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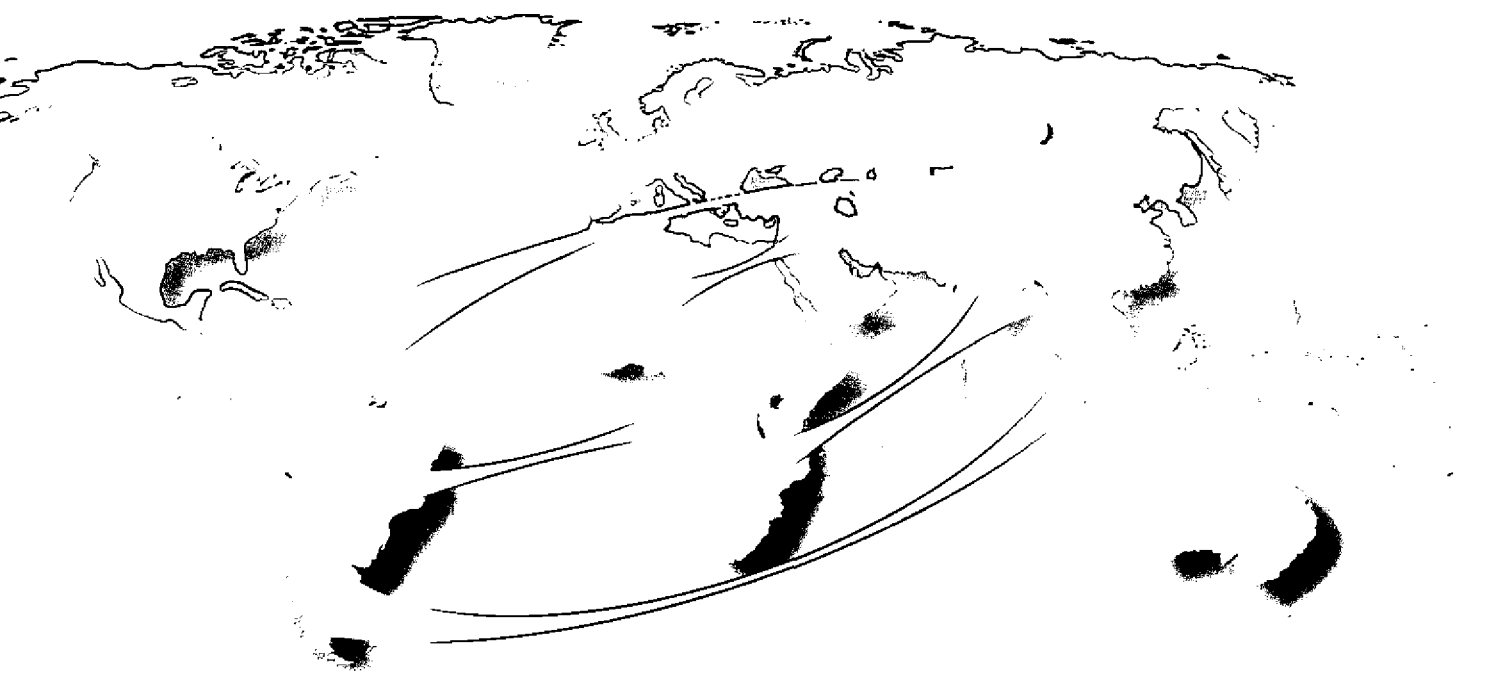
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Industrial development, trade
and poverty reduction through
South-South cooperation



UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION

Industrial development, trade and poverty reduction through South-South cooperation



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EXPLANATORY NOTES

Billion means 1,000 million.

The designation of least developed country follows the United Nations definitions, which are based on three criteria: low income (less than US\$ 900 estimated GDP *per capita*, three-year average), weak human resources and economic vulnerability.

Totals may not add precisely because of rounding.

This document is based on information available as of the end of August 2006.

ABBREVIATIONS

AGOA	African Growth and Opportunity Act
CAFTA	Central American Free Trade Area
CO ₂	Carbon dioxide
ECDC	Economic cooperation among developing countries
FDI	Foreign direct investment
ICT	Information and communication technology
IIS	Indian Institute of Sciences
ITA	<i>Information Technology Agreement</i>
LDC	Least developed country
MDGs	Millennium Development Goals
ISO	International Standards Organization
MHT	Medium and high technology
MSME	Micro, small and medium-scale enterprise
MVA	Manufacturing value added
NAFTA	North American Free Trade Agreement
NICs	Newly industrializing countries
OECD	Organization for Economic Cooperation and Development
R&D	Research and development
SAR	Special Administrative Region
SME	Small and medium-scale enterprise
SPS	Sanitary and phyto-sanitary measures
TBT	Technical barriers to trade
TCDC	Technical cooperation among developing countries
TFP	Total factor productivity
TNC	Transnational corporation
TRIPS	Trade related intellectual property rights
UN	United Nations
UNIDO	UN Industrial Development Organization
WTO	World Trade Organization

FOREWORD



The rise of the South in the global industrial economy has added new perspectives to the rapidly changing nature of international industrial development cooperation. South-South trade in manufactures, mainly within East Asia, has emerged as the most dynamic element in world manufacturing trade, exceeding the growth of both global and North-North manufacturing trade. The emergence of a few dynamic developing countries in the globalized industrial economy, such as the Brazil, China, India and South Africa, has, however, been accompanied by the marginalization of other developing countries, especially in Sub-Saharan Africa. In this changed global industrial setting a variety of new development opportunities have emerged, including intensified South-South cooperation as a complement to North-South cooperation in the fields of industry, trade, technology and, ultimately, poverty reduction.

In 2005, in my document *Towards a Shared Vision for UNIDO*, I pledged to spare no effort in making UNIDO a trusted partner for economic growth to benefit the poor, strengthen UNIDO's core functions, and enhance the UNIDO contribution to achieving the United Nations Millennium Development Goals (MDGs) with a special focus on the least developed countries and Africa. These elements are all reflected in the important issue of South-South industrial cooperation. The key focus is on drawing upon best practice and maximizing mutual competitive advantages among developing countries that arise from cooperation in the spheres of trade, investment promotion, technology transfer and market access.

The role of South-South cooperation in linking industrial development, the expansion of trade, and poverty reduction is not a new subject in the international development dialogue. However, it is faced with new challenges and arguably has a greater potential today than ever before. This publication represents an initial attempt to address some of the critical issues – those directly related to trade promotion and industrial capacity building – which have emerged in that light.

The issues addressed here were discussed at the Industrial Development Forum, which was held during the eleventh session of the UNIDO General Conference, on 28 November 2005. The deliberations resulted in a resolution of the General Conference emphasizing that the "Promotion of South-South cooperation will be an important feature of UNIDO's work in the coming years". In this context UNIDO will work closely with other entities of the UN system.

It is my hope that this publication will contribute to raising awareness of the increasing dynamism in the South and help to promote concrete programmes for strengthening linkages between industry, trade and poverty reduction through South-South cooperation.

Kandeh Yumkella

A handwritten signature in black ink, appearing to read 'K. Yumkella'.

Director-General
UNIDO

SUMMARY

The changing conditions for South-South cooperation

The South is becoming a major player in world industry and trade. Since the 1980s, its share in world manufacturing added has almost doubled; its share in world exports has more than doubled, and South-South trade is rapidly increasing. The rise of the South stimulates South-South cooperation in a number of ways: Through regional groupings, through the activities of the Group of 77, and through direct economic interaction in the form of South-South trade, investment and technology transfer. South-South cooperation can become a major instrument for achieving the Millennium Development Goals (MDGs) agreed by the international community through the Millennium Declaration issued by the UN General Assembly in September 2000. This publication will mainly focus on the contribution of industry and trade to the realization of MDG No. 1, poverty reduction, which is a particularly pressing issue in the least developed countries (LDCs) and Sub-Saharan Africa.

In stimulating South-South trade, which should not be a goal in itself but part of the promotion of global interdependence, several obstacles must be overcome: Similarities in resource base and production patterns, tariffs among developing countries, the geography of transport and markets, and institutional shortcomings. South-South cooperation can do much to overcome these obstacles.

Fundamental changes in global manufacturing strengthen the rationale for South-South cooperation. Manufacturing has been internationalized through the relocation of labour-intensive industries, outsourcing and the use of information and communication technologies. Global product, social and environmental standards affect all exports. Coping with the challenges and exploiting the opportunities cannot be left to national actors alone: Their actions must be complemented by supra-national cooperation.

Strong manufacturing and trading sectors, as key drivers of the economy, are not only major sources of employment, but also of affordable consumer goods and new technologies. The long-term development of society therefore depends heavily on these two sectors. That development, however, can only be sustainable if it takes place in an environmentally sustainable way. Again, this is an area where South-South cooperation can make a difference.

The dynamics of South-South trade in manufactures

An increasing number of developing countries are becoming major players in global manufacturing, China being the most prominent among them. The South accounted for 30 per cent of world manufactured exports in 2003, and that share is continuing to grow.

South-South trade in manufactures, while still relatively small, is expanding rapidly: Growth averaged 7 per cent/year over 1995-2003, equalling the growth rate of South-North trade. Outward-oriented strategies, liberalization, regional trade agreements and the growing role of manufacturing networks spanning many countries have given a strong impetus to this process. These networks are particularly well developed in East Asia.

East Asia exports more to the North than all other regions combined, and medium- and high-technology products (MHT) dominate. Latin America is heavily dependent on the markets of the North, and its market share gains there are mainly due to Mexico's exports. South Asia, the Middle East and North Africa are not large exporters of manufactures to the North and Sub-Saharan Africa has actually lost market shares. The technology content of manufactured

exports has increased in most regions, but is stagnant in the Middle East and North Africa, and has significantly decreased in Sub-Saharan Africa.

In South-South trade, East Asia dominates as well: The region accounted for 84.5 per cent of South-South trade in manufactures in 2003. Exports, which are mainly destined for other East Asian countries, are again dominated by MHT products. Latin American countries also have strong trading relations with each other; their exports to other regions in the South are limited. South Asia's exports are closely linked to East Asian markets. The Middle East and North Africa and Sub-Saharan Africa export relatively little to other regions in the South, but intra-regional trade in Sub-Saharan Africa, though limited, is growing fast thanks to regional trade agreements. A study of the trade relations of the large Asian economies China and India with Sub-Saharan Africa shows that the former mainly import raw materials and energy resources, while Sub-Saharan Africa mainly imports low-cost consumer goods, which in some cases constitute a competitive threat to local industries.

High-technology exports are rapidly becoming a major element in South-South trade, accounting for one-third of total trade in 2003. Five out of the top ten products traded are high-technology products, and electronics is the fastest growing product category. Again, East Asia completely dominates the trade in high-technology products. The effect on poverty reduction of these exports is likely to be limited if the industries in question form enclaves without strong links to other industries in a country. This however does not mean that low-technology products necessarily have a greater impact. Much depends on factors such as good governance, market access and competitiveness of products.

Exports and the agro-industries value chain

The agro-industries play a key role in poverty reduction in the developing countries because they increase demand for agricultural products and the availability of consumer goods, help to improve food security, and have important employment effects. As in other industries, moving up the value chain in the agro-industrial sector – that is, moving to more sophisticated stages of processing – is essential for increasing its contribution to development. In this connection, this paper analyzes the exports of three important agro-industrial value chains in the South: Food and beverages, fruit and vegetables, and cotton.

With regard to food and beverages the analysis shows that, while the importance of food exports differs strongly by region, most developing regions are still heavily dependent on exports of unprocessed products: Exports of processed food and beverages never exceeded one-third of total exports in this value chain during 1995-2003. East Asia had the highest level of processed food (27 per cent) in food exports in 2003, and is the largest global and South-South exporter of processed food. Latin America is the largest food exporter in absolute terms, mainly targeting Northern markets, but the share of processed food in its food exports has barely grown during 1995-2003. Exports from the Middle East and North Africa are small, but their processing level is comparable to that of East Asia. Sub-Saharan Africa and South Asia are also small exporters, and while Sub-Saharan Africa's share of processed food exports had increased to 15 per cent in 2003 the region is the only one that is becoming increasingly dependent on imports.

In the fruit and vegetables value chain, the largest exporter is Latin America (again with a strong focus on Northern markets), but the share of processed products has declined during 1995-2003. East Asia had increased the share of processed exports to 50 per cent of total exports in 2003, and once more dominates South-South trade. Sub-Saharan Africa, South Asia and the Middle East and North Africa are small exporters, with low shares of processed fruit and vegetables; exports by latter region have, however, have expanded considerably during 1995-2003.

Unprocessed cotton plays a minor role in exports. Over 90 per cent of East and South Asia's exports consist of cotton yarn, and these regions also dominate exports by and among the developing countries; but while East Asia's exports almost doubled during 1995-2003, those of South Asia stagnated. Exports from Latin America and Sub-Saharan Africa, which exports virtually no cotton yarn, are low and declining. The Middle East and North Africa mainly export to the North; these exports have increased modestly, but the share of cotton yarn has decreased.

Technological progress and foreign investment: The scope for South-South cooperation

Technological progress is rapid in five critical areas: Information and communication technologies (ICTs), biotechnology, new materials, clean technologies and energy technology. To acquire technological capabilities, developing countries must often rely on transfers from the North. The more advanced developing countries, however, are rapidly developing advanced capabilities in many of the critical areas. A number of Asian countries are leading this process. India and China, for example, are likely to play a major role in bringing about fundamental changes in the ICT sector.

At the moment, South-South cooperation in technology is limited, but there is evidently a great and increasing potential for such cooperation. Some technologies developed in the South, moreover, are better suited for developing countries, including simple technologies that can have a widespread impact on poverty reduction. Specific areas for South-South cooperation would include: Agro-industry R&D, rural energy partnerships and partnerships for grassroots development (low-cost housing, sanitation, etc.). UNIDO is promoting cooperation in these fields.

ICTs play a key role in economic development. They greatly enhance access to scientific knowledge, technologies and innovations; they form the basis of new management and organization systems; they are indispensable for access to markets, distribution channels and global value chains. They also facilitate the provision of health, educational and social services, directly improving the quality of life of the poor. In developing countries, the use of ICTs is still limited: Latin America has the highest proportion of Internet users in the South, but only 3.2 per cent of the region's population had access to the Internet in 2000. There are signs that the gap with the North is closing: The ICT sector has become a major contributor to the economies of Brazil, India, Mexico and South Africa, and mobile telephony is growing faster in Sub-Saharan Africa than anywhere else. The provision of ICT services can also benefit greatly from South-South cooperation.

Under the right conditions, foreign direct investment (FDI) can be a key factor in creating a competitive manufacturing sector. FDI flows to developing countries have increased by 40 per cent during 2002-2004. The main recipients were China, Hong Kong Special Administrative Region, Brazil, Mexico and Singapore. FDI by developing countries is also increasing, East Asia being both the main source and recipient.

FDI flows to Sub-Saharan Africa were only 3 per cent of worldwide FDI flows in 2004. The main recipients are countries rich in natural resources. The share of investment from the South is still rather small, and also tends to be concentrated in primary industries. The impact of such investments on poverty reduction is likely to be limited. The region's marginal position in global production networks and inadequate policy frameworks and enabling environment are an obstacle to FDI in manufacturing. Nevertheless, the number of foreign enterprises is increasing, and the number of investors from the South is growing faster than those from the North. Because the former often invest in labour-intensive industries such as textiles, garments and wood products, the employment effects are correspondingly larger, and

firms from the South tend to spend more on R&D, primarily to adapt local inputs and/or to adapt products to local markets. Firms from South Africa tend to invest in more capital- and skill-intensive industries. The employment effects of these are smaller; on the other hand, these firms are greater investors in human resource development.

Implications of trade liberalization for industrial development and poverty reduction

Tariff liberalization has a strong positive impact on global trade. Tariffs imposed on trade among developing countries and on exports of manufactures from developing countries to developed countries are still comparatively high. The South would therefore be the greatest beneficiary of further liberalization: In the case of radical trade reforms, 45 per cent of the global gains (which could amount to US\$ 300 billion by 2015) would go to developing countries.

Further liberalization of trade – which would also include the lowering or removal of non-tariff barriers - is therefore a key issue for the South. The suspension of the Doha negotiations on trade liberalization is a serious set-back in this regard. Specifically, it will result in:

- A weakening of the multilateral trade system and a slowdown in the globalization of industry and trade. In particular, there will be fewer export opportunities for developing countries, and they will forfeit cheaper imports.
- An increase in regional and bilateral trade agreements, which are considered second best to the first best case for global trade liberalization.
- A stalled development agenda: One specific element of the Doha negotiations was to boost growth and reduce poverty, particularly in the LDCs.

Removing the trade barriers that remain is another important task for South-South cooperation. The following areas deserve particular attention:

- Tariffs for manufactures, especially where these have an impact on LDCs.
- Standards and technical regulations.
- Trade Related Intellectual Property Rights.
- Aid for Trade – the building up of export capacities in developing countries.
- Trade-distorting policies for cotton.
- Liberalization of trade in ICTs.

To be competitive in export markets, the productive capacities of firms in the South must be developed in the context of value chains. This will involve changes in the nature and mix of activities within each firm in the value chain, and in the nature and distribution of activities within the chain. The more advanced Asian manufacturers could increasingly become a source of the technologies, processes and management methods required for other countries in the South. Clusters and export consortia of small and medium-scale enterprises can make additional contributions.

South-South cooperation is also needed in two other export-related areas. Compliance with internationally recognized standards requires the creation of a complex institutional support infrastructure. Countries and firms can share know-how and facilities. Payment and credit practices, foreign exchange and capital controls and insurance fees must be brought in line with international practice. Apart from know-how transfers, cooperation in this area could, for example, also take the form of regional trade insurance agencies.

Finally, South-South cooperation and shared learning from common experiences can help to ensure that LDCs and poor population groups benefit from trade liberalization. Not all countries are equally capable of reaping the benefits of trade liberalization, particularly those where de-industrialization has occurred, where skill levels are low, where a comparative advantage in natural resources discourages investment in industry or whose exporting

industries are enclaves in an otherwise uncompetitive sector. Development also needs to be balanced and keep the objective of poverty reduction in mind. This means that industrial strategy should include elements such as domestic natural resource processing, which tends to have strong employment effects, export diversification, and combining the development of export industries with the production of basic needs goods and the integration of the subsistence economy into the economic mainstream.

Intensifying South-South cooperation and the role of UNIDO

The analysis presented in this paper demonstrates that South-South cooperation can make a great contribution to the further expansion of trade and the widening of its development impact, particularly in terms of poverty reduction. This cooperation should concentrate on four areas:

- Developing common positions on global trade norms.
- Developing productive capacities.
- Formulating approaches to poverty reduction based on shared experience.
- Exchanges of knowledge and institutional networking.

UNIDO, which plays a pivotal role in building manufacturing capacities in the South, is deeply involved in South-South cooperation for sustainable industrial development. The activities range from industrial strategy formulation to best practice in SME development, from investment and technology promotion to support institution building. The 2005 UNIDO Industrial Development Forum specifically focused on South-South cooperation, highlighting the benefits of that cooperation in terms of lower product prices, more suitable technologies and development concepts, new sources of development funding and preferential tariffs in trade among developing countries.

A major new UNIDO initiative for South-South cooperation is the establishment of UNIDO Centres for South-South Industrial Cooperation in several of the more advanced developing countries. These centres will stimulate the development of mutually beneficial partnerships between the more advanced developing countries hosting them, and least developed countries. The main fields of activity will be:

- Exchanges of experience.
- Institutional and enterprise networking.
- Replicating best practice for poverty reduction.
- Strengthening national and local innovation systems.

