become obsolete, the learning, experience and skills gained may leave the country better positioned to benefit from and adapt newer technologies. The "survival of the fittest" in competitive global markets means that the standards achieved by the best-performing countries set the criteria by which other countries must compete. Developing countries seeking to compete on world markets must not manufacture only to the standards of (or compete with) an average firm in an average country, but also to the standards of transnational corporations (TNCs). Such challenges are not insurmountable, as South-East Asia has shown. However, they may prove difficult to meet for many developing countries without policy changes that focus on the "micro" environment.

It is important to note several value judgements implicit in adopting the CIP Index as our definition of the technology ladder. Developing countries specialized in the production and export of primary commodities will not score highly in an index based on manufacturing and manufactured products. Irrespective of resource endowments, manufacturing is the preferred area of specialization to engage in. Furthermore, technologies used in production (e.g. tractors and harvesters) do not count: it is the technological structure of outputs that is important. For many least developed countries (LDCs), this definition of the technology ladder contains an inherent normative value and may focus more on what they "ought" to be doing than on what they in fact are doing, irrespective of their resource endowments or comparative advantage. The question for many LDCs thus becomes: to what extent can they adapt and create comparative advantage in areas where they may previously have had little or no advantage? Also, to what extent can LDCs acquire a competitive edge by going up the value-added chain via the technology ladder?

On the basis of the results of the CIP Index, UNIDO (2002) concludes that "industrial performance and its drivers are diverging rather than converging, with success confined to a few developing countries". Furthermore, "to achieve long-term, sustainable industrial development, countries and firms need a concerted strategy for industrial restructuring and upgrading – for moving from simple to more advanced technologies" (UNIDO, 2002, p. 27). The purpose of this issues paper is to explore those strategies and policies that countries have followed in order to improve their technology development, and to contrast the experiences of some of the successful countries with some of the less successful. The objective is to compile a set of short-term policy options that will prevent developing countries from falling farther behind.

¹ UNCTAD (2003a) argues that specialization in medium- and high-tech (MHT) activities is desirable, given high growth rates in manufacturing and high-tech goods and services in particular in world trade. However, this is partly attributable to their lower trade base or share (giving larger percentage growth rates), as the paper acknowledges.

Figure 1: Change in the CIP ranking for selected countries between 1985 and 1998

...Source: CIP Index

East Asia is the best industrial performer in most respects, with a more technologically advanced export structure and rapidly improving drivers of industrial performance. By contrast, sub-Saharan Africa (excluding South Africa) is regressing in its technological structure of industrial production and exports. According to the CIP definition of the technology ladder, the four highest-achieving developing countries are in South-East Asia, while nine of the ten lowest-achieving countries are in sub-Saharan Africa. Figure 1 illustrates changes in rankings for selected countries in the CIP Index. For example, Senegal's ranking fell by 17 places between 1985 and 1998.

Drivers

The CIP Index identifies five broad "drivers" or determinants of industrial performance, which are summarized in Table 1. These are the policy domains where policy changes can help countries move up the technology ladder, and are examined in section 3. Although drivers are analysed separately here, it is important to emphasize synergies arising from the combination of these drivers. It may be better for countries to develop complementary capabilities across drivers in a balanced way, than to focus on one or two drivers to the exclusion of others.

Table 1: CIP drivers of industrial performance

Driver	Rationale and measure
Skills	Skills are a fundamental determinant of a country's ability to compete in its attractiveness to FDI. The CIP Index uses formal secondary and tertiary education enrolment rates.
Technological effort	Intensity of R&D indicates general abilities to master and use new technologies. The CIP Index uses R&D by productive enterprises.
"Internalized" technology transfer	FDI is an important means of technology transfer. The CIP Index uses inward FDI flows within the firm, from parents to affiliates of TNCs.
"Externalized" technology transfer	R&L fees are a further important means of technology transfer. The CIP Index uses R&L payments abroad as measures of arm's length technology transfer between firms internationally.
Infrastructure	Infrastructure is a fundamental determinant of countries' industrial capabilities and their attractiveness to FDI. The CIP Index distinguishes between traditional and modern infrastructure and uses mainline rates.

There are determinants of technology development that are omitted from the CIP Index. There is no separate measurement of government policy or what constitutes a successful policy, although governments that encourage FDI and expand secondary and higher education implicitly receive more credit. Important factors such as the importance of small- and medium- sized enterprises (SMEs) in developing domestic supply capacity and the fundamental role of financing in accessing technology are less readily measurable and are not taken into account in the CIP Index.

Conclusions

Given the different dimensions to technology, there are many different ways of defining and measuring technology development and its underlying drivers. This section has described the issues and rationale underlying the CIP Index and had adopted this as a reasonable working definition of the technology ladder. The CIP Index's drivers of industrial performance (Table 1) represent the policy domains where policy changes can help countries to move up the technology ladder. These policy domains are examined in section 3. The Background Report analyses three African case studies (Ghana, Senegal and Uganda) and three Asian case studies (Malaysia, Singapore and Taiwan Province of China).

POLICY DOMAINS: THE DRIVERS OF INDUSTRIAL PERFORMANCE

Skills

Skills are an essential prerequisite for national competitiveness and technological mastery. According to Lall (2000), skills are "perhaps the most important single determinant" of competitiveness. According to classical trade theory, the comparative advantage of developing countries lies in their natural resource endowments and low-cost labour. There is widespread evidence of investors choosing investment destinations for low-cost labour advantages, among others. Lall (2000) notes that it is possible to enhance competitiveness for short periods by relying on unskilled labour. However, this is not a long-term strategy and countries "have to raise skill levels to grow in open, competitive markets. There is no other way to keep – and improve – competitiveness. LDCs have to improve their human capital base if they are to grow and prosper" (p. 129). The question for developing countries is how, and to what extent, can they modify their traditional comparative advantage of low-cost labour towards more skilled and flexible labour and working methods. Their ability to do this can determine their ability to climb the technology ladder and to compete in the emerging global economy.

The mastery, use and adaptation of new technologies call for more skills, higher levels of skills and different kinds of skills. However, in many developing countries where basic education and literacy levels are low, it is difficult to match coverage and technical content to investors' requirements. There is critical policy choice between establishing specialist institutions offering technical training and extending the coverage of basic education to more of the population. Knight and Sabot (1991) contrast the United Republic of Tanzania, which devoted resources to expanding primary education, with Kenya, which established a system of privately funded schools. They find contrasting outcomes in completion rates, educational attainment and income inequality. There may be unexpected social outcomes to technical training, in the creation of well-paid elites with advanced technical skills and the "brain drain" or loss of trained labour abroad (Lowell and Findlay, 2002). Some developing countries may choose to devote resources to basic educational and literacy requirements and rely on on-the job training and apprenticeships to develop more advanced skills in the labour force. This requires close cooperation and partnership with the private sector, which can provide the guidance and inputs to develop the skills needed to climb the technology ladder.

Technological effort: Research and development

According to the "technological gap" theory, innovation is essential to trade and competitiveness, as countries that innovate gain an advantage and export to countries which are lagging technologically in certain products and technologies. This trade is eliminated as laggards catch up, but new innovations create new trade possibilities (Posner, 1961). The importance of innovation in general, and research and development (R&D) in particular, for developing, promoting and deepening local technological capabilities has been emphasized repeatedly (UNCTAD 2003a, Lall, 2000, CSTD, 2002). R&D confers important advantages in enabling reverse engineering, learning-by-doing and more specialized technological know-how, as well as technologies adapted to local consumption tastes and conditions. R&D is important because even industrial "latecomers" have to undertake R&D to assimilate, adapt and improve imported technologies to suit local conditions. Absence of R&D and the lack of R&D capability can constrain up grading in developing countries seeking to enter into complex technologies; this suggests an important "permissive" or facilitating role for R&D.

R&D expenditure is one of the key factors that differentiate industrialized countries from developing countries. Most developing countries spend only negligible amounts on formal R&D. Furthermore, developing countries do not generally attract the research activities of transnational corporations (UNCTAD, World Investment Report, 2001). It is easy to see why: when resources are limited, R&D represents a long-term, potentially risky investment with long-term, uncertain and partially hidden returns.

Furthermore, it is not just total R&D expenditure that counts: the agent undertaking the research is important. R&D can be carried out by local or foreign firms, government and scientific educational institutions. There are different outcomes to R&D, depending on the agent undertaking the research. Where it is carried out by TNCs, UNCTAD (2003a) notes a tendency for the latter to "transfer the results of R&D rather than the process itself".

This was one reason why Japan and Taiwan Province of China adopted indigenous innovation policies to develop local innovative abilities. Incentives were provided to domestic firms to license or copy foreign technologies and invest in domestic research capabilities. UNCTAD (2003a) concludes that the sustained technological growth of developing countries calls for increasing local innovation by domestic agents. Table 2 provides a comparison of the source of R&D funding for selected countries. R&D becomes more significant as a country's industrial structure develops and firms use more advanced technologies. This suggests a growing role for R&D as an economy industrializes. The CIP Index uses

Table 2: Source of R&D funding in selected countries, 1995

Country	R&D spending as % of GDP	Source of Funds					
		Business enterprises	Government	Higher education	Private Non-profit	Funds from abroad	Not distr.
Tunisia ¹	0.30	55.5	32.3			4.0	8.2
Mexico	0.33	17.6	66.2	8.4	1.1	6.7	
China	0.61	2.8	91.0	5.7		0.5	
Chile	0.67	20.2	68.5			11.3	
India ²	0.73	24.0	75.0	1.0			
Brazil	0.84	20.8	43.9				35.3
Italy ²	1.03	43.7	50.2			6.1	
Germany ³	2.31	61.4	36.7	0.3		1.6	
Finland	2.46	57.7	37.4	0.4		4.5	
United States	2.61	59.4	35.5	5.1			
Republic of Korea ²	2.71	84.0	15.9				
Japan ⁴	2.96	81.7	18.2			0.1	

Source: UNESCO

1) 1997; 2) 1993; 3) 1994; 4) 1991

R&D as a measure of technological effort to master new technologies, although it notes that much of this effort cannot be quantified since it occurs across all parts of an enterprise and is often informal. However, R&D makes an essential contribution to building technological capabilities and enabling technology mastery. It thus forms a useful, representative measure of technological effort for our purposes.

"Internalized" technology transfer

FDI is an efficient way of transferring technology (UNCTAD, 2003b). There is evidence to suggest that TNCs are important investment agents. Two thirds of world trade was handled by TNCs in the late 1990s (UNCTAD, World Investment Report 1999), while one third of world trade is intra-firm trade within one corporate system.

FDI can directly increase technology stocks by providing machinery and equipment, as well as technical assistance and know-how. It is an efficient way of transferring technology since it often carries commitments by the investor of skills, information and brand name technologies, in addition to capital (UNCTAD, 2003a). For many new technologies, internalized transfers are the only means of transfer, since innovators resist their transfer to unrelated parties. It is possible to develop wide-ranging competencies and establish, build and deepen local industrial capabilities and skills through being part of a TNC system. Such competencies and skills include technical skills of production, distribution and control, as well as management and subsidiary service skills such as marketing and financial services. UNCTAD finds direct and multiplier effects of FDI on employment and the quality and skills of the labour force (see UNCTAD's Investment Policy Review: Ghana, 2003a). FDI can also promote the development of non-traditional exports, thereby enabling economic diversification. In addition, it may introduce and promote competition in an economy, stimulating efforts to improve efficiency among local competitors in the host country.

However, these benefits do not always materialize. The objectives of TNCs and developing countries often diverge, with bargaining necessary in order to reach a compromise acceptable to the TNC, and host and home governments. Some TNCs may focus more on short-term profits and quarterly earnings than on long-term competitive strategies. Host countries, on the other hand, have multiple development objectives that will be achieved only in the long term. TNCs may often invest in developing countries for the advantages of low cost physical and human resources, more permissive legislation and fiscal and financial incentives, among other factors. They may not necessarily invest heavily in developing

the technological capabilities of their subsidiaries, which become outsource centers for simpler and more labour-intensive work. Indeed, UNCTAD (2003b) finds that in the later stages of industrial development, internalized technology transfer and local capability development can become competitive rather than complementary, reflecting these conflicts of interest (p. 14). Specific efforts are necessary in order to encourage the transfer of technology from foreign to local enterprises through business linkages, mentoring and coaching, as well as training and apprenticeship programmes.

At the international level, developing countries may find themselves in a “race to the bottom” with other countries, whereby they negotiate away some of their advantages and accept reduced returns in order to attract investment at any cost. Offering more advantageous terms may result in host governments receiving a reduced proportion of investments that they may not otherwise have attracted. However, the long-term implications of offering ever more advantageous terms may prove costly and are only just becoming apparent.

Measures to promote FDI may include liberalization of the FDI and investment framework, regulatory and institutional reform, investment promotion agencies and incentives for investors. Best practices for investment promotion agencies include provision of information, marketing and support services, active investigation of investment opportunities and targeting of investors, and “one-stop” liaison services. Financial incentives for investors include tax holidays, capital allowances, customs duty exemptions and other inducements, such as free trade zones (FTZs).

“Externalized” technology transfer

Another key channel for technology transfer is licensing and arm’s length purchases of know-how, patents, licenses and blueprints. Licensing is an agreement to transfer the exclusive rights to use technology from the innovator to the licensee in exchange for payments of royalty and license fees. Royalty and License (R&L) fees include industrial technology and also service sector purchases of know-how, brand names and franchises. The growth of the service sector is likely to boost an economy’s technological development since service activities are typically information-intensive and often require use of information and communication technologies (ICTs). Lèbre La Rovere (1996) studied banking in Brazil and observes that service industries are “particularly suited to benefit from IT diffusion, since [they are] organized around the storage and transfer of information” and lend themselves to automation and computerization owing to the high volume of repeat transactions involved.

Licensing also typically includes non-arm’s length transactions between the affiliates and parents of TNCs, a fact which explains the reasonable positive correlation observed between R&L fees and FDI in UNIDO’s (2002) analysis. The report concludes, “East Asia pays far more royalty fees than any other region, and spends the most on R&D and receives the most FDI. [This] suggests that these different modes of acquiring and developing technology complement each other” (p. 38). Indeed, acquisition of technological blueprints through licensing is unlikely to prove successful unless local technological capabilities to master and adapt abstract technological blueprints obtained through licensing are in place.

Infrastructure

Infrastructure is an essential prerequisite for both individual firms’ and national competitiveness. Our definition of the technology ladder — the CIP framework — explores a narrow definition of technological infrastructure in telephone mainlines, personal computers, mobile phones and Internet hosts, before selecting telephone mainlines as a representative measure of infrastructure, on the ground that these variables are all highly correlated. The UNCTAD Investment Review series repeatedly notes the importance of a broader range of infrastructure (including electricity, transport and clean water) to businesses and to the economy as a whole. For example, the Investment Policy Review of Ghana notes that an estimated 4 per cent of national output lost in Ghana in 1998 was due to power shortages. This is consistent with the “permissive” rather than “causal” nature of infrastructure, with a certain minimum infrastructure being necessary to ensure the smooth functioning of an economy.

Given the monopolistic nature of many infrastructural services, regulatory functions are important for ensuring that public monopolies are not replaced by private foreign monopolies (e.g. Deutsche Telecom's investment in Matar in Hungary) and for ensuring incentives and sustained pressure to invest in infrastructure. Efficient and effective regulation may be difficult to achieve, however, where there is a history of institutional weakness.

It is worth highlighting that under the Poverty Reduction Strategy Paper (PRSP) programme, many developing country Governments are required by the World Bank and the International Monetary Fund (IMF) to specify expenditure plans for infrastructure to prioritize and facilitate the allocation of available resources. Many of these plans concentrate on development of rural infrastructure, consistent with goals of broad poverty reduction, rather than infrastructure provision for business districts or FTZs, which is important for national competitiveness and job creation (and ultimately, but more indirectly, for poverty reduction).

Financial and fiscal measures for collective action

The case studies also explore examples of financial and fiscal measures to promote collective action among institutions and agents (home and host governments, support agencies, large and small firms, and networking) for "linking, leveraging and learning". These are essential to both enterprises and countries to enable their technological development and upgrading. They are defined for the purpose of the CIP Index as:

- Linking: connecting with outsiders to acquire needed technologies and skills;
- Leveraging: going beyond arms, length transactions to derive as much as possible from the new relationships with those outsiders;
- Learning: making efforts to master processes and product technologies, consciously building the foundation for improving current technologies and creating new ones.

The UNCTAD Investment Policy Review series uses a broader definition of linkages as formal or informal associations between enterprises, different sectors of industry and/or domestic and foreign firms, with no exclusive emphasis on "outsiders". Formal associations may include contractual arrangements or trade organizations, while informal associations can comprise contacts, business acquaintances and transmission of information. This series also examines the role of clusters and networks in industrial development and technological upgrading. "Cluster" implies an association with a specific structure, with a centre and satellite members who may differ in status, nationality or capabilities, for example a TNC and its domestic subcontractual suppliers. ("Clusters" may also be used more generally to refer to spatial groupings.) "Network" implies multiple linkages between members of equal or unequal status for the exchange of information, contacts and resources. A network may or may not include collective action as part of its functions.

Box 1. Penang, Malaysia

In Penang, Malaysia, the Government decided in the early 1960s to implement a comprehensive set of locational policies thanks to a long-term development vision and commitment. Initially, public interventions concentrated on making locally available efficient communication and transportation facilities, as well as highly qualified human resources and engineering skills. Subsequently, fiscal and financial incentives were put in place, including EPZ-type export promotion measures, in order to attract foreign investors and large transnational corporations. Through the Global Supplier Development Programme, TNCs such as Bosch, Motorola and Intel developed local supply capacity through coaching and mentoring programmes, under which TNCs and large enterprises agree to guide their small suppliers for continuous upgrading of leadership skills and technology.

Source: UNCTAD (2003c)

In summary, various measures can promote linking, leveraging and learning. Government ministries, trade associations, and investment and export promotion agencies can facilitate linkages to acquire needed technologies and skills, including with outsiders. Financial and fiscal measures are then necessary to stimulate those linkages and to “leverage” or capitalize upon such transactions in order to derive as many benefits as possible from these relationships. These include targeted grants and subsidies, collective funds and insurance arrangements, fiscal incentives, and preferential and advantageous tax rates for investors, suppliers, vendors and distributors. Policy measures to facilitate cluster establishment may include free trade zones, multi-facility economic zones, partnership schemes between SMEs and TNCs, and incubator and micro enterprise development programmes. These are categorical definitions, and much depends upon how these policies are implemented in practice. The case studies examine country examples of how these measures were used to encourage transfer and mastery of technologies, skills and learning.

Some concerns have been expressed about fiscal measures interfering with free market forces and distorting incentives (UNCTAD, 2002a). Governments should encourage the development of sound and viable national financial institutions to provide the finance needed for technology transfer.

COUNTRY CASE STUDIES

This issues paper adopts the CIP Index as a reasonable working definition of the technology ladder. Using this definition, three Asian economies that improved their technology development from 1985 to 1998 were selected, namely Malaysia, Singapore and Taiwan Province of China. Three African economies that were less successful were chosen, namely Ghana, Senegal and Uganda. The Background Report analyses and compares the experiences of these countries to examine how policies for technological development may actually work in practice, and summarizes key conclusions and possible policy options.

TNCs play an undoubtedly important and growing role in technology development. Two thirds of visible world trade was handled by TNCs in the latter half of the 1990s (UNCTAD, World Investment Report 1999), while one third of world trade is intra-firm trade within a single corporate system. The role of TNCs in R&D and FDI is equally prominent. TNCs are important channels for technology transfer and mastery. However, TNC may not necessarily invest heavily in developing the technological capabilities of their subsidiaries. There is growing recognition of the important partnership role of local firms and SMEs in providing domestic supply capacity and in the development of local technological capabilities. Local private sector development is essential for attracting and benefiting from FDI in the long term. There is a need to promote business start-ups and SMEs, to encourage the formation of linkages between local and foreign firms, and to build enterprise capabilities generally, including the promotion of education and science and technology policies responsive to the needs of the private sector (UNCTAD, 2003b). Host governments and local firms must make specific efforts to encourage the transfer of technology from foreign to local enterprises through supplier development programmes, including coaching and mentoring, training and apprenticeships, job mobility and subcontracting arrangements. Subcontracting arrangements are the main channel for technology transfer as job mobility is often low.

Within the case studies, there is considerable diversity in the policy paths followed by different countries. Singapore (and to a lesser extent, Malaysia) followed FDI-dependent strategies for technological mastery, driven by FDI and exports under the aegis of TNC global networks. In Singapore, there were strategic interventions to attract, direct and upgrade TNC activity and investment according to strategic priorities, including R&D and the development of technology institutions. In contrast, Taiwan Province of China followed an autonomous strategy based on the development of capabilities within domestic firms. This strategy used extensive industrial policy interventions within a strongly export-oriented regime, with incentives based on good export performance.

Box 2. The Case of Singapore

Singapore, located on a 602 sq. km sandbar without natural resources, had a multi-ethnic population of 2 million in the late 1950s (Chinese, 75 per cent, Malay, 14 percent, and Indian 11 percent). For Lee Kuan Yew, former prime minister of Singapore, education, discipline and the ingenuity of the people would substitute for resources. He established zero tolerance for corruption in government and invested in infrastructure. Singapore established world-class standards in public and personal security, health, education, telecommunications and services to that it became a base camp for TNCs and entrepreneurs who had business in the region. These were paid for by taxes levied on consumption versus production. The Economic Development Board and the Development Bank financed entrepreneurs who needed venture capital because established banks were reluctant to lend to would-be entrepreneurs. The Government attracted FDI through industrial estates, equity participation, fiscal incentives and export promotion. Yew chose on word to explain why Singapore had succeeded in attracting FDI: "confidence". A virtuous cycle of low expenditures, high savings, low welfare costs and high investments was established. Singapore ranks number one in terms of the CIP Index and income per capita has risen from \$ 1,000 (1965) to over \$30,000 (2000). (Yew, 2000).

