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1 Chile : Green Innovation Policies and Experiences

(Conrad Von Igel, Head of Innovation Division, Ministry of Economy)

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Philippines : Greening SMEs in the Philippines - Initial Steps

(Gladina Aquino, Chief Trade and Industry Development Specialist, Department of Trade and Industry)

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Papua New Guinea : SME Support Policies concerning Green Financing and Green Workforce (Willie Reia, Principal SME Development Officer, Development of Commerce & Industry)

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Malaysia : Green Industry Development in Malaysia

(Nik Mohd Fahim Muhaimin, Principal Assistant Director, Ministry of International Trade & Industry)

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(Li Lian, Deputy Division Director, Ministry of Industry and Information Technology)

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(Quyet Chien Nguyen, Official, Ministry of Science and Technology)

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Presentation on Green Initiative Framework

(Ji-Seok Kim, Commissioned Researcher, APEC SME Green Innovation Center)

2011 APEC SME Green **Innovation Conference** "Mexican Strategies Focussed on SME to Support Green **Technology Innovation**"

> April 19–20, 2011 KOREA

"Green SMEs: Champions of APEC's New Growth"

ISSUES FOR DISCUSSION

- Green Growth in Mexico is possible according to World Bank Study.
- The adoption of a series of measures and policies also would contribute that the country maintain a pace of vigorous growth.
- What are the main areas in which Mexico need to make adaptations and mitigatios to the impact of climate change.
- Main policies and programs implemented by the Mexican Government to promote a Green Growth.
- > Mexican SME action plans for Green Growth.

CHALLENGES

 Moving to a greener economy may be more difficult for SMEs than large firms, although SMEs can be more flexible than large businesses in adapting to the fast changing market environment. The willingness and capability of SMEs to adopt sustainable strategies or seize green business opportunities generally meet with size-related resource constraints, skills deficits and knowledge limitations, not to mention the crucial business of survival, especially in the aftermath of a grave crisis.

CHALLENGES

o Small innovative firms are often the main engines for technological innovation which are subsequently adopted and develop by larger firms. The encouragement of such SMEs to develop new technologies that can support sustainable and environmental-friendly manufacturing, networking and job opportunities through for example clustering and related activities, could be another subject of discussion among high-level policy makers. The extent to which smaller firms. Which represent a large share of the population of firms in manufacturing industries, are involved in sustainable manufacturing and eco-innovation has yet to be determined. Costs and lack of competencies and information could restrain these firms from taking up actions that would not only improve their overall performance but that could also have positive effects for employment generation and the greening of the society.

CHALLENGES

 Manufacturing firms including SMEs, have the potential of becoming a driving force for the creation of sustainable society by designing and implementing integrated sustainable practices that will allow them to eliminate or reduce their own environmental and social impacts. Their products and service can also contribute to better environmental performance in other sectors, increasing profitability, efficiency and competitiveness.

STRATEGY

 Green growth policies need to be embedded in a coherent, integrated strategy covering demand and supply aspects, both economy-wide and at the sectorial level. This will ensure that green growth is not a just a short-term response to the crisis but a transforming dynamic for both production processes and consumer behavior.

WHAT ROLE CAN INNOVATION PLAY?

o Innovation will be a critical driver of green economies and job creation. Policies to accelerate the development and diffusion of clean technologies and related knowledge will be another key part of the policy mix. As identified in the OECD Innovation Strategy, this will involve a broad approach, comprising price-based instruments and incentives for firms to engage in green activities, as well as public procurement and the funding of basic research. It will be essential to remove barriers to trade in clean technologies as well as to the entry of new firms, and improve the conditions for entrepreneurship, especially in light of growing evidence that young firms represent a large source of more radical innovations.

WHAT ROLE CAN INNOVATION PLAY?

• There is also the need for more effective and inclusive multilateral co-operation on science, technology and innovation. The Strategy will address this issue and consider challenges relating to co-operation across countries, funding arrangements, capacity building and International technology transfer. Analysis by the International Energy Agency (IEA), for example, shows that there is considerable potential for the further development and deployment of renewable energy, energy efficiency and other low-carbon technologies. Tapping into this potential will be critical for greening the energy sector.