Basic agreement on the establishment of such Centres has already been reached with China and India. It is anticipated that further Centres of this kind will be established in Brazil, Egypt and South Africa in the foreseeable future.

Chapter I

The changing conditions for South-South cooperation

A. The rise of the South

The growing role of developing countries in global trade and industry

The South is becoming a major player in world industry and trade. Developing countries accounted for 24.5 per cent of world manufacturing value added (MVA) in 2004, compared with 14.2 per cent in 1980 (UNIDO 2005a), and the share of developing countries in world manufactured exports increased from 12.3 per cent in 1985 to 30.1 per cent in 2003 (UNCTAD 2005a).

One conspicuous aspect of this trend is the increase in South-South trade since the mid-1980s. A “new geography of trade” is emerging: The traditional global trade pattern - primary commodity exports from developing countries, manufactured exports from developed countries - is being replaced by a more complex pattern. These developments have been stimulated by global trade liberalization and the emergence of industrializing economies - notably China, other East Asian countries and lately India - serving as new growth poles in the global industrial economy.

The evolution of South-South cooperation

The rise of the South is a stimulus for South-South cooperation. The Summit of Heads of State and Government held on 14-16 September 2005 in New York recognized the achievements and great potential of South-South cooperation and encouraged its promotion. This was reflected in the Doha Plan of Action and the Doha Declaration, which included the establishment of the New Asian-African Strategic Partnership and other regional cooperation mechanisms. The 2005 Summit also recognized the importance of the third round of the Global System of Trade Preferences as a mechanism to stimulate South-South cooperation (UN 2005c).

South-South cooperation has been on the agenda since the 1970s. Originally, it pursued the idea of collective self-reliance through various cooperation agreements concluded by the non-aligned countries and the Group of 77. An operational framework for such cooperation was created by the adoption of the Non-Aligned Action Programme for Economic Cooperation among Developing Countries (ECDC) in 1972. In 1978, the Buenos Aires Plan of Action by the Conference on Technical Cooperation among Developing Countries (TCDC), calling for a New International Economic Order, was adopted. While ECDC focused mainly on trade and technology flows among developing countries and removing discrimination in global institutional and regulatory frameworks, TCDC focused on technical capacity building through training, exchanges of experts and sharing of experience and know-how. The Group of 77 gave substance to these agreements through the adoption of the Caracas Programme of Action in 1981, which contained concrete measures for promoting economic and technical cooperation, among others in the field of industry.

The United Nations (UN) General Assembly has supported these endeavours through various resolutions. In 2003, the UN General Assembly formally decided to use the terminology South-South cooperation instead of ECDC/TCDC.

B. Trade and South-South cooperation

Global integration, regionalism and multilateralism

South-South cooperation in trade is a form of regionalism, which is broadly defined as preferential trade agreements among a group of nations¹. These are usually considered second best to global free trade, or multilateralism, because they may result in trade *diversion* to inefficient member countries rather than trade (and hence wealth) *creation*, and may be hurdles to, rather than facilitators of, free trade. The question, in short, is: Will regionalism divide or integrate the world economy? After failing in the 1960s and 1970s because it was driven by political and bureaucratic rather than market forces, regionalism was revived in the 1980s when it was understood that it could complement multilateralism if trade diversion could be avoided (Bhagwati 1992). Permeating all the efforts to boost South-South cooperation now is the common notion that it should not be a substitute for, but a complement to, North-South cooperation. Developing countries will benefit most from a form of regionalism that serves as an instrument to increase global interdependence.

Obstacles and opportunities

Increasing South-South trade faces several challenges and obstacles:

- Similarities in resource base and production patterns prevail in many developing countries, which produce similar agricultural and manufactured goods; they are therefore often perceived to lack trade complementarities.
- Tariffs among developing countries act as a barrier to trade as they are much higher than in trade among developed countries.
- Geography matters, especially for landlocked countries, which face very high transport costs. North-South transport facilities are generally better than South-South links.²
- Institutional factors. Trade is constrained by bureaucracy, weak support institutions and lack of information on markets.

Some of these constraints (such as trade barriers) can be removed by negotiation, while others (such as geography) are more persistent and can only be solved in the long run through large investments in, for example, transport and information and communications (ICT) infrastructure.

The obstacles notwithstanding, South-South cooperation in trade is becoming an attractive complement and entry point to multilateralism. The associated broader benefits include trade-related investment, technology, capacity building and sharing of experience. New, dynamic markets in the South, especially in East Asia, open up new opportunities for South-South trade. Similarities in resource endowments can have a positive side: Technologies developed in the South, for example, may often be more appropriate to the needs of developing countries and represent one of the new trading opportunities.

C. The challenges for manufacturing

The new global industrial setting

The rationale for South-South cooperation is strengthened by fundamental changes in the global industrial environment in which developing countries operate. The accelerated liberalization of trade and investment has increased both the opportunities for and the competitive pressures on their manufacturing sectors. Global value chains (linked stages in

the production process of a particular commodity, from raw materials to final products), outsourcing and the use of ICT have internationalized manufacturing.

Redeployment of labour-intensive, low-technology industries from countries where incomes rise to lower-cost locations provide developing countries with an opportunity to build up low-technology industries that can initiate a technological learning process and give them a foothold in the global market for simple mass produced goods. A number of countries in the South have now reached the point where some of their industries are looking for such lower-cost locations within the South. At the same time, long-term competitiveness requires that enterprises raise productivity and upgrade technologies. Effective technology and labour policies must take account of these long-term dynamics.

Other issues have an impact on manufacturing as well. Global norms in areas such as the environment, intellectual property rights and product and process standards have become stricter, and transparency and accountability have become priorities for business (Yumkella 2005). The complexity of the issues is reflected in the MDGs. Industrial strategy therefore requires the involvement of all key stakeholders in development, and public-private sector partnerships have become an important tool for creating the right development conditions at the national level. But in a globalizing economy, such action must be complemented by action at the supra-national level, of which South-South cooperation has become a key component.

Industry, trade and poverty reduction

The links between industry, trade and poverty reduction can be described briefly as follows:

- The manufacturing sector is a key driver of the economic development process. It stimulates productivity, employment, income and technological progress throughout the economy, the rural sector included. In the modern knowledge-driven economy, manufacturing continues to play a pivotal role. A country without the skills, knowledge, information, technology, governance structures and infrastructure for industrial development is unlikely to achieve a strong position in the global economy (UNIDO 2001a).
- Trade is another important engine of growth and source of employment. A liberal trade regime increases industrial competition and facilitates technology imports, which help to boost productivity. It also creates new market opportunities and allows the realization of economies of scale and scope. Moreover, consumers can benefit from a broad range of imported products (including basic needs goods) at low prices, increasing disposable income for other needs.
- The product composition of trade matters. Because of their high value added, manufactured products are likely to contribute more, per unit, to export earnings than most raw materials. Exports of products with a high labour intensity are critical for integrating the poor into the mainstream development process. In many developed countries, exports of, for example, textiles and metal products were essential building blocks of the modern economy. The structure of production in some developing countries unfortunately tends to encourage an enclave-based pattern of growth rather than an economy-wide expansion of income-earning opportunities, which would have the greatest poverty reduction effect (UNCTAD 2004).
- Many factors determine the employment effects of growth in trade and industry. The economy's dynamic sectors must be labour intensive. Education and training must create a labour force with the right skills and must respond to changes in skill requirements. Labour legislation and administrative regulations must not become barriers to structural change. Discrimination according to gender, ethnicity or age must be abolished to ensure equal opportunity in the labour market.

Productive employment under decent conditions is the cornerstone of development and poverty reduction (UN 2005e). While economic growth may lead to increased incomes and

reduced poverty, it is not in itself sufficient to achieve these objectives, and need to be accompanied by reductions in inequality (World Bank 2005). It has been shown that some trade liberalization reforms, while increasing total incomes, may increase poverty in certain areas or even in overall terms (McCulloch *et. al.* 2001). Both China and India, where the vast majority of the world's poor live, achieved significant reductions in poverty when they grew rapidly during 1980-2000 while increasing their integration into the world economy. Nevertheless, a high degree of poverty still exists, especially in rural areas. While, to an extent, geographical isolation plays a role in these large countries, structural factors are more important: Weaknesses in education and training, rigid laws and regulations, and inadequate stimuli for the development of local entrepreneurship.

In Sub-Saharan Africa, growth has been excessively concentrated in the capital-intensive extractive sector, such as the petroleum industries. These have a low labour and skill intensity and therefore a weak impact on employment. One of the main challenges of South-South cooperation is to let Sub-Saharan Africa benefit from the lessons of building up labour-intensive industries learned elsewhere in the South, and stimulating structural change in African economies towards industrial development and industry-related services.

Industry, energy and environment

The basic link between trade, industry, energy supply and poverty reduction is a straightforward one: Without a good energy supply, competitive productive and trading activities are unthinkable in a modern economy; without these, there can be no economic growth, and a growing economy is needed for poverty reduction.

In the present context, two aspects of energy supply are important: Rural energy and energy efficiency. One-third of the world population has no access to commercial energy, and these people live mainly in rural areas. Bringing them into the mainstream of development requires, among others upgrading local productive activities and access to business information, which nowadays means using ICTs. Both require reliable energy supplies. Energy efficiency lowers industrial production costs, which helps to make products more competitive, and contributes to the reduction of CO₂ emissions. Most of the gains can be made in (and by) the developing countries, where energy use is still comparatively low but where energy efficiency also tends to be low.

Resource efficiency should not be limited to energy: It should cover the use of environmental services by industry in general. For exports, an important argument for environmentally friendly industrial production are the non-technical barriers to trade which result from environmental regulations, and consumer preferences for 'green' goods in the North. Cleaner production programmes, which UNIDO has pioneered in many developing countries, have demonstrated that less pollution means less waste as well as lower costs. The life-cycle approach to industrial production takes environmental protection a step further: Just as the most effective approaches to energy saving focus on industrial *systems* (motors, pumps, etc.) as a whole, so the most effective approaches to environmental protection use an integrated, life-cycle approach.

South-South cooperation, as Chapter IV will show, can make important contributions to energy savings and environmentally friendly production through technologies that are often better adapted to local conditions than technologies developed in the North.

Chapter II

The dynamics of South-South trade in manufactures

A. The new global manufacturing trade map

The emergence of China and India

China has emerged as a dominant player in the world economy in recent years, with a dramatic increase in its shares of world exports and raw material consumption, and appears set to become the world's pre-eminent exporter by 2010. With a time lag, India may follow the same pattern. Both of these countries have carried out far-reaching programmes to liberalize their economies.

China plays a major role in the development of production systems connecting East Asian developing countries. One of the most advanced industries in such production networks is electronics. Lall and Albaladejo (2003) have analysed the implications of such networks for competition and have concluded that the growing role of China in integrated production systems also increases the competitiveness of selected East Asian countries. The competitive pressure is felt in both developing and developed countries:

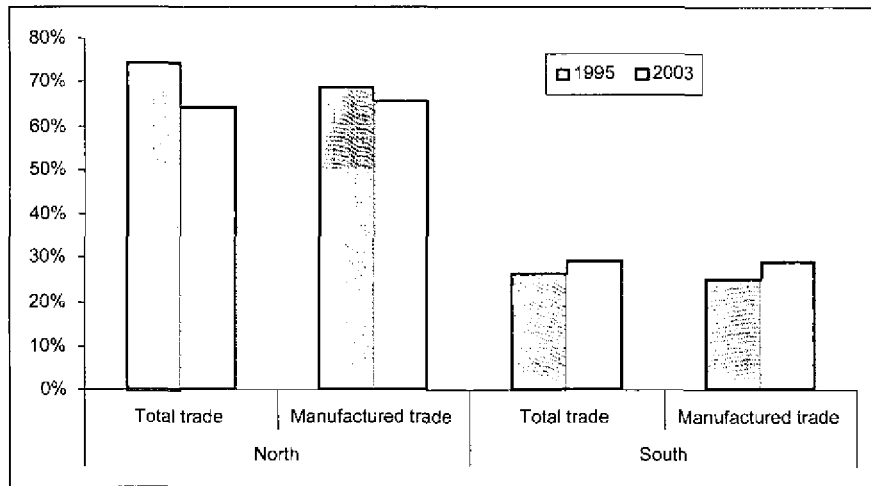
"The threat is clearly largest in low technology products for countries that still depend on such products for their export earnings; however, it also exists for countries in high technology production systems that rely on low-end functions. It is least for countries that develop new capabilities ... to overcome their wage disadvantage *vis a vis* China."

The South becomes a major force in world trade

The emergence of China and, to a lesser extent, India has a major impact on regional trade patterns. The share of the South in total world trade has increased from 20 per cent in 1970 to 25 per cent in 1990 and to almost 35 per cent in 2003 (UNCTAD 2005a). During the same period, the share of the North in total global trade has declined from 80 per cent in 1970 to 65 per cent in 2003. Apart from the growing role of China, this is mainly due to the first generation of newly industrializing countries (NICs) in East Asia. If these countries are excluded from the statistics, the share of the developing countries, including many LDCs, in world exports has remained stagnant since 1970. It stood at 16.8 per cent in 2003 (UNCTAD 2005a)

The South is increasingly exporting manufactured products, accounting for an estimated 32 per cent of world manufacturing trade in 2005, compared with almost 30 per cent in 2003 and 25 per cent in 1995 (Figure 2.1). The share of the North in global manufactured trade has declined from 75 per cent in 1995 to 66 per cent in 2003. The corresponding share of transition economies was 4 per cent in 2003.

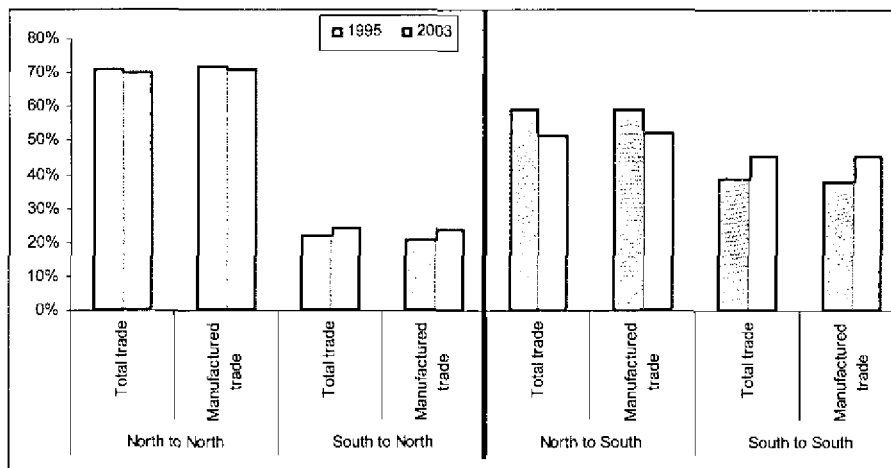
Figure 2.1. North and South: World market shares in total and manufactured trade, 1995 and 2003



Source: UNIDO calculations based on UNCOMTRADE

On the new global trade map, South-South trade in manufactures, while still relatively small, has emerged as the most dynamic activity during the last decade. This trade has expanded at a spectacular pace, consistently exceeding the growth rates of both global trade and North-North trade. South-South trade accounted for 46 per cent of the South's total trade and manufactured trade in 2003, compared with 39 per cent for both categories in 1995 (Figure 2.2). South-South trade has almost doubled during the last decade and its share in total trade will probably continue to grow. The rapid growth of South-South trade has primarily been due to the performance of East Asian countries (China and the first generation NICs, such as the Republic of Korea and Taiwan Province of China).

Figure 2.2. North and South: Changes in market share of total and manufactured trade, 1995 and 2003



Source: UNIDO calculations based on UNCOMTRADE.

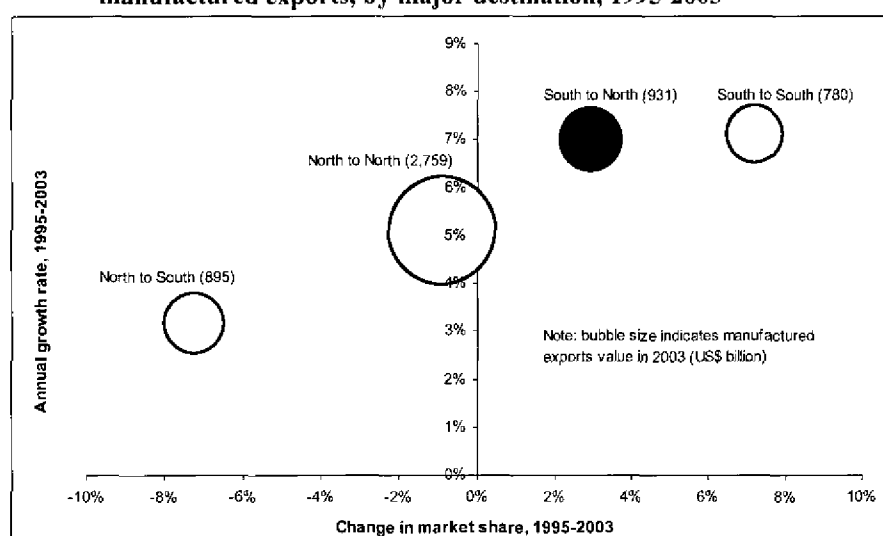
Some specific trends in manufactured exports are shown in Figure 2.3:

- *South-South* export flows have expanded rapidly at 7 per cent per year during 1995-2003, reaching US\$ 780 billion in 2003.

- *South-North* exports have also exhibited a very high annual growth rate of around 7 per cent, reaching US\$ 931 billion in 2003. This has resulted in a market share increase of 3 per cent by the South in the North in 1995-2003.
- *North-North* exports reached US\$ 2,759 billion in 2003, US\$ 153 billion more than the North-South, South-South and South-North manufactured trade flows combined. But the comparatively slow growth of North-North trade has resulted in a decline of the North's share.
- *North-South* exports have been constrained by the increased competitiveness of manufacturing in the South, which has resulted in a substantial decline in the market share of the North in the South.

The growth of South-South trade in manufactures is driven by outward-oriented development strategies, a result of trade liberalization and regional trade arrangements. The rapidly growing East Asian economies offer new trade opportunities, resulting in economies of scale and scope for exporting to this region. Increased South-South trade also creates new opportunities in such areas as technology transfer and foreign direct investment (FDI), and generally broadens the opportunities of developing countries. Finally, intensified South-South trade in manufactures reduces dependence on developed countries where growth has slowed down.

Figure 2.3. North and South: Volume, market share change and annual growth rate of manufactured exports, by major destination, 1995-2003



Source: UNIDO calculations based on UNCOMTRADE.

The role of manufacturing networks

The growing role of international manufacturing networks has developed through several stages:

- In the early phases of industrialization, the South's export boom resulted from redeployment of production stages from the North to the South. The North supplied intermediate goods to the South, and the South exported assembled goods to the North.
- With increasing industrial maturity, the further fragmentation of industrial processes has allowed developing countries, particularly those in East Asia, to specialize in particular production stages and trade more with each other.
- Southern transnational corporations (TNCs), particularly those of the Republic of Korea, Taiwan Province of China, Singapore and Hong Kong Special Administrative

Region (SAR), now play a major role in world trade. They are mainly responsible for the present growth in South-South trade, both in intermediate and finished goods.

It should be noted, however, that due to the extensive sub-regional production sharing arrangements in East Asia, among others in the electronics industries (Lall and Albaladejo, 2003), there is some statistical double counting (UNCTAD 2005a). In addition, the final output is destined for developed countries. Statistics therefore inflate the importance of South-South trade to a certain extent.