African countries are seeking to diversify from their traditional economic base and specialization in natural resources in different ways. Often, the FDI they receive relates to their natural resource endowments through, for example, investments in mining and extraction activities. The UNCTAD Investment Policy Review series investigates opportunities for investment and private participation in infrastructure projects. Ghana is pursuing a "gateway" strategy to position itself as a West African hub for import, export, storage, assembly, distribution, manufacturing and trans-shipment of goods and services. It is doing this through legislative, regulatory and incentives reform and capacity-building and trade agreements. Uganda is undertaking similar legislative and regulatory reforms and seeking to build its export capabilities to overcome the small size of its domestic markets. Such strategies should ultimately contribute to improving technological development of those countries.

Box 3. The Metal Cluster in Kumasi, Ghana

The Same Magazine cluster in Kumasi (Ghana) is one example of a cluster which became dynamic thanks to the proliferation of linkages among users and suppliers and to networking with research institutions such as the Technology Consultancy Center at the University of Science and Technology in Kumasi. The Intermediate Technology Training Unit of the Technology Consultancy Centre provided training to upgrade the skills of mechanics in informal workshops and to teach them basic accounting and management skills. The Government, after initial opposition to the mushrooming of informal workshops in Suame Magazine, moved to support their development through the provision of technology services, training and credit.

These linkages generated considerable technology capacity-building within the cluster, and this process was reinforced during Ghana's long period of economic crisis by the movement of educated people out of the public sector and into micro and small-scale enterprises. When, towards the end of the 1980s, the IMF structural adjustment programme liberalized imports, hundreds of businesses collapsed and thousands of workers lost their jobs. Businesses that had shifted to manufacturing fared better than others, and the lesson was learned that to survive and prosper, enterprises had to raise their level of technology and to change their role from that of repairers or assemblers to that of manufacturers. In this process, private learning efforts by firms were complemented by free or low-cost access to specialized facilities owned by the State, low-cost information on new products and processes, subsidized/decentralized materials and testing services.

Source: Powell (1995)

CONCLUSIONS

The comparative advantage of developing countries has traditionally been considered to lie in natural resource endowments and low-cost labour. However, arguments for economic diversification and for technological upgrading require that countries attain a competitive advantage. Some developing countries have also successfully developed research and innovatory capacity and niches as trading and communication hubs through regional and preferential trade agreements. The question for other LDCs thus becomes: to what extent can they adapt and create competitive advantages in areas where they may have little or no previous advantage?

The technological development of an economy partly reflects its sectoral structure in the status and technology requirements of its manufacturing and service sectors. A vibrant manufacturing sector is often automated and R&D-intensive and creates domestic demand for manufactured and high-tech products. The growth of the services sector boosts an economy's technological development through information-intensive service activities that often require the use of ICTs. Sectoral strategies to support and expand the manufacturing and service sectors promote general technological development.

However, further specific strategies are needed to promote technological development and the transfer and mastery of technology in strategic industries. These include skills development policies and targeted training programmes to develop technological and research capabilities. Given the important role of FDI in technology transfer, liberalization of investment framework should prove beneficial.

Government interventions in the form of subsidies and incentives are needed to finance technology in developing countries. Private sources of finance for technology are very limited in developing countries. Venture capital plays a useful role in some countries, but the conditions for establishing a viable venture capital industry are too stringent for most developing countries to fulfill in the short term. What options do developing countries have in choosing between financial and fiscal incentives? In many countries government policy is biased against SMEs and favours the large enterprises particularly in the area of subsidies and incentives. Therefore, targeted interventions and safeguards should be adopted to ensure that public mechanisms are cost effective and do not lead to further market distortions, moral hazard, or outright corruption. A further issue to consider is the compatibility of these measures with WTO rules and other international commitments (IMF, Bank for International Settlements).

This issues paper has provided a broad overview of the underlying issues surrounding technology development and the drivers that determine technology outcomes. The Background Report compares the experiences of three countries that improved their technology development with three countries that were less successful, for the purpose of examining which policies for technological development proved successful, which were less successful, and why. The Background Report summarizes key conclusions and policy options emerging from this comparison of country experiences.

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THE MAURITIAN EXPERIENCE

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INTRODUCTION

The importance of technology to impact competitiveness and sustainable development has been widely debated and all economists formally recognize technology as engines of economic growth. In the context of Africa, most national strategic plans submitted for donor funding, including the New Partnership for Africa's Development (NEPAD), focus on the importance of developing technology and knowledge to sustain development, reduce poverty, promote and strengthen national innovation systems and ultimately increase economic growth.

It could be said that half the battle has been won, as there is consensus that in the new globalized world, the ability to generate and utilize technologies, both old and new, will be vital to boost competitiveness. This may be somewhat optimistic as the poverty and lateness of Africa is alarming.

It is against this background that we summarize solutions / drivers for technology development based mainly on the Mauritian experience. However we should not avoid debates on the most feasible technology development route for developing countries. Simplifying a little bit, there seems to be two imitate through (FDI) and other suppliers. South-East Asia improved technologically by integrating into international production networks through multinational corporations (MNCs), the local private sector and state support. This may be more difficult to replicate with China emerging as the premier offshore manufacturing platform and the curtailing flow of new FDI to Africa and even to countries like Singapore, Malaysia, Thailand, the Philippines and Indonesia (Felker, 2003). It seems that Africa would have to focus on high and low value added manufacturing and even target some high-technology sectors depending on the specificities of each country.

As a point of clarification before we continue: the drivers for technology development for newly industrialized economies like Malaysia, South Africa and Singapore may not suit many developing countries. Their focus is on massive research and development, technology discoveries, production of sophisticated/basic machineries and technologies and reliance on MNCs. The capabilities of most African countries are clearly weaker. In terms of strategy; each country could therefore focus more on getting the core issues right and answer three basic questions which usually companies ask: "Should it develop the technology in-house or depend on others for it; should it be the first to introduce new products using new technologies or wait for others to test the waters first; once it decides to adopt a new technology, should it adopt this straight away or gradually ease it in" (Afuah, 2003).

CONTEXT AND CHALLENGES FOR AFRICA

The use of technology in Africa varies widely and it is unwise to over-generalize. However in the adoption and implementation of the New Partnership for Africa's Development (NEPAD), the region's lateness is unequivocally recognized.

There are more than 50 countries in the African continent and countries like South Africa, Botswana, Mauritius, to name a few, have been generating and utilizing technology remarkably well. However, as a whole, Africa lacks adequate and reliable infrastructure both in physical (ports, railways, airlines, telecoms, water, and energy) and institutional terms to properly utilize key technologies for its industrialization. In addition, industrial machines and processes as well as human resources are lacking on the whole. Statistics on Africa remain depressing. A de Wall (2003) asks "Why is the entire African continental economy no larger than Spain's, at US\$ 580billion? Why is the combined GDP of

the 40-plus countries that lie between South Africa and Egypt scarcely bigger than the annual turnover of ExxonMobil?" Alemayehu (2002) also uses statistical evidence to confirm the lateness in various areas. We are proposing the Mauritian approach to develop technologies as it is based on reasonable FDI, wise imitation, some own design manufacturing (ODM) and even own-brand manufacturing (OBM), little original equipment manufacturing (OEM) and recently thrusts on high-technology sectors (ICT, biotechnology, aircraft/ ship maintenance, specialized niche manufacturing based on proprietary engineering, design and innovation capabilities).

The proposals below are being implemented in Mauritius and it would be useful to learn from each other but also agree how to catch the lateness. For convenience, the solutions have been categorized on issues like institutional support, training human resource development, infrastructure, technology diffusion scheme, technical services centre / clothing technology centre / technology guide and clustering and public / private sector partnership and roles of government.

INSTITUTIONAL SUPPORT

Countries, which have used technology successfully, have developed strong institutions. Mauritius has been following this approach although it is still developing its institutional support. Mauritius has key institutions like the University of Mauritius, the University of Technology, technical schools, the Mauritius Research Council (MRC), the Small and Medium Industries Development Organization (SMIDO), the Export Processing Zone Development Authority (EPZDA), the Mauritius Standard Bureau (MSB), and the Industrial Vocational Training Board (IVTB) to name the important ones in the industrial sector, which assist in the development and utilization of technology. There are other institutions that cater for agriculture, agro-industry and the ICT. Mauritius has developed national linkages, shares information on useful technologies, improves certification and quality control of products, helps in the management of technological maintenance and diffuses successful technological practices via its institutions. In addition the private sector is directly involved in developing technologies utilizing its own resources or in collaboration with overseas suppliers and manufacturers. Accumulation of technological capacity in the textiles, agriculture, agro-industry, tourism and services sector have been crucial in the economic success of Mauritius. Even though it is a developing country, Mauritius has absorbed, reproduced, adapted and improved key technologies in these sectors very successfully. It will be tedious to give too many examples but the levels of technological development are close to the best in developed economies in many cases.

The above are key elements of the national technology programmes in Mauritius and are based on strong public, private sector collaboration and participation. Dialogue between the private sector and the Government and its institutions are regular. There is reasonably good follow-up on agreed programmes as the country is relatively very small.

TRAINING AND HUMAN RESOURCE DEVELOPMENT

The weak linkages between resource and development/training/academic institutions and enterprises have resulted in low performance of sub-Saharan Africa on science, technology and entrepreneur support as the table below indicates.

A training levy and institutions to manage training programmes have been very helpful. The training levy and the institutions specialized on training have improved training related to technological upgrading. A series of specialized sectoral schools have been established by the Industrial Vocational Training Board (IVTB) and the success of these schools has been confirmed by academics and neutral observers. They have facilitated the absorption, use and copying of technologies developed elsewhere. Cases of improved design skills and new technologies for certain sectors are also well documented. Various initiatives have been launched to sensitize more firms on the importance of targeted training as the level of training is still considered to be below expectations (Dubois and Hureeman, 1996). Singapore and Malaysia also have successful Skills Development Funds, levying "1 per cent of all corporate payrolls with the amount redeemable for firms' investments in worker skills in approved training programmes" (Felker, 2003).

World Science and Technology Outputs by Region										
Region	GERD (1)		GDP (2)		Scientific Output Measured in publications		Technological output Measured in patents			
	Vol. US\$ Bn	%	Vol. US\$ Bn	%	1995 (%)	1995 Base 1990=100	European(3)		US	
	Vol. US\$ Bn	%	Vol. US\$ Bn	%	1995 (%)	1995 Base 1990=100	1995 (%)	1995 Base 1990=100	1995 (%)	1995 Base 1990=100
Western Europe	131.5	28.	7 258	22.2	35.8	109	47.4	91	19.9	78
Central & Eastern Europe	4.4	0.9	549	1.7	2.0	83	0.4	101	0.1	43
Commonwealth of Independent States	11.8	2.5	1 179	3.6	4.0	56	0.4	113	0.1	59
North America	178.1	37.9	7 255	22.2	38.4	96	33.4	125	51.5	108
Latin America	9.2	1.9	2 746	8.4	1.6	117	0.2	204	0.2	122
Arab States	1.9	0.4	1 080	3.3	0.7	93	0.0	101	0.0	135
sub-Saharan Africa	2.3	0.5	716	2.2	0.8	81	0.2	96	0.1	78
Japan and NICs	87.3	18.6	3 737	11.4	10.1	119	16.6	87	27.3	108
China	3.3	4.9	4 650	14.2	1.6	138	0.1	152	0.2	118
India & Central Asia	10.1	2.2	1 624	5.0	2.1	97	0.0	103	0.0	160
South-East Asia	4.4	0.9	1 446	4.4	0.1	99	0.0	165	0.0	126
Oceania	6.0	1.3	414	1.3	2.8	106	1.3	163	0.6	84
World Total	470.4	100	32656	100	100	100	100	100	100	100

Source : UNIDO Project Document

PRIVATE-PUBLIC PARTNERSHIPS AND THE ROLE OF GOVERNMENT

Africa has to share resources to succeed although regional programmes have had mixed success. There is a strong case to share knowledge, market intelligence and findings on trends in key areas. Successful large companies in industrialized countries invest in research and development, scouting, commercial intelligence and industrial/technological forecasting. A new role of a government in Africa is to assist enterprises in these issues.

The innovation cycle is expensive and complex, involving strategies developed over decades. It usually involves discontinuous innovation, re-inventing markets/products/services, disrupting the environment for competitors, continuous improvement programmes, breakthrough improvements, further discontinuous innovation, etc. (Hamson and Holder, 2003). The relatively weaker private sector and governments in developing countries need to follow these issues together. Sharing of resources and programmes are vital.

The issue of initial support by the state in new areas also needs to be discussed thoroughly. Again experiences in Mauritius, South Africa and some Asian countries indicate that state support was vital. It is now well known that in the countries mentioned, the government played a vital role in planning and implementing industrial and technology policies in collaboration with the private sector. Beyond the sharing of resources and intelligence and traditional roles of the state to assist in technology development; developing countries must not ignore research. This indicates that superior or expensive technologies may not be useful without what Professor Dario Teece of the University of California, Berkeley calls “complementary assets”. These assets are usually distribution channels, marketing capabilities, brand-name reputation, or manufacturing. A country or a company may have a good technology but if it is weak on complementary assets, it may not make the most from the technology. Sensitization programmes on the above for enterprises would be useful.

A TECHNOLOGY DIFFUSION SCHEME

We cannot cover all the incentives that exist in Mauritius to support greater utilization of technology. We are highlighting the technology diffusion scheme that has been launched. Funds are provided on a cost sharing formula to private firms. Cost sharing grants on projects to increase technological upgrading are highly recommended for other countries based on their success in Mauritius.

The technology diffusion scheme has assisted 225 enterprises to upgrade technology between 1998 and 2002. A second programme entitled “SME Challenge” with the same objective but focusing on SMEs has been operational since last year. It is supported by the European Union, and SMEs that wish to recruit consultants to upgrade technology or processes are provided grants on a cost sharing basis. This programme is recognized as Direct Technical Assistance. It is at an early stage of implementation but is promises to be successful.

It is also useful to highlight that in the early 1990s, Malaysia has introduced the Industrial Technology Assistance Fund (ITAF), which provides matching grants to SMEs for technology acquisition and productivity improvement (Jomo and Felker, 1999).

TECHNOLOGY/BUSINESS INCUBATOR

Mauritius has successfully established an ICT-based incubator and is planning a second incubator, which will provide common technical facilities to selected SMEs. Technology incubators can enhance technology diffusion and is a proven concept. The incubator can facilitate access to relevant information on technology and promote the commercialization of technological achievements.

TECHNOLOGY SERVICES CENTRES (TSC), CLOTHING TECHNOLOGY CENTRES (CDC), AND A TECHNOLOGY GUIDE

Mauritius has introduced a TSC and a CTC to provide technical services to the industry. These centres house sophisticated machines and technologies and assist SMEs with their technical needs. The machines are used by SMEs at reasonable prices. Furthermore, sophisticated training and in-house consultancies are organized. Provision of technical information is also a key role of the TSC/CTC. A first investment in the 1970s by some Hong Kong-based multinationals in the export processing zone, particularly in the textiles sector, helped considerably to obtain technologies and get acquainted with them.

The ability of the private sector to improve imported machineries with incremental modifications on the designs was critical for continued industrialization. Success in maintaining, operating and repairing sophisticated equipment should also be highlighted. These achievements should not be underestimated and many countries have failed precisely because they were not able to implement these basic functions or could not learn from foreign investors/suppliers both through formal and informal mechanisms.

SMIDO has also recently produced a Technology Guide and it provides key technical information to SMEs. It has proved to be a success and is a strong means to help enterprises identify key technology trends, best suppliers and also understand key technical issues.

CLUSTERING

Clustering of firms is playing a prominent role in fostering competitiveness and growth in many countries. There is now growing evidence that when large firms and SMEs work in clusters, individual efforts are complemented, resulting in increased collective efficiency and improved management both at strategic and operational levels. According to Harper (1998), the Editor of Small Enterprise Development "it seems to have facilitated the development of whole industries, which can compete successfully against larger firms, in national and even international markets, without any apparent comparative advantages except the existence of the cluster itself".

In Mauritius, clustering is being introduced as a solution to enhance competitiveness of SMEs. A 'Cyber City', which is in fact an IT cluster, will be operational early in 2004 and is expected to group IT based firms. It is a grand strategy to push the country into innovation-based software and IT systems development, business process outsourcing, call centers and back-office operations. Support of the Indian Government and investment by companies from a wide range of countries has been confirmed. It is already held as a success and is expected to grow and develop further.

A footwear and textiles cluster is expected to be operational in early 2004. The footwear cluster will group 12 SMEs and an overseas player and will be expected to increase local production and exports. It is to be noted that Mauritius imports around 4 million pairs of shoes yearly but produce only 500,000 pairs. There are 60 SMEs in operation in the footwear sector, and their productivity can be increased through clustering. The footwear cluster will allow the SMEs to overcome some of their inherent disadvantages related to producing alone and support of an international footwear operator is envisaged.

A textiles cluster starting with ten SMEs is also planned for 2004. The objective is to enhance competitiveness but also improve utilization of latest technologies / processes in groups.

Instead of repeating the literature on clustering, it is hoped that presentation of real cases on clustering will be more useful. The projects on textiles and footwear need to be discussed further – particularly as clustering in South-East Asia is more sophisticated. It involves locating engineering, design, R&D, logistics, marketing close to manufacturing led by MNCs or by strong local enterprises via subsidized global supplier programmes in Malaysia. 'Technopreneurship' strategies involving financial support to foreign venture capital companies are part of the approach in Singapore.

Mauritius has selected sectors and pilot projects and is planning to move along the value chain gradually to ultimately increase exports. We need to discuss which approach is more relevant for most African countries as well as the need to balance policies for growth of both large firms and SMEs. While it is true that in many African countries agriculture will remain dominant, SMEs can play a vital role in technology upgrading. In fact there is evidence that investing in SMEs is wise. Research by ACCS (1999) indicates that although SMEs spend less on research than large firms, they produce almost twice as many innovations on a per-employee basis.

AN EMPIRICAL STUDY ON MAURITIUS

These observations on key issues affecting the use of technology in Mauritius need to be supported by further empirical work and should also be explored more systematically. The approach in this paper is essentially to provide a basic blueprint based on experiences in specific sectors. Wignaraja has carried out a study on the textiles sector in Mauritius, which provides some empirical evidence. This was summarized by von Kirchbach (2003). Wignaraja, Managing Economist at Maxwell Stamp PLC, presented his recent study of the Mauritius garment industry at the Executive Forum 2002 in Montreux. Looking at the technical/innovation aspects such as product engineering, quality management, linkages, investment in human capital and information-seeking, he found that these have a positive and

statistically significant effect on the export performance of individual firms. He recommended that strategy-makers promote technology diffusion and innovation through:

- A national partnership involving complementary actions by the government and the private sector;
- A 'liberalization plus' approach involving a mixture of incentive and supply-side policy measures; and
- Where appropriate on economic grounds, policies to promote the competitiveness of particular industrial clusters.

We need to examine together the nature of the Mauritian experience and agree on important aspects that can be replicated and also improved with evidence from other countries.

CONCLUSIONS

We take this opportunity to raise some fundamental issues, which should be further discussed:

- It is widely accepted that industrial success of a country depends not only on its capacity to produce at low costs but also on the ability to innovate and utilize key technologies effectively. We have covered key drivers on technology in the context of Mauritius, which have contributed to the economic success. Mauritius seems to be a good model for developing countries as it has imported manufacturing knowledge through collaboration agreements, learned from both local and overseas large enterprises, and encouraged local innovation in specific sectors.
- It is now facing the challenges of increasing further its technological capabilities, focusing more on innovation and linking strategies on investment and physical assets with other intangible investments like training, technical assistance, business processes and information systems. It is too early to state if this move is successfully being made. There is however a consensus locally that with greater competition due to liberalization and globalization, Mauritius has no choice but to increase its efforts to create and utilize new technologies to compete in global markets.
- The key weaknesses of the Mauritian approach are the strong focus on imported machines and technologies, slow development of indigenous technologies and machines, weak interaction between academia and industry to design and implement innovative technical ideas and solutions. These weaknesses on the other hand also highlight for some developing countries the importance of open trade, openness to world suppliers to learn by copying and developing technologies.
- The institutional framework and incentives have contributed to achieve a considerable degree of dynamism. In specific sectors like agriculture and textiles they have helped to proceed to a stage beyond that needed for routine production – the distinction commonly known as acquisition of 'know-why' as opposed to 'know-how'. Mauritius has not only improved the performance of imported technological knowledge beyond what was made available, but succeeded in generating competence to maintain and improve various machines and technologies and in 'creative imitation'. This should not be underestimated as many developing countries have failed to operate imported machines and technologies in reasonably efficient ways.

- This is true for basic machines/technologies but also information technology for example. The effects of ICT on productivity are well documented and we have not been able to examine in depth due to space constraints. However, suffice to note, that there seems to be some agreements among practitioners and experts that standardization of ICT means that many systems are developed in a relatively stable and scalable framework. A key issue on ICT is to balance focus on abilities to use wisely with cost/ investment/ financial considerations. New (2003) rightly mentions that promises of ICT, including Enterprise Resource Planning (ERP), are strong. However, failure rates will be high if they are superimposed on poorly understood business processes. This is advice, which no developing country can ignore.
- Many countries in Africa have to decide after examining successful experiences. It could be that Mauritius will be a favourite model particularly as it can be improved to include successful elements in other Asian and Latin American countries. The heavy focus on agriculture which is “the economic centre of (African) economies” (Yusuf, 2003), and the advances in genetic and transgenic technology is an opportunity for African countries to maximize on their large firms and SMEs to assimilate missing knowledge from others and develop further indigenous technological capabilities. Now more than ever before, engineering crops have to cope with a wide range of environments, duly examining risks, could be useful to Africa, the more so as many “are penalized by water scarcity, soil degradation, pest outbreaks and climatic pressures”, (Yusuf, 2003). We need to return to these issues in group discussions.
- The lesson in many countries is that a pure engineering concept of technological change and utilization has limitations. We would therefore like to emphasize the importance of education, efficient management of labour, harmonious industrial relations and training to ensure successful utilization of technologies.
- Before leaving, we need to highlight again that the Mauritian model may be appropriate for more African countries. It has given results in core sectors like Agriculture, Textiles, ICT, Tourism and miscellaneous industrial products, which are within the capabilities of most African countries. The view that Mauritius is a good model can be further discussed, particularly as the conditions which permitted industrialization and the development of technologies in South East Asia after the collapse of global electronic markets of 2001. An approach which can integrate the best from South East Asia and other countries like Mauritius, South Africa, Tunisia and some Latin American countries may be more appropriate for Africa. This will surely be discussed further and hopefully elements outlined in this paper would be useful.

