11th Asia Pacific Roundtable on Sustainable Consumption and Production (11th APRSCP 2014):

"Paving the Way to the Future We Want in Asia and the Pacific"

19-20 May 2014

Plaza Athenee Hotel, Bangkok, Thailand

SUMMARY REPORT

2014

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SUMMARY

The 11th APRSCP "Paving the Way for the Future We Want" was held last 19th – 20th May 2014 in Bangkok, Thailand. This event attracted about 300 participants, including governmental officials, researchers, international and local NGO experts, students and the press. The 11th APRSCP provided a platform for multi-stakeholders from Asia and the Pacific to come together to:

- Promote best practices, programs, local initiatives and lessons learned on SCP related projects in the region.
- Identify synergies and build cooperation to engage actively in the development and implementation of the 10-Year Framework of Programmes (10YFP) on SCP Patterns.
- Enhance discussions on Paving the Way for the Future We Want in the Region by sharing experiences and lessons learned in scaling up existing and new SCP technologies, strategies, tools and approaches through re4search and information awareness, capacity building, financing, and monitoring and evaluation.

The 11th APRSCP continued engaging multi-stakeholders in developing and implementing innovative policy solutions, up-scaling technology and knowledge benchmarking, approaches and instruments towards the development and implementation programmes on SCP. The 11th APRSCP was designed as a series of plenary and parallel roundtables to engage policy-makers, academic and scientific experts, business and civil society groups including the youth, towards finding a common ground on how to upscale the development, implementation, monitoring and evaluation of SCP in the Region. The selection of priority thematic issues discussed are based from previous decisions of APRSCP Board and partner organizations involved in the 11th APRSCP. These issues are also highlighted in previous events organized by partners as current priorities on SCP in the Region, from planning and implementation and how SCP is mainstreamed in priority sectors, discussion of the role of governments, business and other stakeholders on implementing SCP and how these can be monitored and evaluated. Continuous learning and capacity building is also highlighted as key priority particularly on the use of tools for resource efficiency and clean production.

The 11th APRSCP had 2 plenary sessions. The 1st plenary session focused on Public – Private Regional Policies, Initiatives and Cooperation toward SCP and Green Growth where speakers and participants shared regional, national and local best practices, programs, initiatives and lessons learned on SCP related projects in Asia and the Pacific region. The 2nd plenary session discussed SCP Regional Program/Activities particularly the main outcomes and follow up of Rio+20 related to SCP such as identifying synergies and building cooperation to engage actively in the development and implementation of the 10YFP in the region.

The roundtable sessions were classified based on 5 priority areas on SCP, including:

1. Roundtable 1: SCP in planning and implementation, covering the following topics: Bringing SCP to the SDGs (sustainable development goals) – for government and international cooperation; The business and poverty eradication cases for SCP; Life-Cycle Thinking and Systems Approach for SCP.
2. Round table 2: Mainstreaming SCP in priority sectors, covering the following topics: Sustainable Agriculture and food systems; Green building design and materials for sustainable cities; Urban Environmental Planning and Resource Management approaches, technologies for Sustainable Cities.
3. Roundtable 3: Sustainable Consumption – Lifestyles and Education, covering the following topics: Sustainable Public Procurement; Harmonization of Standards and Eco-labeling; Sustainable Lifestyle and Education: Supporting Sustainable Consumer Behavior.
4. Roundtable 4: SCP progress – for business and policy makers, covering the following topics: Adoption and Integration of Corporate Sustainable Reporting and Standards in relation to SCP; Eco Innovation: sustainability at the core of the business strategy; SCP Indicators.
5. Roundtable 5: Resource Efficient, Cleaner and Safer Production, covering the following topics: Green Industry, from Policy to Practices; Improving Resource and Energy Efficiency through Supply Chain

Management: Lessons Learnt, Opportunities, and Challenges; From "Waste-to-Wealth" to "Upcycle Product Standard"; Cases from RECP.