Increasing trade in technology-intensive products

The growing share of the South in the global trade in manufactures implies that the composition of developing countries' exports has moved away from primary commodities. In 2003, 83 per cent of the South's total exports (by value) were manufactures, compared with 79.5 per cent in 1995 (Figure 2.4). However, these aggregate data conceal significant variations among individual countries and regions. The countries of Sub-Saharan Africa, in particular, remain highly vulnerable to commodity price fluctuations, and the steep decline of the share of their manufactured exports in total exports is an alarming sign of de-industrialization.

The South's export structure is shifting towards technology-intensive manufactured products: More than half of the exports consisted of medium- and high-technology (MHT) products in 2003 (Figure 2.4). This picture also differs by region, however:

- *East Asia and Latin America* have strongly increased their exports of technology-intensive manufactures; in the case of East Asia MHT exports now account for 60 per cent of total exports.
- *South Asia* has made modest progress in such exports.
- *The Middle East and North Africa* region continues to rely on exports with low technological content. This can partly be explained by the dominance of petroleum exports in some of the countries, which limits interest in the development of manufacturing.
- *Sub-Saharan Africa* has not only seen its share of manufactured exports in total exports decline: The share of MHT exports has also decreased, to about 10 per cent. Sub-Saharan Africa's export structure was technologically relatively more advanced in 1995 than in 2003.

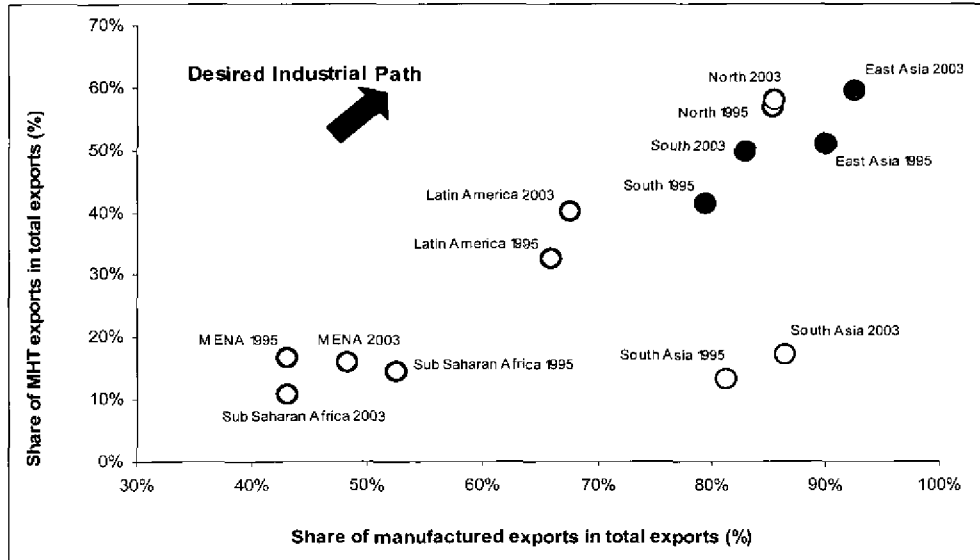
Variations in patterns of South-North exports

The development of exports from the South to the North during 1995-2003 shows considerable regional variations. These may be summarized as follows (Figure 2.5):

- *Sub-Saharan Africa has lost market shares in the North in resource based and low technology products.*³ Based on its abundance of natural resources and cheap labour, Sub-Saharan Africa would possess a comparative advantage in these sectors. However, that advantage is gradually shifting towards countries with similar resource endowments that have additional capabilities, ranging from quality control systems to the widespread availability of ICT, that play a role in securing market shares. In absolute terms, the region is also the smallest exporter.
- *East Asia is by far the largest exporter.* Its exports to the North, totalling US\$ 638 billion, are a multiple of the other regions' export combined – but are exceeded by its exports to the South (see below). Exports mainly consisted of MHT products.
- *Latin America* exported US\$130 billion more to the North than to the South in 2003. It also mainly exports MHT products. Mexico's *maquiladora* assembly plants for electronics and automobiles are mainly responsible for the region's market share gain. Manufactured exports to the North from other Latin American countries declined dramatically.

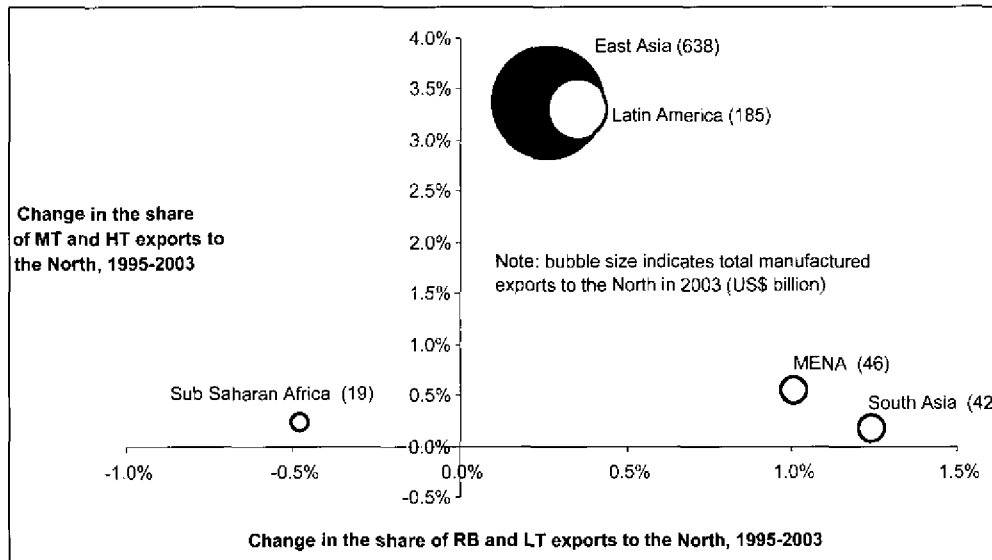
- *South Asia, the Middle East and North Africa* are not large exporters of manufactures to the North, but their exports of resource-based and low technology products have increased modestly. Their technology-intensive exports have only increased marginally or not at all.

Figure 2.4. Main developing regions: The evolving structure of manufactured exports, 1995-2003



Source: UNIDO calculations based on UNCOMTRADE.
 Note: MHT = medium and high technology.

Figure 2.5. Main developing regions: Trends in manufactured exports to the North, 1995-2003, and export value, 2003



Source: UNIDO calculations based on UNCOMTRADE.
 Note: RB = resource based; LT = low technology; MT = medium technology; HT = high technology.

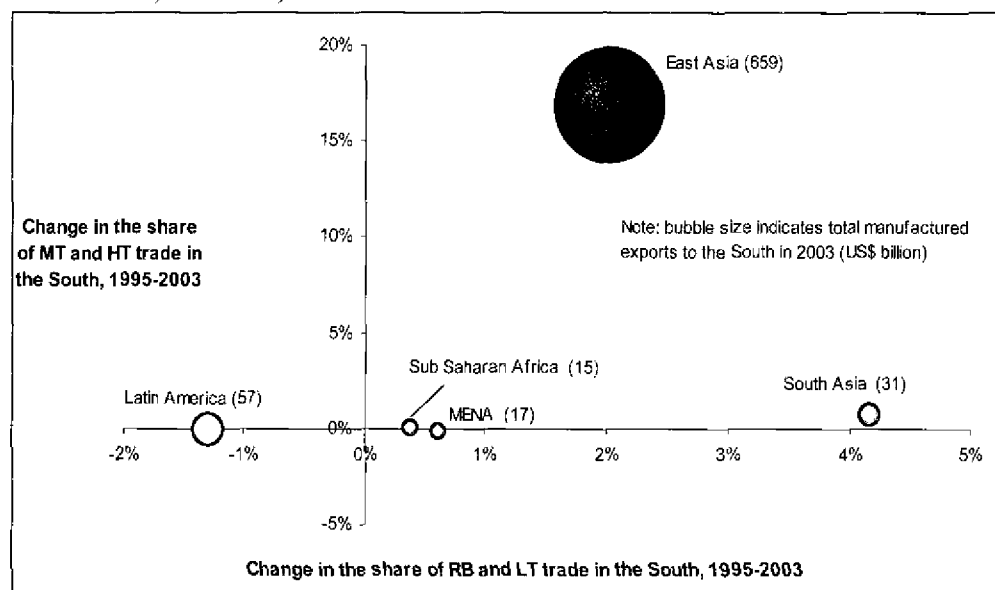
B. South-South trade in manufactures: The regional perspective

The dominant role of East Asia

Manufactured exports within the South exhibit different patterns among regions, as Figure 2.6 shows:

- *East Asia dominates South-South trade.* By 2003, East Asia's share was 84.5 per cent, and a comparison of Figures 2.5 and 2.6 shows that the region exported US\$ 21 billion more to the South than to the North in 2003. In a sense, East Asia's export structure is more sophisticated than that of the North: The shares of manufactures and MHT exports in total exports are higher.
- *Latin America's* manufactured exports to the South amounted to only US\$ 57 billion in 2003, and its market share in the South in resource-based and low technology products dropped slightly.
- *South Asia's* increased manufactured exports mainly target the rapidly growing East Asian markets and consist primarily of clothing and textiles. The share of technology-intensive exports has not increased much.
- *The Middle East and North Africa region* only exported manufactured goods worth US\$ 17 billion to the South in 2003.
- *Sub-Saharan Africa's* problems are reflected in the region's limited and low-technology manufactured exports (US\$ 15 billion in 2003) to the South.

Figure 2.6. Main developing regions: Changes in manufactured exports to the South, 1995-2003, and value, 2003



Source: UNIDO calculations based on UNCOMTRADE.

Note: RB = resource based; LT = low technology; MT = medium technology; HT = high technology.

Intra-regional trade patterns

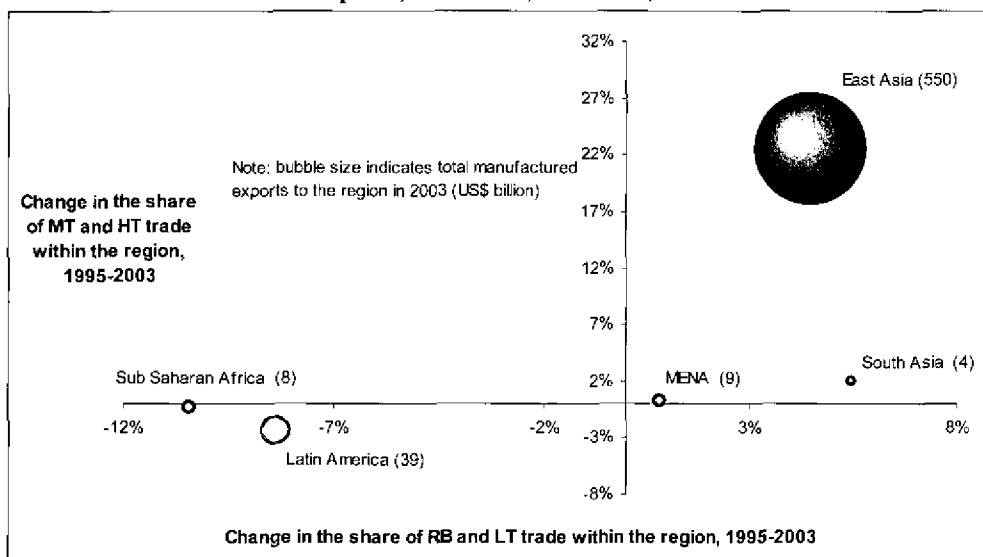
Intra-regional trade shows the following patterns:

- *East Asian countries trade mainly with other East Asian countries.* This region has the highest figures for intra-regional manufactured trade: 83.4 per cent of all its manufactures, with a value of US\$ 550 billion, were traded within the region in 2003. This trade is dominated by MHT products, and East Asia's share of the South's market in MHT products grew by 22 per cent in only eight years (Figure 2.7). This is

largely due to the presence of integrated production networks in the region. Intra-regional trade in manufactures exceeds the total exports of the other regions of the South by US\$ 136 billion.

- *Latin America also has a high share in intra-regional manufactured trade, but this has grown slowly, mainly because regional agreements such as Mercado Común del Sur are less important than North-South agreements such as the North American Free Trade Agreement (NAFTA) and the Central American Free Trade Area (CAFTA).*
- *Sub-Saharan Africa's intra-regional trade has grown slowly, but regional trade agreements such as the Southern African Development Community, the Common Market of Eastern and Southern Africa, and the Union Economique et Monétaire Ouest Africaine have made some impact: The rate of growth is faster than in Latin America.*
- *Both Sub-Saharan Africa and Latin America have lost market shares in their own regions for all product categories. These regions have been exposed to strong competition from East Asia, and especially China, in labour-intensive, cheap manufactures (the situation in Sub-Saharan Africa is briefly discussed below). Regional agreements have not been able to stop this trend.*

Figure 2.7. Main developing regions: Changes in technology composition of intra-regional manufactured exports, 1995-2003, and value, 2003



Source: UNIDO calculations based on UNCOMTRADE.

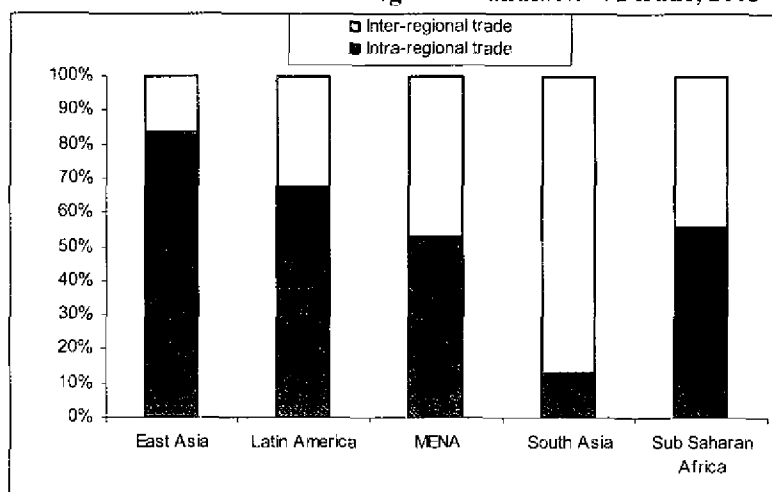
Note: RB = resource based; LT = low technology; MT = medium technology; HT = high technology.

Inter-regional exports: South Asia benefits from East Asia

Inter-regional exports can be summarized as follows:

- *South Asia's share of exports to other regions in the South is the highest: 86.7 per cent of all its manufactured exports go to other developing regions (Figure 2.8). As indicated above, East Asia is a major destination for these exports.*
- *East Asia's exports of manufactured goods to other regions in the South are limited.*
- *Sub-Saharan Africa.* Around half of Sub-Saharan Africa's manufactured exports in 2003 went to other developing regions.
- *Latin America.* Around one third of Latin America's manufactured exports went to other developing regions, with a decreasing share of resource-based and low technology industries.

Figure 2.8. The South: Inter- and intra-regional manufactured trade, 2003



Source: UNIDO calculations based on UNCOMTRADE.

China, India and Sub-Saharan Africa

A recent report by the United Kingdom's Department for International Development (DFID 2005), based on analyses of trade and investment links with twenty-one countries in Sub-Saharan Africa, specifically examines the effects of China's and India's growth and trade liberalization on poverty in Africa. The study's main findings with regard to trade can be summarized as follows:

- *African exports to China and India:* Africa's exports to China consist mainly of raw materials and energy resources. These exports have a limited impact on poverty reduction. Exports do not include labour-intensive agricultural or manufactured products except cotton, where production by smallholders could have a positive impact on poverty. Exports to India are less dynamic but more diversified, with significant exports of labour-intensive agricultural products which may have a positive impact on poverty reduction.
- *African imports from China and India* are dominated by low-cost consumer products, which benefit consumers and potentially also the poor. However, where domestic products cannot compete with imports there may be a negative impact on employment and poverty. This seems to be the case in Ethiopia and Nigeria.
- *Competition from China and India in third markets* is not a serious challenge, as few African countries are significant exporters of labour-intensive manufactures. The main exception is Lesotho, which has developed a thriving garment export industry. This industry is under competitive threat, especially from China, following the complete liberalization of world trade in the sector in 2005. The garment industry in Mauritius and Madagascar may also suffer.

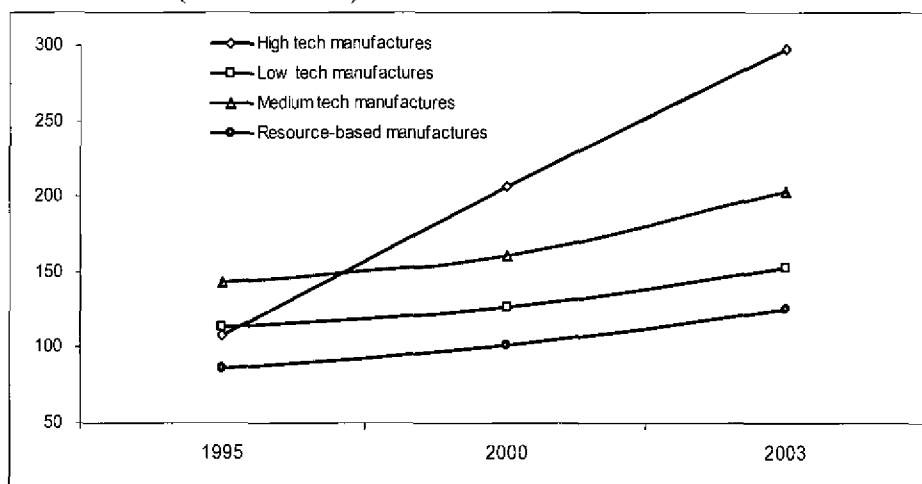
The conclusion of the study is that while Lesotho faces a serious competitive challenge, some African countries could expand exports of labour-intensive agricultural products to China and India. Sub-Saharan Africa may also benefit from the general impact of China's growth on the world economy. One policy challenge is then to ensure that smallholders rather than large less labour-intensive farms become the main suppliers of such export products. Another challenge is to identify and stimulate labour-intensive manufactures that are competitive with those exported by China. Finally, the study suggests that African countries could seek to increase tax revenue from extractive industries to fund pro-poor programmes.

C. South-South trade in manufactures: The product perspective

Booming high-technology exports

After the mid-1990s, the surge of integrated production networks for electronics in the South has resulted in a high-technology export boom. In only eight years, high-technology exports increased from US\$ 100 billion to US\$ 300 billion (Figure 2.9), and these exports now account for 33.6 per cent of total South-South trade. The danger of too strong a concentration on high-technology exports is that they may result in enclave-type manufacturing relying on high-skilled labour, with limited linkages to the national economy and a limited impact on poverty reduction.

Figure 2.9. South-South: Trends in manufactured exports by technology category, 1995-2003 (billions of US\$)



Source: UNIDO calculations based on UNCOMTRADE.

Analysis of the product orientation of South-South trade in terms of the ten dominant and ten most dynamic products gives the following picture (Tables 2.1 and 2.2 – see Annex Tables 1-5 for detailed figures):

- *Five out of the top ten products are high-technology manufactures (electronics)* (Table 2.1). Thermionic valves (or semiconductors) are the single most traded product within the South, with a value of nearly US\$ 110 billion in 2003 – this is equivalent to all South-South manufacturing trade flows for all regions, excluding East Asia.
- *More than 95 per cent of all South-South trade in electronics products, parts and components is accounted for by East Asia* (Table 2.1). East Asia also has a major share in the other dominant products, such as refined petroleum products (64 per cent), textile yarn (79 per cent), and polymerization and copolymerization products (86 per cent).
- *Electronics are also among the most dynamic products* (Table 2.2). This is illustrated by parts and accessories of office equipment (SITC 759), automatic data processing machines (752) and thermionic valves (776).
- *Primary exports such as oil seeds, natural and manufactured gas and unmilled maize are highly dynamic*, but the value of exports is comparatively small (Table 2.2). Yet, this opens up interesting perspectives for Southern countries that specialize in primary commodities, such as Sub-Saharan Africa.