APPENDIX

Mechanisms of foreign technology acquisition and market entry by Asian NIEs

Joint Ventures	Under jointly owned companies, the newly industrializing partner gains direct access to training and technology. The foreign firm secures low-cost production. The firm in the newly industrializing country is a junior partner and a recipient of technology.
Licensing	A local firm pays for the right to manufacture a product under license from a foreign firm. This normally requires more technical capacity on the part of the local firm than does a joint venture.
Imitation	A local firm imitates the activity of the foreign transnational company (e.g. in the production of consumer electronic goods).
Subcontracting	A local firm manufactures a component or sub-assembly for a foreign manufacturer located either in the newly industrializing country or overseas.
Foreign buyers	A foreign buyer contracts a local firm to supply products for distribution into advanced markets (e.g. J. C. Penney in the United States and Mitsui in Japan)
OEM	Original equipment manufacture is a specific form of subcontracting. Like a joint venture, it requires a close connection with the foreign partner. In an OEM arrangement, the local firm produces a product to the exact specification of the foreign company. The foreign firm then markets the product through its own distribution channels, under its own brand name. OEM often involves the foreign partner in the selection of equipment, training of managers, engineers and workers. It is to be contrasted with own design and manufacture, ODM, where the local firm designs the products to be sold by the transnational.
Informal means	Informal mechanisms include hiring-in key foreign engineers and managers, training in universities abroad, copying, reverse engineering, and recruiting local engineers trained in foreign companies.
Company acquisitions	Firms in NIEs have recently purchased overseas companies to acquire skilled workers, managers, equipment, and distribution outlets (for example, the purchase of small Silicon Valley companies in California).
Strategic Partnerships	These are arrangements in which the firm in the NIE develops a technology in equal (or near equal) partnership with a foreign company.

Source: M. Hobday, "Export-led technology development in the four Dragons: The case of electronics", *Development and Change*, Vol. 25(1994).

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RESEARCH AND TECHNOLOGY INNOVATION IN ITALY

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INTRODUCTION

In order to set up a policy aimed at promoting research and technology innovation among SMEs, the Italian government focused on the following critical issues:

a) Cooperation between enterprises and universities or research centres: a weak tendency of SMEs to pool their efforts with other enterprises on specific R&D projects as well as the lack of a systematic cooperation between enterprises and R&D organizations (universities and research centres) do not encourage either the development of an innovation-oriented entrepreneurship or technology transfer. This is due to several factors:

- market-oriented universities and public research centers: researchers often lack a market-oriented perspective. Such a cultural barrier represents a strong limit to cooperation between entrepreneurs and researchers, as witnessed by the poor entrepreneurial spin-offs of research. For this reason the Italian government supported the creation of scientific parks in order to develop a “friendly” environment for an effective interaction among all organizations involved in technology transfer mechanisms;
- mobility of researchers: so far, the difficulty for university researchers to start working for companies without compromising their career has further limited the exchange of experiences and different perspectives.

b) Patent system: notwithstanding the increasing demand for patenting in Italy, information and knowledge concerning patents are not widespread enough to promote the development of research and innovation and to facilitate technology transfer. As a consequence, the Italian government adopted several measures aimed at improving the database system of Italian patents as well as helping entrepreneurs use the information contained in the database to increase their innovation capabilities.

In addition, both Italy's public administration and the incentives system recently underwent a huge reform process. On the one hand, the reform of the public sector – launched in 1997 – aimed at reducing the costs of the administration and at improving the effectiveness and quality of the services provided, also achieved through a strict regulatory simplification. This process also affected the public research sector. On the other hand, the reform of the incentives system allowed the Italian government to design and redesign a number of incentives specifically targeted for research and technology innovation in order to avoid possible overlapping of public aids and to offer more effective tools to R&D policy.

THE REGULATORY REFORM OF THE NATIONAL RESEARCH

Law No. 59 of 1997 (the so-called “Bassanini law no.1”) was enacted to reform and simplify the national research and development system. This reform focused on three main aspects:

- Creation of a new system for the management of research activities in the Public sector;
- Reform of the public research organizations;¹
- Strengthening the effectiveness of measures supporting industrial research.

¹ This paper will not deal with the reform of research organisations and consulting bodies and with the definition of instruments and procedures for research appraisal.

Creation of a new system for the management of research activities in the public sector

Legislative decree No. 204 of 1998 set up a new system for the management of research activities in the public sector, through the three following actions:

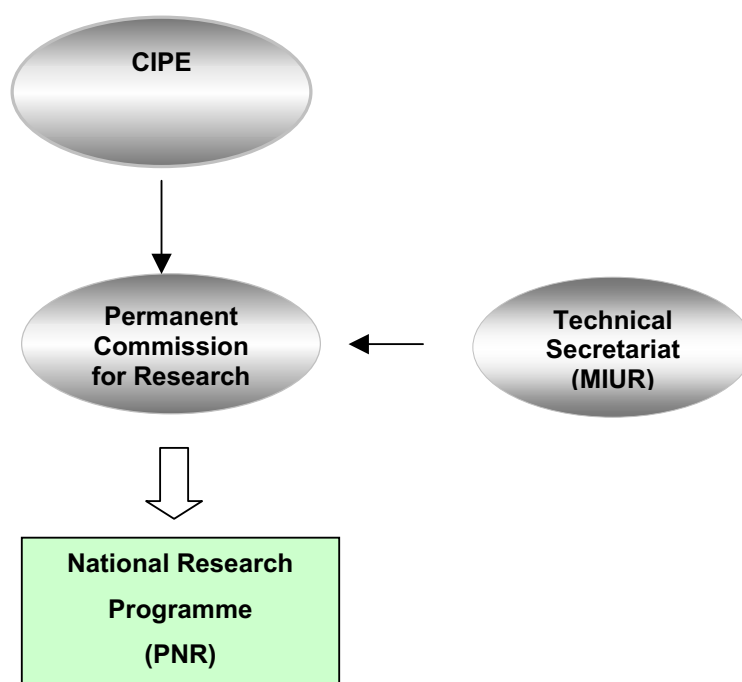
- Planning and coordination;
- Reform of the consulting bodies;¹
- Definition of instruments and procedures for research appraisal.

In addition, the legislative decree No. 204 of 1998 defined a process of reform and coordination of the funding.

Planning and coordination

The main instrument for the planning and coordination of research activities is the National Research Programme (PNR). The three-year programme is updated on an annual basis. The approval of the plan and the coordination of other research activities – together with the funds allocation – fall under the authority of the Interdepartmental Committee for Economic Planning (CIPE) with the support of a Permanent Commission for Research and of the Technical Secretariat of the Ministry of Education, University and Research (MIUR) (see Figure 1).

Figure 1



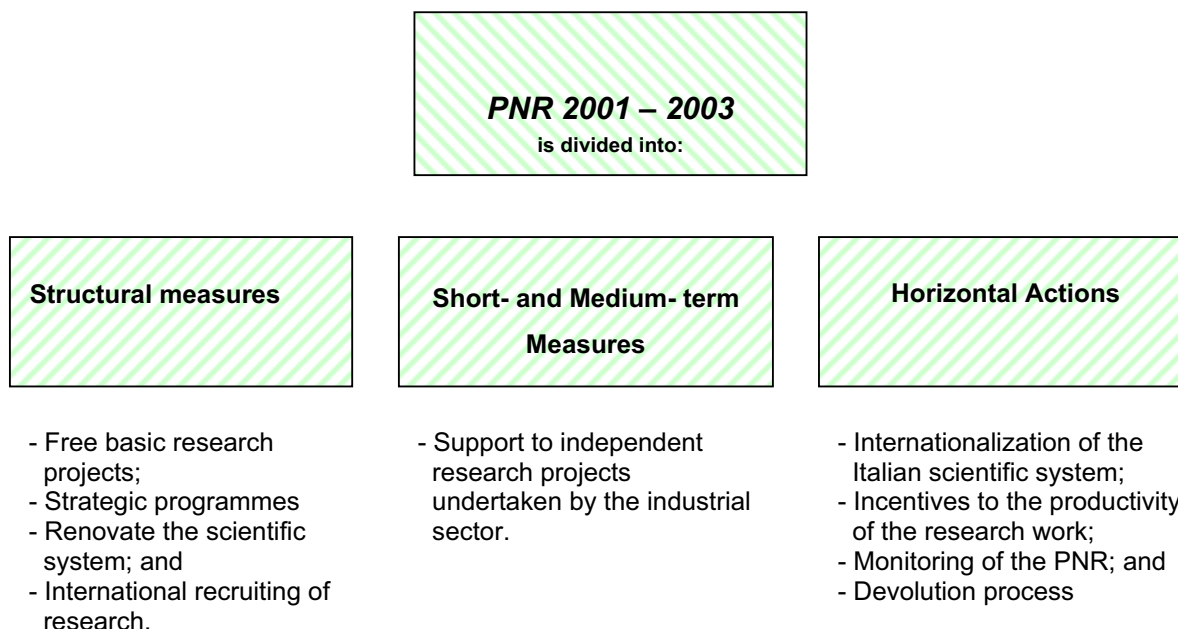
The PNR solely concerns activities of the public sector – including universities and research organizations – which is, therefore, obliged to adopt research programmes consistent with the aims of the PNR, to implement them and forward them to the MIUR.

The Technical Secretariat of the MIUR set out the guidelines of the PNR 2001-2003, whose final version was approved by the CIPE on 21 December 2000.

The PNR 2001-2003 is divided into long and medium term structural measures, medium and short-term measures and horizontal actions (see Figure 2). The *structural measures* include support to both

free basic research projects and strategic programmes, together with initiatives aimed at renovating the scientific system and at recruiting researchers on an international scale. The structural measures are financed by the Fund for Investments in Basic Research (FIRB) (see *infra*).

Figure 2



Among the *short- and medium- term measures*, priority is given to support independent research projects undertaken by the industrial sector and financed through the Fund for Research Incentives (FAR) and the Innovation Technology Fund (FIT) (see *infra*) in the following fields:

- Manufacturing industry, food industry and SMEs;
- Transports and mobility;
- Management and protection of artistic heritage; and
- Environmental protection.

Horizontal actions concern the internationalization of the Italian scientific system, the incentives to the productivity of research work, the monitoring of the PNR and the devolution process.

Reform and coordination of the funding

Legislative decree No. 204 of 1998 created the Additional Special Fund for Research and unified in one single fund all the financial assistance given by the MIUR to research organizations. The Additional Special Fund for Research (FISR) was conceived as an additional resource for those specific PNR programmes having a strategic importance. The CIPE decides how to allocate the fund resources, which add up approximately to € 20.66 million for 2000 and to € 25.82 million EURO from 2001 onwards.

Industrial research is covered by the legislative decree No. 297 of 1999 as it created the Fund for Research Incentives (FAR). This revolving fund is divided into two sections – one touching upon the whole national territory and the other dealing with less developed areas – and managed by the MIUR in coordination with the Innovation Technology Fund (FIT), which is in turn controlled by the Ministry of Productive Activities (MAP) (the Italian Ministry of Industry).

Another PNR fund is the Fund for Investments in Basic Research (FIRB), created by law No. 388 of 2000. The FIRB is managed by the MIUR using the resources of the FAR to finance the following initiatives:

- projects aimed at strengthening the public and partially public research infrastructure;
- basic research projects with a high scientific or technological content, also at international level;
- strategic projects for the development of widespread and multisector technologies;
- creation, strengthening and networking of highly scientific qualification centres, both public and private.

Strengthening the effectiveness of measures supporting industrial research

Legislative decree No. 297 of 1999 carried out a regulatory reform in the field of scientific and technological research, setting the aims of public support measures together with the recipients, the eligible activities and the instruments to be used.

The recipients are:

- Manufacturing and crafts undertakings;
- Research organizations;
- Pools of manufacturing and crafts undertakings and research organizations;
- Companies specifically set up to exploit research results;
- Universities, research organizations (also at local level), the New Technologies, Energy and Environment Organization (ENEA) and the Italian Space Agency (ASI) for actions - joined with the other eligible subjects - aimed at supporting employment; and
- Scientific parks.

Eligible activities

Eligible activities are the following:

- a) Support to projects and programmes;
- b) Support to employment; and
- c) Support to infrastructures, structures and services.

a) Support activities to projects and programmes can be divided into two groups. The first one comprises:

- Activities for independent projects presented by industrial firms at a national level;
- Activities for independent projects presented by industrial firms within EU programmes or international agreements;
- Activities carried out by industrial firms within MIUR calls for proposal on specific targets;
- Contracts that industrial firms entrust to universities, research organizations, ENEA, ASI and private institutions carrying out research activities; and
- Incentives for the creation of new high-tech enterprises, on the basis of projects presented by public researchers.

The second group includes industrial research activities and technology spreading until the phase of "start-up" phase.

b) Support to employment in industrial research and to the mobility of researchers include:

- Recruitment of researchers by industrial firms for the start-up of research activities;

- Temporary recruitment of researchers by industrial firms and high level training of researchers and technical staff; and
- Fellowships for PhD courses financed by industrial firms in case of agreements on specific research programmes.

c) The activities to support infrastructure, structures and services for industrial research include:

- entrusting – by industrial firms – of studies and research activities on production processes to external qualified research laboratories (as well as of activities for results applications, of technical staff training, of tests and experiments);
- creation, development, restructuring, delocalization, redirection, competitiveness recovery, conversion and acquisition of research centres, together with vocational training and retraining activities.

Legislative decree No. 297 of 1999 identifies the following categories of government incentives for investments: cash grants; soft loans; tax bonuses; tax exemptions; and government guarantees on loans.

THE NATIONAL INCENTIVE SYSTEM

In observance of European Union regulations on state aid and in compliance with priorities defined in the European Structural Funds planning process, the Italian incentive system provides a variety of assistance forms, in order to support companies, particularly SMEs, in their investments and development plans. The grant-in-aid given mainly consists of:

- cash grants
- soft loans
- “tax bonuses” (i.e. tax deductions) on contributions due by enterprises
- tax exemptions on reinvested profits
- subsidies offered to cover vocational training expenses, etc.

Available funds, provided by European, national and regional budgets, are awarded on the basis of the different aims identified by the laws and through specific procedures. A recent reform has endowed the current Italian incentives system with a high degree of regulatory simplification and procedures standardization. In particular, Legislative decree n.123 of 31 March 1998 on streamlining the national incentives set out the following different procedures:

- automatic procedures for small amount and low complexity investment programmes;
- evaluative procedures for a technical, financial appraisal of large amount and complex investment programmes;
- negotiated procedures between companies and public authorities, for programmes involving economic and social development of a specific area.

1) Automatic procedure

This procedure applies to *simpler projects*, which do not require a specific technical and financial appraisal. In this case, the applicant firm is simply asked to present to the Ministry of Productive Activities (MAP) a declaration concerning the future costs of a certain investment project. The Administration, after verifying the compliance of both company and project parameters with the law’s requirements, allows the grant. The actual disbursement takes place once the firm has carried out the investment project.

2) Evaluation procedure

In this case, the specific technical, financial and marketing characteristics of *more complex investment projects* require a thorough appraisal. The evaluation procedure can follow two different paths: 1) projects are *short listed according to pre-determined criteria*. The relevant administration grants the incentive within preset percentage limits on the basis of the shortlist and of the available funds; and 2)

projects are evaluated following a chronological order and granted on the basis of the available resources.

3) Negotiation procedure

In the negotiation procedure, the investment programme to be financed may be presented by a pool of SMEs or by a single enterprise. The programme may concern either a large investment plan or a group of single interrelated projects related to the same production sector or to a homogeneous territory. For such complex investment programmes, it is necessary to carry out an in-depth technical, economic and financial appraisal of both the programme and its proponents and to undergo a negotiation period. The relevant administration and the enterprises involved will finally sign a contract to launch the implementation of the programme.

In addition to the incentives for industrial research managed by the MIUR and financed through the resources of the FAR, some of the main grant-in-aid concerning the innovation development managed by the Ministry of Productive Activities are:

- Law No.140/97 (automatic incentive);
- The Innovation Technology Fund (revolving fund- evaluation procedure; and
- The Integrated Incentive Package "Innovation" (evaluation procedure for less developed area).

GLOSSARY

ASI = Italian Space Agency

CIPE = Interdepartmental Committee for Economic Planning

ENEA = New Technologies, Energy and Environment Organisation

FAR = Fund for Research Incentives

FIRB = Fund for Investments in Basic Research

FISR = Additional special fund for research

FIT = Innovation Technology Fund

IIP = Integrated Incentives Package

MAP = Ministry of Productive Activities

MIUR = Ministry of Education, University and Research

PNR = National Research Programme

WEBSITES

ASI: <http://www.asi.it/>

ENEA: <http://www.enea.it/>

IPI: <http://www.ipi.it/>

MAP: <http://www.minindustria.it/>

MIUR: <http://www.miur.it/>

SME CLUSTERING STRATEGY IN INDONESIA: AN INTEGRATED DEVELOPMENT SUPPORT

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INTRODUCTION

The Indonesian economy is basically characterized by the existence of a grassroots economy in the small enterprise sector. In 2000, an estimate of the number of businesses was published by the Central Bureau of Statistics, which reported that there are currently more than 40 million small-sized enterprises in all sectors of the economy, including agriculture. At the same time there are only around 60,000 medium-sized enterprises and more than 2,000 large enterprises. However, small-sized enterprises contribute around 41 per cent to GDP, and together with medium-sized enterprises they reach slightly over 57 per cent. Large enterprises contribute about 43 per cent but in terms of labour absorption they only account for 0.5 per cent.

Since the definition of SMEs contained in Law no. 9/1995 covers all sectors of the economy and is based on the amount of annual sales and assets other than land and buildings, the classification of small enterprises now includes the group of micro-enterprises, which has been estimated at about 97 per cent of the total group of small enterprises (about 39 million businesses). Hence the number of small enterprises, excluding micro-sized enterprises, reaches only slightly more than one million. The main weakness of the SME sector in Indonesia is the productivity gap between small and the large enterprises. The value added/worker in the small enterprise sector accounted for about 0.5 per cent of national average value added/worker in large enterprises.

There are at least two important reasons for the low productivity in the small enterprise sector. One of them is the lack of appropriate technology in production and the other is low investment density, especially in the agro-based industry. The situation is worsened by the fact that the small enterprise sector hardly has any access at all to commercial banking services and other financial services. It is therefore relevant to find modalities in improving technology and financial support for SME development.

Since early 2001, Indonesia has adopted a SME clustering strategy for SME development. Increased attention has been given to the development of SMEs outside the agricultural sector in Indonesia between the mid- to late 1970s. However development has been very slow because of a sectoral lack of focus and consistency, both in financial and non-financial support.

With regard to the national policy guidelines, SME development policy currently enjoys high support. The House of Representatives has outlined the importance of economic development that places SMEs as the pillar of the economy. Furthermore, the Law on the National Development Programme has been enacted and has outlined the strategy for SME development. In this regard, Indonesia has produced a multi-stakeholder participation in formulation of the SME Action Plan namely Medium Terms Action Plan (MTAP) supported by the Asian Development Bank. The MTAP contains outlines for policy action: first, creation of a conducive policy environment at national and local level; second, improving access to productive resources, both financial and non-financial resources; and third, strengthening entrepreneurship development. Hence the policy guideline is in existence and one of the priorities is to promote the competitive strength of SMEs. This objective will be achieved through development of competitive clusters of SMEs.

The present paper seeks to explain the rationale and understanding of the cluster development strategy (CDS) and its implementation in Indonesia. Since the strategy was newly implemented, the paper will provide an ongoing evaluation in some cases and the plan for expansion. The instruments and the prospect of the CDS will also be part of the discussion.

SME CLUSTER DEVELOPMENT IN INDONESIA

Indonesia has adopted a clustering strategy in the promotion of small industries since the early 1970s, particularly in regard to technological development. Several government programmes have been launched, such as the Small Industry Zone known as LIK, the Export Processing Zone, as well as other local centres for small industries. This effort has led to the establishment of new processing industries in suburbs and rural areas. However, the growth of the centres has progressed slowly and many of them still remain at the infant or underdeveloped stage. SME clusters are brought about by creative innovation among themselves but are also a product of the creation of new industrial locations provided by the government and the private sector. Some clusters in agro-based industries such as the dairy industry and the fisheries industry have also been promoted through cooperatives.

Based on the data collected by JICA Study Team (JICA, 2002), there are at least 9.800 units of small industry centres with varying degrees of cluster linkages. In these centres there are about 450.000 small industries in different activities. In terms of geographical distribution more than 58 per cent are located in Java, Bali and Nusa Tenggara. Judging from the perspective of technology application about 78 per cent of the clusters are in low technology level, particularly in the ISIC 31, 32 and 34, with about 50 per cent of the SME clusters being in the food and beverages and textile industry.

Looking from the perspective of technology utilization and the stages of cluster development there are three stages of progress in cluster performance. The group of low technology has an average productivity per worker of IDR 970,000 and middle level technology of slightly over IDR 2 million while the group of high technology has reached IDR 8,24 million. The gap of average worker productivity in SMI (Small and Medium Industry) can be put in an index of 100 for low technology, 212 for middle level technology, and 849 for high technology, respectively. This performance indicates that the room for improving productivity is huge. The gap in the worker productivity in the SME cluster industry is, however, still far below the gap in the whole economy where small enterprises only account for 0.5 per cent of big businesses. Hence industrialization is still important as a means of promoting productivity and at the same time reducing this productivity gap.