The 11th APRSCP provided key recommendations for regional activities or priorities for SCP in the region to contribute to the implementation of the Asia Pacific Roadmap of the 10 Year Framework of Programmes (10YFP) on SCP. Other forums and platforms for convergence such as the ASEAN and formulation of the Sustainable Development Goals were also explored, looking at how stakeholders can work together with policy-makers on putting SCP in the forefront as a priority agenda in the regional and national level.

The 11th APRSCP was co-organised by APRSCP, the United Nations Environment Programme (UNEP) serving as the Secretariat of the 10YFP on SCP, with the Government of Thailand's Pollution Control Department (PCD) of the Ministry of Natural Resources and Environment (MoNRE) and the Faculty of Environment of Kasetsart University. This event was made possible with the financial and technical support of the EU funded and UNEP managed SWITCH-Asia Regional Policy Support Component programme. Other partners for the Roundtable sessions were as follows: United Nations Industrial Development Organization (UNIDO), Ministry of Industry, Thailand; EU Switch Network Facility, and the Deutsche Gesellschaft fuer Internationale Zusammenarbeit (GIZ) GmbH. The 11th APRSCP was also supported by platinum sponsors (the Siam Cement Public Company Limited, Thailand and the Electricity Generating Public Company Limited, Thailand) and gold sponsors (The Bangchak Petroleum Public Company Limited Thailand, the PTT Public Company Limited).

The 11th APRSCP is a carbon neutral conference where carbon credits from carbon-reduction projects based in Thailand are bough for offsetting carbon footprints from the participants.

See the following link for more information on the event:**www.aprscp.net/11th-APRSCP**

I. Introduction

Asia Pacific currently accounts for more than half of the world's total resource use. By 2030, the region's consumers will constitute the world's largest group of consumers, with spending predicted to reach USD $32 trillion. However, in the midst of accelerated urbanization and industrialization in the region, development has brought about massive environmental degradation and socio-economic impacts such as increasing poverty. Unsustainable consumption and production patterns have led to increased deforestation, water scarcity, food waste, and high carbon emissions. These challenges are intensified with the region continually experiencing massive losses from natural disasters and climate change--including drought, floods, and storms leading to more environmental destruction, economic loss, and loss of lives. In light of these current challenges, the 11th APRSCP hopes to continue engaging multi-stakeholders in developing and implementing innovative policy solutions, up-scaling technology and knowledge benchmarking, approaches and instruments towards the development and implementation of programmes on SCP.

A. The 11th APRSCP: "Paving the Way for the Future We Want"

Around 300 representatives from Asia Pacific countries representing governments, private sector, civil society groups, and academia attended the 11th Asia Pacific Roundtable for Sustainable Consumption and Production (APRSCP) held last 19 -- 20 May 2014 in Bangkok, Thailand. The 11th APRSCP provided key recommendations to contribute to the implementation of the 10 Year Framework of Programmes (10YFP) on SCP adopted at the United Nations Conference on Sustainable Development in Brazil (Rio+20). The 10YFP implementation is extremely valuable for Asia Pacific as a platform for stakeholders to respond to the global challenge of decoupling environmental degradation from economic growth. Other forums and platforms for convergence such as the ASEAN and formulation of the Sustainable Development Goals were also explored, looking at how stakeholders can work together with policy-makers on putting SCP in the forefront as a priority agenda in the regional and national level.

B. Objectives

1. Share progress and promote best practices, programs, local initiatives and lessons learned on SCP related initiatives, policies, activities in Asia and the Pacific region.
2. In line with the Asia-Pacific 10YFP Roadmap, identify synergies and build cooperation to engage actively in the development and implementation of the 5 programs of the 10YFP (procurement, buildings and construction, tourism, lifestyles, and education and consumer information) and identify the need for additional programs.
3. Enhance discussions concerning *paving the way for the Sustainable Development (Specifically Resource Efficiency and Green Growth) in the region* by sharing experiences and lessons learned in scaling up existing and new resource efficiency and SCP strategies, tools and approaches through research and information awareness, capacity building, financing, and monitoring and evaluation.