Table 2.1. Principal products in South-South trade, 2003

Ranking	SITC rev 2 code	Technology classification	Product name	Trade value (US\$ billion)	Annual growth rate, 1995-2003	East Asia's share in S-S trade
1	776	High technology	Thermionic, cold & photo-cathode valves	109.53	15.0%	99.7%
2	764	High technology	Telecommunications equipment and parts	48.63	12.4%	98.6%
3	759	High technology	Parts and accessories of office equipment	46.45	17.9%	97.7%
4	334	Resource-based	Petroleum products, refined	31.28	8.6%	64.1%
5	752	High technology	Automatic data processing machines	30.54	16.7%	98.6%
6	333	Primary	Petroleum oils, crude	26.40	9.6%	25.8%
7	583	Medium-technology	Polymerization and copolymerization	20.18	4.5%	86.3%
8	778	High technology	Electrical machinery and apparatus	18.27	9.7%	95.8%
9	772	Medium-technology	Electric appliances such as switches, etc	17.52	11.2%	97.3%
10	651	Low-technology	Textile yarn	14.16	2.1%	79.1%

Source: UNIDO calculations based on UNCOMTRADE.

Table 2.2. Most dynamic products (sales > US\$ 2 billion only) in South-South trade, 2003

Ranking	SITC rev 2 code	Technology classification	Product name	Annual growth rate, 1995-2003	Trade value (US\$ billion)	East Asia's share in S-S trade
1	871	High-technology	Optical instruments and apparatus	39.7%	8.95	99.9%
2	222	Primary	Oil seeds and oleaginous fruit	23.8%	4.50	5.0%
3	759	High-technology	Parts and accessories of office equipment	17.9%	46.45	97.7%
4	752	High-technology	Automatic data processing machines	16.7%	30.54	98.6%
5	341	Primary	Gas, natural and manufactured	16.6%	8.87	51.8%
6	884	Medium-technology	Optical goods	16.3%	2.21	96.6%
7	044	Primary	Maize (corn), unmilled	15.7%	3.06	54.0%
8	776	High-technology	Thermionic, cold & photo-cathode valves	15.0%	109.53	99.7%
9	845	Low-technology	Outer garments and other articles	13.9%	9.06	95.1%
10	874	High-technology	Measuring, checking, analysing instruments	13.2%	4.56	93.7%

Source: UNIDO calculations based on UNCOMTRADE.

In sum, East Asia's intra-regional production networks in high-technology industries dominate South-South manufactured trade. Latin America's (and particularly Mexico's) high-technology export surge is oriented to the North, reflecting preferential trade agreements such as NAFTA (Lall, Albaladejo and Zhang 2004).

Exports products and their impact on poverty reduction

It is often assumed that primary products, resource-based products and low-technology products, which dominate the export profile of Sub-Saharan Africa (see Annex Table 5), have a greater impact on poverty reduction than MHT products. This is not necessarily so: It is for example evident that petroleum exports of some developing countries with good governance have reduced poverty, while in other countries petroleum exports are more a curse than a blessing (see, for example, Sala-i-Martin and Subramanian, 2003). The impact of an export product on an economy and on poverty reduction depends on many factors, such as world demand for the product, access to markets, effects on employment and demand for skills, and – in the case of agricultural products - patterns of land ownership. How various export products contribute to poverty reduction, and under which circumstances, is a subject that requires more analysis. It is, however, obvious that potential earnings per unit increase with the value added to a product in the country. Chapter III illustrates the importance of moving up the value chain in a major industrial sector of most developing countries: Agro-processing.

Chapter III

Exports and the agro-industry value chains

A. The importance of agro-industry value chains

Value chains are interlinked stages in the production process of a particular commodity, from raw materials products to final products. The value chains in the agro-industries play a key role in poverty reduction in developing countries, most of which have a strong agricultural resource base. Agro-industries stimulate demand for the output of the domestic agricultural sector; processed food helps to improve food security; the range of basic consumer goods is increased; the industries have relatively low technological and investment thresholds while requiring large numbers of unskilled and skilled workers; and the value added to agricultural products helps to increase export earnings.

This chapter discusses the exports in three value chains that are important in all five Southern regions: Food and beverages, fruit and vegetables and cotton (Table 3.1 gives a breakdown of these products by processing level, except cotton). In particular, it discusses whether the industries in these regions, like those in the industrialized countries, have moved up the value chain – in other words, whether they have moved towards higher degrees of processing. It also analyses intra- and inter-regional exports and explores how South-South cooperation could be intensified.

Table 3.1. Agro-industry products classified by processing level (SITC Rev. 3)

Product	Raw & semi processed	Processed
Fruit and vegetables	Vegetables, fresh/chilled/ frozen (054); Fruit & nuts, fresh/dried (057);	Vegetable roots/tuber prepared, preserved (056); Fruit, preserved & prepared. (058); Fruit & vegetable juice (059)
Fish and crustaceous	Fish, live/fresh/chilled/frozen (034); Crustacean molluscs (036)	Fish, dried/salted/smoked (035); Fish/shellfish, preserved & prepared (037)
Meat	Beef, fresh/chilled/frozen (011); Meat n.e.s., fresh/chilled/frozen (012)	Meat offals, preserved (016); meat offals n.e.s., preserved (017)
Cereals	Wheat (041); Rice (042); Barley grain (043); Maize (044); Cereal grain n.e.s. (045)	Flour/meal wheat (046); Cereal meal/flour n.e.s. (047); Cereal etc. flour/starch (048)
Milk products	Milk, fresh and basic preparations (022)	Butter and cheese (023); Cheese and curd (024)
Sugar	Raw sugars (0611); Cane/beet sugar n.e.s. (0612)	Molasses, excl. refined sugar (0615); Sugars n.e.s./syrops/etc. (0619); Sugar confflout/white chocolate (0622)
Eggs	In shelled (0251)	Shelled, processed (0252); egg albumin (0253)
Coffee	Not roasted (0711)	Roasted (0712); Extracts/essences/substitutes (0713)
Tea	Tea (0741)	Tea extract (0743)
Cocoa	Cocoa beans raw/roasted (0721); Powder, unsweetened (0722); Wastes (0725); Powder, sweetened (0731)	Paste (0723); Butter/fat/oil (0724); Prepared/chocolate (0732); Chocolate bars n.e.s. (0733); Cocoa foods (0739)

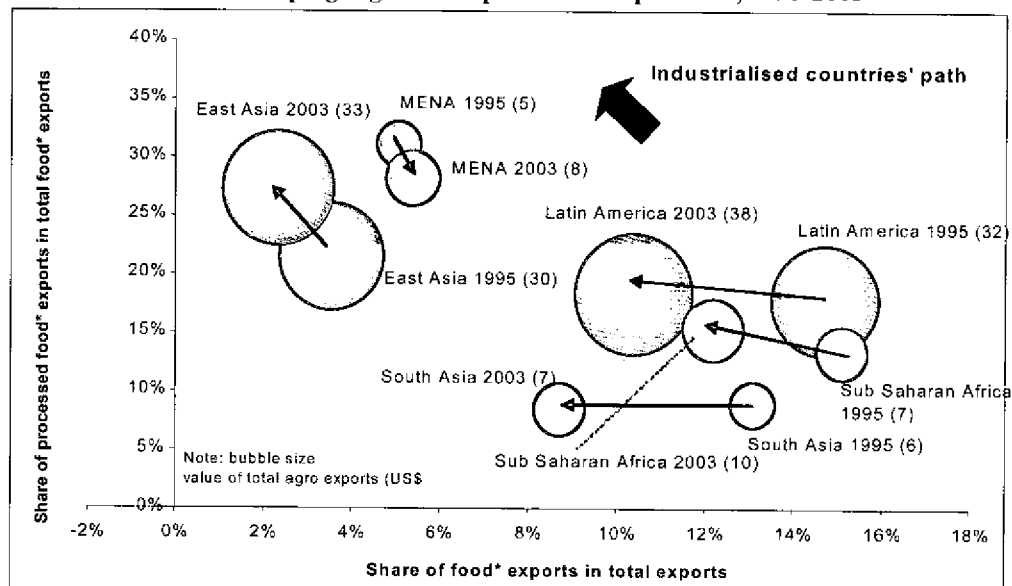
Source: UNIDO calculations based on UNCOMTRADE.

Note: N.E.S. = not elsewhere specified.

B. Food and beverages

Few countries in the South have so far been able to transform their rich raw material base for food products and beverages into high value-added products for export. Figure 3.1 shows that most of the developing regions are still heavily dependent on unprocessed food exports:

Figure 3.1. Main developing regions: Exports of food products, 1995-2003

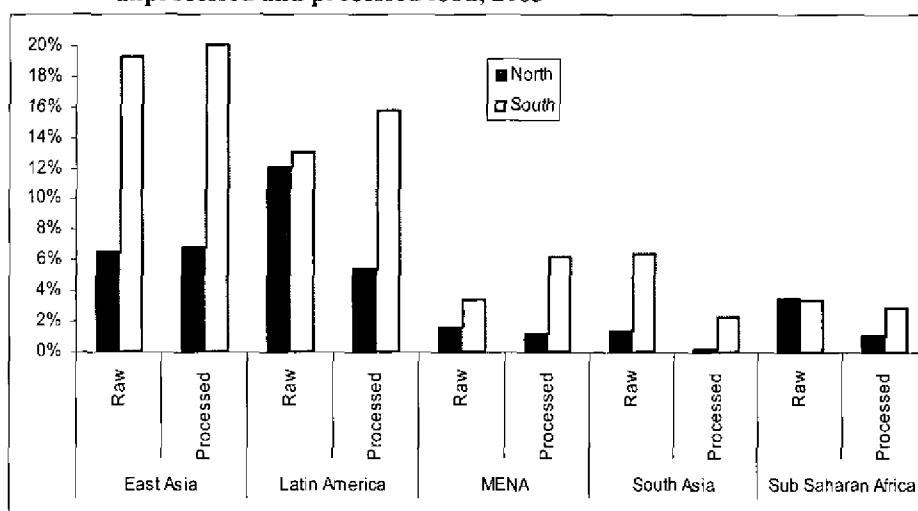


Source: UNIDO calculations based on UNCOMTRADE.
 Note: * Includes beverages

- *East Asia is the strongest exporter of processed food in the developing world* despite its relatively limited natural resources per capita. The region has followed the path of the industrialized countries by reducing food exports to only 2 per cent of its total exports while increasing the share of processed food in the total of its food exports to 27 per cent in 2003.
- *Latin America, in particular Brazil, is the developing world's leader of food exports* (US\$ 38 billion in 2003) but the region has not made great advances in processing in recent years. The share of processed food in its food exports increased only from 17.8 per cent to 18.3 per cent in 1995-2003.
- *The Middle East and North Africa, South Asia and Sub-Saharan Africa are comparatively small players* – the three regions combined exported US\$ 25 billion worth of food products in 2003. The main characteristics of these regions can be described as follows:
 - *Sub-Saharan Africa is the region most dependent on food exports.* These accounted for 12 per cent of its total exports in 2003. The region only processes 15 per cent of all its food exports.
 - *South Asia shows the lowest levels of technological deepening within the developing world:* during 1995-2003, processing levels remained at 8 per cent of total food exports.
 - *The Middle East and North Africa has a high share of processed food exports in total food exports,* but the volume of exports is rather low at US\$ 8 billion in 2003.

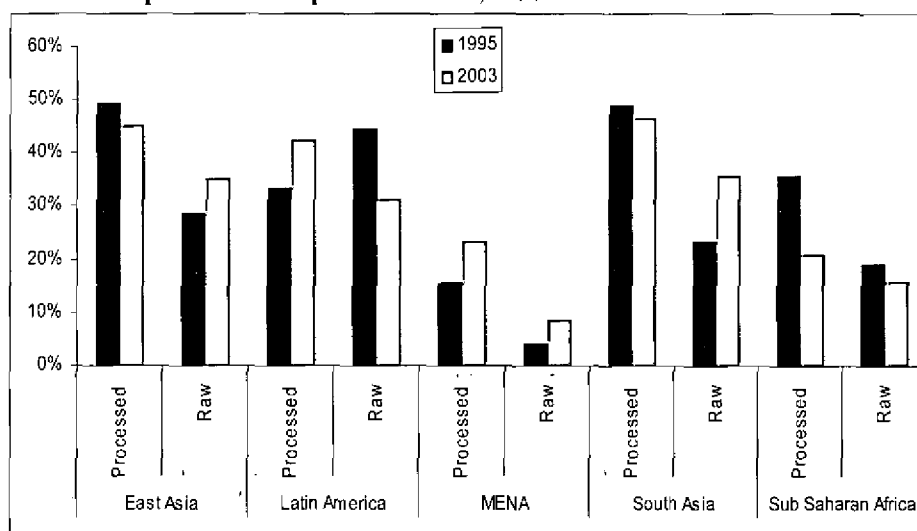
Figures 3.2 and 3.3 show the share of developing regions in the different markets for unprocessed and processed food. Figure 3.4 shows the trade balance of the regions.

Figure 3.2. Main developing regions: Shares in Northern and Southern markets for unprocessed and processed food, 2003



Source: UNIDO calculations based on UNCOMTRADE.

Figure 3.3. Main developing regions: Shares of intra-regional trade in markets for unprocessed and processed food, 1995-2003



Source: UNIDO calculations based on UNCOMTRADE.

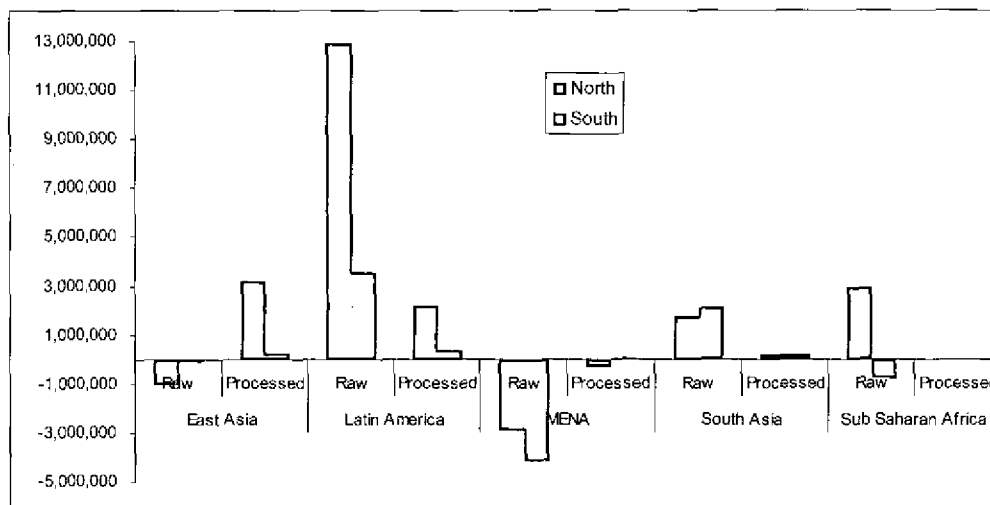
The key features of the analysis may be summarized as follows:

- *East Asia dominates South-South trade in food products* – it accounts for nearly 20 per cent of the Southern market for both unprocessed and processed food. *Intra-regional trade in East Asia is the highest in the developing world* (together with South Asia), and East Asia has a *positive trade balance for processed food both in the North and in the South*. This confirms the strong competitive performance and technological deepening of the food industry in East Asia.
- *Sub-Saharan Africa has only 3.5 per cent of the South's market share in unprocessed food*, the lowest share among developing regions. *Sub-Saharan Africa is the only region that is losing market shares for unprocessed and processed food in its own market* – it is increasingly dependent on imports.
- *Latin America mainly exports unprocessed food to Northern markets*. It has a 12 per cent share of the Northern markets. *Latin America has a lower market share for unprocessed and processed food than East Asia in Southern markets*. Its trade surplus

originates mainly from Northern markets. *Intra-regional trade is not as significant as in East Asia and South Asia*, particularly in unprocessed food: Here, Latin America's share in its own market has declined from 45 per cent in 1995 to 31 per cent in 2003.

- *South Asia's markets for both unprocessed and processed food show the highest share of intra-regional trade.* However, intra-regional exports in South Asia for all food products amounted only to US\$ 7 billion, the lowest intra-regional trade figure within the developing world. *South Asia's intra-regional trade in processed food is very limited.*

Figure 3.4. Main developing regions: Trade balance for unprocessed and processed food, 1995-2003

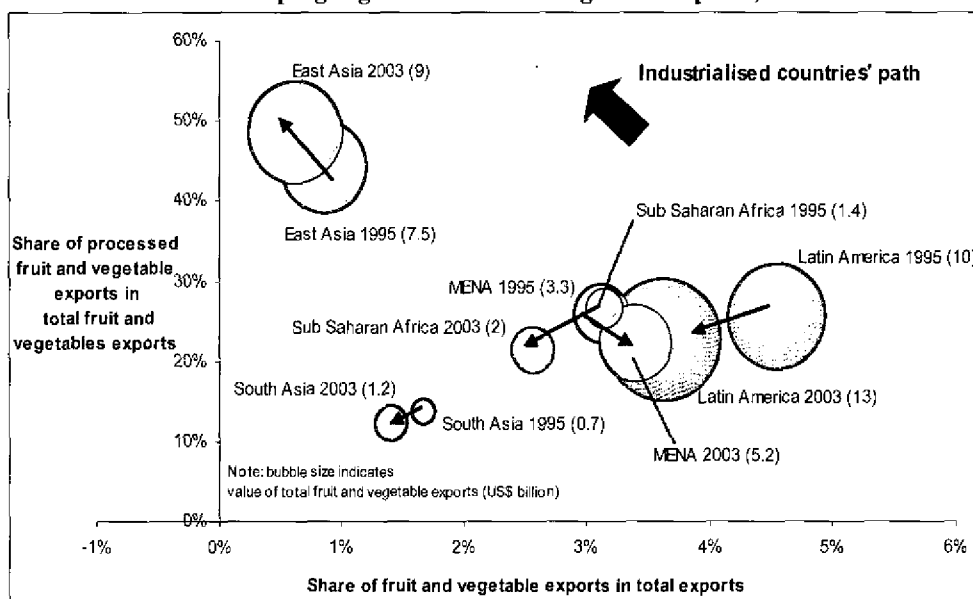


Source: UNIDO calculations based on UNCOMTRADE.

C. Fruit and vegetables

The upgrading in the fruit and vegetable value chain and the exports by the main developing regions are shown in Figure 3.5.

