

## **DRAFT SUMMARY**

### **Workshop on Delivering Green Growth – Seizing New Opportunities for Industries Seoul, Korea, 4-5 March 2010**

#### **Introduction**

On 4-5 March 2010, the OECD and Korean Ministry of Knowledge Economy jointly held a workshop on “Delivering Green Growth” in Seoul, Korea. This two-day workshop was attended by over 400 participants from business, academia, research institutes, public organizations and governments.

37 experts from 8 countries and the OECD contributed to the presentation and discussion on a wide range of strategic topics on green growth: challenges and opportunities for industries, innovation and green growth, implications for growth and job creation, and policy approaches to foster green growth.

#### **Session 1: Welcome Remarks and Keynote Speeches**

The first session of the workshop provided an overview of the challenges and new opportunities of green growth and the global efforts to promote and achieve it.

Mr. Hyung-Kook Kim, Chairperson of Korean Presidential Committee on Green Growth, outlined the background of green growth policy in Korea, emphasizing that it is a historical change backed by a strong political leadership. He discussed the challenges that Korea has encountered in the pursuit of green growth and the policy priorities that Korean government has established.

Mr. Chemin Rim, Vice Minister of Korean Ministry of Knowledge Economy, welcomed workshop participants and highlighted the importance of the OECD’s work on green growth. He expected that the OECD will develop a far-reaching plan to accommodate the challenges of climate change with the need for green growth, which would be an enormous task that requires partnerships across sectors, industries and borders. He noted that Korea will actively share its expertise and skills with the global community.

Mr. Mario Amano, Deputy Secretary-General of the OECD, addressed the OECD’s strategic vision and projects on innovation and green growth. He underlined the importance of global efforts to promote green growth, with an emphasis on government’s commitment to provide a clear and consistent long-term policy framework. He mentioned that the OECD will provide countries with a broad and flexible mix of instruments that cut across several policy areas such as investment, taxes, innovation, technology, trade, employment and education.

#### **Session 2: Innovation and Green Growth**

*Chair:* Mr. Ken Warwick, Chair of CIIE

This session focused on how to strengthen and accelerate innovation for green growth, from the perspective of policy, business, and the financial sector.

Mr. Dirk Pilat, Head of Structural Policy Division of the OECD, presented policy implications from the OECD Innovation Strategy. He stressed a combination of various policies to stimulate innovation. Stable policy frameworks and well-designed incentives for firms are essential for encouraging private investment in innovation. Support for pre-competitive research, a reliable infrastructure and knowledge networks,

well-functioning financial markets, and empowering people to innovate are all important to accelerate innovation for green growth.

Mr. Rick Johnson, Vice-Chair of the BIAC Committee on Technology, discussed policy frameworks for innovation and green growth. He emphasized the increasing importance of entrepreneurial ecosystems to drive green growth and the role of governments to support all types of entrepreneurship. He also mentioned key elements to promote innovation, including the creation of smart infrastructures, strategic partnerships for innovation, interconnections between technology and business, customer-driven green innovation, and more predictable incentives and policies for capital formation.

Dr. Hee-Jin Noh, of the Korea Capital Market Institute, provided an overview of global trends in financial activities to stimulate green growth. He argued that climate-related risk such as GHG emissions are now considered a key risk factor by many financial institutions, pointing out that, as a result, we have witnessed a dramatic increase in carbon markets and investment in clean energy. He suggested a strong government support for the development of green financial products as well as the establishment of related infrastructure.

Following these presentations, two discussants participated in the panel discussion. Dr. Jeong-Shik Shin, Chair Professor of Konkuk University, mentioned that markets and government support need to be harmonized, and emphasized the important role of innovation. Dr. Min-Ku Han, Professor of Seoul National University, argued that green innovation requires long-time investment and patience, so the government needs to establish long-term frameworks for green growth policy.

### **Session 3: Challenges and Opportunities for Industries (Parallel Sessions)**

This session explored the challenges that industries will face as well as the new opportunities that businesses will develop in moving towards green growth. Three sectors were explored in parallel sessions.

