



Address by

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Leveraging New Technologies for Economic Development

Honorable Ministers

Secretary General

Distinguished participants

Ladies and Gentlemen

We are gathered here, at the 2004 Technology Fair of the Future, UNIDO and UNCTAD are inaugurating today, to share experiences, and present new ideas and concepts, on how countries and enterprises can leverage emerging technologies for economic development. Following the successful launching of the first Technology Fair in 2003, in Budapest, this second Technology Fair of the Future is organized as one of the events of the UNCTAD XI Conference. The Fair will be open until 18 June. **Let me use this opportunity to thank the Governments of Austria and Brazil for providing their financial support to organize this event.**

In my short presentation today, I would like to open the 2004 Technology Fair of the Future, by briefly addressing two most important issues, relevant for the technology-economic development link. Those issues are:

- (i) What is the role of technology for economic development? And,
- (ii) How developing countries can leverage technologies for pursuing their developmental goals?

These issues will, in my view, support the discussion during the Forum.

What is the role of technology for economic development?

The emerging global scene we are witnessing today is the one of high dynamism, diversity, greater opportunities and divergence. Trade and investment liberalization and accelerated technological progress broaden opportunities for income and employment generation and for achieving welfare gains, but they also bring new challenges.

Production across national boundaries has become more integrated through the spreading of global value chains (GVCs) and production networks (GPNs), exposing economies to the world market forces more than before. Competition is constantly taking new forms, with new products, processes and services becoming main factors of competitiveness. New technologies, appearing constantly and spreading pervasively, underpin these competitive pressures. The result is that enterprises are exposed to global competition with an intensity rarely seen before. Even successful countries may find it difficult to sustain competitiveness as market conditions change. Innovative developing country enterprises, in addition have to face tariff peaks and escalations, which still distort global trade in manufactures.

In this fast-changing global business scene, where continuous innovation and international competition drive one another, the role of technology in achieving sustainable economic development and in fighting poverty and marginalization becomes crucially important. To survive and grow countries and enterprises must devote special effort to build their technological capabilities and to catch up fast. But the hard reality of

development and globalization is that only some regions and developing economies have succeeded in doing so, while others, a disturbingly large number, have not. *(The encouraging examples include East Asia, followed by Latin America and South Asia, while the situation in Sub-Saharan Africa is quite discouraging. See Annex)*

Technological capabilities and industrial activities are highly concentrated in a few leading economies, both industrialized and developing, whereas most developing countries are continuously at the bottom of the technology ladder. The least developed countries (LDCs) are technologically extremely weak and vulnerable. Despite the potential of new technologies to change and improve the lives of poor, around a third of humanity are deprived of basic technologies.

Export of manufactures is also highly concentrated within the group of developing countries. Only a small group of developing countries have shown dynamic production and export structures, with increasing shares of technology-intensive products. *(This group includes Argentina, Brazil, Costa Rica, and Mexico in Latin America; Turkey; and India, China and East Asian countries in Asia. See Annex)* Consequently, the difference in per capita income between low- and high-income countries shows a clear pattern of divergence, over the last three decades.

This observed evidence contradicts the predictions of the early models of neoclassical growth theories (from the 1980s) on inevitable convergence between low- and high-income countries. Much of the economic reforms pursued by the developing countries were underpinned by these theories and Washington Consensus policies stemming from them. The rationale behind was that productivity gains, wealth and equity creation would automatically come from “making markets work” and “getting government out of the way”. *(In other words, efficient allocation of resources and economic growth will naturally result from achieving macroeconomic stability, institutional reforms, “getting prices right”, and open trade and investment regime. The crucial mechanisms underlying these processes were left out of consideration in these models.)*

In contrast, new growth theories recognize that knowledge or technology is key driver of economic growth and government has a role to play. They emphasize the importance of the processes that create and diffuse new technology for sustaining growth. The increasing returns associated with new knowledge and technologies have many implications for economic development policy. Government strategies and policies can influence a country’s technology absorption capacity, and therefore productivity and economic growth, in the long run. In general, governments should pay careful attention to all those factors that provide incentives for knowledge creation like research and development (R&D), the education system, entrepreneurship, and openness to trade and investment.

