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INDUSTRIAL DEVELOPMENT ORGANIZATION

FIRST FORUM

# iSID INCLUSIVE AND SUSTAINABLE INDUSTRIAL DEVELOPMENT

23 – 24 JUNE 2014

# CONFERENCE REPORT

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This report is based on discussions recorded during the Forum's sessions and has not yet been verified by participants.

# Foreword

It is almost a year since the Member States endorsed UNIDO's new mandate of inclusive and sustainable industrial development during the 15th UNIDO General Conference in Lima, Peru. I remarked at the time that the General Conference was a truly historic event—a conference that brought a new spirit to UNIDO. A spirit of inclusive and sustainable industrialization. A spirit of partnership and cooperation. A spirit that makes us aspire for a better and more prosperous tomorrow.

The Lima Declaration highlights the role of industrialization in accelerating development. Industry increases productivity, stimulates job creation and generates income. In this way, it contributes to poverty eradication and provides opportunities for social inclusion, including gender equality, empowering women and girls and creating decent employment for youth. As industry develops, it increases value addition and enhances the application of science, technology and innovation. It encourages greater investment in skills and education, and thus provides the resources to meet broader objectives of inclusive and sustainable development.

The ISID approach departs from the past models of development, which are not working for all and are not sustainable. It emphasizes the three dimensions of sustainable development: social, environmental and economic. This means that we need to consider the impact of industrial development not just on economic growth but also on the environment, on communities and on society. In the context of strategies and policies, we should be inclusive—and engage with all stakeholders from the outset to minimize environmental impacts, and to maximize the social and community benefits.

I said in Lima that 2014 must be a year for action, and I pledged to work hard to repay the trust that Member States had placed in UNIDO through their support for the Lima Declaration. I am pleased to say that we at UNIDO have made the case for ISID at national and global levels and have infused our work and our message with the mandate you have given us. We are also making a contribution to shaping the global development agenda and the Sustainable Development Goals.

Member states have addressed the issue of "why ISID". We now move to the important question of "how". It was my intention when I initiated these forums to create a platform to bring together policymakers and practitioners to exchange ideas and knowledge, experience and best practice on how to foster the ISID on the ground. While it is important to recognize that there is no one-size-fits-all model, there are good practices all over the world for pursing ISID that can be successfully replicated in other contexts.

Knowledge sharing platforms have a crucial role as we operationalize ISID. Serving as a global forum for the exchange of knowledge on industrial development, UNIDO is well positioned to assume the role of a broker. During my visit earlier this year to Slovenia, I attended a regional conference organized by the government of Slovenia and UNIDO on a new generation of science, industrial and technology parks in Eastern Europe and Central Asia. What struck me particularly during the conference was the willingness of countries to share their experiences in business infrastructure. The eagerness of participants to hear from business infrastructure experts, industrial parks managers and policymakers was clear to see, signaling that there is no shortage of demand for UNIDO's core service areas.

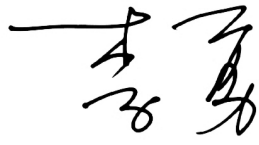
Our task in the first ISID Vienna Forum was to engage in a strategic dialogue on how to formulate and operationalize successful industrial development strategies and policies that avoid past failures and

emulate past successes. We heard about best practices, success stories and lessons learned on pursuing ISID from different countries and regions at different levels and stages of industrialization. Ensuring a link between the knowledge and business sectors of the economy is at the heart of a successful strategy, and the presentations and discussions in Vienna elaborated on the mechanisms for the implementation of strategies and the role of soft and hard business infrastructure, such as industrial parks, zones, cities and districts.

We saw presentations on country studies on business infrastructure and examples of the recent activities of UNIDO and its partners in the area of industrial and eco-industrial parks. We heard how countries, by enhancing their business infrastructure, can start a process where they raise competitiveness and productivity, attract investment, spark innovation and create jobs. We also saw that to be effective, planning and maintaining business infrastructure requires coordination between all stakeholders, including various levels of government, business, academic and research institutions and civil society.

The Forum sessions also served as an opportunity to discuss UNIDO's approach to leveraging static and dynamic gains from different types of parks and zones, including park planning and design, park establishment and management, regulatory aspects, resource mobilization, investment and technology promotion, capacity building of stakeholders, fostering cluster development and collective actions.

Looking ahead, the second Global Forum in November will concentrate on partnerships to scale up investments for ISID. UNIDO has a new partnership programme intended to significantly enhance our development impact on the ground. We need partnerships to operationalize ISID by melding private expertise and leadership with government policymakers and such international organizations as UNIDO for the benefit of technical cooperation projects.



LI Yong
Director General, UNIDO

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# Contents

# Summary of proceedings

Strategies and policies to boost inclusive and sustainable industrial development based on innovation, entrepreneurship and creativity are attracting global attention. Countries around the world are developing and implementing strategies to create diversified knowledge-based economies, boost green growth and create jobs. But it is clear that we need a new development approach that looks at society, economy, industry and the environment as a whole, based on profound changes in patterns of production and consumption. Industrial and economic growth and the underpinning policies must be linked to environmental sustainability and social and economic inclusion.

The basis for pursuing inclusive and sustainable industrial development (ISID) is creating a business infrastructure that attracts investment, rewards entrepreneurship and ensures the generation and flow of new knowledge and technology.

The ISID concept was endorsed by the Member States through the Lima Declaration at the 15th session of the UNIDO General Conference in Lima, Peru in December 2013. To address current challenges faced by its Member States, UNIDO was called upon to serve as a global facilitator of knowledge and advice on policies and strategies to achieving ISID.

Following the adoption of the Lima Declaration, UNIDO's Director General, Mr. LI Yong, initiated two global forums in 2014. The first forum on Strategies and Instruments for Inclusive and Sustainable Industrial Development was held on 23–24 June 2014 in Vienna. It brought together more than 250 participants from 83 countries—including 19 ministers of economy, industry, investment, foreign affairs, environment and trade, other high-level government officials and representatives of academia, private sector, NGOs, international financial institutions and international organizations—to discuss how to pursue ISID through strategies and instruments. The objective was to identify policies, best practices, programmes and instruments that countries can replicate and scale up in their specific context when promoting ISID.

The second forum, on partnerships to scale up investments in ISID, is being held on 4–5 November 2014 in Vienna. Promoting inclusive and sustainable industrialization and fostering innovation will require significant resources such as knowledge, expertise, technologies and finance. To mobilize these resources, a multistakeholder partnership is required.

## ISID as a response to new development challenges

ISID seeks to address prevailing social, economic and environmental challenges by harnessing the potential of industrialization to achieve green and inclusive growth. Industrialization creates opportunities to work together to achieve a "green growth" model through promoting investment in new innovative industries and technologies that could lead to radically different production and consumption patterns. This is the so-called "third industrial revolution", with its emphasis on new green technologies and smart policies. This model, with energy and resource efficiency at its centre, can reconnect the environmental, economic and social pillars of sustainable development.

Continual industrial upgrading and structural transformation based on new technologies are strong drivers of economic growth and catalysts of effective poverty alleviation, spurring dramatic development impacts and unleashing dynamic and competitive economic forces that generate jobs and income, and stimulate international trade. Governments around the globe are thus striving to develop and implement strategies, policies and programmes that promote industrial upgrading and diversification, create high quality jobs, raise productivity, increase social inclusion and avoid environmental degradation.

The forum's deliberations underscored the relevance of ISID to all UNIDO Member States regardless of their development stage. Representatives

from the least developed and low income countries highlighted the importance of promoting productive capacity building and accelerated industrialization through linking local to global value chains while respecting social and environmental concerns. Representatives from the middle income countries prioritized investment in productive and human capabilities and in new green industries and technologies to enhance competitiveness, access the markets of richer economies and avoid the middle income trap.

Advanced economies called for re-industrialization to overcome the recent economic and social crisis—and to make them more resilient to future downturns. They recognize that industry is central for innovation, jobs and growth—and that economic development cannot be inclusive and sustainable without a strong and modern industrial sector. They also recognize the importance of mainstreaming industry-related competitiveness concerns across all policy areas at national and regional levels.

The ISID concept is thus relevant to all countries.

## Policies and strategies to pursue ISID

Industrial policy is at the core of inclusive and sustainable specialization and diversification strategies. And the economic, social and environmental pillars of sustainability must be mainstreamed in six aspects of elaborating an ISID strategy:

- Selecting the right criteria for targeting industrial activities.
- Choosing the right policy mix associated with each strategic objective.
- Building on technological capabilities and latent comparative advantages.
- Ensuring the political commitment of top leadership.
- Developing the institutional capabilities to design and implement ISID strategy.
- Supplying and sustaining the financial resources for implementing the ISID strategy.

Strategies for promoting ISID should include measurable goals that reflect the key objectives of integrating economic, social and environmental dimensions—enforced or encouraged through a coordinated set of regulatory and government policies and programmes. Such goals should generally address job creation, gender mainstreaming, social inclusiveness, reducing pollutant emissions from industrial production, increasing material and energy efficiency, distributing the benefits of industrialization more equitably in society, and promoting international industrial cooperation and partnerships for ensuring economic sustainability of development. Countries with ambitious development strategies, goals, targets and policies tend to be more successful in pursuing sustainability than those without such ambitions.

Structural change implies costs and must overcome various market and other barriers through an appropriate policy mix. Industrial policy—intertwined with virtually every aspect of economic policy, including the sectoral allocation of resources and the choices of technology in any sector—can be used to overcome various market failures and imperfections and to stimulate the development and upgrading of industries.

## Main principles for governance

Countries need coherence among their national development policies and plans, as well as inclusive and participatory processes when formulating industrial policies. Bringing measures together to address ISID holistically in each country context assumes that institutional innovation will integrate industrial policy frameworks to address interactions and interdependencies, as well as synergies and tradeoffs between various development issues and focus areas. Such processes should not be solely market and policy driven—they should engage a wide group of stakeholders including business, academia and civil society.

True, a strong political commitment is a prerequisite for developing and executing industrial strategies and policies. But it must be supported by the concerted efforts and joint action of all development actors.

Performance indicators, an integral part of successful industrial policy, will be indispensable to assessing and monitoring progress. And UNIDO has

been called on to create tools to assess national industrial policies and to identify weakness and possible drawbacks.

The nature and scope of state intervention in industrial development depend on the relative impact of horizontal and vertical policies. Horizontal measures seek to improve the overall business environment to the benefit of all sectors, while vertical policies target certain economic sectors having a comparative advantage. Some believe that state policies are critical in industrial development, facilitating dynamic structural change through continuous provision of incentives for industrial upgrading and diversification. Others argue that the market should be left to decide which industries are successful.

Governments in advanced economies still pursue industrial policies. Indeed, many advanced economies rely on indirect industrial policy, in which the government broadly defines favoured industries and provides incentives to encourage private financial institutions to support industries. Many developed and highly industrialized countries also gear industrial and strategies towards innovation and knowledge-based economic growth.

Governments can favour activities considered as having positive externalities for long-term growth, generally technology and knowledge-intensive activities, by correcting negative externalities (using taxes) and rewarding positive ones to promote links and spillovers (using subsidies). Government can also use nontraditional policies such as those for exchange rates, competition, entrepreneurship, financial markets, land outsourcing, material and energy efficiency, income distribution, small and medium enterprises and job creation. SME policies are especially important because SMEs are flexible and innovative, creating jobs and contributing to the gross domestic products of many countries.

There is no "one-size-fits-all" approach to pursuing ISID. Countries must develop an appropriate policy mix of vertical and horizontal industrial policies focusing on comparative advantages with special emphasis on the right macroeconomic policy. A whole-of-government approach can ensure integrated strategies to promote economic and industrial growth, within a socially inclusive and environmentally sustainable framework.

The implementation of ISID policies and strategies is often weak due to limited financial resources and low government capacity. So, industrial and technology policies to promote restructuring, particularly in the poorest countries, must also be backed by a pool of restructuring funds that governments can draw on—long in term and not requiring a commercial rate of return.

The benefits of a well-functioning national industrial development agency are evident around the world, even in countries with weak government administrations. These agencies operate in environments with common characteristics: a committed government elite, a head with weak ties to the elite, autonomy assured through strong support at the highest levels of government and staff appointments based on competence.

Malaysia used both horizontal and vertical policies, and the government engaged business and civil society to ensure collective policy buy-in. It also developed performance indicators to monitor the results of policies to see if targets were being achieved. The policy measures and speed of implementation have also been tailored to the national context and regional disparities. Its efforts show that creating a good business environment for industrial development requires a level playing field that encourages growth, risk-taking and innovation, and that provides opportunities for new entry.

## Industrial targeting

A common criticism of industrial targeting is that governments can never be as effective as market forces in resource allocation. Major reasons for past failures of targeted industrial policies are being overly ambitious, ignoring comparative advantages and not having sufficient funding. Policy support for improving the overall business environment is generally preferred.

Although there are successful cases of industrial targeting, industry-specific interventions face

tradeoffs, especially in developing countries, where governments have to decide for which industry to dedicate limited and volatile budgetary resources. Because mistakes can be costly and undermine growth, championing specific sectors should be compatible with a country's comparative advantage, reflecting existing and potential economic strengths and market opportunities.

The growth identification and facilitation concept is based on the idea that a country's optimal industrial structure is endogenously determined by its endowment structure (land and natural resources), its labour and capital (physical and human) and its investments in infrastructure (both hard and soft). For example, a low income country with abundant labour or natural resources and scarce capital will have a comparative advantage in labour-intensive or resource-intensive industries. Similarly, a high income country with abundant capital but scarce in labour will have a comparative and competitive advantage in capital-intensive industries.

Collective action through public-private partnerships can deal with various externalities and the provision of public goods, such as hard and soft infrastructure, knowledge and information sharing, and resource coordination issues. Individual firms cannot perform this role. Collective action is also necessary to control stakeholder interests in designing policy, hidden and open subsidies, free riding, and rules and regulations that favour special interests, usually at the expense of others.

In this regard, learning and knowledge networking, as well as technological competence, are fundamental parts of ISID strategies. Strengthening the industry-academia community, fostering R&D, clustering research centres near enterprises and setting up universities and research centres in technology parks enable knowledge spillovers, technology transfer and fruitful knowledge exchange.

The high road to industrialization—based on promoting green industries, technologies, eco-innovation, entrepreneurship and social inclusion—should be followed for sustainable and inclusive economic and industrial growth. Industrial development and economic growth cannot be at the expense of the environment. Indeed, it is very expensive to industrialize without consideration for the environment and climate change—and then to clean up later.

## The multifaceted needs for supportive business infrastructure

Business infrastructure enhances the general business climate. It requires multilayered management, ensuring synergy between the various levels of government, national, regional and local, and partnerships between business, government, universities and civil society.

A key part of business infrastructure—in line with the objectives of separate but cross-cutting development strategies, such as those for science, technology, innovation, job creation, education and regional development—is the new generation of industrial, technology, science and innovation parks. In supporting the creation and growth of industrial agglomerations and facilitating regional innovation and development of clusters, such parks act as catalysts for links between business and innovation-based economic growth. They can serve as bridges between academia and industry, boosting scientific and technological advancement and enabling researchers and scientists to meet international standards. And they can be a testing ground for new reforms, policies and approaches to improve the business environment, as demonstrated in many East Asian countries. Industrial and technology parks are also useful for meeting targets in industrial policy strategies, particularly as part of policies to create an enabling business environment (including functioning cities and infrastructure and a stable legal framework).

Although the role, relevance and applicability of parks vary according to national, regional and local contexts, it is generally accepted that they can be a dynamic tool for accelerating economic growth and boosting competitiveness. They can also be hubs for creating, disseminating and applying industrial knowledge and for stimulating innovation. And they have the potential to generate or strengthen

comparative and competitive advantages, to help remove the binding constraints for development and to test new reforms and policies.

Parks attract innovative businesses, generating more jobs and a larger tax base. They support start-ups, incubate new enterprises and develop knowledge-based businesses, offering an environment for local and international firms to interact and build business links for mutual benefit.

Industrial parks can also be adapted to suit national and regional priorities, pursuing several development objectives, including those related to education and human resource development, rural, urban and regional development, private sector development, and environmental sustainability. Strategic planning, in alignment with national and regional development goals and regulations, is therefore vital for sustainable local, regional and national social and economic development.

But parks have to be part of a long-term development strategy. They should be featured in national plans for research and innovation, reflecting their importance in innovation policy. Similarly, regions and localities should focus on the integration of R&D and innovation in their development strategies. That makes it important for policymakers to promote synergies among the different instruments and to coordinate the different programmes.

Common challenges facing industrial parks include linking to global value chains, having adequate financing and infrastructure, being too ambitious and not considering environmental concerns and industrial diversification issues.

UNIDO is receiving requests from Member States for technical cooperation related to the development of industrial parks of various forms. Its services cover business infrastructure and technical upgrading, as future forums will showcase the full range. To support ISID at the country level, UNIDO's technical assistance has to build on international knowledge and be aligned with other activities. It is thus essential to foster the international diffusion of knowledge on how governments and industries can implement sustainable production and consumption models and foster uptake of green technologies and renewable sources of energy.

The need for access to such knowledge through international organizations such as UNIDO was confirmed by the high number of ministers and high level officials and experts attending the Forum.


Former CNN journalist Todd Benjamin moderates a session as Justin Yifu Lin, Honorary Dean at the National School of Development, Peking University, and UNIDO Director General LI Yong look on.

Justin Lin, Honorary Dean at the National School of Development, Peking University.


María-Luisa Delgado-Medina, Deputy Director General of Technology Transfer, Ministry of Economy and Competitiveness, Spain, at a panel discussion.

Philippe Scholtès, Managing Director of UNIDO's Programme Development and Technical Cooperation Division at a panel discussion.

Hadja Fatoumata Binta Diallo, Minister of Industry, SMEs and Promotion of Private Sector, Guinea, at a panel discussion.

The Director General delivers his closing speech at the Forum.

# Proceedings

# Opening remarks by UNIDO Director General

Excellencies, honourable guests, ladies and gentlemen,

Since I took up my position as Director General, I have had the honour to meet with many of you and your distinguished colleagues. I have been encouraged by the positive reception to the new UNIDO mandate of promoting ISID and the pledges of support from a wide range of actors.

Let me take this opportunity to talk about ISID in the context of the new global development framework, which, as you know, is currently in the process of negotiation. In this sense, we gather here today at a crucial juncture as the discussions at the global level on the post-2015 development agenda and the formulation of the Sustainable Development Goals (SDGs) move to the next stage.

In these discussions, UNIDO is strategically placed. We have emphasized that the ISID concept matches the complex challenges we face today and remains intensely relevant to countries on every continent. Growth, inclusion, equality and environmental sustainability still need to be better balanced. Despite some progress in eradicating extreme poverty, reducing pollution, enhancing environmental protection and increasing resource and energy efficiency, inequalities in income and wealth are on the rise—in high and middle income countries as well as low income countries. The big difference between the Millennium Development Goals and the SDGs will be the widening of their coverage, to take in sustainable development challenges in lower, middle and high income countries alike, and the targeting of both poverty eradication and environmental protection.

UNIDO has adopted a strong strategic position in the deliberations leading up to the adoption of a new agenda for global development in 2015, and I am confident in UNIDO to be firmly integrated in the post-2015 development agenda and realization of SDGs.