GREEN GROWTH IN MEXICO IS POSSIBLE

- Mexico has the possibility of maintaining in harmony the world that surrounds it, while it seeks to follow his path of growth.
- The adoption of a series of measures, relatively simple, could keep under control the harmful effects of climate change caused by carbon emissions, which have unleashed more and more cyclones, droughts and rises in sea level, among other effects.
- In addition, the adoption of these policies would contribute to the pace of vigorous growth.
- Mexico has made adaptations which mitigate the impact of climate change in the following areas:

- 1. Energy: Meeting the current demand would increase the total CO2 emissions by 230%. But the adoption of green technologies, like wind, biomass, geothermal, could significantly reduce this impact. Various regulatory and policy reforms will be necessary to expand the use of renewable energy.
- 2. Oil and gas: The MEDEC study notes that there is great potential to reduce carbon emissions in this sector, without reducing the income of Pemex Company. Some measures are: reducing leakage in gas distribution, increasing the efficiency of Pemex's refineries, emphasizing the potential for cogeneration of six Pemex's refineries and his petrochemical plants.

- 3. Energy consumption: The control policies of efficiency in the commercial, industrial and residential sectors will be critical to achieve by limiting CO2 emissions. These include making more stringent standards for lighting, refrigeration, air conditioning and building construction.
- 4. Transport: It is the fastest growing sector in terms of energy consumption and generation of carbon - 90% of the total. Several measures of intervention will be necessary to stop this trend, including: optimizing transport routes, creating a rapid bus system, raising energy efficiency standards for vehicles.

5. Agriculture: It is one of the principal areas of reducing emissions. Interventions in this field would be across reforestation, commercial plantations, and measures to reduce emissions due to deforestation.

MAIN POLICIES AND **PROGRAMS FROM THE MEXICAN GOVERNMENT TO PROMOTE A 'GREEN MEXICO'**

- Federal government actions, which are part of the policies of climate change mitigation include: improvement of air quality in cities, reduction of emissions, and transference of pollutants. The topics are shared into four main headings:
- a) Elimination and reduction of substances that deplete the ozone layer.
- b) Industrial regulation and registration of emissions and pollutant transfer.
- c) Air quality and transportation
- d) Elimination and reduction of substances that deplete the ozone layer (SAO)

AIR QUALITY AND TRANSPORTATION

• The transportation program has been established and developed in support of sustainability and competitiveness of the transport sector. The program called clean transport is a voluntary national project, which aims that passenger and freight transport become more efficient and secure. This is achieved with the adoption of new technologies and strategies to reduce fuel consumption, greenhouse gases and criteria pollutants.

BIODIVERSITY

- 2010 was the international year of biodiversity, and Mexico join the global celebration of the planet's biological wealth.
- Our country has stood for diversity, reason why value and conserve it because it is the foundation of our future.
- To face the two major threats, such as climate change and biodiversity loss, it is important to create and strengthen the conditions that guarantee the welfare and viability of ecosystems, which help to confront climate change.

PROTECTED AREAS IN MEXICO

• México has been working through the climate change strategy for protected areas that combine two priority efforts: the preservation of our biodiversity, and the fight against climate change. The special climate change program also includes clear objectives and strategies of adaptation based on the conservation of our ecosystems.

FOREST RESOURCES

- **PROARBOL** is the name of the main program to support the forest sector, it is undertaken by the Mexican government. Its main objective has been to generate development and maximize the quality of life of populations living in areas of greater marginalization. It promotes the participation of owners and possessors of land with forestry potential in forest and arid regions.
- The Program is a mechanism to reduce the rates of poverty and marginalization that exist in most forest areas through the management and use of natural resources.

National Program for Prevention and Integrated Waste Management

This program aims to contribute to sustainable development in Mexico; through a set of environmental waste policies based on promoting changes in patterns of production and consumption, doing preventive actions like minimizing the generation of waste, and increasing the reuse and the recycling.

State programs to confront climate change

- These programs are tools that support the planning and development of state public policies on climate change, which involve relevant factors to formulate environmental policies.
- The environmental sector offers technical assistance to Mexican states that have decided to develop and implement in their state programs that are addressed to climate change like: actions of coordination and supervision activities; capacity building; technical assistance, including funding fundraiser nationally and internationally; reduction of the scale of climate scenarios ; and the regionalization of the assessment of vulnerability.