How to leverage new technologies in the present global setting?

Building technological capabilities is a long, costly and risky learning process. It depends largely on enterprises' innovative abilities to accelerate acquisition of new technologies,

upgrade them over time and ultimately create new technologies—in other words to innovate and learn in a broad sense. This year Technology Forum will devote a special panel to discuss the lessons of experience of **innovative enterprises** worldwide and challenges they are facing when moving to participate in the regional and global economy.

Building technological capabilities also stretches well beyond innovative and competitive enterprises to encompass institutions and organizations that provide vital services to industry. A wide variety of institutions and organizations can provide technology extension services that can help innovative enterprises and their clusters to meet the needs for new information, skills, knowledge and technology, which are difficult to satisfy in open markets. **Technology and Science Parks** are examples of tools that are important for supporting national technology diffusion and are thus selected to be part of this Forum. Through providing physical infrastructure, technology-transfer initiatives and the knowledge-intensive business support services, technology parks can encourage and support the start-ups, incubation and development of the innovation- and knowledge-led enterprises. The business environment of technology parks facilitates international businesses to develop formal and operational links with local enterprises and knowledge centers, like universities, technology institutes, and research organizations. In this way, they support the process of leveraging new knowledge and technologies for economic development.

The emerging business environment also opens up alternatives for enterprises and developing economies to build their industrial and technological capabilities through linking up with foreign partners in **regional and global value chains and production networks**. Participation in these new business formations can help enterprises and countries to earn more foreign exchange; to tap regional and global markets; to diversify their exports; and most importantly to leverage new skills, knowledge and technology, avoiding the lengthy processes of learning and discovering.

A large number of developing countries have decided to build their industrial and technological capabilities by becoming suppliers of low-cost manufactures to global value chains in textiles, automobiles, aircraft and electronics. Notable examples in Asia include East Asian countries, China and India, and in Latin America, Mexico, Brazil and Costa Rica. Within this group of countries, those that succeeded in pursuing this strategy tend to invest in a domestic R&D effort; in building of skills (especially technical) and infrastructure facilities; and in business developments services. They were also successful in engaging in a collective learning effort in a systematic fashion. These successful country cases are important. They point to the fact that there is a need for domestic technological effort even at a low level of industrial development.

Pursuing liberal trade and investment regime and linking to the GVCs and GPNs can be considered as a fast-track strategy to acquire industrial and technological capabilities, and to achieve economic growth. But to get the productivity gains through pursuing such strategy, countries need, in addition to simply opening their markets and linking to the value chains, to address a variety of other important factors. Those include political,

social and macroeconomic stability; sound rules and regulations and their enforcement mechanisms; good governance at the firm and government levels; and investment in building structural factors or 'drivers', like human skills, national technology effort, knowledge and physical infrastructure and utilities. The case of Mexico with NAFTA and *maquiladoras* illustrate clearly that industrialization policy based solely on the low labor cost, without improvements in structural factors and productivity is not a sustainable one. *(UNIDO Scoreboard database shows that among developing countries East Asia have achieved the strongest set of structural factors, followed by Brazil and Chile within LAC group, while Mexico and Argentina showed mixed achievements, where national R&D effort and skill improvement has particularly deteriorated. See Annex)*

What role of strategy and policy?

Achieving industrial restructuring and technological upgrading can be reached only through a concerted and purposive strategy. This strategy has to be developed and implemented by the government and private sector working together in partnership. Building industrial and technological capabilities, in the face of pervasive market and institutional failures and international rules and regulations, also calls for extensive and creative policy support. Countries that have employed industrial policy in export-oriented environments, with complementary policies to build skills and technological capabilities show that such strategies can radically transform the industrial landscape in less than a generation.

The basis of any coherently framed industrial strategy is a national vision of industrial development—a vision to get on the high road to productivity enhancement, through concerted industrial and technological upgrading. The **Technology Foresight** exercises offer a disciplined means for determining targets and ways to realize them when formulating industrial development strategies. The aim is to identify the emerging technologies with the highest potential to contribute to the economic and social advancements of a country in the long run.

What role of International Community?