An innovation of the negotiations on the post-2015 development agenda is the call for across-the-board collaboration, including governments, international and regional organizations, development financial institutions, the private sector, civil society, academia, and other major stakeholders—to participate actively in shaping the "world we want for all". Seeing the participation here today, I can say that this innovation is completely in line with UNIDO's mandate.

We are not alone in our thinking. The United Nations Secretary-General's High-Level Panel of Eminent Persons concluded in their report that industry plays an important role in creating opportunities for jobs and inclusive growth. The Open Working Group on the Sustainable Development Goals has identified inclusive and sustainable industrialization as a potential goal.

ISID has received strong support from the diplomatic community in New York. The Group of Friends of Inclusive and Sustainable Industrial Development has been instrumental in bringing our message to the ongoing post-2015 negotiations. And I would like to express my gratitude for the continued efforts of all members of this group to maintain inclusive and sustainable industrialization and industrial development in the structure of the SDGs.

It was the Member States of UNIDO that initiated ISID in the Lima Declaration, and Member States now have the unique opportunity to guide the process towards inclusive and sustainable industrial development through your deliberations, consultations and active support at the global level. Your continued leadership—throughout the sessions of the Open Working Group on the Sustainable Development Goals and in the subsequent intergovernmental negotiations—will determine whether the mandate that you have given us in the Lima Declaration will find its place in the global development agenda.

The role of UNIDO has never been more relevant than it is today. It has become increasingly clear that we need a new development approach, one that looks at society, economy, industry and the environment as a whole—and that is based on profound changes in

patterns of production and consumption. Ideas for economic growth and the policies that underpin them must be linked to environmental sustainability and social and economic inclusion.

I am indebted to you for your support. Your participation here and your backing for ISID during the past months is a clear demonstration of the relevance and timeliness of our discussions on industrialization in the 21st century. I wish you all the best for the discussions and deliberations over the next two days.

LI Yong
Director General
UNIDO

## Session 1

# The Industrial Policy Revolution: The role of strategies and instruments for pursuing ISID

Session 1 focused on ISID as a response to current development challenges and on policy frameworks and instruments to pursue inclusive and sustainable structural transformation of economies and industry. It was moderated by Mr. Todd Benjamin and featured a keynote speech by Mr. Justin Yifu Lin, Honorary Dean, National School of Development, Peking University, followed by a panel discussion by: Mr. Omar Hamidou Tchiana, Minister of Mining and Industrial Development, Niger, Mr. Michael Böheim, Senior Expert for Industry Policy and Competition Policy, Austrian Institute of Economic Research, Mr. Célestin Monga, Senior Advisor/Director, World Bank, and Mr. Robert H. Wade, Professor of Political Economy and Development, London School of Economics. Mr. Amir Hossain Amu, Minister of Industry, Bangladesh, Mr. Anuar Buranbayev, Chairman of Kazakhstan's Industry Development Institute, Mr. Roberto Kreimerman, Minister of Industry, Energy and Mining, Uruguay, Mr. James Shinyabulo Mutende, Minister of State for Industry and Technology, Uganda, and Mr. Ahmed M. Darwish, Chairman, Institute of Electrical and Electronics Engineers Egypt Section and Former Minister of State for Administration Development, Egypt, served as discussants.

### *Mr. Todd Benjamin,* Moderator

There has been substantial progress on the understanding and acceptance of industrial policy, and industrial policy has almost become fashionable again. Why? Why do countries, both developed and developing, need industrial policy? How best to identify the right target industries and what does this mean in the era of globalization of industry? What is the essence of industrial policy revolution today and where does ISID fit in? What is the role of the state and the market in fostering inclusive and sustainable industrial development (ISID)?

### *Mr. Justin Yifu Lin,* Honorary Dean, National School of Development, Peking University

Growth Identification and Facilitation is a framework for the formulation of robust industrial policies in support of the goals of ISID. Past policies intended to promote growth and industrialization have often left developing countries trapped in low income or middle income levels. Experience indicates that the state has always played an important role in facilitating dynamic structural change together with continuous industrial upgrading and diversification. In this process, an industrial policy, targeting sectors with latent comparative advantages, is better suited to achieve inclusive and sustainable development and income growth, rather than ambitious policies targeting sectors beyond the comparative advantages of a country. This was one of the main reasons for the failure of most industrial policies in the past.

Learning from these failures, the Growth Identification and Facilitation concept proposes a novel approach to formulating successful industrial policies. It argues that government policy to facilitate industrial upgrading and diversification must be anchored in industries with a latent comparative advantage based on the endowment structure of the economy and its level of development. Each country, at any specific time, possesses given factor endowments consisting of land (natural resources), labour, and capital (both physical and human), which are the total budgets that the country can allocate to primary, secondary, and tertiary industries to produce goods and services. The structure of a country's endowment—that is, the relative abundance of factors that the country owns—determines the relative factor prices, industries that the country has comparative advantages, and thus the optimal industrial structure of the country at that specific time.

A low income country, with abundant labour or natural resources and scarce capital, will have a comparative advantage and be competitive in

labour-intensive or resource-intensive industries. Similarly, a high income country, with abundant capital and scarce in labour, will have a comparative advantage and will be competitive in capital-intensive industries. Therefore, the optimal industrial structure in a country, which will make the country most competitive, is endogenously determined by its endowment structure.

For a developing country to reach the advanced countries' income level, it needs to upgrade its industrial structure to the same relative capital-intensity of the advanced countries. However, to achieve that, it must first close its endowment gap with that of the advanced countries. The strategy to get there is to follow its comparative advantage in each stage of its development. When firms choose to enter industries and adopt technologies that are consistent with the country's comparative advantage, the economy is most competitive. These firms will claim the largest possible market shares and create the greatest possible economic surplus in the form of profits and factor incomes. Because of the competitiveness of its industries, re-invested surpluses earn the highest return, which allows the economy to accumulate even more physical and human capital over time. These dynamics can lead to a virtuous circle: upgrade the country's factor endowment structure as well as the industrial structure, and also make domestic firms more competitive in more capital and skill-intensive products over time.

The Growth Identification and Facilitation concept codifies six basic principles stemming from success stories and failed experiences to help governments formulate industrial policies to achieve inclusive and dynamic economic growth by identifying where their economies may have a latent comparative advantage and remove binding constraints to facilitate private sector entry into these industries:

First, the government in a developing country can identify the list of tradable goods and services that have been produced for about 20 years in dynamically growing countries with similar endowment structures and per capita incomes about 100% higher than their own. Those goods and services are likely to constitute the latent comparative advantage sectors of the developing country. This step can prevent governments from being over ambitious, trying to target industries that are too far advanced, which is a reason for the failure of governments to successfully "pick winners" in the past. Such an approach can also prevent private companies influencing the decisionmaking process by claiming that the "advanced" sectors in which they are operating are advantageous for the national economy and justify protection.

Second, once the government has identified the latent comparative advantage sectors, it should cross-check whether any domestic private companies might have already entered these shortlisted sectors. If so, a two-way communication should be initiated: from one side, these companies will have tacit knowledge on these sectors; on the other, the government has to address obstacles facing these companies to stimulate further entry of other private companies. When tackling such challenges, governments, especially those with limited financial capabilities, should employ more pragmatic approaches by focusing on a few binding constraints rather than embarking on massive nationwide infrastructure improvements, based on the Washington Consensus as recommended by the World Bank, which are not feasible for a financially strained developing country. Ricardo Hausmann and Dani Rodrik rightly claim in their Growth Diagnosis that only few constraints can be binding for a country's industrial development.

Third, as some of the identified industries may be completely new to domestic companies, the government should adopt specific measures to attract firms from the higher income countries, identified in the first step, to relocate and invest in these industries. It is likely that such foreign companies will be willing to move their production to lower wage countries and because these industries are in their sunset in the high income country. The government should launch and engage in an active investment promotion campaign to gain the tacit knowledge these companies will bring along.

Fourth, in addition to the industries identified on the list of potential opportunities for tradable goods and services in the first step, developing country governments should pay close attention to successful self-discoveries by private enterprises and provide support to scale up those industries.

Fifth, in developing countries with poor infrastructure and an unfavourable business environment, the government can invest in industrial parks or export processing zones and make the necessary improvements to attract domestic or foreign firms that may be willing to invest in the targeted industries. Improvements in the overall infrastructure and the business environment conditions can reduce transaction costs and facilitate industrial development. However, because of budget and capacity constraints, most governments will not be able to make the desirable comprehensive improvements in a reasonable timeframe. Improving the infrastructure and business environment in industrial parks or export processing zones is, therefore, a more manageable and viable alternative. Industrial parks and export processing zones also have the benefits of encouraging industrial clustering.

Sixth, the government should be willing to compensate pioneer firms/first movers in the industries identified for the nonrival and non-excludable knowledge created by their investment, with tax incentives, co-financing, or access to foreign exchange, for a limited period.

The industries identified through this process should be consistent with the country's latent comparative advantage. Once the pioneer firms enter successfully, many other firms will step into these industries as well. The government's facilitating role is mainly restricted to the provision of information, coordination of hard and soft infrastructure improvement, and compensation for positive externalities. Government facilitation through this approach is likely to help developing countries to catch up and realize dynamic and sustained growth.

Growth Identification and Facilitation has already proven successful in many instances. An excellent example is Ethiopia. A study on light manufacturing in Africa found that leather and footwear sectors were a distinctive latent comparative advantage of the country. Raw material was abundant, wages were low and youths were largely unemployed. As a result the Ethiopian government carried out an intensive investment promotion campaign in China, which convinced the company Huajian to relocate. It opened two production lines with 550 workers in January 2012, expanding to 1,800 workers at the end of the year. Leather exports more than doubled in the first year. Currently, the company employs 3,500 workers. This success created a snowball effect: a new industrial park was set up in Bole Larmine near Addis Ababa with 22 factory units, 8 built and 14 to be built, in 2013. Within three months, all 22 factory units were leased out by 22 export-orientated firms in footwear and garments.

### ***Mr. Omar Hamidou Tchiana,*** Minister of Mining and Industrial Development, Niger

The experience of other African countries illustrates the extraordinary diversity of industrial development challenges and opportunities on the continent. While each African country strives to achieve sustainable development and combat poverty, the comparative advantages and other preconditions to attain these targets are highly uneven as the economic structures and institutions in southern and northern Africa vary so widely. Weak infrastructure is a critical impediment to the successful implementation of many projects that would be profitable in normal circumstances. Unfortunately, major development financial institutions, including the World Bank, have not always played a supportive facilitating role. High production costs have undermined the competitiveness of African economies, with transaction costs constituting a major part of the accrued costs. Paradoxically, despite being rich in mineral resources, Africa remains poor. Its main assets remain natural resources and low skilled labour. Human resources require substantive investment and training to become highly competitive asset and to exert a lasting impact on economic

development. Creating a more skilled human resource base and making economies more cost-efficient are the two main challenges to Africa's industrialization.

***Mr. Célestin Monga,*** Senior Advisor/Director, World Bank

Human capital is crucial for the long-term development of every country. Yet, developing countries from Africa that have invested substantive resources in training their human capital, failed to achieve sustainable growth or even employment creation. Human capital measures in Africa also require industrial strategies to forge the development of labour-intensive industries to support broader structural transformation. Otherwise, the continent ends up losing its well-trained human capital to developed countries and must rely on worker remittances to sustain local economies. China is a spectacular example of a country that faced shortfalls in infrastructure and human and natural resources but managed in the late 1970s to boost growth by establishing industrial zones in strategically located areas, for example, near sea ports. Improvements to local business infrastructure were sufficient to trigger the inflow of investments. In line with the findings of Mr. Lin, fostering ISID requires smart, well-structured policies targeting a few areas of comparative advantage for the country.

***Professor Robert H. Wade,*** Professor of Political Economy and Development, London School of Economics

I broadly agree with the line of argument of Mr. Lin. The keynote speaker was instrumental in initiating the recent change in thinking about the role of government in development and, more specifically, in industrial development. This revolution in thinking is in its very early stages, and UNIDO is now leading the way in this paradigm shift. Still, some development agencies and most notably the World Bank at the level of actual operations still stick fairly closely to the ideas of the Washington Consensus. The novel approach of Mr. Lin, developed in his former capacity as the Chief Economist of the World Bank, was supported by just 10% of the World Bank economists who still consider the Washington Consensus and the free trade market economy the mainstream for development. When advancing the concept of ISID, UNIDO has to be aware of this lack of consensus.

The organizational setting of an industrial policy agency or an industrial park is critical. There are pockets of excellence around the world, which suggests that success does not merely depend on the general level of public administration in the host country. Four common ingredients must be present. First, the head of the government has to be very committed to the idea of industrial upgrading and technological innovation and regard these as an immediate priority for the country. Second, the head of the industrial policy agency or the industrial park has to come from outside the inner political elite and be appointed strictly on the basis of competence and integrity. Third, the industrial policy agency or the industrial park has to enjoy an embedded autonomy, and be protected at the highest level of government, keeping it insulated from private interests. Fourth, staff should be appointed independently and be led by intrinsic incentives to internalize the mission of the agency or the industrial park. Among the standout institutions forging industrial development are the Ministry of International Trade and Industry in Japan, the Brazilian Development Bank and the National Agency for Food and Drug Administration of Nigeria.

***Mr. Michael Böheim,*** Senior Expert for Industry Policy and Competition Policy, Austrian Institute of Economic Research

Conclusions about industrial policies should not be generalized, as developing and developed countries face distinct challenges. Industrial policies are not going through revolutionary changes, yet a certain renaissance can be observed. The newly proposed concepts are still to be tested in reality. *Mutatis mutandis* (only necessary changes to be made) is considered a wise approach for industrial policy formulation. Despite some empirical evidence of success and a strong theoretical justification, one central drawback

of sector-targeted policies is that these always imply that policy-makers are picking the "winners." However, forecasting of this kind entails a high degree of uncertainty and may well be counter-productive. For example, often when horizontal industrial strategies are adopted, market forces tend over time to filter out the sectors with the highest value added to the economy. In the end, bureaucrats are not in a position to substitute for market wisdom. Industrial policy is a trial and error process that requires constant monitoring and evaluation, in part, to test for how the market is reacting. In addition, success depends on a stable "good governance" setting.

### *Mr. Célestin Monga*

In reality, industrial policy is made every day in the world by governments making decisions on sectoral allocations in their national economies. Thus, horizontal industrial policies not targeting any particular sectors are not feasible.

### *Mr. Justin Yifu Lin*

Without sectoral industrial policies every government is doomed to failure. In the catching up stages of their development, many currently advanced and industrialized countries were guided by such policies and continued to follow them even after reaching high income status. The Growth Identification and Facilitation concept brings policymakers and the private sector together to define the comparative advantages of the economy.

### *Mr. Michael Böheim*

However, sector targeting industrial policies should be based on market considerations and not on policy criteria per se.

### *Mr. Amir Hossain Amu,* Minister of Industry, Bangladesh

But often in least developed countries economic growth has not translated into shared prosperity and in some instances has resulted in environmental degradation. As an innovative and a more comprehensive concept, ISID has the potential to address structural transformation through productive capacity building, job creation, social inclusion, gender equality, enhanced transfer of technology, infrastructure and technological innovation. It can also encourage the sustainable use, management and protection of natural resources. This will inevitably lead to sustained poverty reduction.

At the national level, pursuing ISID calls for the complex integration of the industrial policy with other policies on trade, investment, labour, energy, environment and science and technology. Since industrialization levels differ from country to country, ISID should be contextualized according to the infrastructure preparedness, comparative advantage, indigenous challenges and potentials of individual countries and supported by strong North-South, South-South, triangular and multilateral cooperation, at the international level.

In Bangladesh, growth has been primarily led by the private sector while the government has assumed a facilitating role. The government has integrated inclusiveness and sustainability in its industrial policy towards the goal of becoming a middle income country as set out in Vision 2021. UNIDO's support in the area of standardization has improved industrial productivity, enhanced competitiveness and increased export capability. As a result, sectors such as textile, garment, leather, tannery, shrimp, sea fish, ceramics and pharmaceuticals have experienced diversification and high growth in both the domestic and export markets.

Bangladesh has benefited immensely from the establishment of export processing zones. The country also attaches high priority to the set-up of exclusive economic zones. National policies and actions have resulted in the creation of 4.5 million jobs in the garment sector alone, which has produced positive spin-offs in the areas of female empowerment, social inclusion, and poverty reduction. In addition, the scaling up of public-private partnership initiatives has boosted investment, leading to a thriving entrepreneur class and the development of an SME sector.

***Mr. James Shinyabulo Mutende,*** Minister of State for Industry and Technology, Uganda

Uganda has created an independent investment promotion institution—the Uganda Investment Authority. Industrial parks, as islands for stimulating industrial development, are central to the government's agenda. Four parks are completed, and another 18 are under construction. Bureaucratic impediments and shortfalls in international support have slowed progress to date. It took 10 years between the initial idea and the finalization of the largest industrial park (2,500 acres)—Kampala Industrial and Business Park in the periphery of the capital, financed by the World Bank. It is important to involve the SMEs in all segments related to ISID. Specifically, SMEs, typically innovation incubators and major employers, should be granted easy access to industrial parks. In Uganda they contribute 20% of the GDP but are often discouraged from participating in the formal sector due to bureaucratic hurdles and high taxes. Governments should develop incentives for SMEs and frameworks to ease their registration and incorporation into the formal sector. Incentives are needed to allow the diaspora, an important source of remittances for every developing country, to invest in industrial parks. International financial institutions should consider how to support SMEs and other companies to perform environmental impact assessments. These are often expensive and have elaborate requirements that impede access to certain business activities.

***Mr. Roberto Kreimerman,*** Minister of Industry, Energy and Mining, Uruguay

In Uruguay, sustainability and social inclusion are determined by the economic structure, which is strongly guided by industrial policy. Roughly 60–70% of international trade derives from manufacturing. Therefore, states should be driving industrialization with policies aiming at technological innovation, continuous industrial upgrading, and high-value addition. The absence of industrial policies condemns countries to intermediate or minor roles within global production value chains. Uruguay is an emerging industrial country that strives to balance labour-intensive industrial sectors and newly emerging productive areas such as biotechnology. The ultimate objective is to diversify and link productive chains both internally and externally to Mercosur and Brazil in particular. Internal links have been explored through tripartite mechanisms (employers, employees, technology) that recognize the vital role of technology in the SME sector, which accounts for 60% of the jobs. Public undertakings are increasingly used in strategic sectors to further accelerate the country's development.

***Mr. Anuar Buranbayev,*** Chairman of the Industry Development Institute, Kazakhstan

Kazakhstan is completing its first five-year industrialization plan and will soon embark on its second. The country has drawn important lessons from its status as a resource-rich and resource-dependent country and being exposed to resource cycles: a more balanced economic policy is needed to protect against volatilities in resource prices. Four inter-related objectives are being set: reasonable development of the raw materials market sector, diversification of the processing industry, advancement in new technologies to assure Kazakhstan's future competitiveness, and provision of support to sectors that absorb excessive employment. Innovation is given due attention as a driver for sustained growth while sectoral prioritization comes at a later stage when necessary preconditions have been met.