Clustering is the right strategy when focusing on the promotion of SMEs, particularly when industries are geographically scattered and they tend to agglomerate in accordance to similarities in output, input or technology/machineries, etc. Clustering also helps to facilitate the evaluation of the programme performance which theoretically can be expected to be a growth point in each respective area. It also has the potential of creating an embryo for efficient networking among similar or related clusters. The SME cluster development programme basically creates an integrated support to selected clusters. There are three main criteria for the selection of the cluster, namely:

- The prospect of a market for the product of the cluster;
- The number of SMEs and total monthly sales of the cluster in order to make it sufficiently feasible for them to absorb the business development services and financial services provided to the clusters;
- Action taking capacity, with priority given to improved technology, the existence of linkages and infrastructure supports.

Ninety-nine clusters have been selected in the programme since the beginning of 2001, and the selection of another 332 clusters is currently in progress. Another 500 clusters are planned to be recruited into the programme in 2003. The three-year programme was expected to create an engine for a self-propelling development by the system.

DEVELOPMENT OF NON-FINANCIAL SUPPORT

Under the SME cluster development programme three basic elements of development support are created in each selected cluster, namely business development services, basic financial support through the micro-financial institution, and strengthening of the organization of SMEs and/or industries in the cluster. The programme realizes that capital is important for SMEs but that more was needed, hence non-financial support must first be made available to assist SMEs. During the past three decades the approach to SMEs development was supply driven, led by strong government programmes which in turn created dependency. Furthermore, frequent changes in policy setting have led to discontinuity of the programme and slowed down development.

Business development services (BDS) in SME development have become best practices in many successful SME development programmes in developed economies, and it is therefore justified that the approach can be adopted on larger scale and adjusted with the stages of development. It cannot be expected to change directly from supply-driven to demand-driven without a transitory step in bringing BDS into the SMEs. This effort is facing difficulty due to the old supply-driven approach that remains in practice in the sector government programme, hence creating unfair competition and some times incompetent services in the promotion of SMEs.

BDS providers basically exist in most of the big cities and universities. There are at least three sources of non-government BDS providers, namely universities including technology and incubation centres, NGOs, and private BDS providers which have developed in many fields of business services centres. However, in less developed regions, especially at the district level and in outer Java island, it is still difficult to find BDS providers. Special effort need to be made to promote new BDS providers, however the possible mushrooming of fake and incapable BDS providers should be avoided. The programme should not create a moral hazard to the provision of BDS products.

BDS providers commonly reside in urban centres where business activities are high; hence they are concentrated only in urban centres with low outreach, which makes it difficult for SMEs to have access to BDS services as a productive input. The government has introduced several models such as business incubators in different sectors, business consulting clinics/units, technology centres, etc., however, the sponsoring programme for promotion of business advisory unit has so far not been productive and sustainable due to lack of market creation. Theoretically, the government should act as a regulator and facilitator including market and product development for the BDS provider.

Under the programme, each BDS involves a contractual partnership arrangement with the government to serve the cluster for a period of three years. In exchange, the government provides start up capital to the BDS provider that should be paid back in the form of servicing the other clusters nearby or in any other area agreed on by both parties within the three-year period. In implementing the clustering strategy the principles guiding the programme are promoting business alliances, institutional synergy, outsourcing and benchmarking. These principles have been adopted to optimize the utilization of local resources. The BDS provider can be considered as the prime mover to bring about the dynamic of the cluster since it is serving the need of the SMEs. The services expected to be provided by the BDS provider to the cluster are information services, consultation services, training, supervision and advisory, business networking/contact, market expansion, technology sourcing, business plan and proposal, and business and management consultation. The BDS provider is required to provide an office or service centre in the area of the cluster it thus serves as a pivot to SME - BDS networking in terms of variety of services and expertise.

The contracted BDS provider is required to attend consultation meetings with the government official in charge at the field level and provide regular reports on its activities and progress of the clusters. To strengthen the capacity of the BDS the government provides necessary training and other programmes in servicing SMEs and introduces the SME in the cluster to enhance its productivity. The BDS can also help bridge the gap between SMEs and the formal financial institutions, commercial banks in particular. The BDS are required to have the capacity to survive on a commercial basis and be able to manage a cross-subsidy process among different clients and sources in serving SMEs in the cluster. Hence the programme is basically creating market by assigning to serve SMEs in selected clusters and providing

start up capital of about IDR 50 million or about US\$ 5,000 for each BDS, with the government also improving the quality of BDS provider within three years.

The BDS provider can later promote cluster development by stimulating the networking among SMEs. Early observations show that many clusters have been able to accelerate their growth in the form of sales and savings, particularly export-oriented clusters in the furniture and handicraft sectors. The BDS providers have established an association of BDS providers aimed at strengthen their network and cooperation and advocating the programme.

The basic principle of SME promotion through clustering strategy in providing non-financial and financial support can be outlined as follows:

- a) Improving the focus on SME promotion by many institutions at the field level;
- b) Creating a transformation process of SME supports from bureaucratic promotion into development of sustainable private business development services as an industry run professionally;
- c) By giving a three-year term of government involvement in the programme will facilitate the process of revolving programme thereby creating a snowballing effect;
- d) There will be no direct involvement of the government in SME promotion which implies that BDS serve as a catalyst to extend the outreach; and
- e) The existence of non-financial services run by private actors will guard the process of cluster development including necessary adjustment processes.

In every cluster, a suitable organization is also being promoted on a self-initiative basis. The SMEs association will represent the interest of SMEs in promoting the creation of a conducive climate at the local level. The advocacy can be organized jointly with the BDS provider to maintain the existence of dynamic clusters. Under the clustering system the multi-stakeholder forum can easily be materialized.

FINANCIAL SUPPORT: MICRO-FINANCE AS BASIC SERVICES

The fundamental problem of providing financial support to SMEs is not the availability of funding but access to financial institutions. SMEs, micro-enterprises in particular, are often excluded from banking services, which makes the role of micro-financial institutions in financially supporting micro and small enterprises important. In the APEC (Asia-Pacific Economic Cooperation) countries, micro-finance has been recognized as a sustainable tool to micro-enterprise development. Under this programme the micro-finance services are made available in cluster areas to establish credit cooperatives run by the community. In order to modernize credit cooperatives, the funds provided by the government are channeled through the assigned bank under a contractual basis, which is also tasked to train and supervise the operation of micro credit. The link between the credit cooperative and the bank can be expected to produce two benefits: (a) an improvement of the credit administration of the credit cooperatives and (b) a reduction of the cost of searching potential good customer through credit cooperatives. This mutual benefit can improve the quality of micro-financial institution while at the same time helping the bank to extend the outreach to potentially new customers. Each credit society will receive revolving funds for six years. It will benefit from a grace period of two years and can sell their credit at market rate. The bank will provide additional funds if the demand from the market is growing beyond the capacity of the credit cooperatives. The amount of matching fund is IDR 200 million, or about US\$ 20,000, for each credit cooperative in each cluster.

To bring the other modern financial institution to provide services to SMEs in the cluster, the government also provides matching funds for venture capital companies in the respective regions. This venture capital promotion programme is aimed at assisting SMEs, which require managerial assistance from experienced companies. At the same time the government also provides matching funds to a credit guarantee company to assist SMEs obtain credit from the banking sector, particularly those SMEs which are viable but not yet bankable for reasons to do with collateral. In addition to the mentioned supports the incubator programme is also being promoted and the matching fund also provided to the business incubator institution, which has SME tenants that have a viable innovation or start to venture a new business. The integrated components of financial supports are aiming at

speeding up the progress of dynamizing the clusters and making it possible for the SMEs to select among a variety of financial supports in accordance to their rational choices and size of loans.

At present there are venture capital companies at the provincial level and credit supplementary institutions that operate up to the provincial level. Starting in 2001, the government makes an extensive support to extend the outreach of the institutions to improve access of SMEs to the banking services. A non-bank financial institution, National Madani Capital Development or PT PNM, responsible for assets management and capital development, has also been established in 1999. This non-financial institution is basically a state owned-enterprise tasked with assisting banks and other non-bank financial institutions to support SME projects. PNM also provides assets management services to SMEs in venturing new investment such as processing units in the agro-based industry. The export credit institution is also being established with the aim of providing funding to SME through banking system.

FINANCING TECHNOLOGY DEVELOPMENT

There are two different kinds of technologies which are critical to SME development in today's highly technological environment namely industrial technology and information and telecommunication technology. Promoting industrial technology for SMEs is important because it is a vehicle to improve the productivity and quality of the product. It has been many years since the small industry development programme was introduced and efforts to develop clusters model have been implemented since mid-1970s in Indonesia. However, socio-cultural factors constrain the sustainability of the project, while at the same time traditional clustering is growing without systematic technological development support. In this regards the use of the existing technology centres, both run by universities and government, is critical.

The situation today is that many technology centres are under-utilized, but many SME industrial centres or clusters have no access to update technology. To make use of this relatively available technology the role of catalyst is important, that in fact it can be served by BDS provider. Another potential area for technology development is relocation of replaced technology into less developed regions in order to reduce cost of new investments. This system can also provide modalities of transfer of skills to the receiving SMEs.

The second aspect of technology development is telecommunication and information technology which is very important in bringing the SMEs access to many support centres and the global market. Utilization of Internet by SMEs in Indonesia is very low. In this area there is a need for strong support from the government sector before it can enter a commercial stage. In this regard efforts have been made by related government- and non-government institutions as well as an overseas cooperation has been developed.

With regard to information technology support to the clusters, different types of IT programmes have been prepared, e.g. modernizing IT facilities for credit cooperatives under the cluster programme. In addition the Centre for the Development of SMEs run by the association has also been established. The Government is also providing assistant programmes to SMEs in applying IT. Private IT networks are also growing.

In general, the strategies adopted by the government in SMEs technology development among others are:

1. Focusing the government programme for strengthening SME competitiveness through cluster programmes to ensure the programme is well targeted and easy to make an evaluation;
2. Expanding the capacity of technology centres to reach the SME target through development of different programmes such as "techno-preneur" programme, technology incubation, venture capital organized by Ministry of Research and Technology and National Science Institutes;
3. Promotion of technical support centres within banks to facilitate the link between SMEs and the banking sector;

4. Expansion of micro-credit through expanding micro-banking and improved non-banking financial institutions;
5. Promote entrepreneurship programme through universities and other relevant institutions organized by Ministry of National Education; and
6. Improve the capacity of local government at the district level in SME promotion and technology development, including the establishment of regional research and technology centres.

Venturing of new technology application is commonly supported in government budgets; however, due to budget constraints, it is limited to supporting pilot projects only. Large-scale provision of commercial banking support is available at fully commercial consideration. To increase the access to funding institutional arrangements such as partnerships between the private sector, banking and SMEs are also encouraged, especially in the agro-industry sector. Models of partnership or co-financing and co-guarantee must be created to help financing SMEs in technology improvement.

CONCLUDING NOTES

SMEs are the backbone of the Indonesian economy, especially in providing employment and maintaining sustainable growth and potential for export. The constraint to growth of SMEs is productivity. Therefore, technological improvement, both in industrial technology and information technology is critical. The clustering of SME development has been adopted to create dynamic clusters through financial and non-financial supports. Clusters can boost technological improvement supported by the services of BDS providers. Through this network ways of financing technology can be made available and improved.

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SUMMARY OF CONCLUSIONS AND RECOMMENDATIONS BY EXPERTS

Technology Development and Mastery

This Expert Meeting examined policies and programmes that governments can consider for the purpose of improving the competitiveness and the upgrading of their technological development. The discussions focussed on policy changes conducive to moving up the technology ladder, including transfer of technology; technology development to meet international norms and certification; and financial and fiscal measures to promote collective action among institutions and actors for “linking, leveraging, and learning”.

Drivers of technology development: How Asia got ahead

The experts highlighted that technology development is a critical determinant of the ability of developing countries' firms to compete in global markets. However, only a handful of developing countries, mostly located in South-East Asia have managed to narrow the “technology gap” vis-à-vis developed countries. By contrast, in sub-Saharan Africa the technological structure of industrial production and exports is actually regressing.

The experts highlighted the following conditions as main drivers for the rise of the Asian economies:

- Vision and commitment of the respective governments;
- Provision of skills training;
- Attraction of export-oriented FDI;
- Support for local industry;
- Local technological efforts in terms of R&D.

The experts summed up that Asian economies had the right framework conditions, sound industrial policy and good timing - namely the boom of the semiconductor industry.

Drivers of technology development: Africa and Latin America

The experts questioned whether it was feasible to replicate the policies followed in Asian countries in Africa or Latin America as both, the international framework and the opportunities were different today. Nevertheless, the principles behind the success of Asian countries provide guidance to policy makers in other countries.

The experts recommended that governments should:

- Define a country's vision on the basis of a thorough industrial assessment to find major bottlenecks in industrial activity as well as to find competitive strengths to be exploited;
- Identify sectors with growth potential (“picking winners”);
- Practice resource-sharing through e.g. technology diffusion schemes, technology incubators and clustering of firms;
- Treat foreign and local enterprises equally to foster a sound business sector;
- Investments in both a sound base of primary/secondary education and the specialized skills essential to the business sector;
- Target technology-intensive FDI while paying particular attention to foreign investors' ability and willingness to transfer learning, skills and technology;
- Invest in business infrastructure, particularly in transport, power, communications, and information and communication technologies (ICTs) for the SME sector;
- Strengthen the local and national innovation systems;

- Grant appropriate financial and fiscal incentives and subsidies, including measures for building partnerships among those engaged in R&D, including universities, institutes and enterprises.
- Promote public-private partnerships that provide an effective means of accelerating commercialization and bringing products from laboratories to the market;
- Consider bringing back non-actionable subsidies for R&D and disadvantaged regions within the WTO Agreement on Subsidies and Countervailing Measures.

Furthermore it was highlighted that a stable macroeconomic environment and reasonable interest rates are crucial for investments in technology. It was said that the international regulatory framework needed to allow flexibility in designing national strategies.

A key finding of the Expert Meeting was also that the drivers for technology development (such as skills development, research and development capabilities, ability to attract FDI, strengthening local enterprises, infrastructure etc.) are interrelated. Therefore government cannot afford to neglect any of the key drivers for technology if they wish to create a virtuous circle for technological development.

Policy options for competitiveness and their consistency with international commitments

A crucial part of the Meeting aimed at checking whether the policies suggested by the experts were compatible with international commitments. It emerged that not all policies were completely immune to the risk of countervailing measures, especially if they were specific and resulted in increased exports that affected someone else's market. However, it was emphasized that export subsidies were allowable for the lowest income countries. Furthermore it was pointed out that horizontal subsidies targeted to SMEs were generally allowable for all countries under the agreement.

Part IV

PROMOTING SMEs EXPORT

COMPETITIVENESS

Issues paper by the UNCTAD Secretariat

Case studies by national experts

ISSUES PAPER

PROMOTING THE EXPORT COMPETITIVENESS OF SMEs

UNCTAD Secretariat

INTRODUCTION

Trade and investment have long been considered powerful instruments to promote development. They open new markets and permit the expansion of productive capacity and higher levels of income and employment. One of the main concerns of developing countries with respect to their participation in global trade is their lack of competitiveness. They need to solve supply-side constraints, to build up national productive capacity as well as an efficient trading and transport infrastructure, and to engage fully in a coherent export and investment promotion strategy. To be a real tool for development, global trade must locally induce a virtuous circle involving diversified higher-added-value exports and better-paid jobs. Mere increases in exports do not guarantee development. According to the World Investment Report 2002, “greater competitiveness allows developing countries to diversify away from dependence on a few primary-commodity exports and move up the skills and technology ladder, which is essential to sustain rising wages. It also permits the realization of greater economies of scale and scope by offering larger and more diverse markets” (UNCTAD 2002a). This means diversifying the export basket, sustaining higher rates of export growth over time, upgrading the technological and skill content of export activity, and expanding the base of domestic firms able to compete globally.

The export competitiveness of a country depends on its domestic enterprises, including SMEs. The export competitiveness of a firm depends on its ability to sustain or expand its position in international markets – directly or indirectly – by supplying quality products on time and at competitive prices. This requires flexibility to respond quickly to changes in demand and skills to successfully manage product differentiation by building up innovative capacity and effective marketing channels (UNCTAD 2002b).

SMEs represent the bulk of production in manufacturing and an even larger share in services, both in developed and developing countries. They contribute over 55 per cent of GDP and over 65 per cent of total employment in high-income countries (OECD 2004a). In developing countries, SMEs are responsible for most employment and income generation opportunities and can be identified as a main driver for poverty alleviation. The flexibility and specialization of SMEs can also contribute, in some cases, to the adaptability and diversification of national production systems.

In international trade, the contribution of SMEs to direct export revenues is less obvious and varies greatly, even among OECD economies. For example, SMEs contribute a substantial share of East Asian manufactured exports (56 per cent in Taiwan Province of China, over 40 per cent in China and the Republic of Korea, more than 31 per cent in India), whereas their role is marginal in LDCs, especially in Africa, with the little-documented transborder and sub regional trade. The central question is whether a higher proportion of competitive SMEs in developing economies could access regional and global chains of production.

The export capacity of local SMEs can be enhanced, among other ways, through appropriate trade and investment linkages, upstream and downstream the production and service activities of TNCs and other large firms. Such business linkages already play an increasingly significant role in various segments of local SMEs, which can thus move up the technological and management ladder and become part of global and integrated chains of production.

Over the past four years, the Commission on Enterprise, Business Facilitation and Development has analysed various policy options for growing and strengthening SMEs in developing countries. A number of issues notes have been prepared by the UNCTAD secretariat on the theme of enhancing the productive capacity and improving the competitiveness of SMEs.¹ Considerable work has also been done on the subject of the competitiveness of SMEs at the international level, in particular on linkages between SMEs in developing countries and foreign affiliates of TNCs.² This paper relies on these precedent works but goes further in analysing the new context of global competitiveness and focusing on policy options at the national and international levels to promote the export competitiveness of SMEs, including through linkages with TNCs.

SME EXPORT COMPETITIVENESS: A NEW CONTEXT OF GLOBAL COMPETITION

A. A brief discussion of the concept of export competitiveness

Since an enterprise does not produce in a vacuum, its competitiveness can only be measured within various types of market territories at the sub national, national and supra-national levels. The optimization of its capital resources (finance, technology, labour) commands its ability to penetrate each of these three market territories. Metcalf, Ramlogan and Uyarra (2003) maintain that competitiveness is embodied in the characteristics of the firm, namely through:

- the current efficiency and effectiveness of the use of resources;
- the willingness and the ability to relate profitability to growth of capacity through continued investment; and
- the ability to innovate in technology and organization and thus improve efficiency and effectiveness of production.

Competitive advantages, which must be measured in relation to rivals in markets, are determined by how efficient and effective the prevailing markets for products, labour and capital are. Entrepreneurship capacity refers to the introduction of new productive combinations and innovations acting as driving forces, which continually create new competitive advantages and opportunities for profit and growth.

Meyer-Stamer (1995) concurs with the view that competitiveness is created at the firm level, but that it is partly derived from a systemic context, emerging from complex patterns of interactions between government, enterprises and other actors, and will therefore exhibit different forms in each society. SME development strategies will thus necessarily be country- and context-specific. Each country will have its own challenges, opportunities and priorities for change, and resources available for implementation will vary by country.

A firm benefits from externalities derived from the existence of technological capability and export competitiveness at the national level. Lall (2000, p. 21) stresses that "national technological capability is more than a sum of capabilities of individual firms in a country. It is an innovation system, which includes the externalities and synergy generated by the learning process, ways of doing business, and the knowledge and skills residing in related institutions".

External competitiveness can be achieved by firms through exports, sustaining diversification and/or better quality of production, upgrading technology and skills, and expanding the base of domestic firms to compete regionally and globally. A firm is competitive in external markets depending on its ability to supply quality products on time and at competitive prices and to respond quickly to changes in demand by building up innovative capacities and market strategies.

¹ UNCTAD (2001a, 2002b, 2002c, 2003a, 2003b)

² A document (UNCTAD 2000a) was published and discussed during a special round table on "TNC-SMELinkages for Development" held during UNCTAD X in Bangkok in February 2000; the *World Investment Report 2001* (UNCTAD 2001b) focused in its second part on linkages between foreign affiliates and domestic firms; and an Expert Meeting on the Relationship between SMEs and TNCs to Ensure the Competitiveness of SMEs was held in November 2000.

Few empirical studies have debated the correlation between SMEs' domestic and export competitiveness. A central issue of this debate is whether SMEs should become competitive on the national market first, before considering (spontaneously or otherwise) to internationalize through exports.

B. New opportunities and risks for SMEs' access to global markets

The twin processes of globalization and liberalization, combined with rapid advances in information and communication technologies, have opened up a new era in terms of government policies, enterprise organization and multilateral disciplines. Public policies based on local development, state intervention and import substitution appear to be losing out to a more liberal approach in most developing countries. At the same time, a new global production system has emerged in which enterprises, especially TNCs, tend to specialize more narrowly in their core business and to contract out functions to other firms, spreading them internationally to take advantage of differences in costs and logistics. At the multilateral level, many developing-country governments have signed commitments that restrict them to a multilateral discipline and limit the autonomy of their national economic policy in favour of their enterprises.

The combination of trade globalization and liberalization may allow greater economies of scale and scope for a small segment of already competitive SMEs, at the very least vis-à-vis one of the driving global markets (the United States, the European Union or Japan/North-East Asia). Globalization can provide them with better access to standardized market information and to larger and more diverse markets. It may also facilitate a new physical or virtual proximity between global buyers and local SMEs having an established niche or demonstrating innovation and business success capacity in domestic and subregional/regional markets. This is increasingly true also in the service sector, as the case of the software industry in India demonstrates. According to the World Investment Report 2004, the production of entire service products is currently distributed internationally in two ways: through the establishment of foreign affiliates ("captive offshoring") or by outsourcing to a third-party service provider ("offshore outsourcing"), based on the comparative advantages of individual locations and the competitiveness-enhancing strategies of firms (UNCTAD 2004a).