D. Organizers, Partners and Sponsors of the 11th APRSCP

The 11th APRSCP was co-organised by APRSCP, the United Nations Environment Programme (UNEP) serving as the Secretariat of the 10YFP on SCP, with the Government of Thailand's Pollution Control Department (PCD) of the Ministry of Natural Resources and Environment (MoNRE) and the Faculty of Environment of Kasetsart University. This event was made possible with the financial and technical support of the EU funded and UNEP managed SWITCH-Asia Regional Policy Support Component programme. Other partners for the Roundtable sessions were as follows: United Nations Industrial Development Organization (UNIDO), Ministry of Industry, Thailand; EU Switch Network Facility, and the Deutsche Gesellschaft fuer Internationale Zusammenarbeit (GIZ) GmbH. The 11th APRSCP was also supported by platinum sponsors (the Siam Cement Public Company Limited, Thailand and the Electricity Generating Public Company Limited, Thailand) and gold sponsors (The Bangchak Petroleum Public Company Limited Thailand, the PTT Public Company Limited).

II. Post Event Report

A. Highlights of the Plenary and Roundtable Sessions in the 11th APRSCP

The 11th APRSCP was designed as a series of plenary and parallel roundtables to engage policy-makers, academic and scientific experts, business and civil society groups including the youth, towards finding a common ground on how to upscale the development, implementation, monitoring and evaluation of SCP in the Region. The selection of priority thematic issues discussed were based from previous decisions of APRSCP Board and partner organizations involved in the 11th APRSCP. These issues were also highlighted in previous events organized by partners as current priorities on SCP in the Region, from planning and implementation of SCP and how SCP is mainstreamed in priority sectors, and discussion of the role of governments, business and other stakeholders on implementing SCP and how these can be monitored and evaluated. Continuous learning and capacity building are also highlighted as key priority particularly on the use of tools for resource efficiency and clean production.

1. Opening Ceremony

Welcome Address: Mr. Sena Peiris, President of the APRSCP Board of Trustees introduced the APRSCP, a network formed to foster dialog and partnerships among stakeholders working on cleaner production and later expanding on sustainable consumption and production leading to the APRSCP. 10 roundtables were held in different countries in the Region including Australia, Malaysia, Vietnam, Philippines, Sri Lanka and Indonesia. The APRSCP network has grown and matured over the years focusing on finding issues to reduce over consumption and environmental destruction through cleaner production using life-cycle assessments, tools for resource efficiency, renewable energy and ecosystem services. United Nations Environment Programme (UNEP), United Nations Industrial Development Organization (UNIDO) and other partners have been supporting the APRSCP in these initiatives to share knowledge, experience, and application on SCP in the region. He stated his appreciation to the founding members of APRSCP and the partners of the 11th APRSCP such as MONRE through PCD, Kasetsart University and the cooperation of the UNEP through the EU funded and UNEP managed SWITCH-Asia program, which ensured the success of the 11thAPRSCP.

Welcome Address: Assoc. Prof. Vudtechai Kapilakanchana, President of Kasetsart University expressed his appreciation for co-organizing the 11th APRSCP with the APRSCP Board of Trustees and its partners such as UNEP through the EU funded and UNEP managed SWITCH-Asia Program and MoNRE. Over the years, APRSCP provided the platform for multi-stakeholders to share information and knowledge on SCP tools, initiatives and best practices and the platform for cooperation and partnerships. The consequence of pubic demands for products and services to satisfy lifestyle has contributed to environmental degradation. There is a need to decouple environmental degradation from economic growth. It is time for doing more with less by increasing efficiency of resource use in the production, distribution, and use of products. This can be done through SCP based on the life-cycle perspective to adopt cleaner production and to help consumers in making informed choices. Kasetsart University has recognized the importance of SCP and fully support initiated changes from policy to implementation towards cooperation and partnership on SCP towards the future we want in the region.

Welcome Address: Mr. Stefan Schleuning, Head of Cooperation of the Delegation of the European Commission stated that in the last years, growth has increase the pressure on natural resources increasing environmental degradation. The Rio+20, has come to understand that SCP is an important prerequisite for Sustainable Development. The EU has been in the forefront in tackling this problem, related to environmental degradation, excessive consumption and production, and impacts to climate change. A clear priority of the EU is the promotion of SCP together with poverty eradication in the Region through its SWITCH-Asia Program, which is in line with green economy and green growth, key priority themes of the Rio+20 through the implementation of the 10YFP on SCP.