For example, the first five-year industrialization plan envisaged merely horizontal measures—the creation of development institutions and a legal framework. Once these foundations are laid, vertical measures will constitute the core of the second five-year plan to be rolled out next year. Focused development of priority sectors and clusters will be implemented from 2015 onwards. This approach assumes that the high raw material price cycle is nearing its tail-end, and as a result Kazakhstan might stagger at the threshold of the middle-income trap. The creation of industrial and technology parks as well as free economic zones are central components of the accelerated industrial development envisaged in the new five-year plan.

### *Mr. Justin Yifu Lin*

There is a danger that low-income countries will not explore new technologies due to the inability to finance and sustain costly research. On the contrary, high-income countries are better positioned to go into the risky and expensive pursuit of state-of-the-art technologies, one of their comparative advantages due to the abundance of financial capital.

### *Mr. Todd Benjamin*

How do we ensure that low-income countries are aspirational but yet realistic in their innovation strategies?

### *Mr. Justin Yifu Lin*

Low-income countries should try to tap into potential mature industrial technologies. Based on the Growth Identification and Facilitation concept, they can increase their income to 70% of that of the reference high income country. By this point, most of the industries will be either on the global technological frontier or in close proximity. The country's human capital and institutions will be ready to embrace the challenge.

### *Mr. Ahmed M. Darwish,* Chairman, Institute of Electrical and Electronics Engineers Egypt and Former Minister of State for Administration Development, Egypt

We welcome the concept of ISID because it addresses the very significant pillar of social justice and equity. A holistic approach bringing together governments, private sector and NGOs is needed. However, many countries are not in a position to test industrial policies, and sometimes even their good intentions create new problems. In Egypt, an emphasis on gender equality led to increased university enrolment rates for women and equal pay for equal work, but female unemployment surged to twice the level for males. More broadly, the country's improved economic performance has exerted conflicting impacts on different sectors, causing new imbalances. UNIDO should establish a tool or a simulation model to allow countries to track and assess their industrial policies and strategies, anticipate a range of future outcomes, and flag clashing or incompatible criteria. Increased awareness of ISID in educational institutions would also be a step forward.

## Session 2

# Best practices in developing and implementing strategies and instruments to pursue ISID

Session 2 provided a view on best practices in developing and implementing strategies and instruments to pursue ISID. The panelists and discussants focused on strategies, instruments and challenges of achieving ISID, with special emphasis on developing countries. The session was moderated by Mr. Todd Benjamin. The panelists represented a prominent mixed group of high-level authorities of UNIDO Member States and external experts. The panellist group consisted of Mr. François Kanimba, Minister of Trade and Industry in Rwanda, Ms. Rebecca Fatima Sta. Maria, Secretary General, Ministry of International Trade and Industry in Malaysia, Mr. Janko Burgar, State Secretary and Deputy Minister of Economic Development and Technology in Slovenia, and Mr. Yong-kyoo Kim, Honorary Chairman, Korean Council on Foreign Relations. The discussants included Mr. Hardy Rudolf Schmitz, Chief Executive Officer of Wista Management in Germany, Mr. Marat Sharshekeev, President of the Chamber of Commerce and Industry in Kyrgyzstan and Mr. Douglas Zhihua Zeng, Senior Economist in the Financial and Private Sector Development Department of the Africa Region of the World Bank.

### ***Mr. Todd Benjamin,*** Moderator

How can the three pillars of ISID (economic growth, equity/inclusiveness and ecology/environment) be addressed through strategies, policies and programmes? What are the tradeoffs? What are the synergies? What are the successful programmes aligned to ISID, especially focusing on SMEs?

Let's hear some best practices and concrete experiences in addressing these challenges in countries with different level of development.

### ***Mr. François Kanimba,*** Minister of Trade and Industry, Rwanda

The path of industrialization in Rwanda started just a short time ago. Accelerated industrialization and pursuing ISID in Rwanda is based on four key priorities: preparing a conducive business environment for the private sector; developing a very ambitious industrial parks programme; focusing on the small and medium sized industry by mapping 20 SME clusters; and identifying challenges to develop new strategies for each cluster. Another pillar of Rwanda's ISID strategy is research and development, the support of various research institutions, as well as the reform of the education system in order to overcome the skills gap.

Rwanda is still figuring out how best to bring the public and private sector together to establish the key objectives for the industrial park programme. Another issue and potential obstacle is access to financing, especially for Rwanda's SMEs. Third is the fundamental importance of technology transfer and industrial research and Rwanda's lack of access to new technologies and markets, especially for SMEs.

### ***Ms. Rebecca Fatima Sta. Maria,*** Secretary General of the Ministry of Trade and Industry, Malaysia

Malaysia had the experience of passing through different industrial phases, starting with import substitution, followed by assembly-type manufacturing, then heavy industry and finally high-technology "sustainable" development. It is important to structure and embed the industrial policies of the different phases into each national plan, with a focus on institutional reform and development and human resource training, the latter to include education policy. In addition, a hybrid of sectoral and horizontal policy instruments is required to exploit the country's comparative advantages. Free trade and industrial zones can help concentrate resources but should not become prisoners of industrial strategies. An increased focus on SMEs and indigenous enterprises is also essential. Moreover, policymaking should go beyond the private sector and government to include civil society as well as academia. Key performance indicators should be established to

monitor, measure and evaluate progress. It is a challenge to find the right balance of social, economic and ecological policies, and industry especially needs to become convinced that sustainable development and economic growth are mutually reinforcing goals.

***Mr. Janko Burgar,*** State Secretary and Deputy Minister of Economic Development and Technology, Slovenia

Our main strategic interventions to achieve ISID are envisaged in the Slovenian smart specialization strategy, which covers areas such as knowledge creation and innovation, support for ecosystems, business and technology parks, social entrepreneurship, and "soft" measures including trainings and educational programmes, since Slovenia's economy is mainly creativity-driven. A horizontal approach was adopted to support SMEs and entrepreneurial ecosystems, and global value chains and networks were targeted to improve the business environment. With a smart specialization strategy, it is possible to identify dynamic comparative advantages in science and technological innovation to improve the industrial base and to exploit new market opportunities, while confronting challenges and obstacles in the overall business environment.

Slovenia has developed a mix of SME policies combining financial tools with investments in SMEs, small business development, university incubators, and human resource training, among other key measures. For large companies, Slovenia has developed an approach based on smart communities, smart buildings, smart industry, smart food and smart health. Slovenian industrial parks combine both SMEs and larger companies to promote creativity. These same "best practices" could be introduced in countries with different levels of education and income, but the speed and level of interaction would be different.

***Ms. Rebecca Fatima Sta. Maria***

The Malaysian model has been applied to the whole country, despite regional differences in development. Malaysia strives at addressing existing inequalities by building human capital and institutions.

***Mr. Todd Benjamin***

Is corruption a concern whenever large-scale financing is involved? For example, how can countries assure that there is no patronage in industrial parks?

***Mr. François Kanimba***

In Rwanda there is no corruption as the government has no involvement in these companies.

***Ms. Rebecca Fatima Sta. Maria***

It is important not to create a "state within a state" with the special economic zones, as the effectiveness will be less and sustainability cannot be achieved.

***Mr. Yong-kyoo Kim,*** Honorary Chairman, Korean Council on Foreign Relations

It is up to the highest political leadership to guarantee the success of industrial parks and to prevent diversions of any kind.

***Mr. Todd Benjamin***

In the postwar period only Taiwan Province of China and the Republic of Korea, out of nearly 200 economies, managed to become high-income countries. While the Republic of Korea had followed protectionist policies in the past, nowadays the emphasis in Asia is on open competition among young cyber economies. As the cost of entry into the so-called creative economy is getting lower, the question is which policies have been designed to take the Republic of Korea further into the IT sector. Furthermore, since the Republic of Korea is still a role model for many other countries, can its industrialization path actually be replicated by less advanced economies? The Republic of Korea demonstrates that not only money and capital make for successful industrialization, but also good governance, clear visions and horizontal policies for the regulatory environment.

***Mr. Yong-kyoo Kim***

The Republic of Korea did make a remarkable transition from an underdeveloped country to the 7th largest trading nation in the world, and it achieved

this transition in only a few decades (box 1). The Republic of Korea undertook several major policy initiatives that became success factors: thorough-going land reform, proper development and exploitation of human capital, diversification of development financing, comprehensive cross-sector rural development, and systematic development training and resource utilization. The Republic of Korea also had the advantage of strong leadership to override political obstacles.

The Republic of Korea is currently in transition from an industrial economy to a creative economy through the implementation of two development strategies: a green growth approach emphasizing sustainability and a creative economy approach based on science, technology, IT, and bio- and nano-technology industries. In accordance with ISID, the Republic of Korea has combined the economic and environmental dimensions of development by supporting a creative ecosystem for small and medium-sized businesses, generating new growth engines to pioneer new industries, creating global leaders to conquer new markets and strengthening innovative capacity across the board. Protecting specific sectors or industries may be required in the early stages of this process, but it is important not to miss the right moment to open the economy to become competitive in the market and to attract new investors.

Box 1
**The Republic of Korea: Industrial upgrading**

The Republic of Korea's industrial upgrading since 1962 is a success story in pro-poor growth and income generation. The share of manufactures in GDP rose from 9% in 1953 to 30% in 1988, and agriculture and mining shrank to single digits in the 1990s.

With industrial upgrading driven by exports, the benefits of economic backwardness were exploited thanks to structural shifts from labour-intensive industries (wood products and clothing) to capital-intensive industries (machinery and transport equipment).

The Republic of Korea's success was due in part to adhering to its comparative advantage, which evolved over time with changes in its factor endowments. The Republic of Korea moved up the value chain from exports of clothing to exports of textiles and synthetic fibres. And its electronics industry upgraded from simple to more sophisticated goods. Starting with the assembly of radios from imported components, the Republic of Korea obtained a comparative advantage in the home appliance industry. It started to gain comparative advantage in electronic parts and components (transistors and semiconductors) in the mid-1980s and later on in information, communication, and industrial electronics in the 1990s.

But since the early 1990s, the positive effect on employment has been diminishing, requiring new engines for economic growth. In 2008, President Lee Myung-bak announced that green growth would be the Republic of Korea's paradigm for the next 60 years—increasing jobs and income, improving the quality of life, mitigating poverty and strengthening the social fabric.

***Mr. Gonzales Welmer Ramos,*** Minister of Economy, Industry and Trade, Costa Rica

There needs to be an ongoing balance between the national and international focus. Success also depends on promoting industries from below and from within countries. SMEs are often discriminated against in access to credits. Moreover, SME policies are often marginally linked to the rest of the national economy. Strong regulations for industrial parks are necessary to protect the national interest.

***Mr. Todd Benjamin***

Discrimination against SMEs is not just a developing country issue; it is also present also in developed countries. It seems that there is agreement here on the importance of streamlined support to SMEs through targeted policy instruments. Including SME toolkits, special institutional frameworks to benefit SMEs, support to access finance for SMEs, and SME incentives for larger companies. In Rwanda, for example, a business development fund has been set up to target new SMEs to facilitate access to finance through products such as guarantee schemes or micro-financing.

***Audience member from Lebanon***

There is a need for more inclusive strategies to achieve sustainable industrial development. Lebanon set up

a bridge between industries and environment by creating cleaner production centres and by establishing resource efficiency measures. Countries should also invest in human resources and carry out tax reforms that can support sustainable development.

### *Audience member from Zambia*

Countries need to protect the fledgling industries they have designated as engines for growth. This is especially true in the beginning for disadvantaged economies that are not starting on the same level, especially in equal access to financing, compared to more advanced countries.

### *Mr. Yong-kyoo Kim*

The Republic of Korea and Malaysia, among other Member States of UNIDO, established cleaner production centres and paid special attention to resource efficiency, renewable energies and green growth. These are two clear examples of linking industrial and sustainable development.

### *Mr. Marat Sharshekeev,* President of the Chamber of Commerce and Industry, Kyrgyzstan

Kyrgyzstan has learned to protect the environment and to keep the country free of the destructive impacts of chemical industries. The country has taken into account all the important factors that are specific for its situation in order to industrialize successfully. SMEs are currently the main asset, as they represent the majority of Kyrgyz national companies and contribute nearly 60% of national income. An SME law was developed, but not implemented, due to the lack of financing. The agricultural sector, of greatest interest to the state, benefits from financial support from the public sector. Nevertheless, industrial associations are the real drivers for the industrialization process in Kyrgyzstan.

### *Mr. Todd Benjamin*

It might be instructive to hear about the German example, how companies are linked to innovation, and if there is any possibility for success replication.

### *Mr. Hardy Rudolf Schmitz,* Chief Executive Officer of Wista Management, Germany

The environmental, social and economic dimensions of ISID are heavily regulated in Germany, which operates under the EU framework. Bringing scientists and research entrepreneurs together in close proximity is fundamental to promoting high-tech industries such as photonics, optics, lasers and scientific instruments. The government should support the networking process by financing joint research projects and startups and by supporting venture capital and underfinanced SMEs. Germany's technology park is a successful showcase for SME development, as the park encompasses 1,000 SMEs (box 2). Public financing helps, but networking and clustering industries near pools of knowledge and talent in both developing and developed countries should also be considered. Berlin, for example, encourages scientists and companies to settle around universities. As a rule, big cities are essential as they attract talented and highly educated people. Even with limited resources it is possible to cluster around universities to build up smart research centres and attract SMEs.

### *Ms. Rebecca Fatima Sta. Maria*

Malaysia is using the same concept of clustering knowledge and industry, especially for SMEs (box 3).

### *Mr. Douglas Zhihua Zeng,* Senior Economist in the Financial and Private Sector Development Department of the African Region in the World Bank

There are recommended ways to create successful special economic zones (SEZs), which evolved from export processing zones (EPZs). EPZs were criticized for not creating a linkage to the local economy. As EPZs benefit from tax, these incentives are to promote export but not to sell on domestic markets. SEZs, on the other hand, have the possibility to sell to the local economy and local firms are encouraged to establish themselves there.

Setting up numerous SEZs to foster industrialization is a misconception. First, all kinds of zones have to

Box 2
**The Berlin-Adlershof science park**

The Berlin-Adlershof science and technology park—on 420 hectares—was established in 1991. About 460 high-technology companies with 5,600 employees operate mainly in six key technology areas: optics and photonics; material and micro system technologies; ICTs; environmental technologies; energy; and biotechnology. Also at the park are ten non-university research institutions and six natural science departments of the Humboldt-Universität zu Berlin with about 2,950 employees and 9,450 students at the site.

Between 1996 and 2013, the number of high-technology companies more than doubled, and employment almost quadrupled, as turnover increased from €190m to about €700m. Although the majority of high-technology businesses are micro, small and medium-size companies. Most are very successful on the national market and in international (niche) markets, and insolvency rates have been very low.

Berlin-Adlershof has a long history of research. It began in the early 20th century as the location of the aeronautical industry and related research institutions. And from the 1950s on, it was the largest site of the former GDR's central research institution, the Academy of Sciences, and several associated R&D centres. The predominant focus was on very industry-oriented research in natural sciences (materials, optics, physics, chemistry and biology) and the media.

After 1990, Adlershof experienced a profound restructuring. All public organizations, the including R&D institutions, were dissolved. The individual units of the Academy of Sciences were also liquidated, and to some extent integrated into existing German research. More than 30% of the former 5,400 researchers of the Academy of Sciences were absorbed by these R&D institutions. Furthermore, nonintegrated knowledge, mostly industry-oriented research fields, and talent re-emerged within the approximately 100 newly founded companies that had also located at the science park.

Berlin-Adlershof has played the key role in Berlin's innovation-oriented and science-led regional economic development strategy. Based on a tradition in natural sciences and media, the objective has been to create a dynamic and innovative nucleus, geographically concentrating complementary entities (universities, R&D institutions and the private sector). The site has evolved into an international centre of science, business and media—as an integrated city within the city of Berlin.

Box 3
**Malaysia: Towards global competitiveness**

Malaysia's industrial development strategies emphasise an equitable wealth distribution and green growth. Its Third Industrial Master Plan 2006–20 (IMP 3) builds on two previous master plans and sets strategic and sectoral interventions in industry and services. The first IMP (1986–95) laid the foundation for manufacturing to become the engine of economic growth. The second (1996–2005) strengthened industrial linkages, increasing value added and enhancing productivity.

During the implementation of IMP 2, manufacturing continued to be Malaysia's major source of growth. Its share increased from 29.1% in 1996 to 31.4% in 2005. During those years, industry grew at 6.2% despite the Asian financial crisis, the cyclical downturn in electronics and the global economic slowdown in 2001. On the trade side, the contribution of manufactures in total exports slipped from 78.5% to 77.4%, but sectoral exports rose at an average annual rate of 11.2%. Labour productivity also grew faster (3.9% a year) than in Taiwan Province of China (2.9%) and in Singapore (2.6%).

During IMP 2 manufacturing was the second largest source of employment after services, its share up from 26.2% in 1996 to 28.7% in 2005. The overall incidence of poverty fell from 12.5% to 5.7%, as Malaysia's manufacturing shifted towards higher technology and capital-intensive activities.

Cluster development was a major focus, and strong backward and forward industrial linkages were created. Initiatives for balanced regional development were introduced, though performance varied among states. In addition, the contribution of services rose from 51% of GDP in 1996 to 58% in 2005.

Malaysia's economy improved following the implementation of the two first master plans, but the impacts on society and the environment are less clear. With the debate over industrial development now framed within the concepts of inclusiveness and sustainability, Malaysia has to continue to strengthen its industry, but also to place strong emphasis on these two added dimensions if IMP 3 is to reach the goal of Malaysia's becoming a high income economy by 2020.

be considered in terms of foreign investment and regulations and export- or domestic-market orientation. SEZs—of which industrial parks are only one type—are a high risk investment and must be planned carefully. China, for example, started with four SEZs but only two of them were successfully implemented due to lack of capacity. Low-income countries need to start small and then expand slowly. First, identify your comparative advantage. Next, assess the most strategic zone or area, preferably with existing infrastructure. Third, establish the necessary legal and strategic framework. Fourth, test new policies and approaches in pilot zones and where successful, extend the pilot to other zones.

Implementing this phased approach is important for SEZs but requires sustained political commitment and should be free of political interference. The countries should also take into account the challenge of SEZs in FDI. These zones can leverage resources and benefit from incentives, but may not contribute to the national economies. The World Bank tries to address this challenge by building links between FDI and the local economy through matching funds, skills training and equipment upgrading, among others. The lack of resources is the biggest challenge in Africa in pursuing ISID, as well as government failures, insufficient institutional capacity and limited access to technology. Countries also have to realize that it is costly to industrialize first and to green up later. Costs of pollution represent an average of 8–10% of countries' GDP. If China's cost of pollution would have been discounted, its growth rate may not be double-digit. To be successful, institutional capacity has to be built up and new technologies disseminated. The World Bank has green laboratories to test the effectiveness of new technologies and cash transfer programmes targeting local communities.