Figure 3.5. Main developing regions: Fruit and vegetable exports, 1995-2003



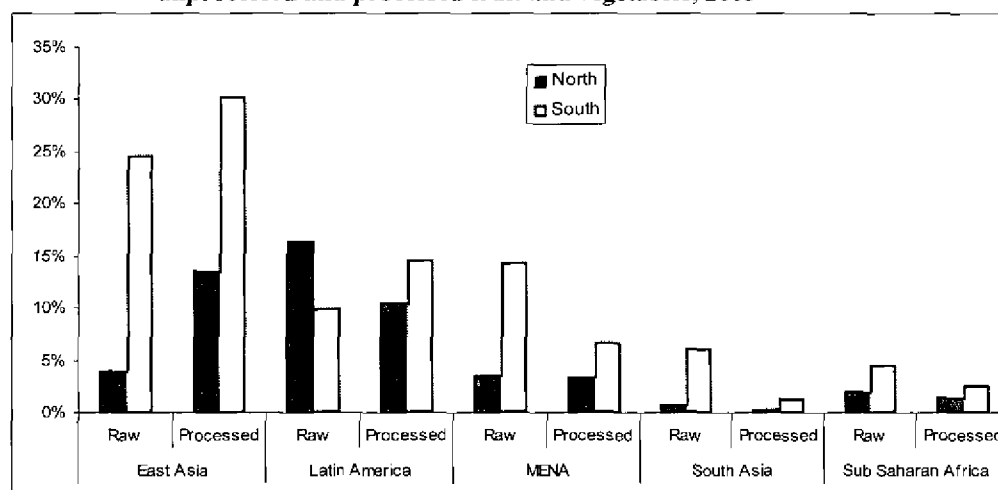
Source: UNIDO calculations based on UNCOMTRADE.

A deeper analysis of these findings shows that:

- *East Asia has the highest degree of technological deepening in the industry among all developing regions.* This is the only region that has increased the share of processed products in its fruit and vegetable exports to an impressive 50 per cent. The industry is highly competitive and technologically advanced.
- *Latin America is the developing world's leader of fruit and vegetable exports but the share of processed products in total exports has declined* from 25 per cent in 1995 to 22 per cent in 2003. Fruit and vegetables account for nearly 4 per cent of the value of the region's total exports; efforts to move up the value chain in this industry could significantly improve that figure.
- *The Middle East and North Africa* region is not a major exporter and the share of processed products has actually declined, but total exports have grown considerably during 1995-2003.
- Despite its huge potential and a modest increase in exports, *Sub-Saharan Africa* only exported US\$ 2 billion of fruit and vegetables in 2003, of which 80 per cent are unprocessed products.
- *South Asia is the export laggard within the developing world.* The region is much less reliant on fruit and vegetable exports than the Middle East and North Africa, Latin America and Sub-Saharan Africa, but it is missing opportunities: World exports of fruit and vegetables nearly doubled between 1995 and 2003.

Figures 3.6 and 3.7 present the developing regions' share in different markets for raw and processed fruit and vegetables. Figure 3.8 shows the trade balance of the regions.

Figure 3.6. Main developing regions: Shares in Northern and Southern markets for unprocessed and processed fruit and vegetables, 2003



Source: UNIDO calculations based on UNCOMTRADE.

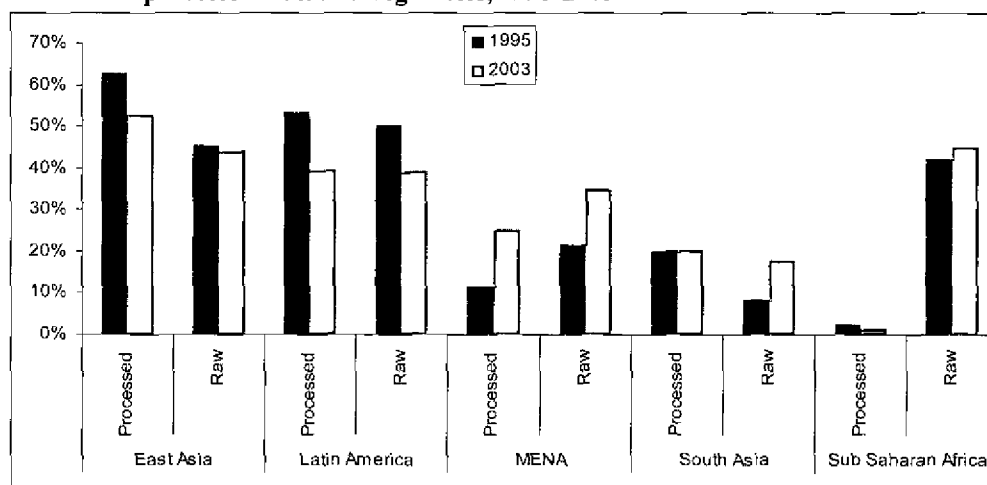
A further analysis of these findings yields interesting results:

- *East Asia dominates South-South trade in fruit and vegetables* – it accounts for nearly 25 per cent of the market for raw fruit and vegetables and 35 per cent of the market for processed products. *Intra-regional trade in East Asia is the highest in the developing world*, though East Asia's shares have slightly declined between 1995 and 2003. *East Asia also has a positive trade balance for processed fruit and vegetables*, particularly with Northern markets, which illustrates the technological sophistication of its industry.
- *Latin America has a significant share in Northern markets for raw fruit and vegetables*, but its share in the South is much lower than that of East Asia in both categories of exports. *Intra-regional trade in Latin America has declined* between

1995 and 2003 under the impact of imports from elsewhere. Once again, Latin America's trade balance surplus originates in Northern markets.

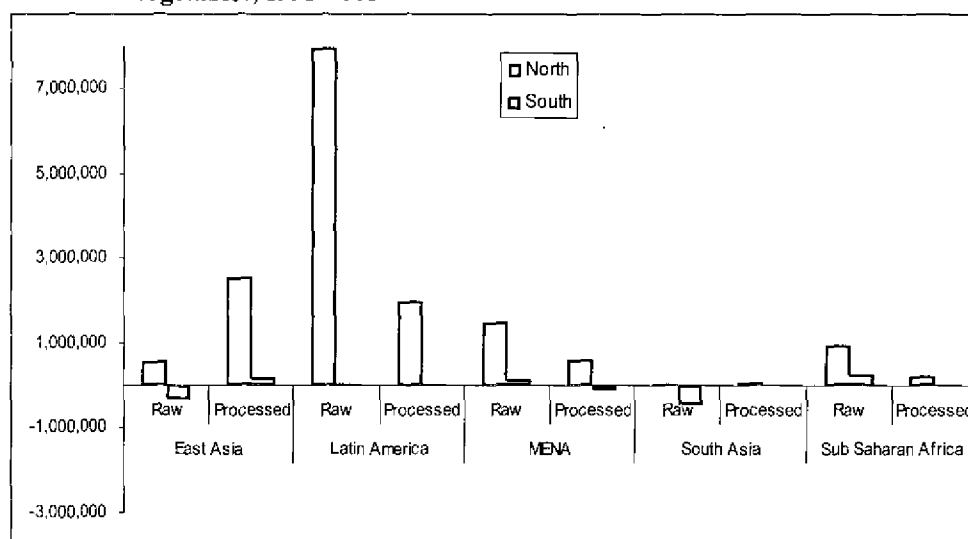
- *Sub-Saharan Africa is hardly present in Northern and Southern markets.* Intra-regional trade in raw fruit and vegetables is high, but for processed products it is the lowest in the developing world.

Figure 3.7. Main developing regions: Shares of intra-regional trade in markets for raw and processed fruit and vegetables, 1995-2003



Source: UNIDO calculations based on UNCOMTRADE.

Figure 3.8. Main developing regions: Trade balance for raw and processed fruit and vegetables, 1995-2003



Source: UNIDO calculations based on UNCOMTRADE.

D. Cotton and cotton yarn

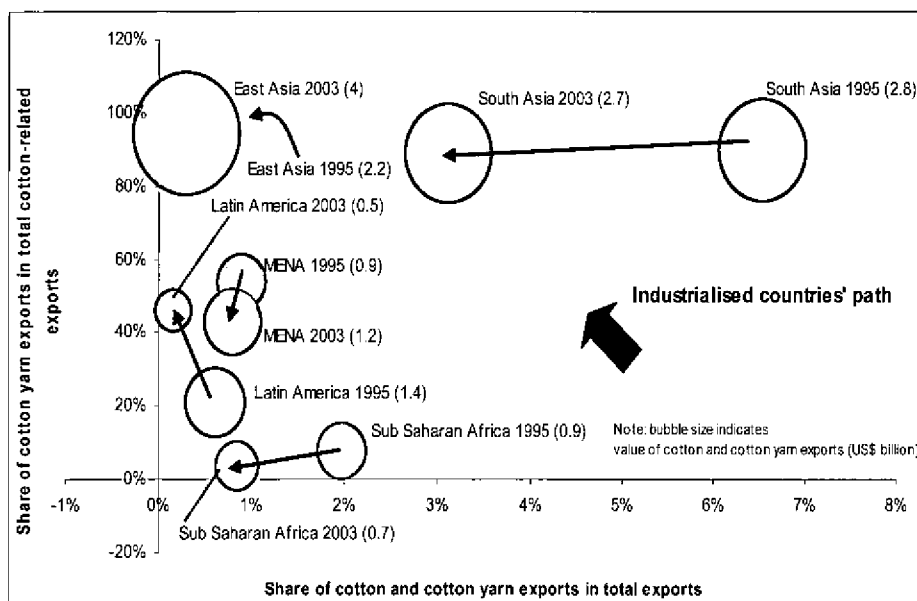
The importance of moving up the value chain is illustrated by the value of three major products in the cotton value chain, which increases with the level of processing:

- Cotton not carded or combed: US\$ 2.05/kg
- Cotton carded and combed: US\$ 2.13/kg
- Cotton yarn: US\$ 2.74/kg.

In Figure 3.9, only the categories 'cotton' and 'cotton yarn' are used; the first category combines data on the first two products. On the horizontal axis, the share of *all* cotton products in total exports is shown. The figure illustrates the following analytical findings:

- *East Asia and South Asia have the highest level of processed cotton exports in the developing world - more than 90 per cent of their cotton exports are in the form of yarn. However, East Asia has doubled its cotton exports while South Asia has experienced a slight decline in the period 1995-2003.*
- *Total cotton exports of Sub-Saharan Africa are low and declining, and 96 per cent of its exports consist of raw cotton.*
- *Total cotton exports from Latin America and the Caribbean have plummeted from US\$ 1.4 billion in 1995 to US\$ 0.5 billion in 2003. The increased share of cotton yarn exports is therefore only relative and no indication of technological upgrading.*
- *The Middle East and North Africa has increased its total exports of cotton by US\$ 300 million between 1995 and 2003, but the share of yarn has declined from 54 per cent to 43 per cent.*

Figure 3.9. Main developing regions: Cotton exports, 1995-2003



Source: UNIDO calculations based on UNCOMTRADE.

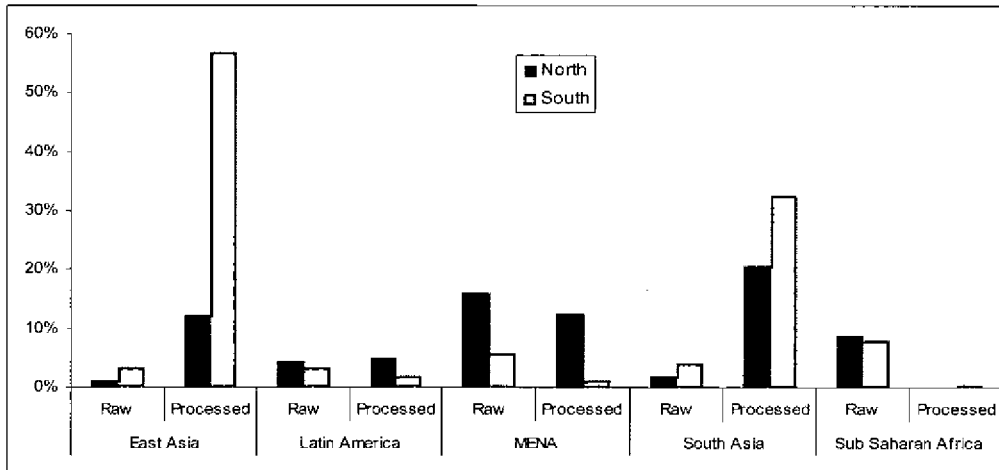
Figures 3.10 and 3.11 shows the developing regions' market share of raw and processed cotton in the North, South and their own markets. Figure 3.12 shows the trade balance of the regions.

A more in-depth analysis of these data shows that:

- *East and South Asia dominate the trade in cotton yarn of the South. Raw cotton is mainly imported. Intra-regional trade for cotton yarn is also very high for both East and South Asia, while intra-regional trade for raw cotton is limited. East and South Asia have a positive trade balance in cotton yarn in both Northern and Southern markets.*
- *Sub-Saharan Africa has a limited presence in the Northern and Southern markets for raw cotton, and exports little cotton yarn. Despite its significant resources for cotton production, Sub-Saharan Africa is losing its share in its own market for raw cotton. Only 30 per cent of the region's cotton imports originate from the region itself, down from 89 per cent in 1995. Exports of cotton yarn declined dramatically from US\$ 69 million in 1995 to US\$ 26 in 2003, making Sub-Saharan Africa a net importer of cotton yarn.*

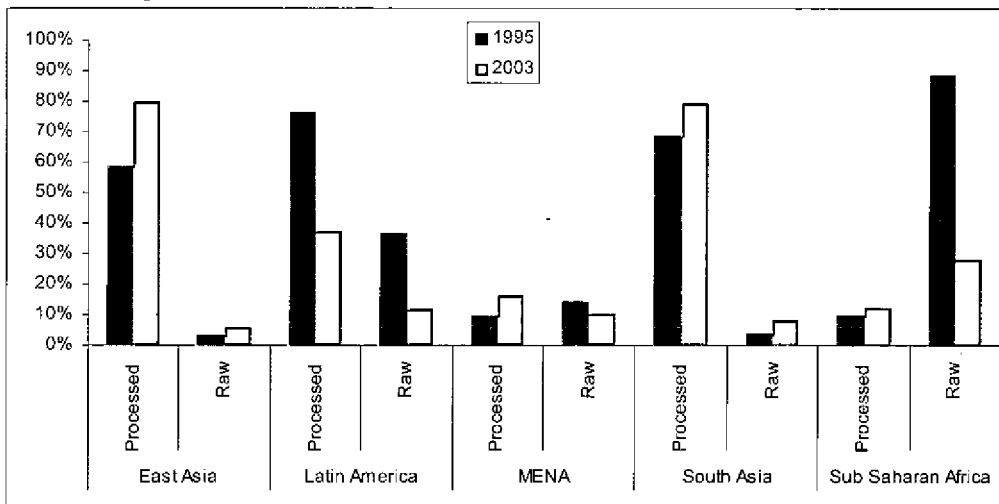
- *The Middle East and North Africa's cotton sector is mainly geared to Northern markets. Countries such as Egypt and Turkey use trade agreements to supply EU markets with high quality cotton and cotton yarn. The South is not a main buyer and intra-regional trade is very limited.*

Figure 3.10. Main developing regions: Shares in Northern and Southern markets for raw and processed cotton, 2003



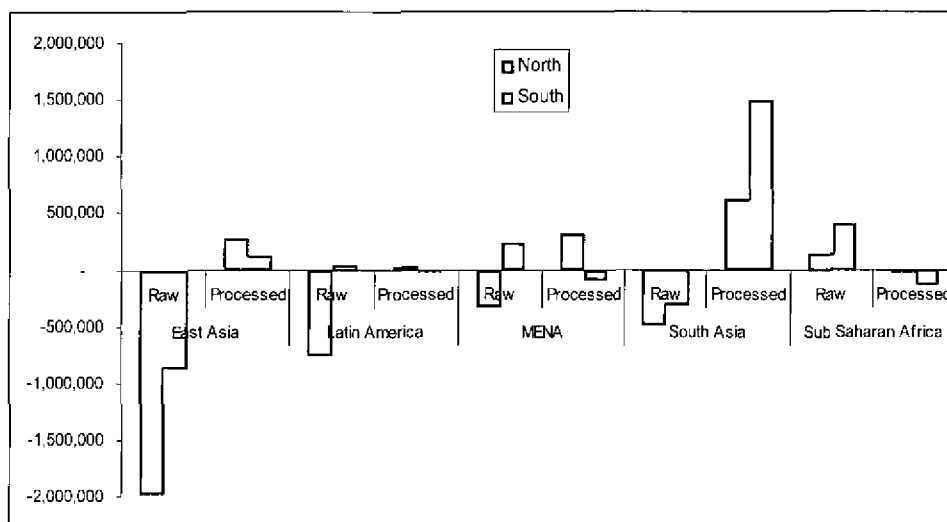
Source: UNIDO calculations based on UNCOMTRADE.

Figure 3.11. Main developing regions: Shares of intra-regional trade in markets for raw and processed cotton, 1995-2003



Source: UNIDO calculations based on UNCOMTRADE.

Figure 3.12. Main developing regions: Trade balance for raw and processed cotton, 1995-2003



Source: UNIDO calculations based on UNCOMTRADE.

The analysis conducted in this chapter has demonstrated two diverging trends in the participation of the developing countries in the value chain, with strong parallels to the general findings in Chapter II. The first trend is exemplified by the successful performance of East Asia in all three product groups. The second trend, which is a cause of great concern for poverty reduction, is reflected in the weak performance of Sub-Saharan Africa. This weak performance is partly related to external factors discouraging trade, such as tariff and non-tariff barriers, and partly to inadequacies in the domestic environment (policies, institutions and infrastructure) of the countries in question.

Chapter IV

Technological progress and foreign investment: The scope for South-South cooperation

A. Building technological capabilities in the South

Asia takes the lead

Technological progress, which plays a critical role in productivity growth and competitiveness, is rapid in five major areas: ICT, biotechnology, new materials, clean technologies and energy technology. To acquire domestic technological capabilities (of which knowledge, skills and organization are the main elements) developing countries must often rely on transfers from the industrialized countries in the North, which have so far been the main source of technological innovation.

Technology transfers can take many forms, such as capital goods imports, foreign direct investment, licensing, subcontracting, turnkey contracts, bilateral and multilateral aid, foreign expertise, and so on. None of these automatically lead to technological progress: The more advanced developing countries show that their ability to absorb and adapt technologies and create a domestic basis for technological innovation requires systematic, concerted long-term efforts by the business community, government and academia. In these countries, concentrated in East and South Asia and Latin America, technological capabilities are developing at an unprecedentedly rapid pace in the fields of biotechnology, nano-technologies, clean technologies and ICTs (UNIDO 2004b).

The Asian countries are leading the process. After Japan, the Republic of Korea and Taiwan Province of China have started to challenge the technological dominance of the North. According to a survey of patents and technology (Economist 2005b), India and China are also becoming internationally competitive in high-technology industries. They are rapidly developing sophisticated technologies, supported in large measure by foreign venture capital and the outsourcing of research and development (R&D) to these countries. The survey suggests among others that India and China will fundamentally shake up the ICT sector, not only with cheaper products but also with completely new technologies. In China, the number of applications to the patent office doubled between 2000 and 2003, while that of foreign firms in China has quadrupled. In India, local ICT firms benefit from the outsourcing of innovation activities by foreign firms.

To what extent will this trend be relevant to other developing countries, especially those being marginalized in the globalization process? When the first generation of Asian NICs moved out of low-technology industries from the 1960s onwards, this provided many opportunities for the second generation of Asian NICs - Thailand, Indonesia and Malaysia (H. W. Arndt, in UNIDO 1986). However, due to its immense labour force, China is not likely to redeploy low-technology manufacturing requiring unskilled or semi-skilled labour to other developing countries as its high-technology industries grow. This would also hold true for India. It could take decades before wages rise sufficiently in Asia, especially China, for Africa to compete on price alone (Collier 2006).