#### **Car Industry**

*Chair:* Mr. Koen de Backer, Senior Economist at the OECD

Mr. Ki-Sang Lee, Senior Vice President in the R&D Division of Hyundai-Kia Motor Company, discussed the challenges and opportunities for the green car industry in Korea. He referred to the depletion of oil resources, global warming and toughening regulations as important drivers for the development of the green car market. He presented in detail the different technologies of green cars (hybrid, plug-in hybrid, electric and fuel cell electric) and showed the importance of these different technologies for the Hyundai-Kia Green Car Strategy.

Mr. Haruyoshi Kumura, Fellow of Nissan Motor Company, presented the technology development of Nissan's electric vehicle and future vision. He also referred to increasing oil prices and the need for CO<sub>2</sub> reduction as important factors for green innovation in the car industry. Nissan has put strong (exclusive) efforts in developing electric vehicles. Mr. Kumura discussed the potential market demand for the electric vehicles, projected to arise first in more urban areas. He also showed the need for further improvements in complementary technologies (e.g. battery technology) and in a charging infrastructure (e.g. smart grid) for the widespread adoption of the electric vehicle.

Dr. Martin Koers, Head of Economic Policy and Climate Protection of the German Association of the Automotive Industry, discussed the European CO<sub>2</sub> approach and its possible transfer to Korea. Dr. Koers described in detail the European car market and the implementation of the CO<sub>2</sub> target in Europe (e.g. not all cars need to reach the reduction target). He then described the important differences between the EU and Korean car market (less diesel cars, larger cars, more 4WD in Korea) and the problems this might

create when deciding to implement the European CO<sub>2</sub> target in the Korean car market. He argued that the overall reduction target should take into account the specific fleet characteristics of the Korean car market.

The Q&A round at the end of the panel session focused on the cost/price of green cars as an inhibiting factor for the development of the green car market. Dr. Myoung-Ho Sunwoo, Professor of Hanyang University of Korea, and Dr. Ki-Chan Kim, Professor of Catholic University of Korea participated in the panel discussion. In addition, some participants discussed the differential approach between the EU and Korean market for setting the CO<sub>2</sub> target in Korea.

## **Green IT**

*Chair:* Dr. Kwy-Ro Lee, Korea Advanced Institute of Science and Technology (KAIST)

Mr. Hongbeom Jeon, Senior Vice President of KT Corporation, provided an overview of climate change issues surrounding the IT industry and presented the company's effort for Green IT. He showed evidence that IT-related CO<sub>2</sub> emissions are rising 5.5 times faster than global CO<sub>2</sub> emissions and this needs to be solved by both "greening of IT" and "greening by IT". He introduced some examples that KT is applying or planning, including the improvement of energy efficiency by reducing steps of electricity conversion (use of DC instead of AC), intelligent transport systems and e-Health.

Mr. Takao Shiino, Counsellor of the Nomura Research Institute, spoke about the importance of pursuing Green IT with all related parties; *i.e.* improving energy efficiency per capacity by equipment manufacturers, providing a low-carbon energy mix by energy providers and improving capacity per activity of end-users. He proposed four sub-metrics to understand and benchmark the improvement of energy efficiency at different stages of the lifecycle.

Mr. Ken Mizugami, Consulting Sales Specialist of IBM Japan, argued that Green IT should enable improvements at three different levels – 1) improving efficiency of IT and other infrastructures; 2) increasing organisational efficiency; and 3) creating intelligent systems to manage resources at a macro level. He introduced some examples and concepts of smart solutions as "green innovation", including a congestion charging system in Stockholm, a CO<sub>2</sub> visualisation project in Japan, and green service management.

Two discussants commented on the presentations and posed some questions to the panellists. Dr. Soung-hie Kim, Professor of KAIST, referred to the future convergence of IT and other technologies and the need of creating a ubiquitous society to realise green growth, where all actors could find win-win opportunities. He emphasised providing IT solutions to SMEs, with which can dramatically improve energy efficiency with minimum resources and cost.