MEXICAN COMPANIES' GREEN ACTIONS (BEST PRACTICES)

BUILDING SECTOR

o Green housing

The type of construction, also called sustainable, based on the premise of caring for the environment by substantially reducing the consumption of traditional energy and households. Some advances are electricity savings, conservation of the temperature inside to avoid the waste of heating equipment and even more environmentally friendly building materials.

A group of Mexican architects presented designs innovative green wall, vertical gardens and sustainable future hotel rooms, saving energy and water, which seek to solve the problems of chaotic and growing city of Mexico, with over than ten million habitants.

AGRICULTURAL SECTOR

• The Institute of Investigations (IIM) of the independent National University of Mexico (UNAM), was able to produce ceramics whose function could be the capture and retention of greenhouse gases.

Biocides

 The use of pesticides in the agricultural sector is a strong issue that we faced this year. During 2010, researchers of the Faculty of Superior Studies(FES) of the UNAM developed bioplaguicide from medicinal plant extracts to control insects avoiding the use of toxic pesticides. Lemon tea and weed plants are among the raw materials production.

TRANSPORT SECTOR

Increases, in Mexico, the use of hybrid-ecological trucks.

- In Mexico, the transportation industry is renewed every year. In the process of innovation the inclusion of sustainable technologies is becoming more common.
- Grupo Bimbo, CIMSA, FEMSA and LALA GROUP are some of the companies with operations in Mexico that already have green trucks among its distribution fleets.
- These units reduce in 30% the fuel consumption thanks to its diesel-electric engine. They have a build-into electric generator motor.
- The vehicles also have a battery system, which automatically recharges during breaking unit.

Passenger Transport

- ADO, foreign passenger transport Company in Mexico, introduced two ecological buses to its fleet, which have Euro 5 engines and BlueTec technology to reduce polluting emissions by up to 50%.
- In mid-2009 the Mexico City Government introduced 145 new units of low-emission public transport to replace thousands of polluting trucks.
- Also, the Mexican Government acquired 30 natural gas trucks that will reduce carbon monoxide emissions.

SUSTAINABLE ENERGY

Create pilot plant to improve water

The UNAM through the Institute of Marine Science develops a pilot plant to improve the discharge water and other water bodies such as dams, lakes and reservoirs in the country.

Green energy to Mexico

The UNAM and Sonora's University seek to install a producer energy plant using the solar concentration technology. This project use glasses or mirrors to concentrate a large amount of sunlight into a small beam.

Mexico will begin producing ethanol from algae in 2014

The company BioFields got the authorization from the Federal Electricity Commission (CFE) to build a pilot plant for CO2 capture within the thermoelectric and demonstrate the viability of ethanol technology, which can produce biofuel from blue-green hybrids algae.

TECHNOLOGY

Tailored strategies

- Up to now, in Mexico, the green products formed a small niche of customers with purchasing power located in the middle class, with information obtained by his own curiosity.
- Wal-Mart made a campaign in their own stores for their customers to buy saving light bulbs and nightwear made with organic cotton.
- > PI Mabe took out a line of biodegradable diapers.

Committed to the Environment

- Many manufacturers of computing and cell phone in Mexico are trying to eliminate the use of toxic substances, to increase the recycling obsolete products and reduce their impact on global climate change.
- Intel is betting on the reduction of energy consumption through the application of technologies to manufacture smaller chips and virtualization.
- HP established the program in environmental design to optimize the inherent environmental characteristics of each product, process and facilities.

WHEN THE ENVIRONMENT IS TAKEN SERIOUSLY

- Toshiba presented notebook models whose circuits are free of brominated flame retards. The objective is to make all Toshiba's computers as ecological; it means that all internal and external plastic products do not involve the use of PVC because of its high degree of contamination.
- **DELL** is neutralizing their carbon emissions ahead of schedule thanks to the implementation of an aggressive worldwide campaign of energy efficiency.

DELL MEXICO for ten years is taking environmental considerations to create systems that are more efficient in energy consumption. Also, they are creating better product packaging engineering, so it uses recycled materials and not affecting the environment. DELL service comprises three stages: collections and logistics, data destruction and recycling.