The limited role of the South in technology diffusion

Empirical studies show that trade-related technology diffusion has a positive impact on total factor productivity (TFP), and that North-South R&D spillovers are larger than South-South R&D spillovers (Schiff *et. al.* 2002). While North-South trade-related technology diffusion tends to raise TFP in high-technology industries, South-South trade raises TFP in low-technology industries. Thus, high-technology industries learn primarily from trading with the North, while low-technology industries learn mainly from trading with the South and lessons of earlier experience in the North. This pattern is generally consistent with the comparative advantage of the North in high-technology industries and the comparative advantage of the South in low-technology industries.

These findings notwithstanding, the rapid advances of some countries indicate that there is an increasing potential for South-South cooperation in technology. At present, that level is limited. Many research institutions in developing countries and regions have good information on raw materials and processing technologies, but there is often inadequate information at the level of individual product segments on ways in which domestic resources can be turned into competitive downstream products. Information on best practice in design and marketing is also missing. ICTs could play a major role here, unlocking industrial potential through more effective knowledge dissemination, and supporting the development of regional complementarities. In addition, effective methods for commercialising research should be developed.

Apart from the more advanced technologies, South-South cooperation could also contribute more to the diffusion of simple technologies. Their short-term impact on poverty reduction is greater and more widespread, and they are important for the technological learning process, which will allow a developing country to gain a foothold in the more rapidly growing global markets for medium and high-technology products.

Some technologies developed in the South are better adapted to the factor endowments of developing countries, especially in terms of raw material and skill levels, than those from the North. Among these, there are technologies that are particularly useful in terms of their direct contribution to poverty reduction. The South, for example, has well-developed pharmaceutical production capabilities, using generic as well as traditional technologies. India, China and South Africa are the main producers. South-South cooperation could help to make affordable pharmaceuticals generally available (see Box 4.1).

Specific areas for South-South cooperation

Developing countries would benefit most from South-South cooperation in areas with a maximum impact on income and employment generation, and particularly on the standard of living of vulnerable segments of the population. Especially in rural areas in the South, it will take time before the population benefits from the effects of technologies that increase a country's international competitiveness. The following three areas would be of particular importance (Vinanchiarachi 2005):

- *Agro-industry R&D.* Many developing countries have a strong agricultural resource base. Agro-industry R&D partnerships among developing countries, linked up with business partnerships, can lead to effective participation in the local, regional and global agro-industrial value chains.
- *Rural energy partnerships.* Renewable energy can bring about dramatic improvements in the quality of rural life. Hydropower and biomass are becoming important sources of energy at the local level. Solar energy also has wide applications in developing countries. The promotion, production, installation and maintenance of various renewable energy technologies present many business opportunities, including opportunities for small local firms.

- *Partnerships for grassroots development.* Technologies that can be adapted to grassroots use can result in major improvements in the quality of life in rural communities. These include the technology areas mentioned under a. and b., but also technologies for low-cost housing, sanitation, etc.

Box 4.1. Commercializing research on medicinal uses of rare plants in Sudan through South-South cooperation

Sudan's Medicinal and Aromatic Plants Research Institute has collected information in rural areas on the traditional uses of rare plants as medicine. This has resulted in the identification of interesting applications:

- Treatment of malaria with *echzema antiparasitic*.
- Treatment of jaundice and hepatitis B with *balanites aegyptiaca*.
- Antibacterial use of *vernonia amygdalena*.
- Healing open wounds of diabetic patients with pharmaceutical preparations based on *solenostemma argel*.
- Topical application of *balanites aegyptiaca* extract to prevent skin infection by parasites.
- *Grewia tenax* as iron supplement for pregnant women and anemic patients.
- The use of *salvadora persica* extract as tooth paste.
- *Cymbopogon citrates* oil extracts as components for soap and pharmaceuticals for rheumatic pain relief and renal colic.
- Neem oil extract for treating skin diseases.
- Lowering blood pressure with *hibiscus sabdariffa*.

The Institute has concluded an agreement with a leading research institute in India for commercializing these research findings.

Source: Communication from Medicinal and Aromatic Plants Research Institute, Ministry of Science and Technology, Government of Sudan.

Some examples of rural income and employment generating initiatives using low-skill technologies are given in Box 4.2. More examples of grass roots innovations may be found in Vinanchiarachi 2005.

B. Information and communication technologies: Bridging the gap

Digital dividend or digital divide?

The digital dividend, or positive impact of ICTs on the economies of selected developing countries, is extensively documented (ILO 2001, Jorgenson 2001, Pohjola 2001, Link and Siegel 2003, UNCTAD 2003). Although the impact of ICTs may be overstated, a growing body of evidence indicates that developing countries also benefit from ICTs in empowering people, enhancing the provision of social services and reducing poverty (Joseph 2005). Empirical evidence further suggests that ICTs have the potential to facilitate leapfrogging - bypassing stages in human capital development and investments, narrowing the productivity and economic divides between industrialized and developing countries (ILO 2001).

Worldwide data on the proportion of Internet users in the total population in 2000 also show that there is a global ICT divide. The figures range from 54.3 per cent in the USA and 28.2 per cent in the OECD (excluding the USA) to 2.3 per cent in East Asia, 3.2 per cent in Latin America and 0.4 per cent in both Sub-Saharan Africa and South Asia (UN 2005d). In Sub-

Saharan Africa, only five countries have improved their ICT performance ranking since 1995, and all of them are at the lower end of the scale (UNCTAD 2005c).⁵

Box 4.2. UNIDO programmes to introduce simple technologies for rural development

1. Reducing poverty in Sudan

Armed conflict and droughts have severely affected the more than 60,000 households of the Nuba Mountain region. Women constitute 84 per cent of the agricultural labour force. Agriculture and cattle breeding on well-watered, fertile plains are the main sources of livelihood. With Japanese funds, UNIDO is helping to rebuild village economies. The project, which has resulted in significant improvements in local conditions, focused on:

- *Local manufacture of agricultural equipment.* A workshop and training centre and community development groups were established to produce and use equipment for animal draught cultivation, agricultural hand tools and post-harvest processing. The results have, among others, been an increase in cultivated area of more than 50% at a cost below that for mechanized cultivation.
- *Agro-processing, sewing and garment making.* A group of women was trained in making milk products and the maintenance of the equipment used for that purpose. An equal number of women was trained in sewing and garment making for the local population.

The equipment is based on Indian and South African models.

2. New materials for low-cost housing

Developing countries face the enormous task of providing shelter for 80 per cent of the world population with very limited resources. Imports of building materials – the imports of African countries alone amount to US\$ 30 billion a year - represent a great drain on foreign exchange.

A number of developing countries have made great progress in making composite building materials of cement or polymer reinforced with domestic natural fibres, ranging from cotton waste to sisal and rice husks. New applications for the traditional building material bamboo have been developed. Production uses simple machinery and can take place in micro or small enterprises, creating local employment for unskilled or semi-skilled workers. The materials and production technologies are environmentally friendly and energy efficient. UNIDO is helping developing countries to facilitate regional cooperation in R&D for building materials, disseminate the technologies, and develop standards and certification procedures for them.

3. Rural energy generation

- *Small hydro power plants.* China has about 42,000 small hydro power stations serving over 300 million people. In 1994, the Government of China and UNIDO established the International Centre for Small Hydro Power to facilitate technology transfer to other developing countries. Over the years, 35 countries have been assisted with training, power station design, equipment supplies, etc. A recently established offshoot, the UNIDO Regional Centre for Small Hydro Power in India, will help to promote hydro power in the Asian and African region, and similar centres are to be established in African and Latin American countries.

- *Energy generation using biomass technologies.* Modern biomass technologies make it possible to provide rural communities with a sustainable energy supply. UNIDO is implementing a number of biomass projects in the context of South-South cooperation. Together with the Indian Institute of Sciences (IIS), for example, biomass gasification technologies are being introduced in Cuba and Zambia. The technical assistance covers energy policies, institution building, information dissemination and the development of business models for commercially operated mini grids. In addition, an International Centre of Excellence for biomass gasification technologies is to be set up, which among others will promote South-South cooperation in this field.

There are signs that the gap is closing. The ICT sector has become an important contributor to the economies of India, Brazil, Mexico and South Africa, and is developing in countries like the Philippines, Morocco and Costa Rica. In developing countries, access to mobile telephony and the Internet has grown fast during 1995-2002 (UNCTAD 2005c). The absence of equivalent gains in access to personal computers may indicate that the gains in Internet use are due mainly to collective or public access points such as community telecentres, mobile Internet units, Internet cafes, etc. Bangladesh, for example, has made great progress with the provision of ICT centres in every village (UnnayanNet, 2004). This concept could help to bridge the rural-urban, formal-informal and gender divides in other developing countries. Uganda provides targeted subsidies, financed by multilateral assistance to domestic telecommunications stakeholders, for telecommunication access to thinly populated rural areas with poor communities. Egypt has created collective access centres for the general public or selected segments of local communities (UNCTAD 2005c). Collective ICT infrastructure helps to bring down the costs of connectivity.

In Sub-Saharan Africa, mobile telephony is growing faster than anywhere else, expanding by 75 per cent annually. In 2003, there were 50 million mobile phones, six per 100 inhabitants and twice as many as fixed lines, as compared with 2.5 million in 2000. While the high communication costs must be addressed, this may help to solve some of the problems associated with the digital divide (ITU 2004) - evidence suggests that mobile telephony is the technology with the greatest impact on development (Economist 2005a).

Maximizing the impact of ICTs on development requires effective national policies and strategies.⁷ While 41 African countries have introduced increased competition in the sector and 40 countries have established independent regulators since 1994 (UNCTAD 2005c), 16 African countries had not yet prepared policies (ITU 2004).

Industrial growth and connectivity

The impact of ICTs on poverty reduction in developing countries is mainly through its key role in industrial growth, through three main areas of connectivity (Roepstorff and Yumkella, 2004):

- *Access to knowledge, technology, innovation and learning.* ICT greatly enhances the access of enterprises to best practice, scientific knowledge, sources of inputs, suppliers and competitors, innovations and technologies.
- *New management and organization systems.* ICTs are required throughout an enterprise in all aspects of enterprise management: Organization, production, technology acquisition, personnel, finance, accounting, purchasing, inventory control, marketing and distribution.
- *Access to markets, distribution channels and global value chains.* ICT has become indispensable to gain access to markets, in particular export markets, whether through direct market channels, electronic commerce (business-to-business and business-to-customer), tendering for contracts or participation in global value chains - networking and communication with producers, suppliers and buyers in these is no longer possible without ICT. Mobile telephony opens up markets formerly inaccessible to rural communities and therefore has a great poverty reduction potential.

It should be realized that enterprises operating in competitive markets and small enterprises providing a basic livelihood will have different ICT needs. Hardware and software for the latter must be affordable and compatible with local conditions. (UNIDO 2005b).

South-South cooperation for affordable ICT technology

Enhancing the impact of ICT on competitiveness and poverty reduction in developing countries requires increased public investments in ICT infrastructure and connectivity – investments that may compete with other investments in public infrastructure. However, such investments are essential to complement the limited private ICT investments and efforts of non-profit organizations.

The cost of ICT can be reduced significantly through South-South cooperation. India, China and other East Asian countries can play a great role in providing the hardware and software (see Box 4.3 for an example). Telecom Africa Corporation is involved in the establishment of a software development facility using a model developed in Bangalore, India (UN 2005d). Networking among technology institutions in the South could be an effective instrument for disseminating ICT innovations that are particularly relevant in a developing country context. Evidence from Singapore, South Africa and the Republic of Korea indicates that external sources of technological capability need not crowd out domestic sources, provided that there is a basic domestic level of skills and technological development.

Box 4.3. Simputer: An affordable innovation for (computer) illiterates

Simputer (simple computer) was developed by scientists of IIS and Encore, a software company. At US\$ 200, a Simputer offers computing facilities at a fraction of the usual cost of a personal computer. Other advantages include:

- a. It is roughly the size of a hand-held electronic organizer, making it really portable.
- b. It can run on an AAA battery, reducing dependence on unreliable power supplies.
- c. It uses IML (information mark-up language) to convert English content from the Internet into many local languages.
- d. It has a text-to-text speech converter that reads out the content.

The interface ensures that a first-time user is attracted to the world of the Internet rather than intimidated by the technology. The most important aspect, however, is that the voice output makes it possible for illiterates to benefit from ICTs.

At US\$ 200, the Simputer is still unaffordable for most people in developing countries. It is therefore multi-user compatible, and utilizes smart cards storing personal information. Rural associations, village information kiosks and schools can provide many people with computer access through this system.

Source: Sukumar, S. and N. R. Narayana Murthy (2003)

C. South-South investment

Foreign direct investment and domestic capability building

FDI flows attracted by low wages can be a basis for creating a competitive manufacturing sector, but modern process technologies reduce the role played by low wages. The increasing presence of China in world markets complicates the situation, as that country combines a low-wage labour force with a high-technology drive. In other words, more than ever developing countries must look for FDI that transfers advanced skills, know-how and technologies. Attracting such FDI will depend on their trade and competition regimes, the conditions under which foreign firms can operate (infrastructure, institutional support, financial systems, political stability), their domestic markets for factors of production (including a skilled labour force) and their location in relation to important markets.

Directions of South-South investment

Between 2002 and 2004, FDI inflows in developing countries surged by 40 per cent to US\$ 233 billion, which represented a share of 36 per cent in world FDI inflows (Table 4.1). Investments in emerging markets, which accounted for about 23 per cent of worldwide FDI in 2004, were the main cause of the surge (UNCTAD 2005d). China, Hong Kong SAR, Brazil, Mexico and Singapore were the top recipients. Another cause of the surge was investment in countries with rich natural resource endowments, such as oil and minerals, stimulated by higher commodity prices.

During the same period FDI by developing countries, mainly greenfield investment within Asia, increased to US\$83 billion. East Asia is the most important source and recipient of FDI in the South, with China dominating the field. The agreement between China and ASEAN to establish a free trade area by 2010 was a major factor in the surge in inward and outward FDI in Asia. Investments by Asian countries in other developing countries mainly consist of investments in natural resources by China, for example in oil and minerals in Latin America. Indian TNCs have also made significant investments in the natural resource based economies of the South, mainly in Africa. Bangladesh will be the beneficiary of the largest FDI project of India's Tata group, corresponding to the total value of the country's current stock of FDI (Financial Times 2005).

Table 4.1. FDI flows, by region and economy, 2002 and 2004 (billion US\$)

	FDI Inflows		FDI Outflows	
	2002	2004	2002	2004
World	716	648	652	730
Developed economies	547	380	600	637
Developing economies	156	233	48	83
Africa	13	18	0.4	2.8
North Africa	4	5	-	0.5
Other Africa	9	13	0.4	2.3
Latin America and Caribbean	51	67	11	11
Asia and Oceania	92	148	36	69
West Asia	6	10	0.1	-
East Asia	67	105	28	54
South Asia	5	7	1	2
South-East Asia	15	26	6	14
Oceania	0.03	0.07	-	-
South East Europe and CIS	13	35	5	10
LDCs	6	11	0.11	

Source: based on UNCTAD (2005d)

Effects of South-South investment in Sub-Saharan Africa

FDI inflows in Africa were only US\$ 18 billion in 2004, representing around 3 per cent of worldwide FDI inflows. Countries rich in natural resources, especially petroleum, such as Angola, Equatorial Guinea, Nigeria, Sudan and Egypt, received almost half of the inflows. Outflows from Africa were only US\$ 2.8 billion. Of these FDI flows, the share of South-South flows is still rather small. Foreign direct investment in Sub-Saharan Africa from China and India is rising, and China is likely to be among the top three investors in Africa before the end of the present decade (Economist 2004). This investment is heavily concentrated in

natural resource extraction and associated infrastructure, however, and is therefore not likely to have a positive impact on the poor. On the contrary, the impact could even be negative.

A large UNIDO survey on foreign investment in Africa (UNIDO 2006) focusing on manufacturing and services shows that the region's marginal position in global production networks and inadequate policy frameworks and enabling environment are an obstacle to FDI in manufacturing. Nevertheless, the UNIDO study established that the number of foreign enterprises is increasing. During 1991-2000, the number of entrants from the South and the North was equal, but employment creation in foreign enterprises from the South was 30 per cent higher than in those from the North. After 2000, the number of investors from the South grew faster than that of investors from the North. Because they often invested in labour-intensive industries such as textiles, garments and wood products, the employment effects were correspondingly larger. Firms from the South tend to spend more on R&D, primarily to adapt local inputs and/or to adapt products to local markets.

The effects of investment from the South differed among groups of investors. Asian investors, mainly small TNCs from China/Hong Kong SAR, India, Lebanon and Mauritius, target *labour intensive industries and show the highest sales and employment growth rates*. Enterprises from South Africa are highly capital and skill intensive. They do not exhibit high growth rates or employment, but they invest in training and pay the highest wages. In general, African investors entering African markets as investors place high emphasis on human capital development, reflecting their long-term commitment to SSA development.

With regard to local content, investors from the North made a greater impact, spending on average US\$ 3.2 million on local inputs compared with only US\$ 900,000 by firms from the South. However, the comparatively small size of the latter firms should be taken into account, and investors of Lebanese and Saudi Arabian origin exhibited a very high proportion of local content.

The positive effects of South-South investment are evident. The emergence of a new type of South-South investor and entrepreneurs, especially from Asia and from within Sub-Saharan Africa, however, probably requires more nuanced foreign investment strategies and policies, to reflect regional differences in FDI motivation. These could help ensure that, for example, East Asia will play a more prominent role in FDI flows to Africa in the future. That investment, especially in natural resources such as oil, minerals and agricultural raw materials, should preferably be linked to and leveraged against higher degrees of industrial processing and value added, to enhance poverty reduction.

Chapter V

Implications of trade liberalization for industrial development and poverty reduction

A. Trade barriers and industrial development

The benefits of trade liberalization

Since the mid-1980s, extensive tariff liberalization has facilitated market access and created new market opportunities worldwide. In developed countries, the average tariff rate fell from 9.8 per cent in 1980 to 3.7 per cent in 2001. In developing countries, the average rate fell from 30 per cent in 1980 to 12.7 per cent in 2000.

In spite of the reductions, tariffs on trade in manufactures among developing countries remain too high. Latin American exporters face tariffs in neighbouring Latin American markets that are seven times higher than in developed countries. The figure for Sub-Saharan Africa is six, and for Asia it is two (World Bank, 2004a). Moreover, the tariffs on manufacturing trade imposed by developed countries on developing country exports are significantly higher than those prevailing in trade among developed countries, varying from 2 per cent for exports from Latin America to 8 per cent for exports from South Asia.

Because one result of further trade liberalization would be a comparatively larger drop in tariffs for developing countries than for developed countries, South-South trade will be the main beneficiary (Economic Analytical Unit 2004). The World Bank (2005) estimates that 45 per cent of the global gains from radical trade reforms, which could amount to some US\$ 300 billion annually by 2015, would go to developing countries. In addition, increased competition would stimulate productivity.

Further liberalization of trade in manufactures, in short, is an important issue. It may be argued that such liberalization will reduce government revenue. The counterargument is that liberalization will stimulate business and reduce corruption and rent-seeking, so that the net effect for the economy is positive.

The suspension of the Doha negotiations and its implications

The Doha negotiations on manufacturing and other non-agricultural products aimed to “reduce or as appropriate eliminate tariffs, including the reduction or elimination of tariff peaks, high tariffs and tariff escalation, as well as non-tariff barriers, in particular products of export interest to developing countries. Product coverage shall be comprehensive and without a priori exclusions. The negotiations shall take fully into account the special needs and interests of developing and least-developed country participants, including through less than full reciprocity in reduction commitments ...” (WTO 2001).