On the other hand, global competition may also challenge the vast majority of purely domestic SMEs, whose products and sales are, most of the time, extremely localized and segmented. Trade liberalization increases the ability of well-established foreign manufacturers and retailers to penetrate remote and underdeveloped markets and makes it increasingly difficult for SMEs to survive or maintain their business position in the local and, if applicable, the global market. Moreover, the rapid decline of trade barriers and the internationalization strategies of TNCs are making it more difficult for domestic firms, especially SMEs, to qualify as regular suppliers and be included as units of global systems of production. In addition, global market governance tends to advocate, also through multilateral trade and financial institutions, macro-policies that largely ignore the microeconomic conditions needed for a smooth enabling environment for SMEs.

SME EXPORTING ACTIVITIES: THE STRATEGIC ROLE OF TNC-SME LINKAGES

A. Traditional patterns of SME internationalization through exports

Exporting has been the traditional way for SMEs to internationalize. However, other ways are gaining importance. The internationalization of SMEs can be now realized through a number of crossborder activities, including international investment and participation in strategic alliances, partnerships and networking arrangements, affecting a variety of business functions ranging from research and product development to distribution (OECD 2004b). This paper will focus on export activities, nevertheless keeping in mind that these different forms of internationalization may interact with and reinforce each other. There are different ways or strategies for SMEs to access external markets through exports:

- Some independent³ and highly skilled SMEs have proven their strong export capacity through specific niche and highly profiled productions. Foreign buyers are particularly attracted by such local producers. This concerns a very limited number of SMEs mainly in the OECD economies and in some emerging economies, where high-tech or knowledge-based SMEs have become global export performers. Some of them have even become small TNCs in their own right (Fujita 1998), investing in overseas markets either to produce locally or to develop highskill after-sale services close to clients. Such SMEs, primarily family-owned, have capitalized on impressive accumulation of experiences and know-how. However, there is no consensus on the conditions explaining how SMEs in developing countries such as Brazil, India, the Republic of Korea and South Africa could themselves become outward investors, and the issue should be investigated further.
- SMEs may also access external markets by exploiting the opportunities that inward FDI or large local firms can offer them to engage in indirect exporting activity. In order to enhance their export capacity, SMEs can link up with TNCs or large domestic exporting firms and thereby integrate into global chains of production. This group of SMEs – mainly located in OECD and (to a lesser extent) East Asian countries and more marginally in Latin American countries – has been growing in recent years, especially with the phenomenal growth in FDI registered since the beginning of the 1990s and the growing role of TNCs in world production and trade. In the case of LDCs, it is far more difficult to trace such SME internationalization patterns, owing to the scarcity or absence of FDI in most of them (apart from FDI targeting local commodities and natural resources) and to the unavailability or low quality of data on local SMEs in general and exporting ones in particular.
- Clustering and networking also have the potential to facilitate SMEs' ability to access external markets and compete on an equal footing with larger companies. Inter-firm collaboration, which includes a more efficient division of labour, can lead to greater specialization among small firms, opening opportunities for economies of scope and scale. Networks of mainly small firms, collaborating through specialization and subcontracting, have been the key to the success of many industrial districts in developed countries (e.g. Italy). In some developing countries, there are similar success stories in sectors such as ceramics, garments, leather and shoes, automotive and electronic components.

B. The strategic role of TNC-SME linkages

Developing countries can succeed in complex industrial exports without going through TNC networks if they are able to build the necessary indigenous base of technological capabilities, as the examples of the Republic of Korea and Taiwan Province of China have shown. However, the changing international context, the growing role of TNCs in world production and trade, and the rising number of SMEs included in international chains of production at various stages of added value may suggest that much of the growth of exports in the future will be situated in or around TNC production systems.

Consequently, there has been a paradigm shift in the approach towards SME internationalization. While in classical SME economics one used to say that the more autonomous a small firm was, the better, SMEs in the developing world are now "invited" to grow through dependent and interdependent linkages with larger firms and conglomerates. In other words, though the classical approach has not been radically challenged by globalization – especially given that it still concerns a very limited number of SMEs in developed countries and even more so elsewhere – the autonomy of SMEs is no longer perceived as a panacea.

³ The general understanding of independent SME is the one that is not controlled by other enterprise(s) which is (are) not SMEs. The control is the power of an enterprise to exercise a dominant influence over another enterprise pursuant to the owning of a significant capital share or to a contract entered into with that enterprise or to its memorandum or articles of association.

UNCTAD has a leading role in analysing the impact of FDI on the export competitiveness of domestic firms (UNCTAD 2000a, 2000b, 2001b). The major argument is that FDI and business linkages play a more important role globally and should be able to gradually enhance the production capacity of local firms in developing countries, including the SME sector or at least its most promising segments, as is already the case in the OECD and some emerging economies. These linkages could be a way for SMEs to access certain critical resources, the most important of which are access to international markets, finance, technology and managerial skills.

C. Inward FDI and SMEs' linkages with TNCs: potential benefits and costs

Four main types of linkages between TNCs and SMEs have been categorized and analysed by UNCTAD: backward linkages with suppliers, forward linkages with customers, linkages with technology partners, and other spillover effects. Each linkage may have very different impacts on the development of the host country and its local SMEs. Backward linkages with suppliers have been identified as the ones that may have the deepest impact but are the hardest to promote (UNCTAD 2000b). The rest of this section will deal with this type of linkages.

The main benefits of outsourcing for foreign affiliates, or even for TNCs at headquarters, include, first of all, the timely availability of supplies, a factor that has become very important in a world with just-in-time production methods. In addition, in host economies with low labour costs and high duties on imports, sourcing from local suppliers can substantially lower production costs. Where suppliers are technologically advanced, they can enable foreign affiliates to concentrate more effectively on core competencies, which increases the competitive benefits of having local efficient support firms. TNCs depend on quality and standardized supplies, and the existence of national or subregional supply clusters is of growing importance in their investment and location decisions (Markusen 1996, Wheeler and Mody 1992). Sometimes, a "reverse transfer" can be also possible, in which TNCs learn from specialized and knowledge-based SMEs (Willem Te Velde 2002, Chew and Yeung 2001). Strong linkages with local SMEs can also enhance the corporate image of TNCs and thus are conducive to their sustainable development.

Domestic suppliers can also benefit from linkages with foreign affiliates. A direct benefit is a positive effect on output and employment in linked supplier firms. Indirect effects, which often entail an exchange of information, technical knowledge and skills, may in some cases be more important. UNCTAD has shown how TNCs and their affiliates have developed integrated business-to-business (B2B)⁴ strategies, providing suppliers and subcontractors with various modes of technical, human and financial support (UNCTAD 2000a, 2001b).

However, the potential of business linkages to contribute to real local SME development is not realized automatically. Not all linkages are equally beneficial to the host economy. Exclusive linkages within established chains of production can lead to anti-competitive practices and unfair conditions for local SMEs. Suppliers of sophisticated, high-value-added products or services are generally better placed to benefit from linkages. Low-cost suppliers of simple and price-sensitive goods with limited technological and management capabilities may be forced to bear high risks, such as the possibility of facing anti-competitive practices, unequal bargaining positions, excessive dependence and the bankruptcy threat in sectors or subsectors where foreign affiliates are "footloose" and liable to shift to lower-cost locations as soon as wages start to rise. Moreover, outsourcing may be used as a way to transfer social and environmental pressures to supplier firms in locations where labour and environmental standards are lower (UNCTAD 2000a, 2001b).

Foreign affiliates' activities do not always signify transfer of technology and know-how to the host country. In several Latin American countries, acquisitions by TNCs or affiliates of privatized enterprises in the telecommunications and energy sectors have caused the decrease – or even the closure – of engineering SMEs and other types of national business support providers (Katz 1999).

⁴ Involves businesses selling products or providing services to other businesses.

These different impacts of FDI and linkages on the host country derive from the fact that outsourcing practices differ depending on industry and host country characteristics as well as on TNCs' attitudes towards subcontracting production of inputs to local firms. Because of knowledge and productivity gaps, local suppliers may not have the capability to meet the needs of TNCs. The quality of FDI may also play an important role in sustaining the development of SME suppliers and subcontractors. Moreover, business linkages may happen to be more feasible in some high-tech industries than in others. So far, studies have largely concentrated on the automotive and electronics industries. These two sectors are growth engines for various large and small firms both in developed and developing economies. It remains to be explored whether similar linkages should be encouraged and more systematized in other sectors. For instance, agro-food can play a central role in economic take-off and poverty alleviation in most locations, and especially LDCs. Other areas such as commodities, energy and other natural resources may be less open or linkage-ready for such arrangements. Therefore, national policy may play a transitory corrective or counterbalancing role in addressing such divides and gaps.

POLICY RECOMMENDATIONS FOR THE DEVELOPMENT OF SME EXPORT COMPETITIVENESS

The changing international context has raised new challenges for policy makers in the developing world, different from those faced by East Asian economies when they began promoting the competitiveness of national enterprises. A number of the direct measures used in the past (such as trade restrictions, monitoring of FDI inflows, and local content requirements imposed on foreign affiliates) are being phased out as a result of the decline of interventionist policies and the rules agreed in the context of the World Trade Organization and other international agreements.

During the 1990s, a consensus emerged regarding the fact that:

- Private market and export-led strategies can contribute to industrial take-off and rapid growth in developing countries, including their SME sector, as in some East Asian economies.
- A flexible combination of state intervention and market freedom, open trade and selective transitional protection, together with a finely tuned mix of macro and micro policies and public-private partnerships is needed for the development of local entrepreneurship and the creation of dynamic exporting SMEs.

Consensus also exists on the need for the involvement of various stakeholders to different degrees in enhancing the export competitiveness of SMEs in developing countries. These stakeholders include governments, the private sector and the international community. Drawing from the experiences of countries that have successfully promoted the export competitiveness of SMEs, this paper makes policy recommendations to these different stakeholders.

A. Policy recommendations to governments

Declaration of a commitment to the export competitiveness of SMEs:

The existence of a clear and strong governmental commitment to supporting domestic SMEs with potential to export directly or indirectly through linkages could give a positive signal to potential investors.

A coherent policy framework:

The design of a coherent policy framework to foster investment, competition, technology transfer, and SME development would require that sectoral and firm-level policies to promote export competitiveness be consistent with policies implemented at the national level (e.g. those related to macroeconomic stabilization, taxation, trade liberalization and business-related regulations). Fundamental policy changes may even threaten the survival of SMEs if the latter are not given sufficient time to adjust and measures are not implemented to facilitate their adjustment, as the experiences of many developing countries and economies in transition with structural adjustment and trade liberalization measures have shown. Moreover, economic and financial safety nets should be put in place to prevent devastating effects on SMEs of macroeconomic and financial disruptions like those during the recent East Asian or Argentinean crises.

Creating a business-friendly environment for SMEs:

The creation and further development of a business-friendly environment enabling SMEs to start exporting, or to help consolidate the activities of SMEs that are already exporting, is critical. This implies:

- Simplification of import-export policies and procedures;
- Combating of corruption and red tape that hinder the growth and export potential of SMEs;
- Creation or reform of administrative and legal institutions in order to guarantee SMEs a stable legal framework in which to operate, and to facilitate an anti-monopolistic and competitive business environment;
- Delivery of an appropriate public infrastructure, especially in transportation, power, telecommunications and other infrastructure needed to enable domestic and external trade (e.g. testing and certification laboratories). When public utilities services are provided by private enterprises, as is actually the case in most countries, emphasis may be on strengthening regulation and anti-monopoly agencies.

A policy of constant improvement of comparative advantages in attracting FDI:

Developing countries should avoid relying exclusively on low wages and should encourage a progressive building-up of knowledge-based local advantages in order to improve advanced and specialized factors of production and to achieve technological goals through linkages with foreign affiliates. Comparative advantages in attracting capital through the low cost of unskilled labour may disappear when other countries offer lower labour standards, or with the appreciation of the national currency. Subsidies draw off resources from other activities and may lead to a subsidy race among competing locations without helping to improve the underlying factors of competitiveness. Low quality FDI involves firms having few linkages with the domestic sector, low potential for technology spillovers and short-term horizons (UNCTAD 2001b).

Targeting export-oriented TNCs and SMEs:

The choice of exporting SMEs to be supported and TNCs to be attracted should be related to the development objectives of the country, rather than providing indiscriminate assistance to SMEs and/or attracting FDI in general. Targeting should not be a one-off initiative but a strategy that needs to be reviewed over time based on evolving market conditions and private strategies. Targeting involves risks related to the government's ability to foresee which types of domestic enterprises and FDI are likely to have the most favourable impact on national export competitiveness. To mitigate such risks, it is necessary to promote continuous dialogue among stakeholders; create a consensus among national entrepreneurs, trade unions, policy makers and civil society; and integrate policies to promote exporting SMEs and to attract FDI into a comprehensive national development strategy (UNCTAD 2002a).

Incentives or subsidies to support exporting SMEs:

The provision of direct support to some SMEs may be considered in order to get them export-ready and/or to link them up with domestic or foreign partners. Such measures can take a number of forms:

- *Direct incentives or subsidies.* Fiscal and other financial incentives seem more market friendly, feasible and performing, especially in developing countries with limited budgetary and fiscal resources. Subsidies hardly work, with the exception of some direct forms of support such as helping SMEs to gain access to distant trade fairs or to specific sources of market-matching information.
- *Indirect incentives or subsidies* to facilitating public and/or private institutions as well as to SME export business facilitators. However, experience has shown that in many developing countries, public export promotion agencies lack professional capacity as well as credibility and visibility among most SME entrepreneurs. Therefore, governments and international donors should consider funding public or parastatal agencies, especially where such facilitating institutions hardly exist in the private sector, as is the case for many developing countries, owing to low demand for such services by local businesses.

Measures to improve exporting SMEs' access to finance:

- *Establishing, together with the respective central banks, a policy framework for channeling adequate funds to exporting SMEs.* This may include: providing credits directly from state-owned banks to SMEs; liquidity incentives to commercial banks that provide loans to SMEs (lowering of reserve requirements, access to discount lines, etc.); interest rate subsidies; guarantee programmes; and so forth.
- *Improving the bargaining position of SMEs vis-à-vis large conglomerates of which they are suppliers.* This may include measures such as providing legal assistance to suppliers negotiating contracts, providing legal protection against unfair practices, shortening payment delays for local suppliers through legislation or fiscal incentives, and encouraging the provision of financial support by big firms to their SMEs suppliers through fiscal incentives.

Measures to encourage TNCs to create linkages with SMEs: Provided the local suppliers' capacities are sufficient to meet the needs of foreign investors efficiently, these measures include:

- *Prescriptive measures like high tariffs on imports, local content requirements, or rules of origin.* However, these types of measures are being phased out as a result of host countries' policy changes to more market-oriented economic strategies, and also owing to international commitments, in particular the WTO TRIMs Agreement.
- *Incentives.* These include benefits such as tax exemptions, the possibility to treat costs related to linkages formation as tax-deductible expenses, and granting foreign investors a special status that entitles them to various types of fiscal or financial incentives. However, care must be taken to make the use of incentives compatible with international commitments (such as the TRIMs Agreement and the Agreement on Subsidies and Countervailing Measures) and to avoid granting incentives in situations in which linkages would be forged even in the absence of such incentives.
- *Contractual arrangements with foreign investors, such as privatization transactions and licence concessions.* These may offer host governments opportunities to encourage the formation of local linkages by including this element in the negotiation process (UNCTAD 2001b).

SME trade promotion through public-private partnerships: The promotion of public-private partnerships is a more recent approach to linking together various types of economic and non-economic agents. Governments may approach domestic and foreign large corporations to design specific institutions or tools to provide exporting or promising SMEs with specific services. Such partnerships can take various forms, including training facilities, technology upgrading centres, research and testing labs, scientific hubs, investment funds, start-ups, incubators, and so on. Local governments and municipalities can also play a role in supporting the wider spectrum of local SME entrepreneurs, encouraging the creation of start-ups, developing their awareness of new external business challenges, upgrading them to become internationally competitive, and linking them up with larger economic agents of domestic and foreign markets. Such interventions should not be only declaratory and concentrated in the capital city, but should also reach SMEs in all provinces and districts through strengthening of the business promotion activities of meso- and micro-institutions.

Measures from governments of home countries to increase the benefits of FDI: The São Paulo Consensus, reached at UNCTAD XI by representatives of all member countries, stresses the importance of home-country policies and measures to encourage investment and technology transfer and to maximize the benefits of FDI in the host economy. These measures include the collection and dissemination of information related to investment opportunities in developing countries, the encouragement of technology transfer, the provision of various forms of financial and fiscal incentives, and help with mitigating risk by providing insurance that may not normally be covered through the private market (UNCTAD 2004b).

B. Recommendations to the private sector

A wide range of measures could also be considered at the B2B level to boost the export capacities of SMEs in developing countries. Key actors and possible measures include:

Trading houses: Trading houses, which control vast trading networks and distribution channels across borders, can do more to encourage the export activities of SMEs from developing countries. They can provide SMEs with various forms of marketing assistance and facilitate access to market and product information and quality imports. Furthermore, they can provide SMEs with the trade documentation, insurance and credit needed to trade successfully. They can also give SMEs access to long-term credit to upgrade production and technology. Trading companies may even consider investing in a promising SME for the sake of diversifying their own activities and/or producing locally in order to export profitably. Trading companies should source more from SMEs and should consider establishing themselves in more developing countries, particularly LDCs.

TNCs: In manufacturing, TNCs and their foreign affiliates can do more to drive or guide the competitiveness upgrading of selected local SME suppliers and subcontractors. While direct investment into these SMEs will be rare, B2B linkages will take other routes through various transfers of know-how. Socially responsible TNCs should pay more attention to the trickle-down effects of their local business activities. They should act more responsibly not only vis-à-vis their direct SME counterparts but also where economic, educational, technological and social conditions remain marginal.

SMEs that are already suppliers of TNCs: SME suppliers working closely with TNCs tend to invest in those regional or subregional hubs where TNCs operate. By doing so, such SMEs are sourcing themselves from local SMEs, which in turn can benefit from their know-how. The possible deepening of such SME interlinkages has not yet been studied extensively. TNCs and foreign and local governments should analyse what types of public-private vehicles could facilitate such interlinkages.

Clusters: As was mentioned in paragraph 21, clusters and districts could enhance SMEs' ability to compete in the global economy through a semi-collective organization and specialization among SMEs. National governments, local authorities, TNCs and SME associations should be involved in efforts to identify the optimal division of labour among individual SMEs, large firms and central/local governments in developing countries so as to enable replication of the successes of the best exporting SME clusters and industrial districts (like those in Italy and Taiwan Province of China).

Business associations: There are few specific and representative SME associations in developing countries, and even fewer that focus exclusively on the SME import-export business. SMEs should become more active participants in business associations, chambers of commerce and employers' unions, and the efficiency of such institutions as it relates to the promotion of SMEs should be a focus.

Financial and non-financial business development services (BDS): Smooth access to financial and non-financial services can play a role in supporting some SMEs aiming to export or to consolidate regular foreign orders. Except in some LDCs, the development of highly skilled BDS to meet the financial and technical/training needs of exporting SMEs is primarily market driven, and a majority of such services are private, whether independent or incorporated into large manufacturing or tertiary firms. On the non-financial front, exporting SMEs are often ready to pay for good quality and specialized technical services in areas like foreign market and product information, design and patterns, appropriate machinery and technology, skilled training, quality control, norms and testing, marketing, conditioning, packaging, communication and advertising, transport and freight, after-sale service, intellectual property rights and other contractual issues, and the like. The local availability of BDS may enable a small firm to focus on the quality of its production and on its own internal organization and management. In case of non-availability, foreign buyers and manufacturers and/or national governments and international donors could fill the vacuum.

Combination of financial and non-financial support services: The rigid separation between financial and technical service providers should be reduced to improve proximity to the real multi-level needs of SME exporters. Ways and means but also willingness should be mobilized within the private sector, but also with the pressure and participation of governments and donor agencies, in order to be able to make serious and effective cross-evaluations of exporting SME clients. To achieve this, financial institutions should rely on the expertise of technical service providers to assess the credibility of an exporting small business, not only on its financial accounts and its proposed collateral to support a credit demand. Credit risk, transaction costs and therefore interest rates can be reduced if financial institutions are ready to develop a working relation with BDS providers able to evaluate the profile of each individual SME. The combination and teamwork of financial and technical services should be much more systematically explored both by banks and by BDS providers to match SME export needs.

Commercial banks and informal credit groups and institutions: Foreign banks and their large corporate clients (domestic companies and TNCs) could issue international credit guarantees to SMEs already engaged in quality exports and other SMEs well known to them. In some developing countries, if the lack of access to banks tends to persist, exporting SMEs can get started by themselves or become members of informal credit groups. Informal credit institutions have sometimes grown as big as formal banks.

C. Recommendations to the international community

TNCs' corporate responsibility and business linkages for exporting SMEs should be part of the UN Global Compact agenda: During the 1990s, the issue of the corporate responsibility of TNCs first emerged under the theme of their global environmental and social responsibility. More recently, the concept has been interpreted internationally in a more diverse and broader developmental sense since the launch of the UN Global Compact in 2000.⁵ TNCs and other large firms could play a more driving role in enhancing local SME development, and SME export competitiveness in particular, through various forms of FDI and business linkages. In order to better exploit the benefits of globalization but also to cushion its potential negative effects, the international community, together with large firms, should develop public-private partnerships to the real benefit of SMEs in developing countries. It would thus contribute to greater economic and social security at the local community level. Such partnerships should also aim to improve the decency and quality of labour in local SMEs – not only in the ones directly linked to foreign buyers and investors, but along the entire production chain, from the global to the local level.

National policy versus international commitments:

An important issue that should be given special consideration by the international community is the policy autonomy that national governments have to support their domestic industry, in particular SMEs. Specific and transitory national policies could be considered either to promote local SMEs' gradual integration into global chains of production whenever possible or, in other cases, to protect them selectively from overly fierce global competition. In the choice between incentives and subsidies for exporting SMEs, their compatibility and legality with existing international agreements needs further exploration.