GREEN TELEPHONY

- Makers of mobile phones are trying to eliminate the use of toxic substances in the manufacture and recycling old equipment.
- Nokia is working with programs that minimize the impact on the environment. In their product's design, they have created the Nokia 3110 Evolve (the ecological model) with a large component of recycled materials.

MEXICO LAUNCHES GREEN REFRIGERATION TECHNOLOGY

Greenfreeze technology developed by Greenpeace International consists in the use of alternative natural gas in cooling systems and insulation, which does not destroy the climate or the layer ozone.

MEXICO: GREEN TECHNOLOGY IN AUTOMOTIVE

- The «Promotion and Development Law of Bio Energy» is a Mexican government's program of 2008. Since then, Mexico has explored and provided funds to develop the production of biodiesel in the south of Mexico.
- In the case of electric vehicle recharging stations, Mexico City Government might implement them in 2011 at shopping malls, coffee shops and other public places.

AEROMEXICO STRTS ITS FIRST GREEN FLIGHTS

• Aeromexico will become the first airline in the country to conduct so-called «Green Flights» in order to reduce pollutant emissions. The idea is to save fuel.

BARCEL BEGINS GREEN STRATEGY

- Barcel introduced to the market its new 100% biodegradable packaging which is returning to earth in a maximum period of five years, compared to the four centuries it takes to degrade the conventional plastic.
- The wrappers are made of polypropylene foil with a pro-degrading additive.
- Barcel is part of a global program that Grupo Bimbo called «committed to the environment»

THANK YOU FOR YOUR KIND ATTENTION

2011-APEC SME Green Innovation Conference April 19-20, Seoul-Korea

Peru : Clean Processes and Technologies to support Small Industries.





Adriana Ríos

Executive Director CITEccal April 2011





Peru

Key indicators

Total population (millions), 200728.8

Gross Domestic Product of Perú (US\$ millions)





Source: Central Reserve Bank of Peru


Factors that contribute to the Competitiveness

ASSETS:

•GDP growth 2009

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- •Natural Resources and Mega biodiversity
- •Boom of exports
- Geographic position
- •Inflation rates (less than 1% month).



LIABILITIES:

- Unemployment and poverty
- Highly atomized businesses
- Low Productivity levels







Where is Perú in technological process?









Micro Enterprises



DEFINITION

• Micro: 15 workers

Small: 50 workers

- US\$165,000
- US\$465,000



General Information

- 97.65% are SMEs
- SMEs represent 74% of national employment
- Low productivity
- Low added value
- 60% subemployment





Formal Peruvian SME are mostly dedicated to retail and wholesale activities.

Distribution of Peruvian SMEs by Sector





Source: SUNAT, 2001



Peruvian SMEs face a number of problems:





The Future: An Industrial Policy oriented to an Added Value Export Model

- Competitiveness and innovation culture.
- Investment and technology.
- Improving quality, management and innovation capability to access markets.
- Environmental management .
- Management skills.





Strategic agreements



Acuerdo Nacional

... para trabajar de acuerdo!

• National Agreement: 31 Policies of State

- **19.-** Sustainable development and environmental management.
- **20.-** Development of science and technology

www.acuerdonacional.gob.pe







Ministry of Production

Instruments to promote innovation:

Funds for Innovation (FIDECOM).
Network of Technological Innovation Centers (RED CITEs).



Innovate Perú, FIDECOM

 Research and Development Fund for Competitiveness.

Ministerio

Producción

- It is a competitive fund (70 millions US\$) and aims to co-finance up to 75% of the projects submitted by SMEs.
- The range of cofinancing is from 100,000 to 300,000 US\$ per project.
- The fund started operations one year ago.

http://www.innovateperu.pe/







Innovation Technological Centers - CITEs

- Purpose: Access to technology and promote innovation
- Market driven.
- Promote regional development, productive chains and competitive clusters.
- Agents of Technological Transference between enterprises and R&D institutions.
- Active presence of the private sector in its conception and direction.
- Integrated in a NETWORK RED de CITEs.
- Consolidation of the Network of CITEs Project PRORED.

http://www.cites.pe/cites/



Network of CITEs according to the descentralization process









Innovation Technological Centers - CITEs

- Provide services to SMEs :
 - Training
 - Technical Advice
 - Information (trends, fashion, technology)
 - Laboratory services for quality control
 - Design and development of products.
 - Pilot Plants to demonstrate processes
 - Research and development (in partnership with universities).