Following a protracted stalemate, the Doha trade negotiations were suspended indefinitely in July 2006 due to lack of political will to reach agreement among the key negotiators. While most agree that trade policy can contribute to reducing poverty, there is no agreement on how it should be done. Those who were in favour of reducing tariffs and subsidies were not able to

negotiate successfully. Better South-South cooperation in trade negotiations could have made a crucial difference.

The suspension of Doha implies that the agreements already on the table may be withdrawn, including the development package agreed at the ministerial meeting of the World Trade Organization (WTO) in Hong Kong SAR in 2005, the centrepiece of which was to provide duty-free and quota-free market access to the poorest developing countries.

For industry and poverty reduction in the developing countries, the real cost of the indefinite suspension of the Doha Round could be threefold:

- *A weakening of the multilateral trade system and a setback for globalization of industry and trade.* Estimates by the OECD suggest that if the tariff levels of global trade were reduced by half, as proposed during the negotiations, it would contribute an additional US\$ 44 billion to the global economy. There is now a risk that the world trading system as a whole may be affected. In particular, there will be fewer export opportunities for developing country industries and these countries will face more expensive imports of consumer and capital goods as well as spare parts.
- *An increase in regional and bilateral trade agreements.* While such bilateral trade agreements may, as argued in chapter 1, be a useful complement to global free trade but do not represent a good alternative. Bilateral agreements can weaken the position of developing countries, and LDCs and other developing countries with small markets or limited natural resources are likely to be by-passed in such agreements. The number of regional and bilateral trade agreements is growing already, and accounts for half of global trade.⁸ While global negotiations aim to unify trade rules, bilateral deals can easily become a 'spaghetti bowl' of complicated rules and regulations, with additional disadvantages for developing countries, particularly the LDCs, as it makes exports more cumbersome.
- *A stalled development agenda.* The Doha negotiations had an explicit development dimension: boosting growth and reducing poverty in developing countries, particularly LDCs. The EU, for example, would proceed with a development-package including trade-related aid as well as duty-free and quota-free access to developed country markets. Estimates by the International Food Policy Research Institute suggest that the removal of certain obstacles to exports to the USA would have added another US\$ 1-7 billion to the export earnings of LDCs.

Trade barriers have major implications for industrial development and poverty reduction, and while Doha negotiations have been suspended these barriers will therefore remain on the political agenda of the developing countries.

B. South-South cooperation to remove trade barriers

Industrial development, South-South trade, and poverty reduction can benefit greatly from South-South cooperation in trade negotiations in the following areas:

- *Tariff escalation for manufactured goods.* Tariff rate increases based on the level of processing discourage industrialization efforts. In developed countries, most tariffs on industrial products are low, but exports of many manufactured products from developing countries, such as textiles and clothing, leather, rubber, fish products, footwear and travel goods – the full list is much longer – face high tariff hurdles (WTO 2003). Continued international negotiations are needed to solve the problem of market access to OECD countries, but to exploit the potential for increased South-South exports, especially to emerging markets in East Asia, the comparatively high tariff barriers in the South must be lowered as well.

- *LDCs.* Many developed countries have significantly reduced or eliminated tariffs on imports from LDCs and WTO member countries have committed themselves to considering additional measures to improve market access for LDC products. The EU has established the “Everything But Arms” (EBA) initiative, granting duty free market access for LDCs. Further, African signatories to the US sponsored African Growth and Opportunity Act (AGOA), for example, benefit from preferential access to the US market for certain industrial products, such as textiles and clothing. A UNIDO study (UNIDO 2006) indicates that AGOA has had a positive impact in some countries, such as Madagascar and Kenya, but that the actual value of exports is very small and that only countries with the lowest labour costs appear to have benefited. The impact of investments from the South in Sub-Saharan Africa may have a greater impact, as Chapter IV.C has indicated.
- *Technical barriers to trade (TBT) and sanitary and phyto-sanitary (SPS) agreements.* Standards and technical regulations of individual countries to protect health and the environment, and to ensure quality and safety, can be serious barriers to trade. Apart from technical regulations and product standards, international buyers increasingly also require effective application and recognized proof of enterprise management standards such as hazard analysis critical control points (HACCP) for food products, ISO 9000 for quality management, ISO 14000 for environmental management, ISO 22000 for food safety and SA 8000 for social accountability. Matters are complicated by the many TBTs between developing countries.

The WTO’s TBT and SPS agreements enacted in 1995 legalized the non-discriminatory use of standards and technical regulations in global trade. The two agreements specifically mention the difficulties developing countries have in meeting requirements and include provisions for technical assistance to help them overcome these difficulties (which has not often been forthcoming). These difficulties, and the potential means of overcoming them, include:

- *Trade related intellectual property rights (TRIPS)* prevent “reverse engineering”, a technological learning process using imported products as a starting point. East Asian NICs used reverse engineering during the early phases of their successful industrialization drive. TRIPS need re-appraisal because developing countries often cannot afford the high royalty payments for patents. This is an important issue in the case of public health. The TRIPS Council is charged with solving the problems arising from compulsory licensing for countries that have little or no pharmaceutical manufacturing capacity.
- *Trade-distorting policies.* Trade-distorting policies are a matter of great concern to many developing countries, especially in West Africa. The cotton initiative by Benin, Burkina Faso, Chad and Mali calls for subsidies on cotton growing in developed countries to be removed and for compensation to developing countries for economic losses caused by the subsidies. No agreement has been reached on these issues so far, but the initiative has had a positive outcome in the form of a UNIDO/WTO project for the development of the African cotton sector (see Box 5.2)
- *Aid for Trade* is a WTO initiative that aims to assist developing countries to build up their export capacities in a multilateral trading system. It is not intended as a substitute for the development benefits that would have flowed from a successful Doha Round. Recommendations made to the General Council of WTO on Aid for Trade are to be discussed in October 2006. There is much scope for South-South cooperation in the field of trade capacity building, in such areas as the sharing of experience and institutional networking.
- *Liberalization of trade in ICTs.* The ICT sector in developing countries could benefit from trade liberalization in the context of the WTO’s Information Technology Agreement (ITA), according to Joseph (2005). This tariff cutting mechanism promotes ICT use in the framework of the Most Favoured Nations principle. By increasing competition, it could lower prices and make ICTs more affordable. It could

also attract more FDI to the South, especially in assembly-type industries linked to global production networks. As with other industries, developing countries would need to build up domestic ICT capacities in terms of R&D, human capital and an enabling environment to make the most of these opportunities, and become innovators and producers themselves. South-South cooperation could play an important role in creating such capacities, for example through an e-South Framework Agreement under ITA, as proposed by Joseph.

C. New opportunities for South-South trade

When trade barriers are removed, developing countries will not only have greatly increased opportunities to export to the North, but also to boost South-South trade. There is a strong demand for many products in the South that can be supplied by producers from the South. Prospects for inter-regional trade in the South are enhanced by the fact that countries in different regions often have different resource endowments and production capacities, and are therefore not strong competitors. The prospects for South-South trade, however, differ by region:

- *East Asia is the most competitive region in the South and would be the lead player in boosting South-South trade, mainly as a supplier.* It would export the full range of products, but medium and high-technology products would dominate.
- *Latin America is the region that could benefit most from intra-regional trade,* as it tends to import from the North what it could supply itself. This shows that despite regional efforts to boost trade within Latin America the level of regional integration is still very low - or that North-South trade agreements (e.g. NAFTA and CAFTA) are so far superior to South-South trade agreements.
- *Sub-Saharan Africa is the region where South-South trade could make the greatest difference,* but the region will have to make great efforts to increase its competitiveness to reverse marginalization.

There are, among others, interesting prospects for increased exports of agro-based products from Sub-Saharan Africa to South Asia, the Middle East and North Africa. But the region does not have the industrial capacities to benefit from the export opportunities that exist in the South and in global markets. And while Sub-Saharan Africa may face the greatest challenges in this respect, it is a key issue everywhere.

D. Enabling industry to respond to export opportunities

Developing competitive productive capacities

The development of productive capacities must look beyond the individual firm – to ensure competitiveness in export markets, it must take place in the context of value chains. It will involve changes in the nature and mix of activities within each link (firm) in the chain as well as in the nature and distribution of activities in the chain. There are four ways of upgrading capacities (UNIDO 2001b):

- **Process upgrading:** Increasing the efficiency of internal processes both within individual firms and among firms (e.g. through more efficient delivery systems);
- **Product upgrading:** Introducing new products or improving old products. This involves changes in production processes, which will also affect relations with other firms in the chain;
- **Functional upgrading:** Increasing value-added by changing the mix of activities in a firm or moving the locus of activities to different links in the chain (for example from manufacturing to design);

- Chain upgrading: Moving to a new value chain (for example, moving from the production of transistor radios to TVs to computers).

To achieve this, manufacturers in developing countries may need to link up with TNCs, which dominate many of the global value chains. Subcontracting for TNCs is one way in which new technologies, processes and management methods may be absorbed. In the context of South-South cooperation, the more advanced Asian producers could become an increasingly important source of these.

Cooperation among small and medium scale enterprises (SMEs) can also result in upgraded capacities. Clusters of enterprises operating in proximity and sharing business interests, knowledge and resources can provide the critical mass for improving the performance of all participants (see Box 5.1) A related form of cooperation, the export consortium (see Chapter VI) is primarily intended as an instrument for boosting foreign sales, but it can also help to upgrade the capacities of its members.

Box 5.1. A Nicaraguan cluster improves its milk products

Boaco and Chontales, two neighbouring departments in Nicaragua, have a well-established dairy industry. Local entrepreneurs in the industry and support institutions were assisted by UNIDO to set up a committee to coordinate their actions.

Joint action started with a benchmarking exercise, during which dairy clusters in other Latin American countries and in the Netherlands were studied. This proved very helpful in identifying problems at different stages of the value chain. The cluster then formulated solutions and developed an action plan for improving the performance of the local dairy industry. This resulted in improvements in the quality of supplies, the quality and range of products, a reduction the industry's pollution and a partnership with a TNC in the industry, which supplied equipment and training to the producers in the cluster.

Source: UNIDO (2001c)

Non-tariff barriers

Even if TBT and SPS requirements are occasionally arbitrary, discriminatory or excessively restrictive, developing countries need to improve their capabilities to comply with these requirements to gain market access. A recent study by the Economic Commission for Africa shows that 48 per cent of agricultural and fish exports from LDCs to developed economies face non-tariff barriers such as product standards, phyto-sanitary and environmental controls (Mold 2005). This is a major problem for LDCs, since their greatest comparative advantage lies in agro-based industries.

Compliance with international standards frequently requires reforming and upgrading standards-setting services, as well as establishing efficient testing, certification and accreditation mechanisms – which are recognized internationally. Investment in quality and conformity infrastructure to meet SPS standards was a key to the success of Kenya and Uganda in fruit and vegetable exports. These two countries were able to move up the value chain, which allowed them to reap net profits as high as 14 per cent, compared with 2 per cent for bulk vegetable exports.

Internationally recognized facilities for testing, certification and accreditation have other advantages. They increase the demand for skilled workers, local infrastructure and technical support services, and they can reduce the cost of exports, as these would otherwise have to be contracted out to international firms whose services are expensive.

South-South cooperation can help overcome hurdles in this area. Cooperation can cover research, awareness creation, tools, manuals and software support, as well as networking and partnerships at the policy, institutional and enterprise levels. Developing countries could, for example, share testing facilities.

Modalities for commercial transactions

Cumbersome payment and credit practices, foreign exchange and capital controls and high insurance fees are great obstacles to South-South trade. International transactions use various payment methods. Apart from well-established and reputable firms, most South-South trade, especially inter-regional trade, is financed by documentary credit, where payment is made against documents rather than against goods. This is associated with cumbersome procedures, complex formalities and high insurance costs, and is highly time consuming and open to fraud (UNECA 2004).

In Sub-Saharan Africa, the cost of international trade is particularly high because the financial system is weak and financial intermediation expensive (Mutebile 2001). The latter reflects the risks of political and economic instability, weak legal systems and information problems. While these problems must be addressed, a regional trade insurance agency, capitalized with funds from member states, could be useful in Sub-Saharan Africa. A regional insurance agency is likely to have a comparative advantage over a national agency for various reasons. It is more likely to be in a position to raise the required capital. It may have a better and more objective understanding of political processes within the region and would thus be in a better position to assess political risk than a national agency. It may be able to provide cheaper trade insurance. Finally, it could ensure that trade is financed by sound methods.

E. Trade liberalization and poverty reduction

Uneven distribution of benefits

The effects of trade liberalization vary strongly among countries. While liberalization, in the words of the Director General of WTO "... creates more winners than losers, the losers cannot be left behind" (Lamy 2005). There are some major areas of concern with regard to the consequences for LDCs and poor people in other developing countries (UNIDO 1996, 1999, 2001a, 2002, 2004a; UNCTAD 2004; McCulloch *et. al.* 2001):

- De-industrialization has occurred in some countries, especially in Sub-Saharan Africa, as state-owned and import-substituting industries collapsed when being exposed to international competition.
- Weakly integrated economies which have enclaves of competitive industries, but which are otherwise characterized by inefficient industries formerly shielded by tariffs or production for local markets in rural areas, are likely to see a large part of the population excluded from the development process.
- Developing countries with comparative advantages in natural resources or with a low skill base, particularly countries in Sub-Saharan Africa, are likely to gain less from trade liberalization - it may even erode the advantages of preferential access to developed country markets. LDCs, for example, cannot make the most of EU markets because of their inadequate production capacities and trading infrastructure. Large producers like Brazil and Argentina could conquer agricultural products markets from African countries whose production capacities are limited and prices higher.

The speed of trade liberalization is also a factor: the positive impacts have been greatest in countries that have opened their markets gradually, allowing them to adapt their economies (UNCTAD 2004). This holds true for the expansion of South-South trade as well.

Marginalization of vulnerable population groups – and of LDCs as a whole - is as much a danger here as in South-North trade.

Because of the difficulties experienced by LDCs in coping with the effects of liberalization, and to ensure that they can make their own contribution to development through world trade, special support programmes may be needed. Box 5.2 gives an example.

Box 5.2. UNIDO and WTO support the development of Africa's cotton sector

The cotton sector is important for the West and Central African countries: It involves about 15 million people, including 2 to 3 million producers. On average, it accounts for 5 to 9 per cent of GDP, but in Benin, Burkina Faso and Chad it accounts for 35 to 40 per cent. The contribution of cotton to economic growth and poverty alleviation in the region could be increased but, despite competitive skilled labour costs, the sector is not ready to compete in a quota-free market. A UNIDO-WTO programme to develop the sector will cover 11 countries.

The main activities of the programme are:

- Provision of technical and managerial *training* to 5,000 professionals and technicians;
- Strengthening industrial *supply capacity* by improving productivity and competitiveness on the basis of 45 pilot projects;
- Establishment of a high-volume instrument-based *cotton quality evaluation system* in four sub-regional technical centres;
- Strengthening of national *quality infrastructure and services* through upgrading of 11 national laboratories specialized in cotton;
- Development of a *cotton quality database*;
- *Standardization* of African cotton quality through the development and promotion of the *Special African Cotton Label*;
- Establishment of *partnerships* between national and international companies through regional investment forums.

Expected impacts:

- Creation of 10,000 *jobs* in the cotton-textile-garment enterprises;
- *Productivity* increases of ginneries and textile enterprises of 20% to 40% in the short term;
- *Value added* increase of cotton through quality improvement by around 5% in the short term;
- Increased *transformation of cotton*, from the current 5% to an average of 25% by 2015;
- Increase in cotton *export revenues* of 20% to 40% in the medium term.

Elements of a balanced industrial exports strategy

Strategies that enable developing countries to reap the benefits of growing South-South trade should also ensure that the benefits are widely spread – in other words, they should contribute to poverty reduction. A purely export-led growth strategy is likely to encourage the growth of enclaves of export industries while large parts of the country remain outside the industrial development process. Elements of a more balanced approach would include (see UNIDO 1996, 1999; UNCTAD 2004):

- *Processing of domestic natural resources.* Many developing countries have a strong natural resource base, but need to build up resource-based industries to add value to their raw materials. Agro-processing, in particular, has low investment and technology thresholds, tends to be labour intensive and increases the demand for agricultural products, which in turn can boost domestic industries producing agricultural equipment and demand for packaging, transport, industrial services etc. As pointed out before, South-South exports face limitations due to similarities in

resource endowments among countries. Increased demand for raw materials by fast growing economies like China may also inhibit the growth of these industries.

- *Export diversification.* Diversification of manufactured exports away from basic processing can take the form of move up the value chain to higher value added products (for example, from cotton yarn to clothing) or of moving into new industries, such as electronics assembly based on imported components. This requires a long-term development strategy for productive capacities, skills, support infrastructure, etc.
- *Combining export-led growth with a strategy for basic needs and the subsistence economy.* The expansion of productive capacities under an export-led strategy can help to lay the basis for the increased production of basic needs goods. Public-private sector partnerships can play an important role where the provision of these goods cannot be left to market forces, as for example in the health industry. A strategy for the subsistence economy should not only aim at upgrading production and improving standards of living, but should also lay the basis for a better integration of the rural and informal sectors in the national economy – for example as suppliers of export industries – and remove obstacles to small industry development. Increases in productivity through the introduction of new technologies and skills will reduce the demand for labour in rural areas, which may be compensated by growing demand in the export sector.

South-South cooperation for inclusive development

South-South cooperation can contribute in various ways to a development process that includes LDCs and poor population groups: Through preferential market access, the promotion of regional FDI, technology transfers and low-cost finance from the more advanced developing countries. China, India, Brazil and South Africa could play a lead role. In the case of labour-intensive manufacturing in Sub-Saharan Africa, for example, there would be three critical areas for industry, trade and poverty reduction:

- *Increasing the share of processed goods in African exports.* China is a heavy importer of raw materials and energy resources. It should be possible to increase the degree of domestic processing of some of these products in African countries through a strategy that links and leverages resource-based industrialization to trade with and investment by China.
- *Redeployment of some labour-intensive industries from China to Africa.* Chinese exports to the US and EU markets are facing problems and labour markets in China and India are tightening (Financial Times 2006). These countries might therefore consider redeploying some labour-intensive manufacturing operations to Sub-Saharan Africa – if the right conditions for these operations are created in African countries. Countries whose governance system, labour skills and infrastructure are inadequate, whether African or not, will remain marginalized in South-South production and trade networks.
- *Linking trade, foreign direct investment and technology.* Investments by, and trade with, China, India and other emerging industrial powers offers opportunities for the introduction of technologies that are more suitable for the present stage of industrialization in most African countries than the costly and highly sophisticated capital-intensive technologies developed in the North.

Chapter VI

Intensifying South-South cooperation and the role of UNIDO

The World Summit of Heads of State and Government meeting at the UN General Assembly in September 2005 agreed to “adopt, by 2006, and implement comprehensive development strategies to achieve the internationally agreed development goals and objectives, including the Millennium Development Goals” (UN 2005c). What are the implications for South-South cooperation and the role of UNIDO?

A. Intensifying South-South cooperation

This publication has shown that the rapid growth of South-South manufacturing trade during 1990-2003 has been accompanied by two diverging trends:

- A high concentration of growth in East Asia, which has also become the main locus for South-South manufacturing trade.
- The further marginalization of Sub-Saharan Africa and LDCs in global and South-South manufacturing trade.

South-South cooperation can contribute greatly to the further expansion of trade and the widening of its development impact, particularly in terms of poverty reduction. To achieve this, South-South cooperation would need to be strengthened in four areas: Global trade norms, development of productive capacities, poverty reduction and exchanges of experience/institutional networking. The individual activities that could be undertaken under each of these four areas are indicated below.