## Session 3

# The role of soft and hard business infrastructure and institutional innovations such as public-private partnerships

Session 3 was dedicated to the promotion of business infrastructure as a key pillar of national, regional and local ISID strategies. Moderated by Mr. Todd Benjamin, the discussion was facilitated by the panelists Mr. Prasidh Cham, Senior Minister of Industry & Handcraft, Cambodia, Mr. Haruna Iddrisu, Minister of Trade and Industry, Ghana, Mr. Robert Sichinga, Minister of Commerce, Trade and Industry, Zambia, Ms. Odette Herbozo, General Director, General Directorate for Economic Studies, Evaluation and Territorial Competitiveness, Ministry of Industry, Peru and Ms. Helen Hai, Vice President, Huajian / Advisor to the governments of Ethiopia and Rwanda. The discussants were Mr. Mamadou Syll Kebe, Director of Industrial Redeployment, Ministry of Industry and Mines, Senegal, Mr. Arian Hoxha, Advisor to the Minister, Ministry of Energy and Industry, Albania, Mr. Gyan Chandra Acharya, Under-Secretary-General, High Representative for LDCs, LLDCs and SIDS, UN-OHRLLS, Ms. Jasmina Muric, Senior Adviser of the Ministry of Agriculture and Environmental Protection, Serbia, and Mr. Elsie Meintjies, Senior Programme Officer, Directorate of Trade, Industry, Finance and Investment, Southern African Development Community Secretariat.

***Mr. Todd Benjamin,*** Moderator

Many market imperfections in developing and transition economies—such as access to knowledge, finance and skills, as well as high transition costs—are caused by a lack of infrastructure and weak supporting institutions. Business infrastructure such as industrial parks, zones and cities can overcome these hurdles and accelerate industrial development. These same instruments can promote new green technologies, an integral part of ISID. Panelists should report on the specific challenges their respective countries are facing and mention initiatives regarding industrial parks that have been planned or implemented.

***Mr. Prasidh Cham,*** Senior Minister of Industry and Handcraft, Cambodia

In Cambodia industrial parks and special economic zones are helping to promote manufacturing and its integration into regional and global value chains. Cambodia enjoys the peculiar advantage of being situated between two fast developing economies—Thailand and Vietnam. This rare endowment coupled with the fact that Cambodia has abundant manpower led the country to optimize its comparative advantage of duty-free, quota-free access to a wide range of overseas markets while exploiting financial, technical and infrastructure assets in neighbouring Thailand and Vietnam. Cambodia established three fully operational special economic zones (of 22 approved zones) along the border with Vietnam and Thailand allowing Cambodian exports to reach well-established ports on Thailand's eastern seaboard and Vietnam's ports of Ho Chi Minh City and Cai Mep. These special economic zones are hooked into power grids in Thailand and Vietnam and hence profit from cheaper electricity prices.

Location alone cannot guarantee successful industrial development without accompanying business enabling activities from the government. A solid legal framework based on the principles of economic freedom, openness, competition and private sector participation without limitations on foreign ownership—combined with fiscal incentives and the provision of security guarantees and administrative support to foreign investors—will make it possible for the new business parks and special zones to thrive. The government of Cambodia has realized its central role in providing a one-stop-service for all the administrative and regulatory procedures and pays close attention to the needs of industries in Thailand and Vietnam that are losing their competitiveness to incentivize them to relocate to the special economic zones in their immediate proximity. In the case of Thailand, Cambodia is focusing on attracting the

Thai automotive industry to the special economic zone near the border. The country relies on its abundant workforce but needs skills development to raise productivity to support the growth of industrial parks and zones.

SMEs still constitute the core of industrial development but they face many constraints such as access to finance and technology, poor quality outputs, limited knowledge of entrepreneurship and lack of managing skills forcing them to remain in the informal sector. In fact, 97% of micro and SMEs are not even registered—an alarming statistic. In light of these challenges, UNIDO's support is crucial to assist countries to create shared prosperity through economic diversification, growing trade relations, industrial upgrading and technological innovation while safeguarding the environment.

### *Mr. Todd Benjamin*

Cambodia is using the comparative advantages of neighbouring countries is an interesting approach. What is the added value for Thailand and Vietnam?

### *Mr. Prasidh Cham*

For Thai and Vietnamese companies losing their competitiveness at the national level, Cambodia might be a good option allowing them to survive by offering cheap labour through the duty-free, quota-free access. But this is only a transitional period for Cambodia. In the future, the country is planning to focus on different priorities.

### *Mr. Haruna Iddrisu,* Minister of Trade and Industry, Ghana

Ghana laid the foundations for achieving sustainable development in 1977, but many policy interventions during that period failed to serve the desired purpose. Today, with a new vision set out by the President of Ghana, the government is trying to build a strong nexus between the public and private sectors and to recognize investment in industrial parks as a shared opportunity for both players. Ghana has passed legislation based on the principle of "build-operate-transfer," which provides an enabling environment for the private sector to flourish. Industrial parks are considered a *sine qua non* for industrial development, and the country is intensively establishing them depending on the comparative advantage of each region.

Crucial to the success of every park is the existence of utilities like energy, water and ICT. Investors must receive assurances from the government of these basic requirements. Incentives must also be provided to attract FDI into those industrial enclaves as to strengthen manufacturing as a viable way to reduce poverty. Thus, Ghana has revised its policies to allow for some investment in critical infrastructure. Additionally, there is a need for increased investment in energy production, on which the industrial advancement of the whole African continent depends. In fact, the energy demand of the whole of Africa is less than that of Spain. Despite a lack of financial resources, Ghana has made significant strides in its soft infrastructure development. It has also built functional institutions that have substantially reduced transaction costs, raising Ghana's position in the "Ease of Doing Business" ranking.

### *Mr. Todd Benjamin*

That is impressive progress. I wonder how Ghana assures its ownership over sectors absorbing large portions of FDI? Also, how does Ghana ensure that foreign investors are creating sustainable industries that add value to Ghana's industrial development in the long run?

### *Mr. Haruna Iddrisu*

Ghana is promoting and facilitating increased local participation and content. Foreign investors are supported in building viable partnerships with local people. Targets are set for local participation in certain key sectors—for example, by 2050, local participation in the petrochemical industry should reach 25–30%. Foreign exploitation is also limited through expatriation quotas that depend on the size of the investment.

***Mr. Robert Sichinga,*** Minister of Commerce, Trade and Industry, Zambia

Zambia is taking full advantage of its membership in two major economic blocs in Africa—the Southern African Development Community and the Common Market for Eastern and Southern African—with the ultimate goal of increasing and upgrading its industrial output. The government has taken action to provide an enabling environment for business and entrepreneurship with the adoption of investment legislation, primarily dealing with FDI. In addition, a law provides for the economic empowerment of local citizens with an attached empowerment fund, as well as legislation establishing the terms for public-private partnerships. The government implemented measures to set up basic infrastructure based on countrywide resource mapping that pointed to the comparative advantages of each region. In addition, an analysis was conducted of the existing value chains in 160 districts. The results will guide the planned development of 120 industrial clusters.

Another form of clustering is the so called agro-farm block open to FDI with the condition that local people receive employment and skills development. At the national level, Zambia's multifacility economic zones have been opened to both the private and the public sectors. In addition, new industrial agglomerations have been created in Zambia's copper-producing regions.

Zambia's youthful population is one of its two main comparative advantages. Youth are the primary beneficiary of the Industrial Development and Job Creation Strategy (2013–2018), which aims to create 1 million additional jobs for young people with the help of the private sector and the industrial clusters. The country also has a substantial untapped potential in hydropower with 40% of the water resources in southern Africa. Zambia's objective on its way towards industrial development is the creation of physical infrastructure, preceded by the establishment of value chains.

***Mr. Todd Benjamin***

How does Zambia plan to keep its industrial parks and the aforementioned clusters free from patronage?

***Mr. Robert Sichinga***

The government encourages all entrepreneurs to participate in the clusters so naturally there cannot be patronage. The biggest challenge is the lack of resources to finance support for these clusters. The provision of basic infrastructure alone is expected to cost US$5–25 million depending on the size of the cluster. Leveraging partnerships with the World Bank and the African Development Bank is the only viable option to address this issue. The Minister expressed the hope that UNIDO would help facilitate leveraging the necessary external financing.

***Ms. Odette Herbozo,*** General Director, General Directorate for Economic Studies, Evaluation, and Territorial Competitiveness, Ministry of Industry, Peru

Peru has been enjoying impressive growth rates and low inflation, which has helped consolidate the manufacturing and financial sectors resulting in the creation of quality jobs. Despite the fast-paced development of the economy, the country has not managed to close existing productivity gaps through technological absorption. It still needs to diversify and optimize economic sectors where opportunities exist to promote exports with the ultimate objective of increasing the domestic industry contribution to global value chains.

To increase productivity, Peru uses two instruments—industrial parks and clusters (box 4). The government is actively engaged in the promotion of instruments and policies that provide tax incentives to support industrial parks. Private involvement in the implementation of industrial parks is subject to intersectoral and governmental coordination at the national, regional and local level. Recently amended legislation equips companies and local governments with all necessary tools to implement industrial parks through technology transfer and R&D, establish centres of excellence and forge closer relations with universities. Public-private partnerships have also been used to establish and run industrial parks and special zones. The central government coordinates closely with local authorities when territorial policies limit

Box 4
**Peru: An eco-industrial park in Pucallpa**

Several wood processing companies created the Association of Small Businesses of Wood Processors and acquired 287 hectares of land on the outskirts of Pucallpa to relocate their manufacturing plants and initiate new operations. Phase I included the planning and use of 88 hectares, with 80% dedicated to wood processing and 20% to from agro-processing and metal working.

Peru's Ministry of Industry requested UNIDO's support to provide technical assistance and business advice to the Association to facilitate the development of an eco-industrial park in accord with a new law on the establishment of Parques Industriales Tecno Ecologicos (PITES). This would bring economies of scale and collective benefits from the efficient use of energy and raw materials, and the reduction of waste and emissions.

UNIDO, in close cooperation with the Peru Cleaner Production Centre assessed the economic, environmental and social aspects of the envisaged park to determine the park's feasibility. And experts from the Centre provided technical advice to the association and to the local government and local NGOs for project preparation and environmental impacts. UNIDO is now preparing guidelines for other eco-industrial parks in Peru.

the development of industrial parks. Peru has identified 41 clusters, which receive constant support to make their production more dynamic.

### *Mr. Todd Benjamin*

Like Germany, Peru seems to have strong links between universities and industrial parks. What else can you tell us about this relationship?

### *Ms. Odette Herbozo*

Peruvian companies are encouraged to forge closer ties with universities that focus on technological innovation and R&D. Clustering around academic and research institutions yields obvious benefits in training and output value added.

### *Ms. Helen Hai,* Vice President, Huajian/Advisor to the governments of Ethiopia and Rwanda

There is a strong case for doing business on the African continent attracting many foreign manufacturers to relocate and contribute to the achievement of development goals through increased industrialization. Three years ago, my Chinese company, Huajian, set up a shoe factory in Ethiopia, which currently employs 3,500 local workers. In the first six months of production, Huajian doubled the Ethiopian export revenue in the shoe sector. From the standpoint of a manufacturer, despite the poor infrastructure and lack of supply chain in Ethiopia and with logistics costs four times higher (from 2% in China to 8% in Ethiopia), labour wages in Ethiopia are a tenth those in China. Thus, in the case of Huajian, the share of the labour cost in the overall cost shrank from 22% to 2.2% when we started producing in Ethiopia.

Even with hardly 70% of the efficiency of the Chinese workers, the workforce cost component in Ethiopia is a definite "pull" factor for Asian producers to move there and to the rest of Africa. In addition, U.S. and European-based companies can benefit from trade because of the tariff incentives provided to African countries by the developed world under the African Growth and Opportunity Act (AGOA) and Everything But Arms (EBA), which can produce duty savings between 8% and 37%. Another incentive to do business in Africa stems from a major shift in the retailers market after the financial crisis. Big European retailers were forced to change their purchasing strategies due to the inability to sell goods within the shelf time of six weeks caused by the limited purchasing power of customers. This created an opening for countries like Ethiopia to expand their orders while reducing the share of Asian purchases.

Overall, Africa has the potential to become the future frontier of manufacturing if African countries can address outstanding issues such as lead times and other prerequisites for lean international production. Lessons might be learned from China, which faced the same limitations 20 years ago. Applying Chinese experience and know-how to African local competitive advantages could produce a paradigm shift. Rwanda will soon receive sewing machines from China to start garment production. Senegal is attracting manufacturing capabilities and will soon be receiving orders

from Carrefour. Africa needs a better understanding of its comparative advantages and detriments. But it also needs stronger political leadership to preserve the confidence of the private sector.

***Mr. Todd Benjamin***

What kind of infrastructure would the private sector like to see in Africa and how should it be developed?

***Ms. Helen Hai***

The private sector can only be expected to contribute to infrastructure development if there are expected gains from such activity.

***Mr. Todd Benjamin***

Are companies only interested in Africa because of its low labour costs?

***Ms. Helen Hai***

The private sector follows newly arising opportunities in the light of global shifts in manufacturing.

***Mr. Mamadou Syll Kebe,*** Director of Industrial Redeployment, Ministry of Industry and Mines, Senegal

Senegal implements an industrial development strategy to address globalization pressures while optimizing indigenous industrial capacities. In view of the country's limited capacity for industry creation due to restricted financing and a weak industrial culture, industrial parks are used as a tool to attract foreign investment and accelerate the local development. The Emerging Senegal Plan, as the overarching economic policy, seeks to reverse the current downward trend by increasing productivity. Foreign industries losing their local competitiveness can benefit from a move to Africa by exploiting the comparative advantages of different countries, which in turn will spark industrial development on the continent, where capacities are limited. The UNIDO Secretariat should consider issuing a statement or declaration at this first ISID forum to mark the beginning of an inclusive and sustainable industrial development strategy. Its contribution to promoting growth and enabling social advancement has already been recognized by the UN Secretary General.

***Mr. Arian Hoxha,*** Advisor to the Minister, Ministry of Energy and Industry, Albania

Industrial parks in Albania have stagnated, and due to a lack of investment financing have failed to achieve expected employment results or spur sustainable development. Although the government passed legislation on industrial parks in 2007, further measures are needed to revitalize the eight industrial parks and one free economic zone to ignite growth. The Ministry of Industry and Ministry of Economic Development are asking UNIDO to provide technical assistance for the development of a new strategic programme for parks and to help monitor progress to ensure that the desired results are achieved. This forum has correctly identified the best approach: start small, know your comparative advantages and identify the initial infrastructure required to jump-start development.

***Mr. Gyan Chandra Acharya,*** Under-Secretary-General, High Representative for LDCs, LLDCs and SIDS, UN-OHRLLS

Industrialization allows LDCs, LLDCs and SIDS to graduate to the next level of their development. All economic activities in these countries are typically concentrated at the household level. To achieve development results infrastructure has to be put in place together with mechanisms for access to finance to allow for the start-up of more commercial activities and the gradual integration into the global value chain. The agricultural sector of LDCs and SIDS employs 70–80% of the workforce but contributes merely 20% of GDP. To boost industrialization, the large employment surplus in agriculture can be shifted to the productive activities of the economy.

Much remains to be done in implementation, but political leadership does exist to see the process through. The global development agenda needs to acknowledge the need for industrialization to allow

these countries to become sustainable and inclusive. There also needs to be more clarity on the share of funding released by multilateral development banks for infrastructure and capacity building. Also, supportive technology-transfer policies are indispensable to this process.

***Ms. Jasmina Muric,*** Senior Adviser of the Ministry of Agriculture and Environmental Protection, Serbia

Serbia's national strategies focus on creating a business enabling environment (simplifying administrative procedures and modernising legal frameworks), industrial restructuring and innovation and attracting FDI. Serbia is in the process of developing its financial, legal and institutional frameworks to raise national competitiveness. Serbia foresees parks as a tool to link universities and industry, to support start-ups and early stage investments, accelerate SME growth and attract FDI. However, this vision has yet to translate into a concrete strategy and policy or programmes. Moreover, park specialization and mechanisms of collective actions of various stakeholders, such as industry, firms, academia, local authorities, employees, private investors and other civil society still have to be developed. Bureaucracy and corruption are still taking a heavy toll on Serbia's economy. The country also faces a persistent agricultural dependency and hence the future of Serbia's economy depends on reindustrialization based on its comparative advantages. The Serbian economy can be put on the track of sustainable development only if the level of industrial activity is raised based on strategy to foster reindustrialization.

***Mr. Elsie Meintjies,*** Senior Programme Officer, Directorate of Trade, Industry, Finance and Investment, Southern African Development Community Secretariat

SADC is a conglomerate of 15 countries using regional cooperation to promote the business infrastructure for industrial development. The initiative was launched in 2012 and designated as a priority for the region. Subsequently, an industrial policy framework was adopted recognizing that due to major differences in the development stages of SADC members, there is no "one-size-fits-all" solution. However, three common priority sectors were established: agro-food, pharmaceuticals, and mining. SADC members have developed their own industrial policies, also encouraged by SADC, which already promote innovation hubs, industrial zones and clusters, reflecting the concept of industrial parks without specifically mentioning it.

At the regional level, the industrial policy framework envisions a process of industrial upgrading through innovation, technology transfer and R&D. The upgrading involves developing regional centres of excellence with agreed criteria at the regional level, crafting mechanisms to facilitate the commercialization of technology, and establishing a regional development fund with a dedicated support window for industrial development. SME development is another focus of the policy framework implemented through sectoral specific trainings in institutions of higher learning and through public-private partnerships, promoted by a subsidiary of SADC. Consultations on industrialization are convened through the SADC Stakeholder Forum, which do not deal with industrial parks but address centres of excellence and other similar formations.

## Session 4

# Case studies of business infrastructure development

Session 4 addressed lessons and best practices of business infrastructure. This session was moderated by Mr. Stephen Taylor, Director of Technology Transfer at AREA Science Park in Trieste, Italy. Part I of the session was facilitated by panelists Mr. Ahmed Abtew, Minister of Industry, Ethiopia, Mr. Olusegun Olutoyin Aganga, Federal Minister, Ministry of Industry, Trade and Investment, Nigeria, Ms. Hadja Fatoumata Binta Diallo, Minister of Industry, SMEs and Promotion of Private Sector, Guinea, Mr. Leonard Mizzi, Head of Unit, European Commission, DG Agriculture and Rural Development—in charge of ACP and development issues, and Ms. Shubhra Singh, Joint Secretary, Department of Industrial Policy and Promotion, Ministry of Commerce and Industry, India. The discussants were Mr. Guang Zhe Chen, Country Director for Ethiopia, the World Bank, Mr. Stephen Karingi, Director of Regional Integration and Trade, UNECA, and Mr. Iztok Lesjak, Director, Technology Park Ljubljana, Slovenia.

Part II of the session had a series of speeches by panelists Mr. Jorge Acaiturri, Under-secretary for Special Development Zone, Industry and Productivity Ministry, Ecuador, Ms. María-Luisa Delgado-Medina, Deputy Director General of Technology Transfer, Ministry of Economy and Competitiveness, Spain, Mr. Hasim Cihan Demirkoprulu, Industry and Technology Expert, Ministry of Science, Industry and Technology, Turkey, and Ms. Berenika Marciniec, Deputy Director, Infrastructure of Modern Economy Department, Polish Agency for Enterprise Development, Poland. The discussants were Mr. Santiago Creuheras-Díaz, Director General for Energy Efficiency and Technological Innovation at the Secretary for Energetic Planning and Transition, Mexico, Ms. Ana Teresa Igarza-Martinez, Director General of Special Development Zones, Ministry of trade and Foreign Cooperation, Cuba, and Mr. Xiaokai Shen, First Secretary, Department of International Trade and Economic Affairs, Ministry of Commerce, China.