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Tim.





MAQUINA MULTIPLE



•REGRUESADORA

SIERRA CIRCULAR



Technical Standards promotion:

- Wood and furniture (CITEmadera).
- Footwear and leather (CITEccal).
- Pisco, wine, wineyard and grape.(CITEvid).
- Alpaca fiber textile (CITEtextil de camélidos IPAC)-Arequipa.
- Mangoes(CITEagroindustrial Piura)
- Algarrobina (CITEagroindustrial Piura)
- Olive and olive oil (CITEagroindustrial Tacna)
- Camu camu (CITE frutas tropicales y Plantas medicinales de Loreto) fruits and pulp from Camu-camu.
- Pallets y logistics (CITE Logística GS1 Perú).
- R&D+i standards (OTCITs).





CITEs Labs: Applying Standard ISO/IEC 17025

"this standard is used by laboratories in their management system for quality, administrative and technical operations"







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Pattern



Technical Information and fashion trends



3D Design



Laboratory testing for quality control



Technical Advice



Training in footwear and tannery



scaling of patterns by computer







Quality System Implementation (Standard ISO/IEC 17025) in 5 CITEs laboratories.

- Selected Laboratories:
- •CITEccal-Lima.
- •CITEvid-Ica (wine, pisco and grapes).
- •CITEagroindustry- Piura.
- •CITEagroindustry- Tacna.
- •CITEmadera (wood and furniture).







CITEccal: Innovation technological center for leather, footwear and related.

•Accredited under ISO/IEC 17025, february 2011. (General requirements for the competence of testing and calibration laboratories)

la Producción

•Inter-laboratory proficiency test with:

- INESCOP of Spain
- CIATEC of México
- SENAI- CETEPO of Brasil







- Leather tanning is the process of converting raw hides or skins into leather.
- The SMEs of tannery industry in Perú need to improve their processes, technology, and knowledge to make a clean tannery.





Tannery Industry: The process



RTE: Retanning, dyeing and grease





Peruvian Tanning Industry

- The footwear and leather industry constitutes and important industrial sector in Peru, employing more than 100,000 people. There are around 150 formal tanneries in Perú and it is estimated that there is a similar number of informal tanneries.
- For most of the tanneries the drainage system is not always adequate for the large amount of effluents. There are also some tanneries that throw their effluents directly in superficial waters.
- Furthermore the poor environmental standards in the tanning industry encourage the overuse of chemicals, which tend to increase the quality of waste coming from the leather industry.



Peruvian Tanning Industry

- The tanning industry in the Peruvian sector suffers from complex problems associated with:
- Poor applied technologies in tanning processes
- Lack of environmental awareness
- Untrained workers
- Huge generated amounts of wastes due to inefficient use of resources
- Low export levels due to non-compliance with environmental requirements
- Limited investment in the sector



Trends in leather manufacturing

Nowadays, leather manufacturers are under pressure from competence and while having to meet higher environmental standards to satisfy authorities regulations and the market itself:

- Environmentally friendly products.
- Metal-free or low levels of cadmium, mercury, lead, chromium VI, etc.
- Use biodegradable ingredients.
- Sophisticated products.





CITEccal Project to help tanneries to reduce pollution by clean technologies in the Pilot Plant

- In 2006 CITEccal developed a project to demonstrate and promote the use of clean technologies in the Peruvian tanneries creating a tanning pilot plant and a wastewater pre-treatment pilot plant. Some tests to measure important parameters of water were implemented at the laboratory to complement the project.
- Other aims consisted in raising awareness on the needs and benefits of implementing environmental processes in the tanning production methods and overcoming all the problems related to environmental compliances, awareness raising and improving productivity.





CITEccalTanning Pilot Plant



To research and develop high added value leathers













Appropriate technologies to prevent contamination:

- Since then, CITEccal has been teaching Peruvian tanneries more about environmental technologies related to tanning processes with the aim of introducing improvements within the sector through applying cleaner production techniques for: reducing water consumption, reducing salinity in wastewater, reducing generated amounts of wastewater and of solid wastes, recovering and recycling of the rejected materials and wastes, optimising the use of chemicals, substituting toxic materials and reducing toxic emissions and by-products valuation.
- The application of these CP techniques have lead to both environmental and economical benefits.