1. *Developing common positions on global trade norms*

- *Assess the implications of the Doha Round of trade negotiations.* The elimination or significant reduction of tariff and non-tariff barriers, TBTs and agricultural subsidies in developed countries are important issues for South-South cooperation during trade negotiations.
- *Liberalize trade within the South* through the removal or lowering of high tariff and non-tariff barriers and the harmonization of SPS.
- *Lobby for a relaxation of TRIPS.* Joining forces, the South could negotiate a relaxation of TRIPS, especially for essential medicines for AIDS, malaria, and tuberculosis and other industrial products related to the Millennium Development Goals.
- *Cooperate in building conformity assessment infrastructure.*
- *Address the special needs of Sub-Saharan Africa and LDCs* in the context of trade negotiations and future multilateral and bilateral agreements.

2. *Developing productive capacities*

- *Cooperate on industrial strategies.* While each country has unique characteristics, potential and problems, countries will find that there are many similarities (in terms of technological capacities, raw material resources, skills, markets and governance systems) which can serve as a starting point for joint efforts in strategy formulation.
- *Intensify the exploration of industrial investment opportunities in the South,* especially in LDCs.
- *Explore opportunities to boost demand for industrial products and semi-manufactures* through South-South trade.

- *Transfer new technologies and management techniques*, with a special focus on micro, small and medium scale enterprise (MSME), through enterprise-enterprise cooperation (joint ventures, subcontracting), especially in raw material intensive industries.
 - *Join forces to strengthen the links between manufacturing, education/training and innovation/R&D.*
- 3. Formulating approaches to poverty reduction based on shared experience**
- *Cooperate in preparing and implementing national Poverty Reduction Strategy Papers.* These should integrate issues related to industry, agriculture and trade. South-South support for their implementation should be linked to multilateral and bilateral technical co-operation.
 - *Promote dynamic MSMEs in rural and urban areas*, especially in agro-processing. The experience of countries that have encouraged a transition from livelihood enterprises (which create basic entrepreneurial and productive capacities) to the more dynamic growth enterprises is particularly relevant.
 - *Promote the development of low cost housing* with innovative low-cost technologies developed in the South, local agricultural resources and agricultural and industrial waste.
 - *Promote renewable energy generation for rural areas* based on biomass, small hydropower, solar and wind energy, using low-cost technologies developed in the South.
- 4. Exchanges of knowledge and institutional networking**
- *Intensify networking among Southern institutions.* This publication has mentioned a number of institutions that are already active in South-South transfers of know-how; South-South cooperation could benefit greatly from networking among these and others, such as Chambers of Commerce and Industry.
 - *Exchange experiences on industrial strategy and policy formulation and institution building.* Special attention should be given to the East Asian experience, including that of the second generation of resource-based Asian NICs (e.g. Malaysia and Thailand).
 - *Exchanges of experience and networking among public-private partnerships* that specifically target productive activities maximizing poverty reduction and the availability of basic needs goods.
 - *Exchange experience on ICTs*, focusing on poverty reduction and the experience of India and China.
 - *Studies and research*, including more in-depth analyses of the issues examined in this paper.

The large and rapidly growing economies of the South, such as India, China, South Africa and Brazil, should take the lead in these fields, and the efforts of all main actors – the private sector and national, regional and multilateral institutions – should be enlisted.

B. UNIDO and South-South cooperation

The range of UNIDO activities

Cooperating with national and regional institutions as well as other agencies in the UN system, UNIDO plays a pivotal role in building up manufacturing capacities in developing countries. UNIDO coordinates its South-South programmes with the South-South Unit of the UN Development Programme and the UN Office of the High Representative for the Least

Developed Countries, Landlocked Developing Countries and the Small Island Developing States. UNIDO's activities in this context cover:

- Facilitating the adaptation, particularly in LDCs, of successful sustainable development strategies and policies, institutional arrangements and technological and managerial practices from the industrializing economies in the South.
- Disseminating best practice in SME and entrepreneurship development for international competitiveness.
- Transferring methods for acquiring modern technologies, assimilating them and innovating new technologies in country-specific contexts.
- Strengthening networking among institutions and stakeholders in industrial development – including civil society and local government – to stimulate technology transfers, promote investment and maximize the positive effects of FDI on domestic industrial capacities.
- Promoting environment- and energy-related projects.
- Disseminating best practices in trade capacity building (see Box 6.1).

Box 6.1. UNIDO support to gain access to markets through export consortia

Export consortia are independent business entities established by groups of enterprises with the aim of strengthening the position of these enterprises in export markets. In most countries they have only become an instrument for SME development in recent years. In all cases, the basic principle is the same: Joining forces helps firms to overcome obstacles in penetrating export markets. Specifically, the benefits of consortia include: Risk and cost reduction, pooling of know-how and a stronger market presence.

Because most developing countries generally lack experience with this type of joint effort and lack support structures for the promotion of export consortia, UNIDO is implementing export consortia development projects in countries in Asia, Latin America and the Arab region. South-South cooperation is also encouraged through exchanges of experience.

An example of a successful project is Tunisia's C 8, a consortium in the car parts industry established in 2001 with the support of UNIDO and the Tunisian Ministry of Industry, Energy and SMEs. Six of the members are SMEs and one is a large enterprise. Services to members include international marketing, trade information, market studies, coordination of trade fair participation and organizing meetings with foreign buyers. In the last four years, the members' turnover grew by an average of 32 per cent, and their exports have grown by 67 per cent, as opposed to 30 per cent for the Tunisian car parts industry as a whole. The consortium has signed cooperation agreements with Iranian and South African partners.

The 2005 UNIDO Industrial Development Forum

In November 2005, UNIDO's Industrial Development Forum discussed the subject of industrial development, trade, and poverty alleviation through South-South cooperation. The following major advantages of increased South-South cooperation were highlighted:

- *Lower prices of industrial products.* Products from the South can often be supplied at much lower prices and can therefore help increase the purchasing power of the poor in the South.
- *More suitable technologies, skills and development concepts.* Many technologies, skills and development concepts originating in the South are more suitable for development of the South due to similarity in technology levels, product prices and inter-adaptability.
- *New sources of funds mobilization.* There are many business opportunities in the South that could be exploited by industrialists from developing countries who are

looking for suitable investment opportunities abroad. Some countries, among others China, are providing special credit lines and loans in this context.

- *Preferential tariffs for products from developing countries.* Some developing countries, such as China and India, have established preferential tariffs for products of other developing countries.

Countries with rapidly growing economies like China, India, Brazil and South Africa can play a lead role in South-South cooperation. China is already doing much to stimulate trade and other forms of cooperation with other developing countries, and developing countries could greatly benefit from the progress in certain high technology fields made by Brazil and India. The major beneficiary could be Sub-Saharan Africa. This would require that African countries improve their investment climate and remove obstacles to trade.

UNIDO's South-South Industrial Cooperation Centres

The major new UNIDO initiative for South-South cooperation is the establishment of UNIDO Centres for South-South Industrial Cooperation. Basic agreement has been reached on the establishment of such Centres in China and India; the establishment of similar Centres is being discussed with Egypt, South Africa and Brazil. The Centres will stimulate the development of mutually beneficial partnerships between the industrially more advanced developing countries and LDCs. The main fields of activity will be:

- Exchanges of experience.
- Institutional and enterprise networking.
- Replicating best practice for poverty reduction.
- Strengthening national and local innovation systems.

Within these broad areas, the South-South cooperation programmes promoted by the Centres will specifically concentrate on:

- Information technology applications for industrial development and knowledge networking.
- SME, entrepreneurship and cluster development.
- Micro enterprise and rural industry development.
- Technology transfer, management and upgrading.
- Investment promotion for relevant industries (agro-processing, pharmaceuticals, textiles, low-cost housing and building materials, agricultural equipment and tools, renewable energy, etc.).
- Building trade capacities and market linkages.
- Grassroots innovations and renewable energy sources.
- Commercialisation of research findings and skill development.
- Value-chain participation.

STATISTICAL ANNEX

Annex Table 1. Principal exports from East Asia to the South, 2003

Ranking	SITC rev 2 code	Technology classification	Product name	Trade value (US\$ billion)	Share in East Asia's total exports to South
1	776	High technology	Thermionic, cold & photo-cathode valves	109.16	15.2%
2	764	High technology	Telecommunications equipment and parts	47.96	6.7%
3	759	High technology	Parts and accessories of office equipment	45.39	6.3%
4	752	High technology	Automatic data processing machines	30.12	4.2%
5	334	Resource based	Petroleum products, refined	20.07	2.8%
6	778	High technology	Electrical machinery and apparatus	17.51	2.4%
7	583	Medium technology	Polymerization and copolymerization	17.42	2.4%
8	772	Medium technology	Electric appliances such as switches, etc	17.05	2.4%
9	651	Low technology	Textile yarn	11.21	1.6%
10	653	Medium technology	Fabrics, woven, of man-made fibres	11.02	1.5%
11	674	Low technology	Universals, plates and sheets, of iron	9.40	1.3%
12	652	Low technology	Cotton fabrics, woven	8.96	1.2%
13	871	High technology	Optical instruments and apparatus	8.94	1.2%
14	845	Low technology	Outer garments and other articles	8.62	1.2%
15	655	Low technology	Knitted or crocheted fabrics	8.30	1.2%
16	771	High technology	Electric power machinery and parts	7.45	1.0%
17	582	Medium technology	Condensation, polycondensation	6.94	1.0%
18	333	Primary	Petroleum oils crude	6.82	0.9%
19	424	Resource based	Other fixed vegetable oils	6.53	0.9%
20	728	Medium technology	Mach.& equipment specialized	6.44	0.9%

Source: UNIDO calculations based on UNCOMTRADE.

Annex Table 2. Principal exports from Latin America to the South, 2003

Ranking	SITC rev 2 code	Technology classification	Product name	Trade value (US\$ billion)	Share in Latin America's total exports to South
1	333	Primary	Petroleum oils, crude	7.03	8.2%
2	222	Primary	Oil seeds and oleaginous fruit	3.91	4.6%
3	423	Resource based	Fixed vegetable oils, soft, crude, refined	3.77	4.4%
4	334	Resource based	Petroleum products, refined	3.19	3.7%
5	081	Primary	Feeding stuff for animals	3.02	3.5%
6	682	Primary	Copper	2.77	3.2%
7	781	Medium technology	Passenger motor cars, for transport	2.76	3.2%
8	287	Resource based	Ores and concentrates of base metal	2.15	2.5%
9	011	Primary	Meat, edible meat offals, fresh, chilled	1.88	2.2%
10	281	Resource based	Iron ore and concentrates	1.84	2.2%
11	541	High technology	Medicinal and pharmaceutical products	1.71	2.0%
12	583	Medium technology	Polymerization and copolymerization	1.70	2.0%
13	784	Medium technology	Parts & accessories of 722,781	1.63	1.9%
14	672	Medium technology	Ingots and other primary forms, of iron	1.59	1.9%
15	061	Resource based	Sugar and honey	1.51	1.8%
16	341	Primary	Gas, natural and manufactured	1.40	1.6%
17	674	Low technology	Universals, plates and sheets, of iron	1.30	1.5%
18	641	Resource based	Paper and paperboard	1.23	1.4%
19	044	Primary	Maize (corn), unmilled	1.16	1.4%
20	611	Low technology	Leather	1.08	1.3%

Source: UNIDO calculations based on UNCOMTRADE.

Annex Table 3. Principal exports from the Middle East and North Africa to the South, 2003

Ranking	SITC rev 2 code	Technology classification	Product name	Trade value (US\$ billion)	Share in MENA's total exports to South
1	333	Primary	Petroleum oils, crude	4.84	16.4%
2	341	Primary	Gas, natural and manufactured	2.80	9.5%
3	334	Resource based	Petroleum products, refined	1.56	5.3%
4	673	Low technology	Iron and steel bars, rods, angles, shapes	1.00	3.4%
5	057	Primary	Fruit & nuts	0.81	2.7%
6	672	Medium technology	Ingots and other primary forms of iron	0.78	2.7%
7	522	Resource based	Inorganic chemical elements	0.70	2.4%
8	781	Medium technology	Passenger motor cars, for transport	0.59	2.0%
9	054	Primary	Vegetables, fresh, chilled, frozen/preserved	0.54	1.8%
10	661	Resource based	Lime and cement	0.52	1.8%
11	562	Medium technology	Fertilizers, manufactured	0.50	1.7%
12	271	Primary	Fertilizers, crude	0.41	1.4%
13	335	Resource based	Residual petroleum products	0.39	1.3%
14	263	Primary	Cotton	0.38	1.3%
15	784	Medium technology	Parts & accessories of 722,781	0.35	1.2%
16	541	High technology	Medicinal and pharmaceutical products	0.32	1.1%
17	653	Medium technology	Fabrics, woven, of man-made fibres	0.32	1.1%
18	122	Resource based	Tobacco manufactured	0.32	1.1%
19	554	Medium technology	Soap, cleansing and polishing preparations	0.30	1.0%
20	659	Low technology	Floor coverings	0.28	0.9%

Source: UNIDO calculations based on UNCOMTRADE.

Annex Table 4. Principal exports from South Asia to the South, 2003

Ranking	SITC rev 2 code	Technology classification	Product name	Trade value (US\$ billion)	Share in South Asia's total exports to South
1	667	Resource based	Pearls, precious& semi-precious stones	3.53	9.1%
2	334	Resource based	Petroleum products, refined	3.05	7.9%
3	651	Low technology	Textile yarn	2.18	5.7%
4	652	Low technology	Cotton fabrics, woven	1.43	3.7%
5	042	Primary	Rice	1.24	3.2%
6	541	High technology	Medicinal and pharmaceutical products	1.13	2.9%
7	653	Medium technology	Fabrics, woven, of man-made fibres	1.07	2.8%
8	674	Low technology	Universals, plates and sheets, of iron	0.93	2.4%
9	281	Resource based	Iron ore and concentrates	0.92	2.4%
10	897	Other transactions	Jewellery, goldsmiths and other art	0.80	2.1%
11	658	Low technology	Made-up articles, wholly/chiefly of	0.71	1.9%
12	672	Medium technology	Ingots and other primary forms, of iron	0.70	1.8%
13	081	Primary	Feeding stuff for animals	0.65	1.7%
14	583	Medium technology	Polymerization and copolymerization	0.60	1.6%
15	611	Low technology	Leather	0.60	1.6%
16	041	Primary	Wheat (including spelt)	0.52	1.3%
17	682	Primary	Copper	0.48	1.3%
18	074	Primary	Tea and mate	0.48	1.2%
19	846	Low technology	Under garments, knitted or crocheted	0.42	1.1%
20	843	Low technology	Outer garments, women's, of textile	0.42	1.1%

Source: UNIDO calculations based on UNCOMTRADE.

Annex Table 5. Principal exports from Sub-Saharan Africa to the South, 2003

Ranking	SITC rev 2 code	Technology classification	Product name	Trade value (US\$ billion)	Share in Sub Sahara Africa's total exports to South
1	333	Primary	Petroleum oils, crude	7.68	27.6%
2	334	Resource based	Petroleum products, refined	3.42	12.3%
3	672	Medium technology	Ingots and other primary forms, of iron	0.83	3.0%
4	263	Primary	Cotton	0.52	1.9%
5	684	Primary	Aluminium	0.49	1.8%
6	674	Low technology	Universals, plates and sheets, of iron	0.44	1.6%
7	671	Medium technology	Pig iron, spiegeleisen, sponge iron	0.43	1.5%
8	074	Primary	Tea and mate	0.41	1.5%
9	057	Primary	Fruit & nuts	0.31	1.1%
10	522	Resource based	Inorganic chemical elements	0.29	1.0%
11	522	Resource based	Inorganic chemical elements	0.28	1.0%
12	061	Resource based	Sugar and honey	0.25	1.0%
13	322	Primary	Coal, lignite and peat	0.24	0.9%
14	673	Low technology	Iron and steel bars, rods, angles, shapes	0.23	0.9%
15	661	Resource based	Lime and cement	0.22	0.8%
16	583	Medium technology	Polymerization and copolymerization	0.22	0.8%
17	034	Primary	Fish, fresh (live or dead), chilled	0.22	0.8%
18	892	Other transactions	Printed matter	0.21	0.8%
19	641	Resource based	Paper and paperboard	0.21	0.8%
20	562	Medium technology	Fertilizers, manufactured	0.21	0.7%

Source: UNIDO calculations based on UNCOMTRADE.

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ENDNOTES

- 1 South-South cooperation in trade represents a 'soft' version of regionalism; it is pursued in the context of existing tariff regimes resulting from global trade liberalization through the Uruguay Round and subsequent agreements.
- 2 A recent study has shown that, for 168 out of 216 US trading partners, transport costs are much higher than tariffs. For the majority of Sub-Saharan African countries, tariffs amounted to less than 2 per cent, while transport cost incidence often exceeded 10 per cent. Since the introduction of AGOA, transport costs have risen relative to tariffs (World Bank 2004b).
- 3 The following classification of resource based, low technology, medium technology and high technology products, developed by UNIDO and based on the Standard International Trade Classification (SITC) Revision 2, is used:
Resource based products: 01 (excl. 011), 023, 024, 035, 037, 046,047, 048, 056, 058, 06, 073, 098, 1 (excl. 121), 233, 247, 248, 25, 264, 265, 269, 323, 334, 335, 4, 51, 52 (excl. 524), 53 (excl. 533), 551, 592, 62, 63, 641, 66 (excl. 665 and 666), 68
Low technology products: 61, 642, 65 (excl. 653), 665, 666, 67 (excl. 671, 672 and 678), 69, 82, 83, 84, 85, 89 (excl. 892 and 896)
Medium technology products: 266, 267, 512, 513, 533, 55 (excl. 551), 56, 57, 58, 59 (excl. 592), 653, 671, 672, 678, 711, 713, 714, 72, 73, 74, 762, 763, 772, 773, 775, 78, 79 (excl. 792), 81, 872, 873, 88 (excl. 881), 95
High technology products: 524, 54, 712, 716, 718, 75, 761, 764, 77 (excl. 772, 773 and 775), 792, 871, 874, 881
- 4 The following classification of resource based, low technology, medium technology and high technology products, developed by UNIDO and based on the Standard International Trade Classification (SITC) Revision 2, is used:
Resource based products: 01 (excl. 011), 023, 024, 035, 037, 046,047, 048, 056, 058, 06, 073, 098, 1 (excl. 121), 233, 247, 248, 25, 264, 265, 269, 323, 334, 335, 4, 51, 52 (excl. 524), 53 (excl. 533), 551, 592, 62, 63, 641, 66 (excl. 665 and 666), 68
Low technology products: 61, 642, 65 (excl. 653), 665, 666, 67 (excl. 671, 672 and 678), 69, 82, 83, 84, 85, 89 (excl. 892 and 896)
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High technology products: 524, 54, 712, 716, 718, 75, 761, 764, 77 (excl. 772, 773 and 775), 792, 871, 874, 881
- 5 In a ranking of 100 countries, Mauritius, South Africa, Botswana and Cape Verde occupy place 52, 66, 80 and 87, respectively (UNCTAD 2005b).
- 6 In a ranking of 100 countries, Mauritius, South Africa, Botswana and Cape Verde occupy place 52, 66, 80 and 87, respectively (UNCTAD 2005b).
- 7 For detailed analyses of national policies and strategies for ICT development in developing countries, see Mansell and When (1998) and OECD (2001).
- 8 East Asia alone is expected to have some 70 free trade agreements by the end of 2006.



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