SMEs' access to finance:

The international community should play a more active role in facilitating SMEs' access to finance. This can be achieved in the following ways:

- Enhancing SME export credit and long-term finance under the new Basel II regime: The international community should help in the collection of the best practices of national and international finance institutions in facilitating SME access not only to short-term export credit but also to long-term loans for the expansion of SME export capacity. The issue of credit collateral and guarantees should be revisited. Foreign buyers, TNCs and other business linkage makers should be invited as facilitators or guarantors. The sensitive issue of the Basel II accord under the Bank for International Settlements (BIS) should also be examined in

⁵ The Global Compact seeks to advance responsible corporate behavior so that business can be part of the solution to the challenges of globalization. In this way, the private sector – in partnership with other social actors – can help create a more sustainable and inclusive global economy.

relation to industrial and SME policies. Developing countries fear that the imposition of higher and more restrictive lending ratios on commercial banks will have some negative impacts on the already limited capacity of local banks to lend to SMEs.

- Coordination between financial and non-financial support institutions: The international community could directly support or call for the multiplication of pilot experiences in this area, such as the Empretec Ghana Foundation (EGF). This UNCTAD programme in Ghana has expanded its portfolio of BDS to include financial services and operates four schemes to facilitate access to credit for SMEs: credit sourcing to provide loans to micro- and small enterprises; a mutual guarantee scheme in which SMEs mutually each other's bank borrowing on the basis of a fund created by regular joint contributions; agreements with selected financial institutions to enable SMEs to quickly access medium- to long-term finance at preferential interest rates; and export development and investment funds (EDIF) designed to improve the export competitiveness of SMEs at low comparative interest rates (UNCTAD 2003c).
- Improvement of the SME finance programmes of multilateral financial institutions: The SME finance programmes that these institutions have developed through national ministries of finance and central banks should be improved in the following ways:

Box 1: PROEX-EMPRETEC: Supporting Domestic Companies' Efforts to Achieve Export Competitiveness

PROEX is an export support programme carried out by Empretec Uruguay in collaboration with UNCTAD, the Inter-American Development Bank (IDB) and Banco de la República Oriental del Uruguay. With methodologies acquired from Consorcio de Promoción Comercial de Cataluña (COPCA), the government agency for the internationalization of Catalan enterprises, Empretec Uruguay selects and trains companies with the objective of helping them developing the necessary capabilities to become exporters. The objective of the programme is to assist participating companies not only by making them export-ready but also by engineering a permanent change in their corporate perspective and strategy.

Each company relies on the assistance of a foreign trade expert. The whole process lasts 18 to 24 months and comprises three phases:

Phase 1: Diagnosis: Evaluation of the company's strengths, weaknesses, opportunities and threats in view of its strategy of entry into foreign markets.

Phase 2: Export plan: This is the core element of the PROEX system. It involves defining all elements, measures, means and targets related to developing export activity, from identifying the product or products to be exported to defining the payment methods.

Phase 3: Plan application and monitoring: The steps defined in phase 2 are put into practice, monitored and adapted to market realities.

According to the evaluation report produced by Empretec Uruguay, the project achieved successful outcomes: the number of participating enterprises was 83 (instead of the expected 40); 16 consultants were trained (instead of the expected 10); 73 per cent of the companies started exporting; 82 per cent of the companies produced a new catalogue, website or electronic catalogue; 74 per cent of the companies created an export department; and 90 per cent of the companies have a positive opinion about the programme.

Sources: Empretec Uruguay (2003), Evaluación de Término de programa Proex-Empretec [Final evaluation of Proex-Empretec programme], evaluated by Enrique Baraibar, September; Empretec site www.empretec.net (2004).

- Whether and to what extent these programmes include SME export competitiveness and financing, and the lessons thereof, should be examined.
- Multilateral finance could play a bigger role in facilitating SME export finance in the framework of existing interregional, regional and sub regional trade agreements.
- The IMF/World Bank Group and governments could further explore the economic and social need for temporary SME export safety nets, especially when global and/or national financial markets fail, as happened in the recent crises in Argentina, East Asia, Russia and Turkey.

Other fields where the international community has a role to play:

- South-South trade: Encouraging South-South outward investment and helping SMEs in developing countries develop South-South trade, including transborder and small-scale transactions among LDCs, with possible technical support from TNCs and other large firms operating in the neighbourhood.
- Trade infrastructure: Supporting public-private partnerships in co-financing trade infrastructure in developing countries.
- Trade barriers: Removal of remaining trade barriers, including tariffs on products from LDCs and protectionist measures vis-à-vis offshoring of services.
- Training programmes: Providing or co-financing specific entrepreneurship training programmes focused on picking up the most promising SMEs in order to get them export ready (see Box 1). Within such programmes, there is a need to create awareness of the growing importance of intellectual property rights for exporting SMEs.

CONCLUSION

This paper has analysed how to promote the export competitiveness of SMEs in developing countries and has identified three ways in which SMEs can access external markets through exports: independent SMEs specializing in specific niches and highly profiled productions; SMEs that link up with TNCs or large domestic exporting firms; and SMEs that are part of clusters and networks in order to reinforce their external competitiveness.

Special emphasis has been put on linkages between TNCs and SMEs as a way to enhance the export competitiveness of SMEs, owing to the leading role that TNCs are increasingly playing in world production, trade and finance, and to the rising number of SMEs that are being included in international chains of production. This could suggest that much of the growth of exports in the future will be situated in or around TNCs' systems. Linking up with TNCs is increasingly perceived as a way for SMEs to solve their traditional problem of access to certain critical resources, the most important of which are finance, technology and managerial skills, as well as to new markets. However, while linking up with TNCs can bring benefits for SMEs, it can also entail risks and costs that may need to be addressed through appropriate policies and measures.

Promoting the export competitiveness of SMEs needs the involvement, to different degrees, of various stakeholders – governments, the private sector and the international community – in it is to them that the policy recommendations in this paper are addressed.

Experts may wish to consider the following issues for discussion:

- Does globalization raise new challenges for SMEs' export competitiveness?
- Should SMEs' export capacity be spontaneous or promoted?
- Is SMEs' domestic competitiveness a precondition for export competitiveness, and does it automatically lead to an increase in the national export capacity?
- What types of SMEs are more export-oriented and can more easily become partnership-ready? How is it possible to quickly meet international technology and quality standards?
- Can linkages with TNCs help to promote the export competitiveness of SMEs, and how can corporations contribute to this objective?
- Are the policy recommendations included in this paper sufficient to address the issue of the export competitiveness of SMEs?

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SME DEVELOPMENT & CAPACITY BUILDING IN MALAYSIA

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INTRODUCTION

Due to the phenomenal growth of the manufacturing sector over the past three decades SMEs nowadays play an important role in the Malaysian economy. SMEs are an essential sector in providing the linkage between various sub-sectors within the economy. They also offer diversification and resiliency to the economic base. Malaysian SMEs have assumed a critical role through the strengthening of both forward and backward industrial linkages outlined in the Second Industrial Master Plan (IMP2: 1996-2000), complemented by the Small and Medium Size Industry (SMI) Development Plan (1999-2005).

The continued importance of the SMI to the Malaysian economy is reflected in the Third Industrial Master Plan Study (IMP3: 2006-2020), where the SMI is identified as one of six targeted growth areas for the future. The plans recognize the need to cultivate internationally competitive SMEs in the context of a changing landscape for business and world trade. In this regard, Malaysia has a two-pronged strategy: 1) to nurture world-class SMEs, and 2) to develop and enhance entrepreneurship.

This paper describes the Malaysian experience in developing and positioning the SMI sector for the new global economy from the perspectives of TNCs, Government, and SMEs. Particular emphasis is given to the role of TNCs in setting the path for this trajectory. TNCs are strategically positioned to support indigenous enterprises that have the potential to grow and expand to become the next generation of regional and global players.

STAKEHOLDERS IN SME SUCCESS

There are many stakeholders who are affected by, or who have a vested interest in, SME development. These stakeholders can be thought of as a part of a business ecosystem — an organic web of players. No SME today can act alone. Success arises from electronically enabled networks or ecosystems in which everyone is an active player in creating value. The economic web is all about a virtuous cycle of relationships, as opposed to a vicious cycle of competing interests.

Control is less important in this environment than relying on the ability to influence. Business ecosystems are, in effect, a loose network of suppliers, distributors, outsourcing firms, makers of related products or services, technology providers, vendors, communities, NGOs, and other entities, including government programmes and policies. Each member of the ecosystem shares the fate of the network as a whole.

The SME export capacity building function ultimately relies upon the interplay of government, TNCs, the SMEs themselves, and the other components of the ecosystem.

CHARACTERISTICS TNCs SEEK IN PARTNER-READY SME SUPPLIERS

TNCs have high expectations for SMEs. They seek a learning organization that continuously upgrades its capabilities and that encourages bottom-up feedback and is not top-down driven. They seek an alignment throughout the SME organization that is flexible to change, thereby allowing movement in tandem with TNC needs.

Fundamental competencies sought include:

Competitiveness

- Safety: Able to meet stringent environment, health, and safety requirements
- Quality: Mastery of SPC techniques to enforce manufacturing standards
- Delivery: Timely and flexible – able to support global network
- Price: Competitive pricing enabled by total cost and productivity management
- Service: Customer focused total solution provider
- Markets: Understanding market and trend changes

Management

- Planning: Vision, strategic direction, business and market plans
- Financial: Sound financial management and corporate strength
- Flexibility: Resourceful and responsive to multiple and sudden changes
- HR: Building a well motivated and aligned workforce
- Training: Keeping pace with skill sets at all levels

Capability

- Technical: High technical skills and continuous upgrading of skills
- Materials: Access and quality sourcing of materials
- Processes: Efficient and effective managerial, operational, and supply chain processes (e.g. best practices in order, delivery, inventory; eliminate paper, reduce transaction time, simplify, etc.)
- Products: Understand business needs of short product life cycles
- R & D: Committed to upstream in product and process development
- Innovation: Focus on cost-effective innovation vs. low cost production
- Global: Understand global markets and meet international standards for export

In addition to these basics, TNCs look closely at the SME's ability they work with. They are looking for suppliers who are willing and capable. The willingness to learn and succeed must be there. An attitude of continuous improvement is required and the SMEs must be growth driven. TNCs uniformly rank the most important characteristic is an open attitude to competitive challenges and new technology. "A will to succeed" . . . but anchored by the TNC.

A TNC SUPPLIER DEVELOPMENT PROGRAMME PERSPECTIVE

Intel Malaysia is the largest of Intel's manufacturing facilities outside the U.S.A. It is progressing beyond simply manufacturing to value added functions such as testing, packaging design, and others. It employs 8,000 workers principally in Penang, Malaysia. What began as Intel's first offshore and test plant in 1978 has grown to 1.8 million sq. ft. of manufacturing space spread over 150 acres. Their product portfolio includes chips for an ever-changing variety of computer devices and terminals, microprocessors, micro controllers and computer motherboards.

Intel's procurement needs consist of operating supplies, IT supplies, construction and infrastructure support, equipment service support, tooling and fabrication, manufacture sub-contracting, and transport media and packaging supplies. Early on, Intel developed a formalized Supplier Development Programme (SDP) to source their procurement needs. The SDP focused on both existing suppliers and potential new suppliers.

The clear success of SDP is evident in the percentage of local versus foreign suppliers, which is 65 per cent local versus 35 per cent foreign. Localization grew from under RM 1 million in 1990 to over RM 1 billion in 2004 — a one thousand-fold increase. Through the SDP programme, Intel actively partnered Malaysian SMEs with other companies as well. This extended the building of global SME linkages. SDP fostered strategic alliances that partnered American suppliers with Malaysian SMEs. Intel has also partnered Japanese suppliers with Malaysian SMEs.

TNC APPROACH TO SME DEVELOPMENT

A review of several TNC programmes shows that there are essentially five stages employed to develop the SME component of the business/industry ecosystem.

- Stage One: This is the prospecting phase, which 1) seeks out either willing or capable existing suppliers, or which 2) seeds potential new suppliers. The SME suppliers must offer a potential match to TNC needs.
- Stage Two: This is the forming and development phase that begins the process of working with the SME and nurturing their development. This is done through coaching and training. As manufacturing and supplier capabilities grow, the TNC allocates additional opportunities to the SME.
- Stage Three: This is the norming and sustainability phase where the SME has developed into an effective supplier. The SME delivers to expectations and has also become an innovative partner and continuously improves on its own initiative — a total solution provider.
- Stage Four: This market growth phase reflects a self-reliance that enables the SME to confidently look beyond existing supplier relationships. The SME seeks new domestic and other TNC growth opportunities, e.g. developing new products and penetrating new market segments.
- Stage Five: This is the global expansion phase. The SME has honed their competitiveness and confidence domestically and seeks further market expansion through international market opportunities. The SME may begin with cross-border or regional expansion or leapfrog to a global scale through the TNC linkage.

These five stages of progression require strong collaboration between government, TNCs, SMEs, and the ecosystem community. They ultimately lead to export capable SMEs that are able to capitalize on global opportunities.

INITIATIVES FOR PROSPECTING AND CULTIVATING SME SUPPLIERS

TNC and government collaboration takes many forms. These include:

- 1) Active participation in community/government-sponsored supplier development initiatives in the area of assisting TNC and SME prospecting efforts. Examples are the 'SMI Showcase' and 'PSDC Open Day' which are business matching sessions for SMEs to promote their capabilities and for TNCs to prospect potential suppliers.
- 2) Establishing a cooperative environment using the concept of 'adopting' suppliers and then implementing linkage programmes. TNCs use this approach to set a tone of close collaboration with SMEs. 'Adopting' reflects an important sense of corporate 'social responsibility' in supporting local entrepreneurs.
- 3) Early TNC assessment of SME technical capabilities through upfront reviews and by sharing technical/business roadmaps. These reviews are important in identifying gaps — such as methods and practices to make the SME more cost effective, and ways to achieve greater control over the supply chain through localizing foreign components used in the manufacturing process.

- 4) Collaboration with TNC/Government sponsored skill development centers to develop supplier capability through training. For example, the Penang Skill Development Centre (PSDC) and others in each of the 13 States in Malaysia offer a wide range of technical and management training courses on a continuing basis. They also provide Global Supplier Programmes (GSP) to develop SME export activity.
- 5) Providing SMEs access to TNC internal training programmes as well as facilitating continuous improvement through mentoring/coaching techniques.
- 6) Integrating the SME into the TNCs planning table and its operations through on-going information sharing using:
 - Supplier briefings;
 - Contractor dialogues;
 - Business technical reviews;
 - Face to face meetings with senior management.
- 7) Forming joint Technical Advisory Boards to steer the development of next generation products that are critical for TNCs to meet market needs.
- 8) Emphasis on safe working environments through the National Institute of Occupational Safety & Health (NIOSH) programmes; e.g. NIOSH has provided training to over 5,000 contractor workers in safety practices.
- 9) Use of Community Advisory Panels to obtain continuous feedback from all stakeholders in affected communities of interest. These involve cross-discussions with community advisory groups that include teachers, lawyers, house-owners, and religious groups. These meetings are arranged two to three times per year.

TNC PERSPECTIVE FOR GLOBALIZING SMEs

It is generally difficult for SMEs to grow globally without the strategic TNC linkage. It could, and has done it, but the process is significantly accelerated with TNC leadership and government support. TNC initiatives include:

- TNC sponsored and organized road shows in the U.S. for selected suppliers;
- Fielding local suppliers for international projects;
- TNC collaborations with globally networked sister companies to facilitate SME strategic alliances and partnerships within the network; including broader TNC sponsored partnership programmes;
- Assisting in establishing linkages with various government and non-government agencies; e.g. key linkages with Small and Medium Industry Development Corporation (SMIDEC), Malaysian Industrial Development Authority (MIDA), U.S. and local Chambers of Commerce;
- Sharing of TNC marketing research on global market trends and opportunities and exchanging business forecasts and methodologies (SMEs generally cannot afford to hire expensive consultants for this type information);
- Helping SMEs to understand global competition and distribution as well as the trade issues and the competencies required;
- Participation in Government, Chamber of Commerce, and other generated Trade Missions to targeted countries;
- Participation in international trade shows and exhibitions for exposure and information on potential markets and clients (note: The government provides Market Development Grants with 50% matching funds to attend trade shows and print promotional materials);
- Organizing presentations and seminars for Malaysian SMEs delivered by visiting TNC CEOs and VIPS;
- Arranging specific SME visits of potential foreign partners to promote their capabilities;
- Disseminating a database of Malaysian SMEs to American companies in the USA that provides information on Malaysian companies, government incentives, and that encourages them to seek value added alternatives in Malaysia;

- Specific matchmaking programmes to encourage formation of partnerships and alliances between Malaysian companies and the US;
- Regular visit exchanges and contacts with TNC innovation centres and R&D facilities in the region or at TNC headquarters.
- Participation in unique international events such as Asia's Business Matching Conference themed "Globalizing SMEs" which provides a platform for EU and Asian countries.

MALAYSIAN GOVERNMENT AGENCY PERSPECTIVE

Government plays a vital role in SME capacity building efforts. SMEs require a robust environment to flourish and grow into exporting SMEs. Areas of support include:

- Business Environment
 - Re-orientation for globalization
 - Political and economic stability
- Financial Aid
 - Funding sources
 - Incentives
 - Tax exemptions
- Effective Policies
 - Encourage foreign investment
 - Encourage local supplier development
- Robust Educational System
 - Multi-skilled and agile workforce
 - Promote learning organization
- Good infrastructure
 - E-commerce capability
 - Gazette location
- Industrial Promotion
 - Opportunities for linkages and networking
 - Foreign collaboration with local industries

The Malaysian government provides this supportive environment and encourages exports through its Ministries and agency organisations. Malaysian Industrial Linkage Programmes (ILP) are targeted to develop linkages between SMEs and TNCs and large indigenous companies. They seek to exploit opportunities for SMEs to be integrated into supply chains and thereby increase domestic content.

ILPs also seek to expand the participation of local SMEs in internationally linked clusters that are otherwise dominated by foreign-based suppliers. The focus is on priority sectors with the most potential for linkages such as the electrical and electronic (E&E) sector, transport equipment (TE), and machinery and engineering (M&E).

As of December 2003 there are 999 SME's registered under ILP and these are mostly in the E&E and M&E sectors. Some are linked to large automotive companies and others have collaborations, for example, to supply hypermarkets, i.e. food processing and consumer product markets. The Global Suppliers Programme (GSP), which is elaborated upon in the next section, is an offshoot of ILP and provides skills training and linkages to TNCs and large companies.

Malaysia's Second Industrial Master Plan (IMP2) sees SMI as central to deepening key industry clusters. The Eighth Master Plan (8MP: 2001 to 2005) pledges government support to this effort on two tracks; one is a general track promoting all SMEs and the second track is focused on Bumiputra (indigenous population) SMEs.

The Small and Medium Industries Development Corporation (SMIDEC) was established in 1996 under the wing of MITI. It was founded in recognition of the need for a specialized agency to further promote the development of SMEs in the manufacturing sector. It does this through the provision of advisory services, fiscal and financial assistance, infrastructural facilities, market access, and other support programmes.

SMIDEC's SMI Development Plan (SMIDP) consists of the following seven core programmes:

- 1) Industrial Linkage Programme (ILP);
- 2) Global Supplier Programme (GSP);
- 3) SME Expert Advisory Panel (SEAP);
- 4) Skills Upgrading Programme;
- 5) Head Start 500;
- 6) Enterprise 50;
- 7) Infrastructure.

The Global Supplier Programme in particular, involves training in critical skills and also provides linkages to TNCs and large domestic companies. The training initiative is implemented in collaboration with state and local Skills Development Centers. Through the linkage initiative of the GSP, SMEs are developed to be competitive suppliers of parts and components not only to TNCs in Malaysia, but also to their worldwide operations through mentoring activities.

HeadStart 500 is designed to provide SMEs with support services needed to accelerate their transformation from domestic-oriented to global manufacturers. Companies that qualify are chosen to act as role models and form smaller industrial clusters within their respective industries to support SMEs.

ILP, GSP, and other SMIDEC programmes can be engaged to facilitate the transformation. Other government efforts can also be integrated, such as the Malaysia External Trade Development Corporation (MATRADE) and other agency efforts. Participants in HeadStart 500 are assisted through the provision of integrated assistance packages comprising financial and technical know-how.

The areas of focus of SMIDEC's development and assistance programmes are:

- Industrial Linkage;
- Infrastructure Development;
- Skills Upgrading;
- Enterprise Development;
- Technology Development;
- Market Development;
- Technology Acquisition;
- Advisory Services;
- Financial Assistance.

SMIDEC has five regional offices across Malaysia. Their client base consists of manufacturing companies or companies providing manufacturing related services with annual sales turnover not exceeding RM25 million and fulltime employees not exceeding 150.

THE PENANG STATE GOVERNMENT PERSPECTIVE

All 13 States in Malaysia have skills development and training centers. Penang was one of the first States to establish this capability with support from the major electronic manufacturing TNCs operating there. Each of the States of Malaysia offer skills and capability enhancement programmes at the technical and managerial levels critical to their respective State needs.

The Penang State Government in Malaysia embarked on its industrialization programme in the early 1970s. Its economy was based on trade and agriculture and the state had no industrial base. Penang faced the chicken or the egg question. Should it first build up the local SMEs and, once critical mass is achieved, use the SME cluster to attract TNCs? Or should it promote TNCs first and then use their strong base to build up a local SME industry?

Penang opted to jump start its industrial programme via the TNC route and attracted the world's giants in the electronics industry to the Bayan Lepas Free Industrial Zone (FIZ) established in 1972. Some of the world's top computer, computer-related manufacturing, and semiconductor companies sited operations in Malaysia's 'Silicon Valley'. These include Intel, Hewlett Packard, Motorola, Dell, Robert Bosch, Seagate, Osram Opto, and Advanced Micro Devices.