Processes to prevent pollution

Recycling and treatment of wastewater from unhairing: recovering hair instead of disolving it







Catalytic oxidation and aeration pool







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Acids wastewater pre-treatment: Chromium

Chromium precipitation by using lime



Results

- Production costs minimization;
- Quality improvement;
- Applying new technologies in tanning and finishing processes;
- Establishing new markets for Peruvian products;
- Increasing added value;
- Increasing productivity;
- Help and advice to get Certification through environmental compliance;





Thanks for your attention and if you go to Lima, Peru, please contact us.



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Thanks!

OTCIT Vice Ministry of SME and Industry 2011 April





Green Initiative : Introduction of Framework

April 2011 Jiseok Kim APEC SME Innovation Center

April 20	- To present the "Green Initiative" framework
By mid-May	 Disseminate draft report to member economies and collect opinions
May 20 – 21	The 18th APEC SME Ministerial Meeting - Submit the Green Initiative Framework and timeline
	for approval
June – July	-"Green policy" develop Green Action Plans (GAPs) and best practice reports.
By August	 Korea to collect GAPs of member economies and draw up a combined report
By mid-Sept.	- Present GAPs at the Green Initiative Workshop
Green Transition & SMEs

 SMEs are major employers and key economic players in all economies

- Green transition is a must
- However current market environment is not friendly to greener SMEs
- Therefore green transition require government intervention and support
- SMEs need stronger intervention and support for successful green transition

Green Initiative: Areas and Elements

Areas	Elements
A. Definition and green SME development roadmap	1 – 2
B. Financial and non-financial support for green technology innovation and green management by SMEs	3 – 7
C. Fostering a green-friendly economic environment including creating demand for green technology & awareness raising	8 – 11
D. Creating green partnerships	12 – 16

1. Defining "Green"

Why?

- No formal definition of "green technology", "green product"
 - May mean
 - Low-carbon
 - Environmentally friendly (less pollution)
 - Sustainable growth
- Need to see different views of "green" in APEC economies
- Guidelines & benchmarks further clarifying "green" can be useful

- Definition of "green" (legal or informal)
- "Green" or comparable term
- Is the definition made legally? How?
- Is there an easy to understand guide or benchmarks which explain and clarify what "green" is?

2. Green Transition Roadmap for SMEs

Why?

- Long-term transition (2050 and beyond), need guidance
- Not wholly market driven government-led
- Need for a defined objective
- SMEs have resource for long-term planning

- Existence of national green transition roadmap
- Existence of green SME development roadmap
- Green SME development plan objective
- Communication of green SME roadmap

3. Funding for Green Tech R&D

Why?

- Green transition require new greener technologies
- Green technologies not necessarily focused on improved competitiveness in current business environment
- Incentive for private investment is not strong
- Green tech can bring significant public benefits
- Innovators often lack funding especially when they are green

- Green R&D Grant
- Loan scheme for R&D institutes
- Tax Incentive for green innovators

4. Green Start-up Assistance

Why?

- Green tech only useful when made market-ready
- Start-up companies often lack business skills
- Extra challenging to attract assistance
- Need general business support as well as more specialized support

- Provision of business consultation service
- Green venture incubation agency
- Green mentoring service

5. Greening the workforce

Why?

- Green transition requires workforce with green skills, mindset and motivation
- Employee participation and innovation is key to success
- Green skills not yet marketable in many member economies
- Trade union / employee union must be prepared for green transition otherwise they will resist/suffer

- Green skills training
- Education for better understanding of environmental issues
- Program for fostering green motivation

6. Supporting Green Renovation

Why?

- Greener operation of conventional business can bring much benefit
- Many commercially-viable green technologies / management techniques yet to be employed
- Barriers to greater uptake of green technologies exist, which can be and should be removed

- Loan scheme for purchasing of green equipment and facilities
- SME Outreach and green potential assessment service
- List of top green technologies

7. Intellectual Property Rights Support

Why?