### ***Mr. Stephen Taylor,*** Moderator

The purpose of session 4 is to deepen the discussion of the ways and means to achieve inclusive and sustainable industrial development. The idea is to achieve a common understanding of how to formulate successful industrial development strategies and to operationalize them through the establishment of appropriate business infrastructures, reflecting countries' specific conditions as well as international best practices. The panel reflects countries at varying stages of development including: highly-developed countries seeking to maintain the standard of living and competitiveness through the application of innovation, and science and technology; less-developed countries seeking to eradicate poverty through increasing industrialization and to compete in the globalized world using their core strengths and comparative advantages; and middle-income countries squeezed between both ends.

### ***Mr. Ahmed Abtew,*** Minister of Industry, Ethiopia

Ethiopia has made impressive strides towards industrialization after more than a decade of fast economic growth (averaging more than 8.1%), rapidly declining poverty and a low Gini coefficient. The ultimate goal of attaining middle-income status by 2025 will be pursued through the capacity enhancement of priority industries, diversification of manufacturing, enterprise cultivation, and improved links between SMEs and large enterprises as well as enhancement of public and private investment. A surge in investments has been a major driver for Ethiopia's rapid economic growth together with a stable macroeconomic environment and committed leadership. Building infrastructure to enable or crowd in high-quality private sector development was a prominent feature of this

process. Creating an enabling business environment through public sector interventions can guarantee the success of the private sector as the driving force for industrialization.

LDCs need to conduct serious and ongoing policy recalibration (fine-tuning) and synchronization (coordination) to build a viable and robust business infrastructure for ISID. Nowadays, the growing complexity of infrastructure or "next generation infrastructure" requires serious policy commitments to achieve the kind of investment climate that will preserve investor confidence. Ethiopia is focusing on the development of special industrial zones to accelerate private sector investment. The business environment conditions in these zones are being enhanced though industry cluster development, one-stop-shop business licensing facilities, approved condominium development, and concessional access to utility services.

Another essential requirement for successful ISID is accessible, affordable, abundant and socially responsible energy. Ethiopia is one of the very few countries in the world with 90% of installed capacity from hydropower. The country is also investing in its rail infrastructure to improve access to affordable transport for all people and businesses.

Ethiopia has learned three major lessons in ISID:

- Lesson 1: Ethiopia is building the business infrastructure for ISID, based on a period of major investment in public infrastructure, which allowed for a greater contribution of private sector investment in manufacturing, leading to growth in exports from 14% to 30% of GDP.
- Lesson 2: It is possible to achieve a unique foursome: high and sustained double-digit economic growth, high environmental performance based on 90% of power from renewable energy sources, significant progress in reducing poverty, and continuation of a balanced distribution of income, as evidenced by a low Gini coefficient.
- Lesson 3: Implementation should be based on pragmatic economic management and committed leadership, as evidenced by a stable macroeconomic framework.

### ***Mr. Olusegun Olutoyin Aganga,*** Minister of Industry, Trade and Investment, Nigeria

ISID is fundamental to achieving sustainable and broad-based growth in Nigeria based on competitiveness and job creation. Nigeria is a country of great potential with the largest GDP in Africa and a population of 167 million with a median age of 18 years. Building on these endowments and taking into account that worldwide 45% of the FDI goes to the manufacturing sector, the country has embarked on increasing industrialization guided by the Nigeria Industrialization Revolution Plan. This comprehensive industrialization roadmap addresses the issues that have held back Nigeria's non-oil industries—such as increasing long-term financing, developing industrial skills, establishing links between innovation and industry, improving the investment and business climate, strengthening quality standards, promoting local patronage, introducing favourable policies and laws to promote local private sector investment, and setting up of industrial development agencies (box 5).

The Plan employs a sectoral approach and relies on enabling sectors, defined in accord with our specific comparative advantages, to unlock industrial development and integrate the country's production output into the global value chain. Nigeria's competitive advantages must be complemented by the development of appropriate business infrastructure; otherwise, industries cannot thrive in the long run. To this end, Nigeria places a strong emphasis on building industrial parks, economic zones and clusters to address the high cost of manufacturing and the infrastructure deficit.

### ***Ms. Hadja Fatoumata Binta Diallo,*** Minister of Industry, SMEs and Promotion of Private Sector, Guinea

Guinea lacks the infrastructure to attract profitable investment in sectors that have comparative advantages, yet have not been sufficiently explored such as agriculture, mining industry, tourism and services. One goal of the Strategic Development Plan (2011–2015) is to maximize the potential of these sectors through the development of quality economic

Box 5
**Nigeria: Agribusiness investment and staple crop processing zones**

Nigeria's Federal Ministry of Agriculture and Rural Development set an Agriculture Transformation Agenda to transform Nigeria from a country dependent on food imports to a stage of self-sufficiency and producing a food surplus for export. As part of this agenda, the Ministry plans to establish multiple staple crop processing zones to attract private investors in setting up food processing plants that can reduce postharvest losses and add value to the local content of food.

The Ministry mandated and funded UNIDO with US$1.4 million to take the lead in preparing and formulating master plans for the zones and to study the feasibility of developing them in six locations. UNIDO's approach involved extensive field work, site visits, stakeholder consultations, and agricultural and allied sector analysis.

UNIDO, in cooperation with India's Mahindra Consulting Engineers Limited, finalized six state-of-the-art master plans for establishing the six zones. UNIDO and the Nigerian government mobilized US$152 million from the African Development Bank to start on infrastructure work for the zone. They are also partnering with the World Bank, which is ready to fund a similar amount. In addition, the Nigerian government will support the project with around US$200 million.

infrastructure. Another is to foster a dynamic private sector to generate higher growth and employment. The government plans to carry out sweeping transportation infrastructure improvements to sea and river ports, railways, roads and airports. Priority is also being attached to expanding hydroelectric power. Guinea's energy strategy envisages rehabilitating capacity and building new dams.

For new communication and information technologies, the government has been undertaking efforts to establish regulations and to attract investments. The tourism strategy envisages rehabilitating existing facilities, building new facilities, identifying and marketing tourist products, and promoting cultural and national heritage. For the financial infrastructure, the legal framework is undergoing improvements to ensure greater openness to the private sector and the application of market standards to banking and insurance. Currently, industrial parks and zones are not a major factor since these areas have not been properly rehabilitated. The government would appreciate assistance from this forum to develop a framework to maximize the usefulness of this resource.

### ***Mr. Leonard Mizzi,*** Head of Unit of the European Commission, DG Agriculture and Rural Development

The European Commission is ready to cooperate with African countries in agri-business development. Agribusiness and agricultural value chains for poverty reduction are a component of the post-2015 development agenda. Sustainability of agriculture, food and nutrition security may well become designated formally as sustainable development goals. A number of targets are being discussed—for example, in the areas of productivity, inclusiveness, waste reduction, and environmental management—which will have an impact on the model of agricultural value chains. These chains are indisputably crucial for poverty alleviation and wealth creation. At the same time, agribusiness creates important links to investment that can produce strong multiplier effects on growth.

Food security, important for stimulating food production, also has the potential for creating wealth for smallholders and rural communities. Developing a vibrant agri-business sector in Africa is a challenge, but for small family farms and other companies, it is also a significant market opportunity. As private investment flows to Africa have been steadily increasing, there is a need for private investors to partner with African agri-business. The European Commission is prepared to offer substantial technical and political expertise to African countries to facilitate this process.

The EU is already involved in some key agricultural projects including the Pesticides Initiative Program (PIP), which prepares farmers to meet EU export standards, and the Better Training for Safer Food in Africa project, which builds local food safety capacity. In the area of research, the EU has the so called Platform for African European Partnerships on Agriculture Research for Development, which

has begun emphasizing inclusive partnerships and strengthening local African capacities. The objective of cooperation is to enable African partners to move up the value chain towards export-oriented growth. It is crucial to focus on win-win solutions for both European and African agri-business sectors, especially SMEs, which are the growth drivers and the dynamic companies of the future.

Successful agri-business development requires not only research but also marketing strategies resilient to inevitable crises. Filling the technology and financing gaps—for example, in the area waste reduction through post-harvest technologies—is important, too. More broadly, success depends on the right enabling framework, support to SMEs, regulatory system simplification, responsible business models, and measures to address the lack of competitiveness. The European Commission will continue to support initiatives and partnerships to build sustainable industrial development models and is looking forward to collaborating with UNIDO and its members on the post-2015 agenda.

### ***Ms. Shubhra Singh,*** Joint Secretary of the Department of Industrial Policy and Promotion, Ministry of Commerce and Industry, India

India faces an enormous challenge in industrialization: stagnant employment and a declining contribution of industry to GDP. An increase in manufacturing is needed to generate jobs and to ensure that Indian growth is inclusive. A National Manufacturing Policy is sector-neutral and envisages the five interventions:

- Industrial infrastructure development, such as the creation of mega integrated industrial townships with state-of-the-art technology.
- Skill development, with fiscal incentives to the private sector for establishing training centres.
- An improved business environment, through the streamlining and simplification of business regulations (for example, single window services for business).
- Technology acquisition and development through the creation of a technology acquisition fund, with fiscal incentives for pollution control and energy efficient equipment, waste water management and other sustainability measures.
- Empowerment of SMEs, with special incentives to improve access to finance and technology.

Smart development, smart cities and smart urbanization are considered key sustainability elements in India. The Delhi Mumbai Industrial Corridor is the biggest industrial development programme in India. It seeks to develop eight futuristic smart, sustainable and transit-oriented industrial cities, called National Investment and Manufacturing Zones, with world class infrastructure. India has four other industrial corridors to be constructed in the coming decade. Embedded in the industrial corridors are smart cities that integrate smart infrastructure and environmental services with interconnectivity to promote economic and social sustainability. The blueprint for smart growth includes public transport systems, energy efficiency, renewable energy, energy conservation and integrated water resource management.

More broadly, India needs to work on increased transparency, a simplification of labour laws, environmental clearances, and a new business regulatory environment to achieve inclusive and sustainable industrial development.

### ***Mr. Guang Zhe Chen,*** Country Director for Ethiopia, the World Bank

Industrialization and urbanization will be the two major development trends for Ethiopia as it seeks to become a middle-income country by 2020. For industrialization to be successful, it must be inclusive and sustainable. However, the most important measure of progress is job creation, which is still a great challenge for low-income countries such as Ethiopia. The best solution for these countries is to develop labour-intensive manufacturing industries.

As mentioned by many speakers, developing countries need "hard" infrastructure but the soft side of business infrastructure is critical, too. It is important to set targets or benchmarks. For example, countries in the region need to reduce the cost and time of moving

goods and to improve trade logistics. Industrial parks and industrial zones could be useful instruments for industrialization, and may be the most effective way to bring the government and private sector together. The World Bank has begun supporting industrial zone development but given shortfalls in financial resources, even more external financing is required.

### ***Mr. Stephen Karingi,*** Director of Regional Integration and Trade of United Nations Economic Commission for Africa (UNECA)

The 2014 Economic Report on Africa makes the case for commodity-based industrialization. It calls for refocusing existing economic strategies on industrialization by formulating and implementing country-specific industrial policies. State support is vital to address market failures and to institutionalize industrial policy in national and regional development strategies. Three key problems afflict Africa's industrial sector: little self-discovery, coordination failures, and inadequate provision of public goods and special infrastructure. Industrial policies in Africa typically fail because they assume a blueprint approach to industrialization based on a preconceived a set of non-contextual, predefined interventions. More dynamic industrial policies need to be devised and implemented by institutions that can monitor and adapt to industries' ever-changing exigencies.

Panelists and discussants have reviewed some important examples of dynamic industrial policies in Ethiopia and Nigeria. One missing element that needs to be emphasized is the importance of regional cooperation in the development and sharing of business infrastructure. African countries too often compete with each other without taking full advantage of complementarities when striving to integrate in the regional and global value chain. Countries should make greater use of regional trade and development cooperation to promote common business infrastructure to support each other's industrial goals. Nigeria has collaborated with different regional centres in Africa, benefitting numerous countries. Ethiopia developed its leather industry through linking to a regional value chain, as mentioned by Helen Hai in her presentation (box 6). Bilateral cooperation should extend beyond trade and investment to include innovation and knowledge sharing to create synergies for successful industrialization. Regional economic communities and institutions should also collaborate to develop business infrastructure, since national financial resources are so limited.

### ***Mr. Iztok Lesjak,*** Director of the Technology Park Ljubljana, Slovenia

Industrialization has long been on the agenda of advanced countries, and these days "re-industrialization" is at the core of European development policies. Industrialization catalyses economic growth through increased productivity; however, advances in quality of life come through expanded job creation. Achieving both goals requires innovation in production, technology transfer and manufacturing oriented to the global market.

From the developed countries' perspective, one way to tackle high youth unemployment in urban areas is to bring manufacturing directly to these areas. This can be achieved through the creation of smart cities in which industries can exploit existing hard

Box 6
**Ethiopia: Modjo Leather City**

The creation of industrial zones around existing production clusters—as in Modjo, Ethiopia—has been a useful policy instrument. A UNIDO prefeasibility study showed the way forward for creating the Modjo Leather City. The idea is to set up an environment-friendly leather tanning zone, with a network of tanneries and other businesses in Modjo town, plus other tanneries that will be relocated from around Addis Ababa.

Modjo Leather City aims to be the first industrial cluster in Ethiopia, in line with the country's Climate-Resilient Green-Economy Strategy. It will include all new and existing tanneries in Modjo and link other local industries to its waste treatment infrastructure.

As the city grows with new investments, a management structure will be introduced under a private-public partnership. If successful, such industrial zones could be replicated elsewhere in the country.

infrastructure and the availability of social and intellectual capital, while focusing on job creation. Smart cities allow for increased urbanization and industrialization, thereby making a lasting contribution to regional development.

### *Audience member from the Philippines*

SMEs are an important factor in the context of ISID. Experience points to the need for SMEs to be guarded and guided, especially in terms of pollution and overconsumption of resources. In the Philippines, clustering and bundling SMEs with champions proved highly effective. Since 1997 industrial parks have gradually evolved from providers of basic utilities to full-fledged eco-industrial parks that align SMEs contributions not only in horizontal and vertical supply chains but also in relation to resource use.

### *Mr. Stephen Taylor*

It is worth highlighting the benefits of deliberately placing complementary industries together so that the outputs of some industries represent the input of others. This clearly makes for a more effective use of resources.

### *Mr. Olusegun Olutoyin Aganga*

Nigeria undertook a national skills survey to see whether training programmes were in tune with the current and anticipated labour force requirements of the new industrial sectors, based on their respective investment flows and technology requirements. The findings were used to help guide the curriculum of local universities. The government is intensively exploring training partnerships with other countries with established industries in the same areas of Nigeria's comparative advantages.

### *Mr. Stephen Taylor*

Based on my own experience, it is important to know exactly what the skills gap is and will likely be in the future. In this sense, much better planning is required to meet future industrial needs. In Europe educational programmes can lag behind labour force requirements by as much as 20 years. Since a globalized world will increasingly depend on independent business thinkers, training in entrepreneurship may be just as important as more traditional jobs training.

### *Mr. Olusegun Olutoyin Aganga*

In other words, universities should not only educate job takers but also produce job makers.

### *Mr. Jorge Acaiturri,* Under-secretary for Special Development Zones of the Industry and Productivity Ministry, Ecuador

Ecuador is seeking to complete a paradigm shift. Rather than rely on its natural resource endowments, we want to coordinate and plan our own development, emphasizing sectors that can become competitive in the global arena. The new strategy envisions value addition through the creation of a new culture based on knowledge and innovation with support from foreign investors. Ecuador has already invested heavily in communication infrastructure to interconnect various parts of the country. Foreign investors will receive a package of incentives to invigorate the flow of foreign capital, which will support the creation of specialized economic zones around cities but also in rural areas. Another fundamental aspect is human capital development through the provision of scholarships to support students studying abroad with additional incentives for their return. Ecuador is promoting knowledge accumulation and management by establishing public and private schools with science-oriented curricula, emphasizing bio-science and cutting-edge technologies to create a new culture of knowledge throughout the country.

### *Ms. María-Luisa Delgado-Medina,* Deputy Director General of Technology Transfer of the Ministry of Economy and Competitiveness, Spain

Spain has extensive successful experience wedding industry to research centres focusing on sustainable technology. The "Plataforma Solar de Almeria" (PSA Research Centre), which has been running for more

than 30 years, has developed and inspired research on solar power as a contribution to economic and industrial competitiveness that also protects the quality of life and the environment. Research at PSA has focused on four fields closely related to ISID: solar purification of water contaminated by pathogens and chemicals; solar desalination of water; energy efficiency in buildings though passive and active solar technologies providing between 80–90% savings of household electricity consumption; and most notably, production of solar thermal electricity using a technology that allows intermediate heat to be stored and converted into electricity at a later stage.

Sunlight is practically an unlimited cost-free source of energy, free of environmental drawbacks and other negative side-effects. Moreover, solar energy generation can spur local development and is a viable alternative for most of the countries on the solar belt. In Spain solar thermal electricity is produced by 50 solar thermal electricity plants and accounts for more than 3% of the electricity generated in the country.

Five lessons on solar energy development are learned. First, involve the international community to develop the needed business infrastructure. Second, engage the local community, administration, universities, businesses, and schools. Third, count on intermediate agents such as technology platforms and associations to link the private sector with the scientific communities. Fourth, remain patient when encountering setbacks. Fifth and most important, invest in dedicated professionals with a strong commitment to the mission and vision for change.

### ***Mr. Hasim Cihan Demirkoprulu,*** Industry and Technology Expert of Ministry of Science, Industry and Technology, Turkey

Turkey has long-standing experience in developing Organized Industrial Zones (OIZs). Currently, there are 276 OIZs, of which 155 have completed infrastructure, spread throughout the whole country and contributing greatly to increased employment, planned industrialization, regional and overall economic development, as well as maximizing investment benefits and better environmental performance.

The first industrial parks, established in 1962, became a cornerstone of trade and investment. Since the 1980s, Turkey's industrial policies have shifted away from import substitution to export-led growth. During this transformation process, OIZs played a significant role as true production zones. Beyond the benefit of planned industrialization, OIZs offer many perks to both private sector and overall economic development. Using common infrastructure and services, companies make distinctive cost reductions and enjoy certain tax exemptions. Moreover, OIZs serve as one-stop-shops for obtaining licences and can speed up significantly all processes related to registration.

The government has assumed an active role in supporting the development of OIZs with the provision of low-interest rates for infrastructure building and investment. Underdeveloped regions in the eastern part of Turkey provide free land allocation as well as financial incentives setting OIZs to kick-start local growth and induce employment. In the more developed western part of the country, where OIZs are fully occupied, clustering activities are organized to link businesses with research institutions and to encourage innovative activities for value creation and increased competitiveness.

### ***Ms. Berenika Marciniec,*** Deputy Director of the Infrastructure of Modern Economy Department, Polish Agency for Enterprise Development

Poland also has extensive experience building and using science, technology, and industrial parks, with a mix of positive and negative lessons along the way. Twenty-five years ago, when Poland began its economic transition, industrial parks, incubators and special economic zones were built to support the growing economy. Today, Poland has about 50 industrial, science, and technology parks that offer very specialized services to SMEs in response to new economic dynamics. Throughout its long-standing experience

with industrial parks, Poland has learned that human resource development and continuous capacity building are of utmost importance for their success. Moreover, parks must be geared to regional economic needs to fully contribute to local development.