Mr. Tomoo Machiba, Senior Policy Analyst of the OECD, addressed the need to develop and share future visions of a society where Green IT can truly realise low-carbon systems to enable different actors to work for common objectives. He also stated the need to investigate how policies can help realise Green IT and how IT could potentially change the behaviour of consumers and other businesses.

## **Steel Industry**

*Chair:* Mr. Dirk Pilat, OECD

Mr. Ki-Hong Park, Executive Vice President at POSCO, discussed recent improvements in the steel industry's environmental performance and provided details of his company's green growth strategy. Mr. Park highlighted a number of energy-saving activities undertaken by POSCO, including investments made to recover energy in the production process and voluntary energy reduction agreements with the

government. As for strategies to promote green growth in the future, POSCO is actively exploring new steelmaking processes that promise significant carbon dioxide reductions, including the POSBOP process (POSCO Basic Oxygen Process for high energy efficiency), CEM (Continuous Casting Endless Mill) and, over the longer term, substituting hydrogen for coal in the steelmaking process.

Mr. Anthony de Carvalho, Administrator in the OECD's Steel Unit, presented global challenges and opportunities for the steel industry in moving towards green growth. He explained how the industry's energy efficiency has improved considerably over the past few decades, supported by important research and development efforts, increased recycling of steel-containing products, and more use of wastes and by-products generated by the steelmaking process. To meet further improvements in energy efficiency, the use of best available-technologies will have to spread and significant innovation strategies will be needed to bring about new technological solutions. Mr. de Carvalho highlighted various international research programmes that aim to identify new, carbon-lean ways of making steel.

Mr. Takashi Miwa, Director General Manager in Nippon Steel's Iron-Making Division and Project Leader for the so-called COURSE 50 Committee, provided details about research in Japan to develop innovative technologies for greener steel production. The programme, called CO<sub>2</sub> Ultimate Reduction in Steelmaking Process by Innovative Technology for Cool Earth 50 (COURSE 50), aims to develop technologies that reduce CO<sub>2</sub> emissions by approximately 30 percent. The focus is on processes that would allow for iron ore to be reduced using hydrogen instead of coal as well as ways to capture, separate and recover CO<sub>2</sub> from blast furnace gas. The programme seeks to establish these technologies by around 2030 and apply them on an industrial scale by 2050.

The presentations were followed by comments from two discussants, Dr. Yun-gi Ahn, of the POSCO Research Institute, and Dr. Suk-In Chang, of the Korea Institute for Industrial Economics and Trade. The discussants raised questions regarding policy approaches to address emissions reductions in the iron and steel sector and discussed issues related to the need for technology transfer to economies where much of the steel production takes place in outdated facilities and with obsolete equipment. The Q&A focussed on prospects for developing the new breakthrough technologies that are needed by the industry.

#### **Session 4: Implications for Growth and Job Creation**

*Chair:* Mr. Dirk Pilat, OECD

This session discussed a number of issues related to the potential impacts of green growth and challenges and opportunities for the job market.

Dr. Joy-Up Ahn, Senior Research Fellow of Korea Labor Institute, provided an overview of green jobs and related issues such as changes in the employment structure, human resources policies and labour market policies. He also introduced a theoretical model of employment in the green economy and a number of reports on green jobs as well as global trends in green job research.

Dr. Alex Bowen, Principal Research Fellow of London School of Economics and Political Science, highlighted the opportunities for increased employment from policies against climate change, particularly in the current global macroeconomic context. Dr. Bowen pointed out that the challenge over the longer term is to unleash the innovation that will be needed to complete the transition to the low-carbon economy. That innovation can build the foundations for cleaner, greener, more sustainable growth and higher-productivity jobs, while providing new sources of comparative advantage. He also argued that economies will have to cope with the structural adjustments required, reduce market and regulatory distortions, ensure labour market flexibility and cushion the impact of environmental pricing on the poor.

Following these presentations, Dr. Sang-Won Ko from Korea Information Society Development Institute and Dr. Gong-Pil Choi from Korea Institute of Finance joined the panel discussion. The discussion covered a range of job creation opportunities and new growth areas in the low-carbon economy. Dr. Ko put a special emphasis on new opportunities with the convergence of financial industry and ICTs.