- IPR is crucial incentive for green technology development
- Green SMEs often need assistance to understand and navigate IPR systems (domestic and foreign)
 - To patent new green technologies
 - To license the use of green technologies
- Strong IPR systems may not be enough for green growth
 - Transfer mechanism for innovative ideas and green technologies needed
- What should be reported?
 - IPR protection support for technologies developed by Green SMEs
 - IPR licensing support for use of IPR protected green technologies developed by others

8. Green Government Procurement

Why?

Importance of green government procurement

- Government is a major consumer
- Government procurement can provide steady market and reduce risks for entrepreneurs
- Demonstration effect
- Comprehensive green procurement policy plans and clear targets lead to better performance

Concentrate on value over product lifetime rather than current price

- Green procurement targets from green SMEs
- Obligation to purchase products from green SMEs
- Technical specifications as part of tendering qualifications

9. Regulatory and Subsidy Reform

Why?

- Regulatory reform required for effective green growth
 - Eliminate or revise regulations which hinder green growth
 - Ensure technical standards and specifications do not hinder green innovations
- Eliminate or revise subsidies and tax breaks which favor use of fossil fuels

- Regulatory review mechanism which examines impact of new and/or existing regulations on SMEs and the environment
- Mechanisms to review existing laws and regulations which encourages the use of fossil fuels

10. Improving Market Access for Green Tech.

Why?

- Help green SMEs and green products export and attract FDI
 - Information provision needed
 - Consulting service
- Reduce market barriers for foreign green products
 - Reviewing tariffs
 - Reducing FDI restrictions for green industries

- Supporting policies for exports of green SME products
- Supporting policies for helping green SMEs attracting FDI or make investment abroad
- Review of domestic laws and regulations for discriminations against foreign green technologies or products (ex. Tariff)

11. Cultivating Green Consumers

Why?

- Green businesses face great risk if consumers are not green
- Consumers needs to understand how green goods and services can benefit them in long run
- Consumer with high green awareness can be most potent driving force to a green transition

- National campaign program
- Environmental label scheme
- Restriction on advertisement
- Green consumption in national curriculum

12. Green partnership with large companies

Why?

- Government alone cannot provide tailored support for SMEs too many, difficult to reach out
- Large companies have capacity, network and incentive to work with their SME suppliers
- Proven to be effective

- Assessment of current situation and target
- Funding for partnership programs
- Other support measures
- Measures for sustainability

13. Partnerships with Research Institutions

Why?

- Universities and Research Institutions are sources of Green technologies
 - SMEs can do joint research
 - SMEs can commercialize the technologies
- Incentives for joint research and technology transfers can be useful for encouraging Green Innovation
- Universities are capable of training existing and future entrepreneurs and workers of Green SMEs

- Policies that encourage collaboration
- Incentives for technology transfer or collaboration
- Policies that encourage experts from universities and public research institutions to interact with Green SMEs

14. Encouraging SME-SME Partnerships

Why?

- Encouraging partnerships among green SMEs
 - Share information; network externalities
 - Establish green industry groups
 - Communicate with government
- Encouraging partnerships between green and non-green SMEs
- Make non-green SMEs customers of green SMEs
 - Turn non-green SMEs to green SMEs as well

- Government programs which encourage clustering of green businesses
- Government programs which encourage discussions between green and non-green SMEs

15. Green partnership with Civil Society

Why?

- Civil society and businesses are not traditional partners
- Civil society objectives is well aligned with businesses that are willing to go green
- Civil society can be helpful ally to green SMEs and can also monitor/report progress made

- Assessment of current situation and target
- Funding for partnership programs
- Other support measures
- Feedback system

16. International Partnerships

Why?

Environmental damage and greenhouse gases know no borders

- Solutions require global cooperation
- APEC is a unique international forum where diversity of members makes it an ideal forum to discuss international green cooperation
- Programs to share best practices and work out common solutions are crucial for green growth

- Multilateral, international or regional programs encouraging the creation and development of green SMEs
- Multilateral, international or regional programs encouraging trade of green SME products and investment in green SMEs
- Multilateral, international or regional programs which discuss definitions of "green" and "sustainability"

Thank You

Please send questions and comments to Prof. Yang Junsok: <u>yanjuna@catholic.ac.kr</u> Jiseok Kim: brownluy@naver.com