There have been some negative experiences. Poland had to learn how to better coordinate and allocate the use of funding when the EU Structural Funds disbursed financing to many different initiatives related to industrial parks, some of them having only marginal resemblance to real parks. There should be close coordination between the central government and local governments so that the number of industrial parks can be balanced across the different regions of the country. Moreover, infrastructure sophistication alone will not assure the success of industrial parks, especially if skilled management is lacking. Complex infrastructure requires smart management, and if not available domestically, must be sought elsewhere.

### ***Mr. Santiago Creuheras-Díaz,*** Director General for Energy Efficiency and Technological Innovation, Secretary for Energetic Planning and Transition, Mexico

Mexico welcomes the purpose of this forum. Only a comprehensive wide-ranging dialogue among all UNIDO members and increased cooperation can define the best ways to effectively operationalize and implement ISID. The process will require redefining industrial policies to integrate and balance the social, environmental and economic aspects of sustainable development. Other panelists and discussants have rightly stressed the importance of developing infrastructure and human resources, the need to harness renewable energy sources and the value of forging close coordination between federal and local governments.

Turkey's idea of sharing costs for common infrastructure deserves further attention. Financing, as mentioned by many speakers, is also important. The Polish case includes many valuable lessons, including the importance of close coordination between the central and regional governments.

Mexico considers SMEs as key contributors to ISID. The government has streamlined policies to provide for stronger technical, legal and financial support. Special attention is given to the provision of funding and preferential financing schemes to help SMEs replace obsolete technologies, which enables them to reduce energy consumption and redirect financial resources to other activities and thereby become more competitive and sustainable.

### ***Ms. Ana Teresa Igarza-Martinez,*** Director General of Special Development Zones at Ministry of Trade and Foreign Cooperation of Cuba

Cuba has developed a set of actions and established new models to ensure sustainable economic development. They include:

- A new law on foreign investment to attract various producers to help diversify export products and in turn, be able to receive internal financing.
- Enhanced environmental protection through mandatory environmental impact feasibility studies (for some activities) and energy efficient standards.
- Government support for the agro-food industry and for the creation of a special economic zone (e.g. Mariel) to attract investments through a separate policy regime.
- Support for technological innovation and knowledge-based production.

For industrial development, Cuba is trying to promote the participation of both national and foreign companies, allowing them to operate on equal terms. The focus is on privileged geographic locations and other important aspects such as infrastructure, legal framework, technologies, and the environment, all indispensable for ISID.

UNIDO should consider launching a special project on how to establish and develop special zones as a driving force for industry. Exchanges of information as well as focused training could highlight best industrial practices, evaluate clean technologies and establish mechanisms for cooperation and productive links between countries.

***Mr. Xiaokai Shen,*** First Secretary of Department of International Trade and Economic Affairs, Ministry of Commerce, China

All of the instruments mentioned for ISID—such as developing business infrastructure establishing industrial parks, using renewable energy, and positioning of industries—are practical and important. China has been employing industrial parks for 35 years. One of the country's biggest success stories is the China-Singapore Suzhou Industrial Park (CS-SIP), established in 1994 in collaboration with Singapore.

The CS-SIP adopted a scientific development concept to ensure the organic and sustainable integration of industries and cities for the creation of a single "mega" industrial park and business city. Its evolution was based on a people-oriented policy that gives attention to human development—such as education, culture and other social undertakings—to turn the industrial park into a most livable place for people and industries to thrive. Efforts were made to comply with international standards and to learn from a wide range of domestic and foreign experiences to establish a management system in line with China's national conditions.

Great attention was given to its planning and functioning. For example, the park adopted a forward-looking planning approach that glimpsed 15 years ahead and emphasized the sequencing of construction. To facilitate the smooth functioning of the park, high-quality infrastructure was supported by a highly trained and experienced project management team. The park focused on the innovative service export economy, which maximized the comparative advantages of China and Singapore. Delegates are welcome to visit the park to see these impressive results from themselves. China also stands ready to work with UNIDO to share experiences on how economic and social development can benefit from industrial parks and global value chains.

## Session 5

# UNIDO's approach to business infrastructure and the way forward

Session 5 focused on UNIDO's approach to leveraging static and dynamic gains from science, industrial and technology parks/zones, and eco-industrial parks. The panelists and discussants provided examples of UNIDO's recent and ongoing activities in the area of industrial and eco-industrial parks, as well as industrial clusters as a response to Member States' requests to UNIDO for technical assistance. The session was moderated by Mr. Stephen Taylor, Director of Technology Transfer at AREA Science Park in Trieste, Italy. The panelists consisted of UNIDO's staff at the Director's level: Mr. Philippe Scholtès, UNIDO's Programme Development and Technical Cooperation Division Managing Director, Mr. Mohamed-Lamine Dhaoui, Director of UNIDO's Business, Investment and Technology Service Branch and Mr. Heinz Leuenberger, Director of UNIDO's Environmental Management Branch. The discussants included representatives from UNIDO's Member States.

### ***Mr. Philippe Scholtès,*** Managing Director, Programme Development and Technical Cooperation Division, UNIDO

UNIDO's appreciates the active participation of the membership and the useful insights provided. In line with the UNIDO Director General's five-point plan announced in his acceptance speech in June 2013, this forum comes as a response to the first two points and thus aims to raise the visibility and relevance of UNIDO vis-à-vis its Member States and to strengthen the quality of its differentiated services to address ISID. The concept of ISID, coined at the 15th UNIDO General Conference, sets the stage for all UNIDO activities in the future, and the organization seeks to engage in a strategic dialogue with the Member States on the subject of ISID, conforming to its convening role.

All experiences, best practices and positive and negative examples shared at this forum not only will serve as an inspiration for countries but will scope UNIDO's work and eventually materialize in technical assistance services that the organization will provide in the future. For this process, UNIDO will need 12–15 months to prepare technical assistance proposals on selected topics stemming from the forum to support countries achieve ISID.

As a follow-up to this event, UNIDO will host a second forum on ISID in November 2014, focusing on concrete and action-oriented mobilization of technical cooperation activities through partnerships. The complex and multifaceted nature of ISID requires substantial resources and capacities beyond the financial abilities of UNIDO, which as a technical organization provides a comprehensive range of technical assistance services and works closely with governments and institutions to implement these. To promote ISID, more capital is required to facilitate the necessary investments and technology transfer, develop the needed infrastructure and utilities.

Therefore, the goal of the second ISID forum is to strategically steer UNIDO's technical assistance to link it explicitly to larger flows of resources from partners such as development finance institutions and private companies. To this end, UNIDO is uniquely positioned to work in partnerships, given its traditional mandate of engaging with the private sector and harnessing its expertise, know-how and resources to tackle important global industrial development issues.

The deliberations in all sessions confirmed the relevance of industrial parks to the majority of countries seeking to develop and strengthen new business models that promote innovation-based and green growth. Industrial parks provide a good opportunity for UNIDO to showcase the diversity of its specialized services and present the new business model UNIDO is developing as these agglomerations are amenable to partnerships with companies, cooperatives and development financial institutions. The current session thus focuses on the supply side, and the panel has

been put together to reflect on the variety of specialized expertise available at UNIDO. It includes Mr. Heinz Leuenberger, who will present the environmental dimension of ISID, and Mr. Mohamed-Lamine Dhaoui, who will provide insights on the private sector, SMEs and entrepreneurship development from an ISID perspective.

The work of the Agribusiness Development Branch at UNIDO centres primarily on the inclusive side of ISID as it contributes to poverty reduction in rural areas. Most of the world's poor live in rural areas and depend on incomes from agriculture. UNIDO, through its technical assistance in this particular area, links resources and markets in the agribusiness value chains and strengthens forward and backward industrial links in order to boost the economic transformation of countries, improve employment and income opportunities, and reinforce sustainable livelihoods. The goal is to identify bottlenecks along the value chain, starting with the agricultural inputs (fertilizers, pesticides, water, energy, seeds) and followed by the domain of agricultural processing. To carry out its mandate in this area, UNIDO mobilizes expert services in cluster development, conformity with quality and standards, rural energy, environmental management, marketing and cleaner production, thereby increasing food security and sustainably reducing poverty.

As mentioned by the keynote speaker and confirmed by other participants, binding constraints have to be identified along the way and gradually addressed depending on their criticality. This applies with the same extent to value chain analysis. When mapping a value chain and identifying the sequence of economic activities and their value addition, it is unlikely that all identified bottlenecks constitute binding constraints. Another important aspect of UNIDO's work is addressing coordination failures when different initiatives are implemented by various economic agents such as governments, private firms and R&D institutions.

UNIDO will be working on concrete, hands-on technical assistance to identify and tackle binding constraints and to facilitate the smooth collaboration of economic agents to allow the system to grow. This will require working with various partners. UNIDO has already initiated discussions at the highest level under the leadership of the Director General with cooperatives and international development institutions to operationalize the conclusions of this forum. To this end, the second ISID forum in November 2014 will zoom in on two countries, Senegal and Ethiopia. It will show the power of partnerships and how value can be created through them to leverage a much higher impact on the technical assistance services of UNIDO for the benefit of its Member States.

### ***Mr. Mohamed-Lamine Dhaoui,*** Director, Business, Investment and Technology Service Branch, UNIDO

The previous sessions have identified some of the key challenges: bureaucracy, lack of human, technological and institutional capacities, as well as insufficient financing and access to capital. Developing countries should focus on the enhancement of infrastructure, integration with regional and global value chains, more effective use of the opportunities provided by the instrument of industrial parks, and strengthening of the manufacturing sector. UNIDO and particularly the Business, Investment and Technology Services Branch (BIT), provides a range of services to assist countries in achieving ISID goals through supporting the growth of industrial productivity in developing countries and countries with economies in transition by helping them bridge the investment gap and technology divide. BIT's technical assistance seeks to help countries to mobilize investment, both domestic and foreign, and modern technologies to expand their productive assets and increase their competencies and competitiveness.

Pursuant to these goals, BIT has developed a multidimensional and integrated approach that covers and combines the macro, meso and micro levels—and that intervenes in several sectors such as agribusiness, green industries, pharmaceuticals and automotives. Across the three levels, BIT provides advice and

services in the priority areas of investment and technology promotion and mobilization, strengthening and promoting competitiveness and upgrading, and promoting cluster and business links. At the macro level, BIT provides investment policy and strategic advice, business environment support for competitive productive industrial activities, capacity building in monitoring industrial performance, technology foresight, cluster and export consortia, industrial upgrading and restructuring, and innovation systems support. UNIDO combines the Growth Identification and Facilitation concept with its own methodologies to achieve industrial upgrading and restructuring.

At the meso level, BIT's technical assistance encompasses support to national investment promotion institutions, promotion of industrial, public private and business partnerships, advice and training on clusters, business links and export consortia as well as creating or strengthening technical support institutions (such as chambers). At the micro level, BIT is involved in the creation and development of enterprises, investment promotion, upgrading and restructuring on a pilot basis, building national consulting capabilities, designing of special tools and services and fostering inter-firm partnerships and cooperation.

BIT is paying special attention to industrial parks and special economic zones. UNIDO's successful record of assisting emerging and developing economies in establishing various types of industrial parks and SEZs dates back to the 1970s. Currently, such technical assistance is provided to Iraq, Cote d'Ivoire, Nigeria, Senegal, and others. It encompasses different types of special economic zones, including export processing zones, free trade zones, industrial parks and estates, technology and science parks, green, eco-industrial, or eco-parks as well as sector-specific special economic zones. The objective is to contribute to the efforts of the Member States to accelerate regional economic development, raise the competitiveness, mainly of SMEs, attract investment, boost exports and attract highly skilled professionals.

To achieve this, UNIDO's service modules include the creation of prefeasibility and feasibility studies and the provision of assistance to implement full-fledged industrial park projects through establishing and strengthening industrial park development strategies; strategic market positioning and future-looking sectoral and market orientation analysis for industrial park competitive development at the regional and international level; strengthening the managerial and technical capacities of industrial parks administration; building international partnerships and business links of industrial parks or special economic zones with similar zones and parks; as well as knowledge transfer and industrial cooperation.

***Mr. Heinz Leuenberger,*** Director, Environmental Management Branch, UNIDO

There is a pressing need for a paradigm change in industrial strategies. The ISID concept rests on the integration of the economic, social and environmental aspects of sustainable development. Previous strategies narrowly emphasized the economic aspect, neglecting the fact that past industrial development not only failed to achieve social inclusion but also resulted in ground, air and surface water pollution, waste production, toxic chemical residues in food and soil, and accelerated climate change.

The world's global population is constantly growing and consuming more resources to survive and develop, but we still live in a finite world. It is forecast that in the next 25–30 years, 2 billion more people will be living on the planet. The middle class will grow by 2–3 billion, and industrial production will increase by a factor of four. Even now, the world consumes the natural resources of 1.5 planets; by 2050, it will need six planets' worth of natural resources. It is becoming increasingly clear that "business-as-usual" practices will be detrimental to industrial and economic development.

The real challenge of the future is decoupling economic growth from the consumption of natural resources and emissions to the environment. New strategic approaches exist: the "green economy" was introduced as a tool for sustainable development at Rio+20, and several countries, most notably

the Republic of Korea, have adopted viable "green growth" strategies. Green growth can be achieved only through cleaner, more resource-efficient production, which is the heart of green industry. McKinsey & Company has estimated the economic benefits of resource efficiency at US$3 trillion by 2030. About 70–85% of this amount could be harnessed by developing countries, where SMEs currently use outdated and inefficient technologies with substantial natural resources losses.

UNIDO has been at the forefront of mainstreaming resource-efficient and low-carbon production through a network of 77 National Cleaner Production Centres, initiated with UNEP 20 years ago. Governments, business and civil society can also take advantage of a high-level, multistakeholder partnership—the Green Industry Platform—a 195-member forum to catalyse, mobilize and initiate action on green industry around the world. UNIDO is working to ensure that countries have available alternatives when decoupling their economies and industries from negative environmental effects. It promotes a shift to renewable energies for productive uses through technical assistance for the development of small hydro, photovoltaic, wind and bio-gas electricity generation. Its activities enable industries to eliminate ozone-depleting substances under the Montreal Protocol, to reduce the release of persistent organic pollutants under the Stockholm Convention, and to minimize the use and discharge of mercury.

To help countries close the material loop and gradually shift to a circular economy, UNIDO fosters the creation of an environmentally sound e-waste recycling industry in developing countries and promotes waste management. Moreover, new business models are being tested to dematerialize society and industry—for instance, through the introduction of "chemical leasing." Under this scheme, companies are no longer buying and owning chemicals, but only leasing chemicals that remain in the ownership of their producers, who are equipped with the knowledge necessary for their recycling and disposal. It is also important to redesign products so that less energy and water is used during the product lifetime. To achieve these objectives, companies need to avoid becoming locked in to certain technologies or infrastructure that makes a switch to a more environmental friendly industry difficult or even impossible. Technical decisions made now will affect production efficiency in the next 20–30 years due to the lifetime of the production equipment.

This shift to more sustainable practices affects industrial parks, which will gradually transform into "eco-industrial" parks requiring a continuous increase of resource-efficient and eco-friendly operation and management. At the moment, 33 eco-industrial parks in 16 developing countries are being evaluated to identify lessons. Best practices need to be built into a new generation of industrial strategies and policies to pursue ISID. This transition also requires a shift in focus from labour productivity—which has been booming by a factor of 12–17 in the last decade—to energy and material productivities—which have modestly increased by factors of 3–4 and 4–6 respectively, despite limited resource availability and rapid consumption. Such a transformation can be triggered only by the concerted efforts of all countries in R&D, taxes, education and financial incentives. Countries need to do more than try to replicate practices that worked in the past because the requirements of the future will be completely different.

### ***Mr. François Kanimba,*** Minister of Trade and Industry of Rwanda

UNIDO and its partners have successfully prioritized technical assistance services to achieve a visible impact at the country level. In Rwanda over the last 10 years UNIDO delivered technical assistance in the amount of roughly US$2.7 million, which made a number of small interventions possible. UNIDO is well positioned to help countries design policies and strategies on a larger scale in the different areas of its mandate. However, if UNIDO continues to rely on limited funding, it is doomed to implement minor interventions, which will not have a significant long-term impact.

### *Mr. Philippe Scholtès*

UNIDO is entirely dependent on the demand for assistance placed by its Member States. The organization will be in a position to contribute to the policy design of Rwanda, for example, if a concrete request reaches its Secretariat. According to UNIDO's constitution, the organization cannot allocate more than 6% of its core resources (the so-called assessed contributions) to technical cooperation activities, so nearly 95% of UNIDO's technical assistance activities are funded case-by-case. This is a limiting factor to the extent that raising funds by third parties and mobilizing resources is challenging and not consistently successful. The bottom line: it is not always in UNIDO's control to decide where and whom to work with.

The Rwandan Minister's query is very relevant to this forum, which is intended, in part, to identify areas of highest need where UNIDO can steer its future activities. The forum in November will discuss in more detail how to mobilize resources to serve requests to UNIDO.

### *Mr. Mohamed-Lamine Dhaoui*

UNIDO can initiate a project through an official request from a country, but it also has to match it to the interests and requirements of the donors for financing. A recent example is Vietnam, which requested UNIDO's assistance to develop a national system for the registration of enterprises. This request materialized into a UNIDO technical assistance project that lasted three years and was funded with US$15 million by NORAD, SECO, One UN Fund and UNIDO. It resulted in the creation of a streamlined nationwide enterprise registration system (with 7800 enterprises registered by July 2013) that reduced the cost, complexity, and duration of the process.

### *Mr. Stephen Taylor*

The donor community might be willing to disburse funding to UNIDO. This forum will help clarify UNIDO's future priorities and the organization can respond with technical assistance and advice to address these identified priorities.

### *Ms. Jeanne Mrad,* First Secretary, Alternate to the Permanent Representative, Permanent Mission of Lebanon to UNIDO

Lebanon has recently requested assistance from UNIDO to develop industrial parks as part of its evolving holistic industrial policy. It is unclear how UNIDO addresses the infrastructure needs of countries like Iraq in post-conflict settings or post-natural disaster zones, including industrial parks, and we await clarification from UNIDO about our request.

### *Mr. Mohamed-Lamine Dhaoui*

A recent event organized by the OECD in relation to the establishment of industrial parks and special economic zones in Iraq has confirmed the difficult situation for such activities. As the demand is not substantive for the moment, the efforts shall be concentrated in the creation of one agglomeration only. In reality, UNIDO initiated its technical assistance to Iraq on establishing industrial parks, special economic zones and free-trade zones three years ago at the government's request. Prefeasibility studies and feasibility studies were conducted for two zones, of five requested. UNIDO provides assistance in capacity building for the planning, financing, administration and promotion of the zones.

So far, UNIDO has facilitated the formulation of a draft law on developing industrial parks and zones and organized trips for the authorities to learn from the best practices of other countries such as Poland, Jordan and Turkey, and assisted in the development of public private partnerships for the financing of these agglomerations. The main impediment in the process is land ownership, since foreigners are not allowed to purchase and own land, which has a negative effect on foreign investment. As to Lebanon, UNIDO welcomes that request and looks forward to future collaboration with the government on identifying the exact scope of its assistance.