## **Session 5: Policy Approaches to Foster Green Growth**

*Chair:* Mr. Rob Visser, Chair of the OECD Core Group on Green Growth

In this session, seven officials from Japan, UK, US, Sweden, China, Korea and the OECD presented policy approaches and global efforts to promote green growth and seize new opportunities.

Mr. Yasuhisa Nakao, Director of Japanese Ministry of Economy, Trade and Industry, presented Japan's Green Innovation Policy. Green innovation covers environment and energy, which is one of six strategic areas for growth that Japanese government has set. Mr. Nakao addressed various policy measures for green innovation, which includes the support for renewable energy and eco-housing, development of green technologies, regulatory reforms, and green tax system. He also shared information on an upcoming APEC meeting in Japan and related events on green growth.

Mr. Ken Warwick, Deputy Chief Economic Advisor of the UK Department for Business, Innovation and Skills, presented the UK's Low Carbon Industrial Strategy. The strategy highlights the need for the whole economy to become more green, outlines the business opportunities, and considers the sectoral and regional challenges. Mr. Warwick argued that the role for government in fostering greener growth is to address market failures and distributional impacts to achieve the core objectives of the strategy. Horizontal policies – for example, those designed to improve information provision, funding, economic incentives, regulations and public procurement – are important in helping strengthen the drivers of growth, which include technology, innovation, skills, investment and demand for low carbon goods and services.

Mr. Matthew Howard, of the US Department of Commerce, presented the US's Sustainable Manufacturing Initiative, with an emphasis on its nature to be service-focused and demand-driven. Mr. Howard explained the concept and the background of this initiative, as well as a number of policy frameworks such as Interagency Working Group, Sustainable Business Clearinghouse and Sustainable Manufacturing American Regional Tours (SMART). He also discussed the US government's future work on sustainable business, supply chains, manufacturing process and products.

Ms. Berit Gullbransson, Director of Swedish Environmental Technology Council, provided an overview of Sweden's policy approach to green growth. She introduced Sweden's target of climate and energy policies along with a series of action plans for renewable energy, energy efficiency and fossil fuel independent vehicles. Ms. Gullbransson also highlighted Sweden's efforts to promote bioenergy use such as incentives for investment, public procurement, development of energy sources, establishment of infrastructure and support for operational optimization.

Mr. Ji Xie, Deputy Director General of the National Development and Reform Commission of China, presented the country's policies to foster green growth, with a special focus on energy efficiency. Mr. Xie noted that energy has become a bottleneck for economic development in China and the government now puts a high priority on energy efficiency improvements. He introduced China's national targets in energy efficiency and emission reduction by 2010, as well as ten policy measures to achieve the goals: setting local governments' target for energy saving, incorporating energy efficiency factor in industrial development plans, improving energy management in major industries, implementing action plans such as Green Lighting Projects, and legislation of energy-related regulations.

Mr. Seok Cho, Deputy Minister for Industry of Korean Ministry of Knowledge Economy, presented Korea's green growth strategy. He pointed that the country's industries are heavily energy intensive and Korean economy is too vulnerable to outside factors such as the oil price. To overcome this structural weakness, Korea has set green growth as a new agenda for national development. With a new vision of transition to low-carbon economy, the Korean government is implementing various policy instruments to greening its major industries like automobile, shipbuilding, steel and electronics. Mr. Cho also highlighted the promotion of the green energy industry, green technologies and green ICTs to create new growth engines for the country.

Mr. Rob Visser, Chair of the OECD Core Group on Green Growth, summarized and closed the last session of the workshop, presenting the OECD's work on the green growth strategy. In explaining the background and key elements of the strategy, Mr. Visser discussed policy priorities related to social equity, employment, industrial restructuring and the new growth framework. He stressed internalizing environmental externalities, improving framework conditions, promoting innovation, integrating green growth in development cooperation and measuring green growth. The OECD's final report on green growth strategy is expected in May/June 2011.