This approach worked well for Penang. Once the TNCs were established, these 'mentors' assisted and spawned the development of SMEs. These SMEs formed the bedrock and backbone of local manufacturing capability. They provided the core indigenous manufacturing capability for future growth producing products, parts, and components, and the development of local entrepreneurship. The SMEs help the TNCs in sourcing local parts and in creating an enabling environment for the development of support services. The manufacturing sector itself accounts for 52 per cent of the State's gross domestic product and about 80 per cent of the goods are export oriented.

Globalization was the natural next step for some of these SMEs on the TNC platform. Many SMEs, which began as suppliers supporting MNCs, have grown and reached a level of sophistication to become global players.

The Penang Government facilitated this growth and development through the establishment of the Penang Development Centre (PDC) in 1969. PDC is responsible for initiating, planning, and promoting economic development in the State. PDC's initiative to establish the Free Trade Zone in 1972 (now known as the Free Industrial Zone) was the catalyst for the development of five industrial parks and two free industrial zones. The PDC is responsible for promoting and developing SMEs through commercial and technological collaborations.

The PDC's capability as a development agency has gained international recognition. It was engaged for consultancy services by the Kenyan Government in 1990 and subsequently its expertise was also extended to Zimbabwe, Namibia, India, Nepal, Jordan, China, and Kyrgystan.

PDC established the Penang Skills Development Center (PSDC), which has trained over 40,000 people to meet industry needs. The PSDC offers a three-tier training programme to upgrade capabilities of over 200 local companies supplying TNCs. They also offer linkage programmes where TNCs adopt local companies and 'groom' them towards becoming global players through the Global Supplier Programme.

Penang now promotes the following attributes of its industrial base:

- A stable political climate and pro-business government;
- Incentives offered to investors;
- A pool of skilled and easily trainable labour that is proficient in English;
- The presence of critical mass of TNCs and supporting SMEs;
- Good quality of life, accommodation, health, education, and recreation for expatriates and their families.

AN SME PERSPECTIVE - UNICO TECHNOLOGY BERHAD

Unico Technology Berhad provides an example of a successful SME that has benefited from TNC, government, and institutional linkage programmes supporting the SME industry. Unico Technology Berhad was established in 1992 with its principal offices and manufacturing facilities in Penang, Malaysia. Its core business then was in manufacturing IT related and telecommunication products at the circuit board level. Since then, it has become the largest manufacturer of boards that are designed by Intel.

In the past few years it has diversified into producing Unico's own designed telecommunication products such as 900 MHz cordless telephone product family, Caller ID adjunct products, universal remote controllers, and others. Its primary business today is electronics contract manufacturing services. Unico has manufacturing locations in Prai, Penang, Malaysia and has a strategic alliance for manufacturing with Shenzhen & Suzhou, China. Unico's vision is to become a globally competitive and successful business partner in the electronics industry using its offices in the US, UK, France and Italy.

Its capability lies in board and vertical integration, full turnkey, manufacturing engineering, RFR design, MMI, and strong supply chain. Major production equipment includes Siemens, Fuji, HP, Yamaha, Atmos, ATS, and DEK. Unico's customers include Intel, Vtech, Harvard, Rulag, Bondi, Telekom Malaysia, Orange Communications, Polycom, and Teledex. Commendations and awards from Unico's TNC customers include:

- Best manufacturing sites;
- Excellent Customer Support;
- Excellent Material & Cost Support;
- Excellent Quality Award;
- Outstanding ratings from *Supplier Business Review*.

Unico employs 1,800 workers of which a large percentage are skilled workers who undergo continuous skill upgrading. It has sales of RM 400 million/US\$ 100 million and is 100 per cent Malaysian owned. It has a physical presence in countries where its customers are located.

In its first five years Unico received tremendous opportunities through the TNC-SME linkage programme. It was through this initial opportunity that it built up its business and core competencies. It has rapidly progressed from manufacture to design capability, supply chain management and virtual manufacturing.

From its founding in 1992, Unico in 1993 was a subcontract manufacturer of telecommunication products for Motorola and Sharp. In 1994 it established manufacturing and technology linkages with Intel. In 1995 it entered into manufacturing motherboards for Intel. As it continued to build up its core competency in design and manufacturing services it was recognized in 1997 with the "Excellent Management Qualities Distinction Certificate" by the Ministry of Trade and Industry and won third place in the 'Enterprise 50 Award' in 1998. In 2000 it won the National Productivity Award.

Key to its growth was continuously upgrading employee skills, design capability, and manufacturing processes. It also attributes its success to the level of sharing by the TNCs and the reciprocation of such sharing and creating value in the supply chain. E-commerce linkages helped facilitate information flows.

The role of TNCs was critical. When it was small, Unico's biggest wish was for an opportunity and TNCs offered it. Consummating the opportunity requires focus on technology and skills training. When Unico started the motherboard business, Intel provided the training and management know-how. Intel seconded a large number of key skilled employees to assist in the start-up phase, which related to equipment needed, processors required, technical skill training, quality control methods, procurement channels and a management plan.

Intel and Unico business plans were shared, discussed, and strategy was formulated for mutual growth at the operating level. Clear direction was established with the setting of timelines, organizational structure, and position roles, which were subsequently met. During frequent business reviews new challenges were discussed, such as technology trends, common challenges, and opportunities for mutual growth. Intel brought Unico into the big-league with a focus on customer satisfaction at the intermediate and end customer levels.

Unico emerged as a significant and reputable supplier, which helped it secure additional business and growth. The role of government was significant. SMIDEC created the opportunity through its promotion of TNC and SME linkages using organized seminars, road shows, conferences and conventions. MIDA provided tax incentives such as capital reinvestment incentive, five-year tax holiday (for high value added industry) and double tax deduction for R&D. MIDA also encouraged TNC and SME linkages.

MIDA, SMIDEC, and PDC collectively and jointly provided continuous encouragement, affordable land, a conducive environment, and watchfulness. Unico also received a boost from MITI's Second Industrial Masterplan, which called for strengthening economic linkages both within and between sectors.

KEY SME LEARNINGS

Unico illustrated some of the key learnings from its growth and development. Very high on the list was the significance of constant training and tutelage from Intel and other TNCs — a key success factor. This training provided skills and solid management practices in:

- Continuous Flow Management;
- Excellent Quality Systems;
- Material Management;
- Information Technology;
- Statistical Process Control;
- Project Administration and Control;
- Benchmarking (for world class manufacturing);
- Sharing Best Practices (related to cost management, customer response, engineering, processes, etc.);
- Leveraging Intel (to penetrate other business opportunities).

Unico also learned from the 'School of Hard Knocks', notably by learning to:

- Never say no;
- Focus! Focus! Focus!
- Only the paranoid survive.

Overall, Unico found achieving its current level of success to be very demanding, results oriented, and requiring endless change. Nonetheless, the entire experience was well worth the effort. Future Unico prospects for growth are to extend to other areas of technology such as networking and computer telephone integration, collaboration in design and test, proto-build (BDCM), supply hub for Intel, and e-commerce.

SME GLOBAL CHALLENGES AND OPPORTUNITIES

SMEs face a number of challenges in the road ahead. There is no room for complacency in a global market where the performance bar is continuously being raised.

To succeed in the global market place SMEs must rise to the international challenges of:

- Strict environmental controls and standards;
- Increased global competition;
- The Internet explosion, e.g. communication speed, knowledge transfer, B2B and B2C business transactions;
- Technically competent and professionally managed business.

The Internet and the World Wide Web are the great equalizer of nations and industries around the world. SMEs must learn to exploit the opportunities they offer. The Internet allows SMEs to link up with similarly sized companies in Malaysia and America and elsewhere. A small shop in Malaysia can set up a virtual shop and advertise worldwide over the Net. It can take an order in the afternoon and ship the product by overnight courier. In other words, the infrastructure, though still relatively new, is available to allow even the smaller SMEs to engage globally.

Another challenge for SMEs in the manufacturing sector lies in the fact that SMEs tend to sell their products to anchor companies like TNCs and not directly to final consumers. This could make SMEs vulnerable to any adverse developments in anchor companies. It can also remove the SME from the end-user customer experience and the needed development of marketing capabilities.

While this raises issues of exclusivity, it is nonetheless vital for SMEs to hone their marketing capabilities and to diversify their customer base. Government policies and efforts to support SMEs must also be directed to the development of market-driven production networks to enhance their functions.

CONCLUSION

SME capacity building requires a rigorous, dedicated, and disciplined effort by key stakeholders. TNCs, national and state governments, institutions, and communities must all work together to make it work. In search for continual improvement, Malaysia has recently undertaken to further improve the integration, application, and access of the numerous programmes available to SMEs. This is necessarily an effort requiring coordination of private and public entities initiatives.

Transforming an SME from a support provider into a globally independent solution provider requires the proper attitude and the will of the SME to make capacity building efforts. The fast changing global business environment, where speed, connectivity, and intangibles are the new imperatives, places extraordinary demands on all stakeholders.

The most successful TNCs in this process are those who create an enabling environment for the SMEs to succeed and who bring SMEs into their planning circle as full partners. They give SMEs a full seat at planning sessions, reviews, and dialogues. Sharing information and expertise on an on-going basis is a key requirement. TNCs that second staff to SMEs help accelerate SME development.

TNC and government global linkage programmes have demonstrated success in preparing and positioning SMEs to export their products around the world. TNCs can help SMEs learn about and achieve international standards through partnership programmes that are both localized and global. Competitive skills honed domestically are transferable for expansion into overseas markets.

Globalization is increasingly about the flow of information and relationships built on trust. Key stakeholders must consider how to make these relationships work and to bridge the gaps between TNCs and SMEs. The key stakeholders in this process were appropriately characterized as follows:

Government:	Social-preneurs
TNCs:	Corporate-preneurs
SMEs:	Entrepreneurs

We must remember in the process, that . . .

. . . today's SME is tomorrow's TNC.

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EXPORT PROMOTION POLICIES IN EGYPT

Fatma Abd El Bary

General Authority for Investment and Free Zones

SMEs are now the essence of the Egyptian economy as they represent about 99 per cent of the non-agricultural private sector, three quarters of the total labour force in the private sector, as well as 75 per cent of the value added. SMEs are a dynamic force for export development, sustained economic growth and job creation. SMEs stimulate private ownership and entrepreneurial skills; they are flexible and can adapt quickly to changing market demand and supply conditions; they generate employment, help diversify economic activities and make significant contribution to export and trade.

Since export is a critical issue for the Egyptian economy as a whole, the principal burden is shouldered by the private sector which consists largely of small and medium-sized enterprises.

EGYPTIAN SME CONSTRAINTS

- Inadequate access to financial services;
- Insufficient supply of skilled labour;
- Difficult access to international technology;
- Limited access to markets;
- Regulatory constraints.

In the light of competition in international and domestic markets, overcoming such obstacles becomes a critical issue not only for the enterprises but for the whole Egyptian economy as well. Therefore, there is a persisting need for the following:

- Developing a general policy framework and development programmes for SMEs to increase their competitiveness.
- Increasing the approach between SMEs and decision makers so as to suggest immediate and appropriate solutions for the problems facing this sector.
- Increasing the efficiency of the institutional structure of the Egyptian economy in providing services to SMEs efficiently and effectively. Increasing and activating coordination among different institutions and entities concerned with this sector in the light of the state's direction towards export and the interest in SMEs.
- Increasing and activating coordination among different institutions and entities concerned with this sector in the light of the state's direction towards exports and the interest in SMEs.

POLICIES CONDUCIVE TO PROMOTING THE EXPORT COMPETITIVENESS OF SMEs

Role of the Ministry of Foreign Trade (MOFT)

- The MOFT is entitled to formulate a comprehensive general policy framework for SME development aiming at increasing and enhancing their competitiveness so as to play a leading role in reforming the trade balance by means of penetrating international markets and withstanding competition in domestic markets. It plays a core and principal role in meeting SME needs and integrating existing efforts to develop this sector in the Egyptian economy.
- International experience in supporting and developing SMEs has proved that giving intermediary organizations the opportunity to assist the SME sector is considered one of the most successful approaches compared to direct assistance which proved to be so costly, inefficient as well as unrealistic.

The MOFT has established and implemented a strategy for SME export promotion that focuses on a number of elements, the most important of which are:

- Enabling SME representatives to participate in Ministry commodity councils in order to take part in making the decisions related to export.
- Identifying the sectors where these enterprises exist and enhancing their export efficiency.

- Introducing new marketing mechanisms such as trade houses, establishing a consortia quality control system, establishing a consortia marketing and branding system to be implemented locally and internationally.
- The policy programme has been set up through a consultative framework including compiling and analysing different stakeholders' feedback through workshops, questionnaires, and other tools.

ROLES AND ACHIEVEMENTS OF THE MINISTRY

The MOFT supports SMEs both through its work with other entities, local and international, and through its relevant affiliates. Small and medium business owners participate in business associations organized according to sector and activity on the commodity councils, which work to increase SME exports and competitiveness within an export promotion framework.

EFFORTS OF MOFT AFFILIATES

The MOFT entities are working towards the elaboration of a national policy that will facilitate planning, coordination, and management of SME development efforts. As the SME sector makes up only about 4 per cent of total exports, the development of its competitiveness could therefore boost exports as a whole. The MOFT has placed the skills of its relevant entities in the service of increased SME competitiveness. Its efforts to achieve this target consist of the following:

1) Developing work in international trade points:

The MOFT is developing international trade points systems to provide more services to small export oriented investors in all governorates. These services include increasing awareness of e-commerce among small investors, as well as promoting and marketing their exports.

2) Cooperation with the General Authority for International Exhibitions and Fairs:

The MOFT work in this field integrates small investors into the Authority's plan. Thanks to its efforts, they can participate in the exhibitions it organizes or in which it takes part, locally or abroad, and access information through the Ministry's quarterly newsletter and its website. A specialized event, the first international exhibition for SME technology (SMETECH), was held on 28 February 2002. SMEs also enjoy preferential treatment with regard to display facilities at local and international fairs, and benefit from discounts reaching 50 per cent. In this way, the General Authority is helping them market their products locally and abroad.

3) Commercial representation offices. The Ministry has provided the following services to small investors:

- Cooperation protocols between Egypt and other countries have led to the exchange of experience in SME support and development.
- Consultation is currently in progress between the Social Fund for Development (SFD) and commercial representation offices on the establishment of trade houses that will serve as permanent fairs for small investors' products. SFD loans will encourage them to export and increase their marketing efforts on international markets.
- The MOFT organizes regular study tours for stakeholders concerned with SME development, such as the SFD and the Ministries of Finance and Industry. These tours are an opportunity to learn from SME development elsewhere, and have covered countries such as Greece, Portugal, and Canada.
- Commercial representation missions prepare reports on the local application of international SME development experience.
- Commercial representation offices also work to include small local investors in promotion missions, conferences, seminars, and workshops held at home and overseas.
- Commercial representations offices in 13 countries are also conducting research into international SME success stories, and they are working to adopt such experience to our economic and social conditions.
- The MOFT also promotes SME representation on joint business councils e.g. the Egyptian American and Egyptian British Presidential Councils.

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- 4) *The Foreign Trade Policy Sector:*
- This sector represents small business owners on commodity councils, where it puts forth the problems facing this sector and seeks solutions.
 - It also helps formulate the SME export promotion strategy, studying marketing opportunities and providing information on markets.
- 5) *Role of the General Authority for Export and Import Control in supporting SMEs:*
- Providing technical guidance to small exporters on the most important commodities that enjoy an exporting preferential advantage and the best techniques of packaging.
 - Informing small exporters about the necessary procedures to obtain an exporter or importer register in case of importing production requirements.
 - Guiding small exporters to the important role of different monitoring entities, their specialization, as well as the specifications and tests they apply upon the examination of exported goods.
 - A cooperation protocol has been agreed upon between the General Authority and the Social Fund for Development (SFD) to assist small investors to export by means of training on export, as well as upgrading information systems and databases and developing laboratories within the General Authority to upgrade the performance efficiency.
- 6) *Role of the Egyptian Center for Export Promotion in Supporting SMEs:*
- Designing a special programme for training small investors on how to export, and supporting the skills of marketing and export strategy.
 - Improving the skills of using advanced technology in promotion for exports and investment opportunities.
 - Discussing the preparation of the international accounting standards for small- and medium-sized companies.
- 7) *Role of the Export Promotion Bank*
- The bank facilitates different financial services for exports of SME sector. It also establishes special units for financing this sector's exports through the bank's different branches.
 - MOFT is conducting an expanded study on how to provide different financial services to small investors to increase their competitiveness locally and abroad.

THE ROLE OF THE GENERAL AUTHORITY FOR INVESTMENT AND FREE ZONES (GAFI)

- GAFI is the administrative authority concerned with implementing the provisions of the Investment law No. 8 of 1997. Among its promotional activities, GAFI attracts and facilitates partnerships between foreign medium enterprises and Egyptian ones. Such joint ventures bring not only financial resources, but more importantly technology, management know-how and access to international markets. GAFI targets and promotes FDI from export-oriented TNCs to encourage linkages with SME suppliers in Egypt.
- SMEs established according to the Investment law have the right to import all production requirements and to export their products by themselves or via third parties without being inscribed in the register of importers or exporters. They also enjoy tax holidays and a package of incentives and guarantees.

THE ROLE OF THE SOCIAL FUND FOR DEVELOPMENT

The Small Enterprise Development Organization (SEDO), one of the SFD units, aims at providing any assistance possible to SMEs. The Organization develops various funding mechanisms and upgraded technical support systems.

Role of SEDO

- Designing and implementing small enterprise development sector programmes and providing technical support to SMEs.
- Establishing and managing an information network for small enterprises.
- Providing various credit packages, developing funding mechanisms, and expanding the specialized windows for lending.
- Employing developed tools to bear credit risks, and smooth loan guarantees, monitoring and developing credit performance, and proposing policies for settling default cases.
- Establishing business development centers in all of Egypt's Governorates.
- Developing marketing and planning systems in accordance with the market needs.
- Enhancing the competitive edge of small enterprises, improving their quality and opening new markets for their products.
- Financing and updating marketing studies and research.
- Developing technology support and transfer systems.
- Training the youth in technical vocational training centers to promote their entrepreneurial skills.
- Raising awareness among entrepreneurs to apply quality systems.
- Creating opportunities for business match making and devising tools for developing exports.

To cope with the liberalization of world trade, a franchise section in SEDO was established to give people the chance to compete globally with an international standard for their products. In the last decade the franchise business in Egypt marked a rapid growth because the success rate for franchises is well over 85 per cent. This partly due to training and ongoing support from the Franchisor, and it is also a very effective way for technology transfer.

In June 2004 a new law has been issued (Law No. 141 of 2004) creating an enabling legal and regulatory environment for micro- and small enterprises in Egypt through establishing one-stop shop where all business registration and operation procedures are completed in a single office. This new law developed a unified operational definition for micro and SMEs aiming at improving planning, coordination and management of their development and export efforts. It also helps their eligibility to various technical, financial and marketing incentives.

In conclusion, there is an imperative need for governments and the private sector to develop an effective, comprehensive and coherent strategy that assists SMEs to develop, improve and contribute significantly to economic and social development. Furthermore, such a strategy will also contribute to enhancing the creation of joint ventures and technology transfer among different countries.

EXPORT SUBSIDIES: A DEVELOPING COUNTRY PERSPECTIVE

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Underlying the debate on subsidies (and particularly on export subsidies) is the still unresolved dispute about their potential impact upon developing countries' growth and welfare. While any account of this long-standing economic debate would be far beyond the scope of a legal paper, it should suffice to briefly recall the main arguments that are usually invoked in order to justify the use of export subsidies. These include the support of infant industries, the need for structural upgrade and diversification; the necessity to close the gap between private and social returns from investment in the presence of spill-overs, externalities from the subsidized exporting enclaves to the economy as a whole, the use of subsidies as an instrument to cope with exogenous trade shocks, the need to remove anti-export bias caused by higher import tariffs, overvalued exchanged rates, and the lack of easy access to the imported inputs necessary to manufacture exports.

With regard to domestic policy, differing views on the development impact of export subsidies essentially boil down to the question of whether government intervention is necessary to guide rent allocation, rent-seeking processes and dynamic economic performance, or to what extent such interventions may lead to further distortions and inefficiencies. In theory, the threat of market failures or the potential for growth stemming from the introduction of welfare-enhancing may justify government intervention and may be necessary to improve economic efficiency. In practice, however, government intervention frequently exacerbates distortions and hampers static and dynamic economic efficiency.

Independently of whether or not export subsidies are deemed welfare enhancing at the domestic level, they tend to introduce negative externalities at the international level and hence offer a strong rationale for policy coordination at the global or regional level. In fact, countries have followed a coordinated approach since the entry into force of the GATT and then of the WTO Agreement on Subsidies and Countervailing Measures (SCM Agreement) in 1995. As we will see in the second part of the paper, the same concerns are supposed to lead countries to introduce disciplines on subsidies in services too.

The Brazil-Aircraft can be used to examine the broader effect of subsidies:

Let us start from the first by raising a question: Has the "Embraer" contributed to a real increase of the country's welfare through the "Proex" export programme? Or, have the benefits instead been conferred upon an elite circle of individuals, mainly those directly benefiting from the increased profitability of the supported company? What would have been the effects on the level of development of the country if the money distributed by the "Proex" programme was instead invested in the education service sector or other essential infrastructural services such as transport and telecommunications? This seems to be the central question. Amelioration of the critical infrastructure is a crucial factor for increasing the competitiveness of developing countries.¹ Additionally, moving away from subsidies targeted at single companies will diminish the risk of corruption among governmental elite authorities and allow for a more transparent distribution of tax revenues and permit the redistribution of the benefits across the whole population.

The second aspect refers to the effects of the export programme "Proex" at the international level. By adopting the SCM Agreement as a part of the single undertaking, all WTO Members accepted the principle that export subsidies are trade distortive for international trade and were therefore prohibited. This general ban (the only exception, as seen above, are the transitional periods accorded to developing country members, as well as its non-application to LDCs) is the best recognition of how

¹ Since the basic infrastructure is built up by transport, telecommunication, financial and education services, the ongoing negotiations on disciplines to subsidies to services, as discussed in the second part of this paper, are of fundamental importance for developing country Members.

the impact of export subsidies at the international level has been recognized as impediment to economic prosperity.