### *Mr. Stephen Taylor*

The Marshall Plan is an example of how investment in the industrial development of a post-conflict

zone can reposition it and provide for its sweeping growth. The difficulty arises when a conflict zone remains a conflict zone. The European Union, which emerged as the biggest peace project, linked the industrial production of its members showcasing how economic development and industrial cooperation can ensure and maintain peace and vice versa. Hence, investing in industrial zones across post-conflict boundaries could help countries maintain lasting peace and promote economic development.

### *Representative of Total Oil and Gas Company*

I am curious to know what indicators UNIDO is using to measure the performance of its activities.

### *Mr. Stephen Taylor*

Performance indicators are essential, but they are very difficult to be accurately defined and monitored.

### *Mr. Philippe Scholtès*

UNIDO uses various ways to monitor performance and evaluate the impact of its activities. The Evaluation Group intervenes once a project is completed and conducts an independent assessment of its achievements. In addition, a process-based monitoring mechanism is ongoing throughout the execution phase of the project. UNIDO is currently revamping its Key Performance Indicators (KPIs) in line with its new mandate on ISID to measure the impact on local communities along the three ISID dimensions (economic, environmental and social). Work continues to fine-tune these and will focus on 15–20 indicators that capture these three dimensions in the future.

The debate on KPIs takes place in the larger context of the dialogue on the post-2015 development agenda. UNIDO is arguing for the inclusion of a standalone goal to reflect the essence of ISID which has to be backed up with measurable and smart indicators clearly demonstrating its benefits.

### *Mr. Ali Berro,* Director, National Quality Programme, Ministry of Economy and Trade, Lebanon

I wonder what programmes UNIDO provides to guide and guard SMEs when dealing with pollution, especially mining pollution.

### *Mr. Heinz Leuenberger*

Cleaner Production Centres raise awareness, implement capacity building, provide advice and offer assistance to the various SMEs in different countries, including Lebanon, and have developed manuals, toolkits, and capacity building programmes to offer services to their clients, including SMEs.

### *Representative of the Russian Federation*

UNIDO should be commended for organizing this event so that so many diverse experiences could be shared. However, it is important not to focus the debate on industrialization per se and to delve more deeply into the social and environmental dimensions of the process. As previously stated in the forum, mere replication of best practices is not sufficient to achieve the SDGs and to upgrade UNIDO's effectiveness. Both the Secretariat and the Member States should explore new approaches to promoting ISID in the context of the post-2015 development agenda.

### *Mr. Ismail Gaber,* Chairman of the Industrial Development Authority, Egypt

What is UNIDO's role in partnerships, and what types of partnerships are being pursued? Are training initiatives open to for both private and public sector organizations?

### *Mr. Philippe Scholtès*

UNIDO plays a special role within the UN family in the area of partnership-building due to its mandate, which involves daily interaction with industries, business associations, SMEs and other elements of the private sector across the developing world. In recent years, UNIDO started intensively engaging with

larger private sector entities from OECD countries that are developing a different type of relationship with their developing world partners. UNIDO's strategic approach goes beyond corporate social responsibility and looks for a middle ground where the commercial interests of the private partner are aligned with UNIDO's development purposes. The idea is to multiply the impact of UNIDO's technical assistance by combining efforts, know-how and resources.

A good example of a UNIDO business partnership is a project in Egypt where UNIDO and METRO Group, one of the world's largest retailers, joined forces to enable clusters of fruit and vegetable suppliers to meet international market requirements for food safety and quality. This was part of METRO Group's efforts to expand and diversify its supply chain, which coincided with UNIDO's mandate of capacity building. It resulted in facilitating 90 suppliers to establish sustainable business links with potential buyers, to improve the quality and volume of their production and to gain access to wider markets.

UNIDO's role in partnerships with the private sector has developed throughout the years from being more reactive—relying on initiation from the company side—to more proactive due to the substantial amount of requests for partnerships from the private sector and the need to raise private resources and leverage greater development impact for the benefit of UNIDO Member States. To this end, KPIs and continual upgrading of internal business systems and practices are highly relevant when forging partnerships and convincing donors and the private sector that UNIDO does business in a straightforward and transparent manner and that its activities are carefully monitored and measured for their impact. In this regard, UNIDO achieved a definite success last year with its Certification on Compliance with GEF Minimum Fiduciary Standards.

The point raised by the Representative of the Russian Federation needs addressing. He suggested that the debates in previous sessions of this forum indicated that undue emphasis was still being placed on the economic side of ISID at the expense of its social and environmental dimensions. It is important to state publicly: UNIDO's financial and human capital resources are equally distributed among the three different dimensions of ISID—namely environment, trade capacity and poverty reduction.

### *Mr. Mohamed-Lamine Dhaoui*

In the majority of UNIDO's projects there is a training component. UNIDO assists countries to build capacities through training staff in public sector institutions, implements "train the trainers" programmes through partnerships with companies like Microsoft, and provides training to the private sector on a range of matters related to UNIDO's mandate—most often on entrepreneurship development and skill enhancement.

### *Representative from ECOWAS*

Most of the experiences shared in this forum focused on the country level, though the importance of regional dynamics was also noted. How does UNIDO intervene on a regional basis, and how does this intervention integrate into the global approach adopted by UNIDO?

### *Mr. Mohamed-Lamine Dhaoui*

Industrial development has many regional repercussions, and cooperation at the regional level certainly facilitates and reinforces regional integration. UNIDO is well aware of this dimension and has a strong portfolio of regional programmes. Often, projects are developed at the regional level and with their implementation are later taken to the national level.

Since 2001, UNIDO has undertaken regional projects in the ECOWAS region and upscaled them to Eastern African states. Currently UNIDO is closely cooperating with ECOWAS on a regional programme for rehabilitating and modernizing the region's industries. Apart from ECOWAS, UNIDO works on regional initiatives with other African regional groups. Assistance was provided to the African Union for the creation of a business plan for the development of the

pharmaceutical industry on the continent. UNIDO is also finalizing a programme for the Central African region for the development of regional policies to strengthen the industrial sector. UNIDO is in a position to launch technical assistance at the regional level given there is demand and possibility for donor funding.

### *Mr. Heinz Leuenberger*

The Energy and Climate Management Branch as well as the Environmental Management Branch of UNIDO are also increasingly using a regional approach. UNIDO has founded the ECOWAS Regional Centre for Renewable Energy and Energy Efficiency. Some projects are better placed for regional cooperation, such as those for e-waste and management of POPs.

### *Mr. Dianka Koevogui,* the Principal Counsellor of the Ministry of Industry, Guinea

I agree that the strong focus in all the forum statements on industrial parks and zones as well as economic infrastructure creates the impression that ISID limits itself to these areas. We should clarify this issue further. As for Guinea, there is the question of how to reconcile its priority of establishing industrial zones and parks with the recently signed Country Programming Framework with UNIDO.

### *Mr. Stephen Taylor*

It is important to remember that industrial parks and zones are just a means to achieve ISID – they are not an end in themselves.

### *Mr. Mohamed-Lamine Dhaoui*

Country Programming Frameworks, developed at the request of Member States, envisage different programme components, one of which can be the optimization and establishment of industrial parks and zones. UNIDO assists countries in establishing industrial parks through the development of feasibility studies to assess policy, investment and financial options.

### *Mr. Mamadou Syll Kebe,* the Director of Industrial Redeployment of Senegal, Ministry of Oil and Mining, Senegal

ISID, by its nature, calls for the broad participation of all relevant stakeholders. Senegal's approach to ISID is based on the competitive advantages of its own economy without neglecting the comparative advantages of its partners. The prerequisites for defining sound policies for ISID must include various environmental aspects, as well as measures of quality enhancement of manufacturing output. There must be a conducive business environment and a strong legal framework in place to attract and protect investors. Synergies should be fostered between manufacturing and other industrial sectors that provide raw materials, such as agriculture and mining sectors, which are natural partners.

UNIDO should assist countries in formulating and implementing ISID policies and strategies, and encourage the dissemination of subject material among the Member States to help them better understand the essence of such policies and strategies. This first ISID forum is a landmark event enabling countries to receive their first insights on ISID. Ideally, UNIDO should convene such events in the future to continue expanding the knowledge of its Member States.

### *Representative of Sri Lanka*

The forum mainly centred on achieving ISID through the creation and improvement of existing business infrastructure. Inclusive and sustainable economic growth can indeed be attained through ISID, but growth is meaningful only if it leads to employment and not just to wealth creation. This delicate balance between economic prosperity and sustained inclusiveness can be assured through the instrument of ISID strategies. However, apart from business infrastructure, other factors are of genuine relevance for ISID and should be given a more thorough discussion in the follow-up events to this ISID Forum. These include human resource development, youth entrepreneurship and skills upgrading, intellectual property rights protection and abiding by technical standards with a

special focus on SMEs, and community-based industries exploiting bio resources such as medical herbs. UNIDO's convening role gives it the ability to mobilize the support of countries for the inclusion of ISID in the post-2015 development agenda where it belongs.

### *Mr. Philippe Scholtès*

I appreciate all of these interventions and the concerns. This first forum will lay the foundations for future discussions on ISID which will depart from the topic of industrial parks and will encompass other subjects such as green industries, youth employment, and the other items the presenters have mentioned. The reason for choosing industrial parks to kickstart the discussions on ISID was threefold. First, Industrial parks are of interest for many Member States, as testified by the large amount of requests reaching UNIDO on that matter. Second, industrial parks are multifaceted instruments for presenting the whole array of UNIDO services: they are simultaneously technological hubs, SME incubators, generators of employment and environmental confiners. Finally, industrial parks are truly amenable to up-scaling by employing partnerships with private companies and international development institutions.

All UNIDO technical assistance interventions take into account the environmental and social aspects of economic development. For example, agro-food parks are normally situated in rural areas where poverty is predominant. This is deliberate. The primary task is not just to attract an investor but also to build a supply chain of smallholder farmers around the park, reducing poverty and broadening participation in the economy.

### *Mr. Denis Zdorov,* Senior Counsellor of the Ministry of Foreign Affairs, Belarus

UNIDO should follow-up on the important issues and concerns raised during these sessions. The key is to ensure that ISID develops measures that are universal but that also give special attention to middle-income countries, which represent the largest group of UN Member States. Moreover, most countries at this forum aspire to reach middle-income status. Every geographical region should define its most promising strategies and most effective tools for ISID, and request support for them from UNIDO. Belarus would like to continue this dialogue and is prepared to make a contribution to the international community's efforts to pursue ISID.

### *Mr. Evandro de Sampaio Didonet,* Permanent Representative of Brazil to the International Organizations in Vienna

Industrial development should definitely be included in the post-2015 development agenda through ISID. The inclusion of the case study on Brazil in the draft background document of Session 2 was helpful and is greatly appreciated. In Brazil, environmental sustainability and social inclusion are at the core of the nation's industrial development strategy. The Director General rightly emphasized in his opening remarks that states play a central role in industrial development and that industrial policies cannot only focus on comparative advantages. This can be a limiting factor that prevents countries from exploring other sectors that might become economically viable in the future.

The case of Brazil is highly illustrative: until the late '50s Brazil had no automotive industry but today the country is one of the largest automotive producers in the world. However, this was achieved without any sector-specific policies. The case of Brazil also illustrates the negative impact that macroeconomic policies such as high interest rates and an overvalued exchange rate can have on industrial development. Success depends on developing the right macroeconomic policy mix in addition to having in place the right infrastructure, human resources, skills, science and technology, governance and the other factors so often mentioned (box 7).

### *Mr. Luis Alfonso de Alba,* Permanent Representative of Mexico to the International Organizations in Vienna

Energy efficiency and the participation of local governments in all processes related to industrial

Box 7
**Brazil: Innovating to compete—competing to grow**

Industrial polices have been widely applied in Brazil over the last 50 years, except during the administration of President Cardoso (1995–2002), influenced by neoliberal and austere policies aligned to the Washington Consensus. That period was characterized by horizontal policies to avoid the dangers of self-entrenched interests in proposing and picking winners.

The scene is radically different today. In August 2011, the Brazilian government announced the Brazil Maior Plan, a new industrial policy plan built around four strategic pillars—investment, innovation, foreign trade and market protection. The Plan encapsulates the technology, industry, services and trade policies of the Dilma Rousseff government for 2011–14.

In this new scenario, the state is the strategic coordinator for the economy and the market. This state activism in Brazil and other emerging middle-income countries has been referred to as the "new developmentalism". The Brazilian Development Bank, crucial for the country's industrial policy, was created to act as the arm of the government in analysing, approving and funding industrial projects. Brazil's Maior Plan tackles poverty, inequality and access to goods and services through inclusive and sustainable industrial development. It aims to achieve and maintain inclusive and sustainable economic growth, build and strengthen critical competencies in the national economy, enhance productivity and technology within value chains and expand the domestic and external markets of Brazilian companies.

To achieve these goals, the Plan places a special emphasis on competitiveness improvement through innovation promotion, technology development and value addition. Other objectives include the promotion of market and product diversification, productive intensification of the industrial parks, sustaining gains in labour productivity and increasing investments in both fixed and human capital and in research and development.

development should be key drivers for ISID. Recently, Mexico assumed the presidency of the International Partnership for Energy Efficiency Cooperation thanks to its efforts to ensure that local governments foster energy-efficient actions in cities.

### *Mr. Moustapha Ben Karka,* Ministry of Industry and Promotion of Investments, Mali

UNIDO conducted a mission to Mali in March 2014, which was intended to assess the country's needs in relation to its industrial development programme. The country has undertaken comprehensive measures to improve the security and investment climate and make the economy attractive to investors. Work is ongoing to determine Mali's comparative advantages and to use them to guide strategies and policies for industrial and economic development. UNIDO's funding support is needed to facilitate specific projects, including one to generate employment among youth and women in the northern part of the country.

### *Mr. Philippe Scholtès*

UNIDO dispatched a preparatory mission to Mali in March 2014, during which UNIDO representatives met with governmental officials and gathered information on the country's needs. Its findings will serve as a basis for another mission to Mali when several UNIDO experts will present solutions for addressing those needs. Reinserting young people and women into the workforce, UNIDO will be glad to share its substantive experience in this area gathered through similar activities in neighbouring countries.

### *Mr. Victor Burunsus,* Industrial Development Consultant of the Investment and Export Promotion Organisation, Moldova

On the inclusive dimension of ISID, there are heavily regulated industries with high barriers to entry, such as the telecommunication industry, which impedes actors from having equal access. It is important to ensure that core values become the cornerstone of business regulations that Member States across the world would pursue in common. The concept of "design thinking" might be part of an expanded ISID approach to be discussed in future forums of this kind.

### *Mr. Stephen Taylor*

I want to thank all of the participants for their wealth of insights. Agreement is strong on the importance of robust infrastructure, careful planning, synchronized

policies as well as continuous skills development for achieving ISID. Strengthening skills and competencies requires not only formal trainings but must involve partnerships, experience and knowledge-sharing—and capacity building, too. Furthermore, the public sector is critical for invigorating investments through the development of eco-systems to attract private financial flows.

UNIDO is not able to finance the industrial development of all countries around the world, but through its unique convening role it is positioned to bring together important actors and to mobilize public sources of funding which will in turn encourage private capital to follow. If, through the concerted efforts of UNIDO, its Member States and partners, advantageous eco-systems are created by public resources encouraging private capital to follow, high levels of scalability will be reached, leading to the attainment of ISID.

Industrial parks are an opportunity to be pinnacles or centres of excellence around which eco-systems can grow and thrive and where environmental concerns can be more fully addressed. They also act as catalysts between business and other pillars of knowledge and innovation-based economic growth and allow the experience and benefit of this knowledge to be transposed across the region and the nation. Industrial parks have the potential to act as innovation hubs.

Drivers for innovation are indispensable for development because innovation is all about delivering new value to customers. In its very essence, ISID is value creation, beyond monetary accumulation. If the world manages to create new value in every economy, poverty will be eradicated not in its absolute terms but more important in terms of positive changes of lives invoked and availability of new opportunities, goods and services. Therefore, innovation as a value generator is the new growth path to be followed inclusively and sustainably in order to continue.

The old paradigm of competitiveness, with its rallying cry of producing and selling more at any price, is no longer acceptable. Production patterns have to become more economical, more socially inclusive and more environmentally sustainable and to achieve higher quality and provide more value to citizens. UNIDO possesses a fundamental and unique convening role in bringing together the actors that can realize this new paradigm. I hope that the future forums will mark the creation of real partnerships that will allow genuine and continuing value creation that will translate into quality of life improvements for all people around the globe.

# Closing remarks by UNIDO Director General

Excellencies, Honourable guests, Ladies and Gentlemen,

I am immensely thankful to all of you here—to the many ministers, honourable guests, high-level panelists and discussants, and distinguished delegations—for your active participation and for contributing to the Forum. I would like to thank the Permanent Missions in Vienna, accredited to UNIDO. Thank you for your strong support!

The moderators, Mr. Todd Benjamin and Mr. Stephen Taylor have done superb jobs leading the discussions. They have assured me that you will not forget to provide the two-pages of input. I really look forward to receiving this material for our upcoming publication. Please also allow me to recognize the entire team from UNIDO dedicated to organizing this event. Each of you made a valuable contribution to the success of this event. A special thank you goes to the UNOV Conference Services, to the UN Safety and Security Services, and to the many interpreters and technicians. Without your dedication and partnership, this forum would not have been possible.

The level of participation here shows the importance countries attach to the topics we have discussed. More than 70 countries have sent high level delegations. We had the privilege to have here 15 ministers. We also heard from leading thinkers on industrial policymaking and implementation. Invaluable also have been the practitioners, the private sector, regional groupings and our sister UN agencies. I am indebted to you all.

UNIDO has have received very positive feedback throughout the Forum, and we can all be very proud of the high quality of the discussions. It is clear that the topic of industrial strategies and instruments are high on the agenda for all Member States. This is true for mechanisms for their implementation, such as good governance.

Through your presentations, interventions and recommendations, we are optimistic about the future of ISID. You demonstrated through concrete examples that ISID strategies and policies can be replicated and scaled up. Most crucially, ISID has great potential for poverty eradication within a generation and for environmental protection.

There is a consensus on the timeliness of this forum. Your recommendations and comments support my vision to enhance UNIDO's role in providing policy advisory services. I am committed to working closely with you, and other partners, to leverage funding to implement the programmes and projects that you identify.

During the lively debates, we agreed that governments have a vital role in supporting industrial development. We also agreed that there is no one-size-fits-all approach. Indeed one of the most important things we agreed on was how much we can learn from each other—from countries at different stages of industrial development and from different regions.

We have seen examples of rapid industrialization as well as lessons, both positive and negative. We agreed that both hard and soft business infrastructure play important roles. We also agreed that both developing and implementing strategies and instruments for ISID share equal importance. UNIDO was also able to present the range of services we offer to our Member States.

We have learned, through my bilateral meetings with delegations, that many countries are planning to set up industrial parks and zones. We also heard from practitioners that this comes with opportunities and risks. The risks can be minimized through appropriate governance and partnerships with the private sector, academia, governments and international organizations.

UNIDO is committed to supporting you, our Member States, in designing and implementing strategies and policies for pursuing ISID. We have a rich experience in industrial development, and we are the only UN agency mandated with this role. But

we cannot work alone. We will work in partnership with you and with other agencies and institutions. Indeed, as cleverly noted by Stephen Taylor's daughter, UNIDO can also mean "you and I do."