The primary responsibility for ensuring conditions conducive to industrial and technological upgrading is on developing countries, but the international community also has a clear responsibility. International community has to assist developing countries in addressing the growing structural gaps, and it has to ensure that they are not denied access to the dynamics of industrial development. This also calls for creative policies at the international level as well as for their greater coordination.

At the level of the international community, a vision must be also articulated and a strategy formulated to narrow this widening technology gap among countries. This vision must be supported by the financial and other resources. Aid donors, development bodies, corporations, institutions and regulators must all be involved. The MDGs provide an example of such an coordinated effort of the entire UN system: to coherently work together towards agreed set of goals, targeted at fighting poverty, hunger, diseases, illiteracy environmental degradation and discrimination against women.

A major challenge facing the international development community in meeting the

Millennium Development Targets by 2015 is to develop new thinking on: How can technology be made to work for the poor? What are the strategies and policies to be adopted by national governments, private sector and civil society? What are the right technological choices (affordable, appropriate and accessible) for poor countries and what are the necessary preconditions for their adaptation to local conditions? *(It is not the question of old or new technology, but rather of the right technology for poor countries.)*

What is the role of UNIDO?

UNIDO global forum function and its programs of technical cooperation activities are specially designed to support developing countries in their efforts to leverage old and new technologies for economic development; and to build supply-side capacities for market access.

UNIDO also provides support to its partner countries in formulating and implementing their industrial strategies and policies. To support governments in their strategic decision-making, UNIDO embarked on the Technology Foresight initiative in December 1999, when the first Technology Foresight Conference focusing on Latin America was launched. In several countries in the region, Technology Foresight has increasingly been applied as an instrument for the identification of national priorities and allocation of resources. The program has also been extended to other regions. (E.g. CEE and NIS)

In the area of leveraging technologies for economic development, UNIDO activities cover all those that deal with technological adoption, absorption and mastery. In doing this, UNIDO focuses on environmentally sound technologies, biotechnology, sustainable methods of production, and on energy efficiency.

In the area of strengthening the supply-side capacity for effective trade participation, UNIDO activities include supporting capacity building for the provision of technology extension services like quality, standards and metrology, sanitary and phytosanitary measures, productivity centers; and investment and export promotion. UNIDO also supports establishing of Cleaner Production Centers and promotes SMEs and their clusters.

In all these areas UNIDO endeavors to attain an effective integration between the conceptualization of the current policy challenges facing developing countries and related approaches to technical cooperation delivery on the ground.

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In concluding, let me introduce the Programme of the Fair

The 2004 Technology Fair is designed to include the Exhibitions and Forum on Technology Trends and Needs in Global Value Chains. At the Exhibitions, leading innovative enterprises in technology sectors like energy, biotechnology, nanotechnology and materials, information and communication and aerospace technology, and in technologies suitable for the least developed countries (LDCs), will present their ideas, lessons of experience, concepts, prototypes and target markets in various forms.

At the Forum, representatives from innovative enterprises, technology parks and institutes with R&D activities operating at the, or near the, frontier of knowledge, from both developing and developed countries will be engaged in a number of interactive dialogues. The dialogues will focus on discussing **challenges and opportunities for technological upgrading within GVCs and GPNs**. Major technology trends will be presented from **the results of recent technology foresight studies**. The Forum will also offer lessons of experience from successful **Technology Parks** on how to facilitate economic learning and catching-up. Finally, the forum will offer practical information on how to set up and manage **innovative enterprises** and to successfully participate in regional and global markets.

Approximately 200 technology firms and institutions have submitted application to participate in the Fair, out of which, 140 firms and institutions will be actively participating in different ways in the event. They will present a wide range of innovative technologies from different regions and countries of the world.

I believe that this year organizational setting for the Technology Fair will be particularly successful in offering participants a unique opportunities to update their knowledge and information on new trends in technology and to build new, or enhance existing, relationships with the high-level leaders from industry, finance, research community, governments and international organizations.

Ladies and Gentlemen,

I would like to thank all participants here today for taking the time to come to this Technology Fair of the Future event, in the city of São Paulo. I trust you will find the programme of the Forum of great interest for your work that is related to the future economic development.

Thank you.