A POSSIBLE ALTERNATIVE: NON-ACTIONABLE SUBSIDIES

It seems more appropriate, therefore, to focus on alternative uses of public resources in order to increase the level of development. One of these could be the reinstatement of a category of non-actionable subsidies in the SCM Agreement.

As already mentioned, the SCM Agreement contained a category of subsidies classified as “non-actionable” in Article 8, which expired in 2000. Article 31 of SCM Agreement explicitly requested Members to make a decision on the extension of the non-actionable category, either as drafted or in an amended form. Members were not able to agree on any such extension and Article 8’s expiry went almost unnoticed, due mainly to its inefficacy stemming from the difficulty in complying with all the conditions listed in the provision itself. The fact that the existing design of non-actionable subsidies did not reflect the specific interests of all the Members, and to the confusion caused by the run-up to the Seattle Ministerial Conference, were also contributing factors in Article 8’s demise.

The reintroduction of a category of non-actionable subsidies seems to be a more appropriate answer to the development needs of developing countries than further extension of the transition period for the elimination of export subsidies programmes.

Alongside the provisions on support for research activities, assistance to disadvantaged regions and to firms needing to adapt existing facilities, the introduction of a general clause allowing measures necessary to support the development of a country Member could usefully be added. The legal certainty provided by such rules would discourage the use of export subsidies and shift the attention (in economic terms) to more efficient interventions.

Until now, little has been done at the negotiating level. Only Venezuela submitted a proposal, which supported the view that non-actionable subsidies “might be one of the tools needed to implement certain development policies in the framework of the multilateral trading system, under which a country can promote the transformation of its economic fabric, including production diversification and increased value-added output, in a manner suitable to domestic economic and social policy objectives”.¹ Discussions on Article 8 have received a few other inputs from developed countries but the participation of developing country remains minimal.²

Further work is foreseen in the area of non-actionable subsidies. In order to increase the workability of the future provisions, negotiators could explore the possibility of drafting a detailed list of legitimate objectives where the recourse to subsidies is explicitly permitted, and if necessary for consensus, submit it to “graduated” deadlines.

To conclude, we would like to invite policy makers to better clarify the reasons for granting export subsidies and carefully assess their economic effects. In the meantime, the reintroduction of more workable “green-light” non-actionable subsidies could certainly encourage Members to have recourse to less trade distortive and more efficient subsidies.

¹ See WTO Doc. TN/RL/W/41, p. 2, Communication from Venezuela. In its communication, Venezuela points out that its view is based on para. 10.2 of the Doha Decision on Implementation and related Issues, which states that Ministers “take note of the proposal to treat measures implemented by developing countries with a view to achieving legitimate development goals (...) as non-actionable subsidies (...)”.

² See e.g. WTO Doc. TN/RL/W/30, 21 November 2002, Communication from the European Communities and WTO Doc. TN/RL/W/1, 15 April 2002, Communication from Canada.

POSSIBLE SCENARIOS ON EXPORT SUBSIDIES TO SERVICES

The General Agreement on Trade in Services (GATS) does not contain any specific rules on subsidies and countervailing measures. Notwithstanding, it is generally accepted that subsidies are considered as “measures” within the meaning of the GATS³, thus potentially falling into the field of application of some other already existing GATS provisions like MFN (Art. II) and National treatment (Art. XVII)⁴. The appropriateness of those latter provisions however, is limited and none of them offers a satisfactorily disciplining effect.⁵

GATS Art XV mandates Members to start negotiations with a view to developing the necessary multilateral disciplines to avoid the trade distortive effects subsidies may have in certain circumstances⁶.

Negotiators witnessed a growing interest during the last WPGR meetings on the issue of services export subsidies, mainly due to the input of a selected few Member countries.⁷ While acknowledging that proposals for disciplines may be excessive, these contributions did allow an exchange of views based on a more narrow basis, and highlighted once more that the fulfillment of the information exchange mandate is a precondition for the negotiations.

In order to better understand the possible different scenarios involving export subsidies to services, a brief introduction into the principles of the GATS may be helpful. Since the supply of many services is possible only through the simultaneous physical presence of producers and consumers (also called “proximity”), the GATS recognizes four different modes of supplying services.⁸

Mode 1 Cross border supply, covers service flows from the territory of one Member into the territory of another Member (e.g. banking, legal or medical services transmitted via telephone, e-mail or other IT systems).

Mode 2 Consumption abroad, refers to situations where a service consumer moves into another Member’s territory to obtain a given service. Typical examples of services supplied through Mode 2 are tourism and health care services sector.

Mode 3 Commercial presence, implies that a service supplier of one Member establishes a territorial presence in another Member’s territory in order to provide a service.

Mode 4 Movement of natural persons, covers the physical movement of professionals, skilled and unskilled labour forces for temporary periods.⁹

Three of the four modes in which services can be supplied (Modes 2, 3 and 4 of supply) differ from those we are familiar with under the GATT, where goods flow across the borders.

The peculiarities and the “modus operandi” of each mode through which services can be traded is an aspect that clearly complicates negotiations on disciplines on subsidies.

³ “Measure” within the meaning of Article I para. 1 GATS is all forms of intervention (e.g. laws, regulations, rules and decisions of courts and administrative authorities, but also practices and actions of governments or non-governmental bodies with delegated governmental powers) by central, regional and local governments as well as non-governmental bodies with delegated governmental powers. The definition is given by the combination of Articles I para. 3 item a and XXVIII item a.

⁴ Two of the few analysis of this issue can be found in Sauv e, Pierre “Completing the GATS Framework: Addressing Uruguay Round Leftovers” in *Aussenwirtschaft*, 57. Jahrgang (2002), Heft III, Z urich: R uegger, S. 301-341, and in Benitah, Marc “Subsidies, Services and Sustainable Development”, published by the ICTSD, July 2004, available at http://www.ictsd.org/pubs/ictsd_series/services/IP_services_01.pdf (last visited December 2004).

⁵ Indeed, the possibility Members retain to list exemptions to the MFN obligation (GATS Annex II), as well as not to undertake any commitment in highly subsidized sectors (e.g. audiovisuals) or to exempt national treatment to only one or even to none of the four modes of supply, largely limit the efficacy of both provisions. Moreover, due to the nature itself of the obligation, the efficacy of the national treatment obligation is limited to the domestic market and do not address unfair competition in third country markets.

⁶ The text of Art. XV GATS has been reproduced in Annex II at the end of this paper.

⁷ See in particular the inputs of the delegations of Chile; or Hong Kong, China in WTO Documents S/WPGR/M/47 (22 April 2004) and S/WPGR/M/48 (23 July 2004).

⁸ See Article 1 para. 2 items a-d.

⁹ It is important to note that Mode 4 of supply does not cover migration.

Notwithstanding the absence of official data, the following situations involving export subsidies can be envisaged:¹⁰

Mode 1 of supply

This cross-border delivery of services is roughly comparable to the classical way in which goods are traded. Thus, export subsidies to services supplied through Mode 1 would operate in a similar manner to those applying to trade in goods listed in the Annex of the SCM Agreement, i.e. by benefiting the service supplier of a Member in a way permitting him to take an advantaged position in the foreign markets. Such subsidies can take the form of preferential interest rates, tax rebates, duty free equipment and so on. An example of export subsidies to services supplied through Mode 1 is the provision at reduced rate (or even for free) of telecommunications services necessary to supply final services like e-medicine, e-learning or back-office services.

Mode 2 of supply

Due to the specificity of this mode of supply, export subsidies would aim to support services suppliers in attracting foreign consumers. The effect of these subsidies could be to generate “run-away business” between Member countries. The few available statistical data shows that several countries maintain these kinds of export subsidies, particularly in the tourism sector.

Consider the following example. Let us assume that the government of country X subsidises the construction of large resort hotels. As a consequence of the more attractive facilities, certain tourists will then choose that country as a place to spend their holidays. Can we conclude that country Y can claim that thanks to the governmental support country X has stolen tourists that would otherwise have visited country Y?¹¹

According to the extracts of the TPR reports provided by the WTO Secretariat, tourism is one of the most subsidized sectors, particularly by developing country governments.¹² The same document provides several examples of Member countries using subsidies to expand tourism: reduction of corporate tax for tourist operators, refund of VAT and costs incurred in establishing tourism enterprises,¹³ participation in the cost of purchasing land, tax exemptions and simplifications, availability of special financing for the hotel renovations,¹⁴ duty-free and consumption tax concessions for furnishings, plant, equipment, and building materials, to name a few.¹⁵

Since tourism is one of the principal sources of income for several developing countries, they may argue that it will be fundamental for them to maintain these subsidies in the future.

Mode 3 of supply

Export subsidies to services supplied through Mode 3 are less easy to imagine. This would be the case of a Member providing a benefit to a service supplier establishing abroad, or, once the supplier is established, to support its operations abroad. Is it plausible that a government provides financial support to a firm in order to facilitate its location or presence abroad? No, it seems more realistic for Members wishing to attract foreign investors to provide subsidies (particularly under the form of fiscal incentives) to convince services industries to set up a subsidiary in their own country.¹⁶

¹⁰ Abugattas interestingly divided subsidies to services into three main groups: export-enhancing subsidies, import-displacement subsidies and investment-diverting subsidies. See Luis Abugattas Majluf, *Towards Disciplines on Subsidies in on Agreements to Liberalize Trade in Services*, Reported Prepared for the CRNM/IDB Project, August 2002, available at <http://www.crn.org/documents/studies/Abugattas%20-%20Subsidies%20RNM%20Rev2.pdf> (last visited December 2004).

¹¹ The same question can be raised in relation to the export of health services.

¹² See WTO Doc. S/WPGR/W/25/Add.3, 19 September 2002, p. 2. Alongside tourism the most subsidized service sectors are transport (particularly maritime), banking services and audiovisuals. Please note that the WTO Secretariat stress that it is not clear whether this data is the result of governmental policies choices or whether it is simply due to the fact that TPR reports tend to focus on these sectors.

¹³ See WTO Doc. S/WPGR/W/25, Add. 4, 12 February 2004, p. 14.

¹⁴ *Idem*, p. 24.

¹⁵ *Idem*, p. 24.

¹⁶ These measures have been defined by Abugattas as “investment-diverting” subsidies.

Mode 4 of supply

The peculiar characteristics of this Mode of Supply complicate the possible scenarios. Indeed, it is hardly realistic to imagine governments supporting natural persons temporarily supplying a service abroad. Notwithstanding this, due to the overwhelming importance of this mode of supply for developing countries, negotiations related to this issue should be followed closely.

These examples show that, although the SCM Agreement covering goods subsidies can provide some useful insights, it is not wholly suitable in dealing with the services problem. The nature of services makes the introduction of disciplines based on the model used in the SCM Agreement extremely difficult and important modifications are therefore necessary.

For example consider the existence of a category of actionable subsidies and the consequent possibility of unilaterally imposing CVDs under the SCM Agreement. In order to be allowed to do that, as illustrated above, a Member needs to prove the trade distortive effects of the measure in question. Several elements suggest that in practice, this can be hard to prove when services are involved. To take an example, think about the like-product concept. Would it be workable when transposed to services? Services are largely tailor-made in order to better fulfil the needs of the purchaser. Would it thus be possible to define with a sufficient degree of certainty what can be considered a "like" service?¹⁷ Would it be possible to define the price of a unit of service? Would it be possible to determine the pass-through effects of the subsidy on the price of the service? Even if we answer these questions positively, the problem of imposing eventual CVD remains a major obstacle, since no control and consequent imposition at the border is imaginable for services.

Apart from the undisputed technical difficulties, it seems to be in the interest of developing countries to avoid the introduction of those rules, given their burden on terms of human and financial resources. This is particularly true for the administration of complicated countervailing duties procedures. It is not a coincidence that, Article XV states "The negotiations shall also address the appropriateness of countervailing measures".

The peculiarities of trade in services do not seem to have specific effects on the issue of trade distortion. Indeed, export subsidies to the services industry would have roughly the same effect they have when granted to the exports of goods. Beneficiaries of such subsidies would have an advantage when competing with the domestic industry of another country. Additionally, similar effects occur when subsidized exporting industries compete with enterprises of other countries in third markets.

Concerning SMEs, the current lack of data also makes it impossible to individuate the real impact of export subsidies granted to SMEs, not to consider the introduction of specific rules. Thus, further information exchange should, *inter alia*, provide an answer to the question of the role played by the size of an enterprise on the production of distortive effects. Additional data could for instance lead us to conclude that SMEs do not have any relevant impact on foreign markets or that the existing impact, due to their size, has to be considered as limited if not irrelevant.¹⁸

¹⁷ In this regard, it seems important to note that the services Sectoral Classification List (GATT doc. MTN.GNS/W/120, 10 July 1991) based on the CPC contains 160 non-overlapping services sectors, while the Harmonized System (HSC), which is the basis for scheduling tariff concessions for goods, with its 6-digit level lists 5019 different entries.

¹⁸ That is the basic rationale behind the introduction of special treatment for SMEs under the European State Aid.

GENERAL REMARKS AND SUGGESTIONS ON THE ONGOING NEGOTIATIONS ON ART. XV

The importance of the negotiations on subsidies in services for developing countries is high. First, the introduction of disciplines will permit those who possess limited financial resources (and consequently those having less subsidizing power) to compete on a more level playing field, thus increasing their participation in the world trade of services and the consequent beneficial effects.¹⁹ Second, the establishment of clear discipline on subsidies in services (and particularly on export services) is of central relevance to the ongoing request offer negotiations on market access. Indeed, several countries are eager to ensure they will not face unfair competition from suppliers of third countries receiving subsidies from their government, and are concerned by the fact that subsidies can lower the value of new market access commitments.²⁰ Other aspects could be brought into the debate once negotiations have reached a higher stage, such as the particular significance of the public service, and of services like health and education.

At the current stage of negotiations, however, it seems appropriate not to go beyond a list (not necessarily in order of importance) of general aspects that developing countries should carefully consider, in order to better defend their interests.²¹

- *Stress* the importance of subsidies in the development programmes of developing countries, as per Art. XV. In the event that a sector-specific approach should be preferred, special attention should be paid to those measures having a major importance for developing countries (e.g. tourism). The same attention is required in the event that negotiators eventually address the question of subsidies to services supplied through Mode 4 of supply.
- *Support* the introduction of a non-actionable category of subsidies directed toward developmental support. As proposed in the section dedicated to disciplines on subsidies in goods, a category of well-defined clearly non-actionable subsidies could provide some legal certainty. Additionally, the adoption of a list Annexed to the Agreement could guarantee more workability. In particular developing countries should focus on the importance of developing a complete and technologically advanced web of infrastructural services to support their industries instead of providing support to individual firms.
- *Seek* explicit and clear exclusion of SMEs from future disciplines on subsidies to services, based on the trade distortive effects of SMEs subsidies. (The European State Aid regime could represent an example).
- *Avoid* the introduction of unilateral trade remedies (countervailing measures).
- *Promote* collaboration between developing countries to share know-how and negotiating definitions in order to better defend their interests in the WPGR meetings.

¹⁹ Statistics show that while the OECD countries still dominate services trade and FDI with 80 per cent of the total, the share of developing countries in world services exports increased from 14 to 18 per cent in the period going from 1985/89 to 1995/98, which is higher on average than the increase of their share of trade in goods. Moreover, according to the ITC, among the countries with the highest per cent of exports from services we find Antigua & Barbuda (91,2 per cent), St. Lucia (85,5 per cent), Barbados (80,0 per cent), Cape Verde (78,5 per cent), St. Vincent and the Grenadines (74,0 per cent), Maldives (72,6 per cent), Grenada (67,7 per cent), St. Kitts and Nevis (65,5 per cent) and Jamaica (59,5 per cent). The share of South-South services trade is significant, accounting for 67 per cent of the service export markets. Among the four modes of supply, services from developing countries are commonly supplied through mode 2 and 4 (see ITC "Servicexport e-newsletter", May 2004, Vol. 1, N° 6, p. 2). Additional interesting data on the successful export sectors for developing countries has been provided in the August 2003 OECD Policy Brief, available at <http://www.oecd.org/dataoecd/23/14/8890081.pdf> (last visited December 2004).

²⁰ See e.g. Representative of Switzerland, S/WPGR/M/47, p. 18.

²¹ Please note that these suggestions are very general and simply consist of a list of aspects that the author considers for developing countries in particular. Their pertinence, however, could change depending on the outcome of the negotiations.

ASSESSMENT AND OUTLOOK

As outlined in the first part of this work, the regime currently applicable to export subsidies in goods granted by developing countries is relatively liberal. This situation is not likely to change in the short term. The focus should therefore be on the real benefits that such interventions can bring, rather than on the possibility for them to continue supporting their exports. Other possible ways to achieve higher levels of development should be carefully considered, for example the reintroduction of a category of non-actionable subsidies.

The situation is quite different when it comes to disciplines on services subsidies. No specific rule has been defined in the GATS and the negotiations did not bring any relevant result yet. Due to the spill-over effects of strong services sectors on the level of development of a country, active and conscious participation to the ongoing negotiations is fundamental. Their interests are multiple. On one hand they should seek the introduction of restrictions on the use of subsidies in order to allow their industries to compete on a more leveled playing field. On the other, they should ensure the recognition of their special needs (as done in the negotiating mandate of Article XV GATS itself) and use the resulting legislative freedom to continue supporting those sectors that are of central importance to their development.

SUMMARY OF CONCLUSIONS AND RECOMMENDATIONS BY EXPERTS

Promoting SMEs Export Competitiveness

During this Expert Meeting the discussions were related to policies and measures that could help strengthen the export competitiveness of developing countries' small- and medium-sized enterprises (SMEs). The experts devoted special attention to the issue of TNC-SME linkages, which are increasingly perceived as a way for SMEs to solve their traditional problem of access to certain critical resources such as finance, technology, managerial skills and new markets.

During the Meeting, the experts addressed the following issues in more detail: the concept of export competitiveness, different patterns of enterprise internationalization, TNC-SME linkages and global value chains as a bridgehead to export competitiveness, and the role of governments and national policy space in the new international context.

The concept of export competitiveness

It was highlighted that a competitive firm is one that clearly defines what and for whom to produce, one that is able to effectively and efficiently manage the acquisitions and allocation of resources to fulfil its production and marketing objectives, and therefore achieves bargaining power. A competitive firm has a sound management of resources, information and know-how, human, financial and physical assets, and network and relationships. It was said that there is also an external environment (national and international), which contributes positively or negatively to a firm's competitiveness.

Different patterns of internationalization

When discussing different patterns of internationalization, the experts highlighted clusters and value chains and the importance for SMEs to upgrade from low to higher value added activities. It was noted that SMEs in clusters are in a better position than isolated firms because of benefits such as collective efficiency.

The participants discussed possible export strategies for firms that are integrated into value chains. The discussions reflected the fact that a strategy to promote SME competitiveness has to take three levels into account a) the management of an enterprise, b) the sector's trade support environment, and c) the markets. The strategy also had to go through four operational steps: a) assessing markets and the environment b) diagnosing the current situation, c) examining options d) formulating a strategy.

Import substitution instead of export promotion as a way to increase the competitiveness of local firms was considered as inefficient and costly in the long-run. It was noted that import substitution was a sort of protectionism that in most cases would be inconsistent with WTO requirements.

TNC-SME linkages and value chains as a bridgehead to export competitiveness

The experts reaffirmed that TNCs become increasingly important to the economic growth of developing countries. While on the one hand their presence results in stronger competition, higher barriers to entry and power asymmetries, on the other hand they also provide new business opportunities for innovation and new export markets. It was agreed that the present international environment makes linkages with lead firms and thus integration into value chains more and more necessary in order for SMEs to survive.

The importance of the quality of linkages with TNCs was also underlined. The vulnerability of SMEs depends largely on their position in production networks. The businesses suffering the most from new market conditions are generally those involved in activities at the bottom of the value chain, while enterprises involved in the finalization of products have much higher chances of succeeding.

With respect to identifying key linkage determinants, the need for collaboration between governments (which can create an enabling business environment, reduce taxes, and mitigate logistic costs and procedural delays), TNCs and SMEs with supply capabilities was emphasized. It was agreed that all-round support for SMEs is also needed, since the majority of SMEs that cannot meet the requirements set by TNCs, remain de-linked.

In order to mitigate the risk that TNCs impose additional costs on SMEs during economic downturns, the experts recommended that SMEs should diversify their client base by linking with companies in different parts of the world. Since downturns normally do not hit all markets at the same time, negative effects could thereby be reduced. Another way for SMEs to reduce risks for SMEs could be to take advantage of large trading blocks.

The role of Governments and national policy space

During the discussions the experts agreed on the importance of national policy space needed to promote the SME sector within the new context of globalization. It was emphasized that public policies must be directed to resolving the problems of increasing structural heterogeneity, to reintegrating people from the informal to the formal sector, and to reducing the productivity gap with external economies. TNCs can help solve the problem for a specific range of SMEs that represent a very small part of the total.

Furthermore, the experts recommended that public policies must have a strategy of promoting SMEs that takes into account how macro, meso and micro elements interact with each other. It was suggested that public policy could act in three directions: a) Sectoral funds (raised for example by taxing TNCs and other big firms) can be used to bring together universities, big firms and SMEs to work on technology, b) demand-side policy can be used to create domestic demand through adequate macroeconomic policy, without relying only on exports to boost production, and by encouraging big firms to link with SMEs by including this element in public bidding conditions, c) competition policy can be used to protect not only consumers but also producers.

Furthermore the participants largely debated the impact of export subsidies on a country's development. It was argued that it had not been proven that export subsidies really helped develop economies. As an alternative it was suggested to concentrate on a proposal for re-introducing the category of non-actionable (green-light) subsidies and negotiations of services subsidies where no specific rules existed. It was suggested that countries could concentrate on subsidies directed at infrastructures, which were of fundamental importance for gaining competitiveness and were not prohibited by international agreements.