We will work with you to identify sectors with a comparative advantage. We will support you in establishing the necessary infrastructure and building your human capital. As we know, these are the basic requirements for thriving industrial sectors.

Industrialization need not be at the expense of the environment. UNIDO has the knowledge and expertise to help you minimize the negative impact of industrial activity on environment. We want to ensure that industrial growth benefits the whole of society. We need policies that support the local community, SMEs, and attract investors.

We have seen how countries are already incorporating different models of ISID into their strategies and policies.

We have prepared a solid foundation for the second Global Forum in November. This will concentrate on promoting UNIDO's new partnerships programme to operationalize ISID. We are expecting strong support and participation from member states, private sector, financial institutions, multilateral and bilateral development agencies as well as academia.

In our global ISID outreach, UNIDO believes that sustainable industrialization is universal, and our objective is for industrialization to be a standalone Sustainable Development Goal, within the overarching combined objectives of poverty eradication, shared prosperity and stronger environmental safeguards. We believe that sustainable industrialization is necessary for achieving these three overarching objectives—by providing effective solutions to tackle economic deprivation, social inequality and environmental degradation.

A strong rationale exists for a specific and standalone goal on sustainable industrialization in the new development architecture. Sustainable industrialization has an important and positive effect on other fields of development, such as food security, health, education, employment and almost all environmental goals.

To this end, we are actively participating in the intergovernmental post-2015 consultation processes. I will keep you informed on the progress of these consultations and the proceedings of the Open Working Group in New York.

I believe that to really achieve inclusive and sustainable industrial development, we need platforms, such as this Forum, to exchange experiences and knowledge and build partnerships. In this way, we can ensure that the strategies, policies and instruments we develop and implement for ISID will have a maximum impact.

In the coming months and leading up to the second Forum in October, UNIDO will work tirelessly to pursue ISID at the national, regional and global levels. Our efforts will be buoyed and sustained through your support.

The achievements of this Forum will also be communicated to Member States at the Programme and Budget Committee tomorrow. I sincerely believe that we can be proud of what we have achieved during these two days, in the quality and depth of the discussions, in the wealth of information and experiences shared, and in the groundwork prepared for the second Forum.

LI Yong
Director General
UNIDO

# Panelists and discussants

***Jorge Acaiturri,*** Under-Secretary for Special Development Zones of the Industry and Productivity Ministry, Ecuador

Mr. Acaiturri is President of the audit committee of the Social Democrat Political Party "AVANZA" in Ecuador. He is also General Manager of the company "Delphin Prowater Ecuador". From 2011 to 2013, He held a position in the Administrative Advisory of the Ecuadorian Institute of Social Security (IESS). Later, he was Director of the Hospital of IESS in Milagro, Ecuador.

***Gyan Chandra Acharya,*** Under-Secretary-General, High Representative for LDCs, LLDCs and SIDS

Mr. Chandra Acharya has been the United Nations Under-Secretary-General and High Representative for the Least Developed Countries, Landlocked Developing Countries and Small Island Developing States since 2012. He is the Chair of the Global Coordination Bureau of the Group of Least Developed Countries, and he contributed to the successful conclusion of the Fourth United Nations Conference on the Least Developed Countries and its follow-up process.

***Ahmed Abtew,*** Minister of Industry, Ethiopia

Mr. Abtew has more than 20 years of experience in high-level positions. He is the former Deputy Governor of the Amhara Regional State, former Head of the Bureau of Industry and former Urban Development Head. For the last 15 years, he also worked as Head of Finance and Economic Development, Trade Industry and Urban Development and other Bureaus.

***Olusegun Olutoyin Aganga,*** Minister of Industry, Trade and Investment, Nigeria

Mr. Aganga is the former Minister of Finance and former Chairman of the Nigerian National Economic Management Team. He also served as governor in several international financial institutions, such as the World Bank, the International Monetary Fund and the African Development Bank. Previously, he was Managing Director at Goldman Sachs International, London, and worked for Ernst & Young in London and Lagos.

***Amir Hossain Amu,*** Minister of Industry, Bangladesh

Mr. Amu is a senior Minister in the Cabinet of the government of Bangladesh, holding the Ministry of Industries portfolio. Earlier, he served as Minister in the Ministry of Food and the Ministry of Land and Disaster Management. Under his leadership, the Bangladesh food sector achieved remarkable results leading to food self-sufficiency.

***Todd Benjamin,*** Veteran Journalist

For the past 26 years, Mr. Benjamin has worked as an anchor, correspondent and financial editor for CNN, based in Washington D.C., New York, Tokyo and London. As an award winning journalist, Mr. Benjamin has interviewed global leaders from Mikhail Gorbachev to Alan Greenspan.

***Michael Böheim,*** Senior Expert for Industry Policy and Competition Policy, Austrian Institute of Economic Research

Mr. Böheim's research focuses on industrial economics, innovation and international competition. He specializes in European and Austrian competition policy and regulation, industrial economics and policy, as well as industrial structure, growth and competitiveness. Previously, he was Officer for EU Issues at the Styrian Agricultural Chamber.

***Anuar Buranbayev,*** Chairman of Kazakhstan's Industry Development Institute

Mr. Buranbayev has held senior positions in the National Agency on Foreign Investments, Eximbank

of Kazakhstan JSC, Geoteks JSC, the RK State Committee on Investments, National Bank of Kazakhstan JSC, Kazakhoil Aktobe LLP Nauryz Bank LLP and in subsidiary organizations of Sunkar Resources plc. He is now an Associate Professor at the International Academy of Business in Almaty, Kazakhstan.

***Janko Burgar,*** State Secretary and Deputy Minister of Economic Development and Technology, Slovenia

Mr. Burgar is State Secretary at the Ministry of Economy of the Republic of Slovenia, responsible for entrepreneurship, innovation, internal markets and internationalization. He is a member of the Competitiveness Council, of SME Envoy, of the group devoted to promoting SME policy in the EU, and of the OECD Committee for Industry, Innovation and Enterprise.

***Prasidh Cham,*** Senior Minister of Industry and Handcraft, Cambodia

Mr. Cham was previously Minister of Commerce and Member of Parliament for the Siemreap Constituency. He was also Chief Negotiator for Cambodia's Accession to the World Trade Organization, ASEAN Economic Minister for Cambodia, ASEM Economic Minister for Cambodia, Minister in charge of the Greater Mekong Subregion programmes and Minister in charge of Cambodia-Laos-Vietnam Development Triangle Programmes.

***Guang Zhe Chen,*** Country Director for Ethiopia, World Bank

Mr. Chen joined the World Bank in 1997. Trained as a development economist, he has more than 20 years of international experience in the field of development, finance and infrastructure management. Based in Addis Ababa, he is responsible for building strong partnerships with the client government and its development partners in order to develop and implement the Bank's country partnership strategy for Ethiopia.

***Santiago Creuheras-Díaz,*** Director General for Energy Efficiency and Technological Innovation at the Ministry of Energy, Mexico

Mr. Creuheras-Díaz serves as the Chairman of the International Partnership for Energy Efficiency Cooperation. Previously, he was Advisor to the Ministry of Finance and Public Credit, Sectoral Coordinator and Adviser to the Ministry of Energy, Director General for Local and Foreign Policy at the Office of the President of Mexico, and Director General for Labor Training at the Ministry of Labor and Social Welfare of Mexico.

***Ahmed M. Darwish,*** Chairman, Institute of Electrical and Electronics Engineers, Egypt section, and Former Minister of State for Administration Development, Egypt

Mr. Darwish is a consultant to UNDP, UNIDO, UNESCO, FAO, ESCWA, the European Union and the World Bank and to companies in the United States and Egypt. He has previously worked as Minister of State for Administrative Development in Egypt, where he led the preparation of the National Policy and Strategy Document on e-government.

***María-Luisa Delgado-Medina,*** Deputy Director General of Technology Transfer, Ministry of Economy and Competitiveness, Spain

Ms. Delgado-Medina was previously a Counsellor in the Spanish Embassy in London, Deputy Director General for Industrial Environment, Deputy Director General for the coordination of the Research and Innovation National Plan and Director of the Institute for Renewable Energy.

***Hasim Cihan Demirkoprulu,*** Industry and Technology Expert, Ministry of Science, Industry and Technology, Turkey

Mr. Demirkoprulu has worked as a Technology Assistant Expert at the General Directorate for Industrial Zones within the Ministry of Science, Industry and Technology of Turkey since 2009. He has experience working with organized industrial

zones and industrial estate applications, clustering support programmes and clustering in Turkey.

***Mohamed-Lamine Dhaoui,*** Director, Business, Investment and Technology Service Branch, UNIDO

Dr. Dhaoui has held various positions at UNIDO since 1990, including PTC/PSD Director, Special Adviser to UNIDO's Director-General/Coordinator of Thematic Issues, and Deputy Director for the Trade Capacity Building.

***Hadja Fatoumata Binta Diallo,*** Minister of Industry, SMEs and Promotion of Private Sector, Guinea

Ms. Diallo is in charge of revitalizing Guinea's industrial sector and accelerating the country's structural transformation and economic diversification. She was previously advisor to the Prime Minister on youth and women entrepreneurship related issues and worked for 26 years at the ECOWAS Bank for Investment and Development (EBID) in several strategic positions.

***Helen Hai,*** Vice President, Huajian and Advisor to the governments of Ethiopia and Rwanda

Ms. Hai previously worked as Vice President and CEO of Overseas Investment for the Huajian Group, where she set up export production in Ethiopia and was elected as Vice-Chair of the Chinese Chamber of Commerce in Ethiopia.

***Omar Hamidou Tchiana,*** State Minister, Minister of Mining and Industrial Development, Niger

Mr. Tchiana previously served as president of "the Niger parliamentary group of the democratic movement for an African federation" and as member of the Finance and Budget Commission at the National Assembly. He also served as Vice President of the Economic and Social Council and as advisor in the Prime Minister's Cabinet.

***Odette Herbozo,*** General Director, General Directorate for Economic Studies, Evaluation, and Territorial Competitiveness, Ministry of Industry, Peru

Ms. Herbozo was Advisor to the Vice Minister of SMEs and Industry until April 2013, when she was appointed to her current position. For six years, she was Head of International Affairs at the National Institute for the Defense of Competition and for the Protection of Intellectual Property of Peru.

***Haruna Iddrisu,*** Minister of Trade and Industry, Ghana

Mr. Iddrisu previously served as the Minister of Communications for four years and was Member of the Parliamentary Select Committee on Communications. In 2011 he was Commissioner of ITU/WHO Commission on Information and Accountability on Women's and Children's Health.

***Ana Teresa Igarza-Martinez,*** Director General of the Office for the Special Development Zone in the Ministry of Trade and Foreign Cooperation, Cuba

Ms. Igarza-Martinez has been working as a professional judge, providing legal advice on foreign trade activities and business management and performing similar activities within the business sector for over 18 years. In September 2013, she was appointed Director General of the Office for the Special Development Zone of Mariel in Cuba.

***François Kanimba,*** Minister of Trade and Industry, Rwanda

Mr. Kanimba was appointed as Minister of Trade and Industry in 2011 after a long career in the Central Bank, where he served as the Bank's Governor after 2002. He also worked as World Bank's Principal Economist from 1995 to 2000, coordinating the World Bank operations in Rwanda in areas of Macroeconomic Management and Private Sector Development.

***Stephen Karingi,*** Director of Regional Integration and Trade, UNECA

Mr. Karingi joined the United Nations Economic Commission for Africa in 2004. Previously, he was a Senior Analyst and Head of the Macroeconomics Division, Kenya Institute for Public Policy Research and Analysis. He also served as a lecturer of Economics at Egerton University.

***Mamadou Syll Kebe,*** Director of Industry, Ministry of Industry and Mines, Senegal

Mr. Kebe was former Chief of the Industrial and Strategic Operational Division at the Ministry of industry. He served as a focal point for ECOWAS in charge of infrastructure quality. He also chaired several committees such as the Steering Committee of the West Africa Quality Programme.

***Haidar Kholov,*** Deputy Minister, Ministry of Industry and New Technology, Tajikistan

Mr. Kholov was appointed as Deputy Minister in 2012. He joined the government in 2002 as the Chief Specialist for Financial and Economic Organisations in the Department of the Tajik Ministry of Industries.

***Yong-kyoo Kim,*** Honorary Chairman, Korean Council on Foreign Relations, Republic of Korea

Mr. Kim worked as Director General of the Trade Bureau and Deputy Minister for planning and management of the Foreign Ministry. He became Chairman of the Korean Council on Foreign Relations in 2011 and taught at Yonsei and Ulsan University for six years.

***Roberto Kreimerman,*** Minister of Industry, Energy and Mining, Uruguay

Mr. Kreimerman previously served at the Ministry as Vice Minister in 2009 and as National Director of Industry in 2008. Between 1980 and 2008, he worked in numerous management positions in the private sector.

***Iztok Lesjak,*** Director, Technology Park Ljubljana, Slovenia

Mr. Lesjak is an international expert in innovative SME creation, incubation and regional policy development. He supported the design, development and implementation of park infrastructure and value added services and was actively involved in the evaluation process for more than 200 initiatives and hi-tech company proposals.

***Heinz Leuenberger,*** Director, Environmental Management Branch, UNIDO

Mr. Leuenberger has been Director of the Environmental Management Branch since March 2006. The Branch is responsible for activities related to resource efficient and cleaner production, waste, chemicals and water management and the reduction of mercury use in artisanal gold mining. He is involved in the design, formulation and implementation of UNIDO's Green Industry Initiative.

***Justin Yifu Lin,*** Honorary Dean, National School of Development, Peking University

Mr. Lin served as the Chief Economist and Senior Vice-President of the World Bank from 2008 to 2012. Prior to joining the Bank, he served for 15 years as Founding Director and Professor of the China Centre for Economic Research at Peking University.

***Berenika Marciniec,*** Deputy Director, Infrastructure of Modern Economy Department, Polish Agency for Enterprise Development

Ms. Marciniec is responsible for the development of Polish science and technology parks based on European Funds. She has experience in the internationalization of networks, cluster development, and support to targeted innovation relay centres in Europe.

***Elsie Meintjies,*** Senior Programme Officer, Directorate of Trade, Industry, Finance and Investment, Southern African Development Community, Secretariat

Dr. Meintjies has been dealing with topics of regional economic integration, focusing particularly on

conformity assessment in the facilitation of trade. She has also been the Managing Director of the Botswana Bureau of Standards and SABS Certification (Pty) Ltd.

***Leonard Mizzi,*** Head of Unit, European Commission, DG Agriculture and Rural Development

Mr. Mizzi deals with African Caribbean and Pacific (ACP) countries, the UN, including FAO, and the G8 and G20 groups. He was previously the Director of the Malta Business Bureau in Brussels, the joint representative office of the Malta Chamber of Commerce and Industry and the Malta Hotels and Restaurants Association.

***Adan Abdulla Mohamed,*** Cabinet Secretary, Ministry of Industrialization and Enterprise Development, Kenya

Mr. Mohamed, was appointed Cabinet Secretary in 2013. He previously worked in the private sector and was Managing Director and Finance Director of Barclays Bank in East and West Africa.

***Célestin Monga,*** Senior Advisor/Director, World Bank

Mr. Monga is the Economic Advisor to the World Bank's Senior Vice President and Chief Economist. At the World Bank, he has held positions in both operations and research. He previously served on the Board of Directors of the Sloan School of Management's Fellows Program at the Massachusetts Institute of Technology (MIT) and taught at Boston University and the University of Bordeaux in France.

***Jasmina Muric,*** Senior Advisor, Ministry of Agriculture and Environmental Protection, Serbia

Ms. Muric previously worked as an Advisor to the Ministry of Human Rights and as a project manager at the Centre for Democracy Foundation. She also gained experience as a counsellor of the Ombudsman of the Republic of Serbia, as a project coordinator at UNDP, a programme manager at the International Management Group and as a team leader at UNFPA/UNDP.

***Hardy Rudolf Schmitz,*** Chief Executive Officer, Wista Management, Germany

Mr. Schmitz, an electrical engineer, has worked with BCG and Digital Equipment GmbH. In 1989, he founded a company within the CompuNet Computer Group, which he later sold to GE Capital. He is a business angel and member of several advisory boards. Since 2002, he has been the CEO of Wista Management, the company that runs the science and technology park, Berlin Adlershof.

***Philippe Scholtès,*** Managing Director, Programme Development and Technical Cooperation Division, UNIDO

Mr. Scholtès joined UNIDO in 1988 and has served as a Representative in Viet Nam and Regional Director for South Asia in India. He also acts as Director of the Agri-Business Development Branch and is a member of the Executive Board.

***Marat Sharshekeev,*** President of the Chamber of Commerce and Industry, Kyrgyzstan

Mr. Sharshekeev is also the Chairman of the Business Council of the Shanghai Cooperation Organization and the General Director of "Kyrgyz radiozavod Corporation - Ak-Maral".

***Xiaokai Shen,*** First Secretary, Department of International Trade and Economic Affairs, Ministry of Commerce, China

Mr. Shen has extensive experience in development cooperation including industrial development, trade and population. He has served at the Permanent Mission of China to UN and is active in the consultations on the SDGs and the post-2015 development agenda.

***James Shinyabulo Mutende,*** Minister of State for Industry and Technology, Uganda

Mr. Mutende was appointed as Minister of State for Industry in Uganda in 2011, where he has been in charge of the industry and technology sector. He

previously worked as an Investment Officer and Senior Investment Officer for the Uganda Investment Authority.

***Shubhra Singh,*** Joint Secretary, Department of Industrial Policy and Promotion, Ministry of Commerce and Industry, India

Ms. Singh's responsibilities cover the development of backward areas, investment promotion and international cooperation, infrastructure development, industrial licensing and industrial policy. She holds a double Master of Arts in English and Political Science. She previously was Director of the Ministry of Home Affairs and Registrar General of India.

***Robert Sichinga,*** Minister of Commerce, Trade and Industry, Zambia

Mr. Sichinga is the former Minister of Agriculture and Livestock. He amassed 38 years of practical experience in audit, accounting, financial control and general management in both private and parastatal enterprises, primarily in the industrial sector. He was a general manager and controller in the mining sector with responsibilities for organizational restructuring.

***Rebecca Fatima Sta. Maria,*** Secretary General, Ministry of International Trade and Industry, Malaysia

Ms. Sta. Maria was previously the Deputy General at MITI, providing oversight for the formulation and implementation of Malaysia's international trade policies and positions.

***Stephen Taylor,*** Director of the Technology Transfer Department, AREA Science Park Trieste

Mr. Taylor has 20 years of experience in helping major firms and government agencies in Europe and North America access the latest knowledge and expertise for analysis and planning for new business, market research, new development and technology commercialization. He is also active in joint-venture negotiations, industry and competition monitoring and analysis, business and new-product-opportunity evaluation, forecasting technology and economic analysis.

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Professor Wade previously worked at the Institute of Development Studies in Sussex, the World Bank, the Princeton Woodrow Wilson School, the MIT Sloan School, and Brown University and as a fellow of the Russell Sage Foundation, the Institute for Advanced Study in Princeton, and the Institute for Advanced Study in Berlin.

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Mr. Zeng has more than 20 years of experience in Africa, East Asia and Pacific, Latin America and the Caribbean, and Europe and Central Asia. Prior to joining the World Bank, he worked at the Chinese Academy of Social Sciences as an economist and at Stanford University.

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