Success of the SWITCH-Asia program is the result of the strong political commitments in the Region towards contribution to more SCP patterns and progress in achieving the MDGs and concrete outcome and contribution in delivering Rio+10. EU has supported these partnership projects. The lessons learned through SWITCH-Asia have served an excellent model and knowledge source globally.

There is still much work to do in mainstreaming the SCP in the global approaches in economic development and trade, and finance. There is a need to mainstream life-cycle approaches and long-term thinking in global models, systems and institutions. He mentioned that the EU is committed in its contribution in the Region by continuing the SWITCH-Asia Program until 2020. The second phase of the SWITCH-Asia Program will build on the partnership and lessons learned on promoting and implementing SCP work in the forefront of policies and projects.

In the 11th APRSCP, he highlighted the importance on agreeing on a political approach in all levels in mainstreaming SCP in daily decision making processes, raising awareness, building capacity building, and acting in all levels to deliver information and improve resource efficiency and decoupling towards sustainable development. He highlighted the importance of the 11th APRSCP as a forum for discussion and exchanging views to further strengthen the policy agenda on SCP in the Region and contributing to the SCP Regional roadmap of the 10YFP on SCP with support from SWITCH-Asia

Welcome Address: Dr. Wicharn Simachaya, Deputy Permanent Secretary Minister of MoNRE mentioned that Asia Pacific is the fastest growing economic region in the world. However, the un-sustainable economic growth has speeded up unsustainable consumption and production to the levels similar to those of experienced by developed countries. The socio-economic and environmental challenges in the Region and the need to forge a paradigm shift towards sustainable consumption and production to contribute directly to sustainable economic development as well as the well-being of the people. He also mentioned the importance of SCP, which has been addressed at every global conference after the Earth Summit in Rio de Janeiro in 1992 leading to the adoption of the 10YFP for SCP.

He also mentioned the importance of targets and indicators for SCP to evaluate how all countries and people can acquire good quality of life while conserving natural resources and environment. He also stated that SCP should be integrated into the post-2015 development agenda and the Sustainable Development Goals (SDGs), by setting up SCP targets and indicators. The APRSCP provides a meaningful platform for all to share their experiences, lessons learned on SCP and successes, and recommendation on SCP on specific outputs, activities and ideas, which can be implemented through the 10YFP in terms of partnerships at regional level.

Keynote Address on *"Green Growth Policy and Strategy of Thailand"***: Dr. Wijarn Simachaya** mentioned Thailand's efforts in adopting the principle of Sufficiency Economy of His Majesty the King at the heart of the country's development and management plan. To achieve green economy in Thai society, the Eleventh National Economic and Social Development Plan (2012-2016) has set up 6 goals, which include creating of a resilient society, restructuring the economy based on innovation by using knowledge and Thai identity, connecting effectively with regional and global economies, fostering sustainability in the agricultural sector and prosperity in the food and energy sectors, managing sustainably natural resources and the environment, and reinforcing good governance and harmony in all sectors and at all levels. The accomplishment of these objectives will lay the foundation for a balanced and sustainable development that benefits the people of Thailand.

Recently, the Royal Thai Government has also announced a package of national strategies to move the country towards sustainable growth and strengthen its presence in the Southeast Asian economic region. The four strategies consist of: (1) Growth and Competitiveness; (2) Inclusive Growth; (3) Green Growth; and (4) Internal Process. These strategies herald Thailand's arrival at a new era by urging the public sector to strengthen the country's competitive edge and lift its status from a low-income to a middle-income level. The strategy also aims to minimize disparity in society and create equal opportunity. The Green Growth Strategic Plan has been developed to improve the efficiency of resource use, and to increase investments, in natural capital, for mobilizing economic growth. The promotion of green industry, Eco Industrial Towns, industrial energy efficiency, renewable energy scheme, cleaner production technology, government green procurement, green cities, among others, are amongst the core initiatives, in driving the country towards green economy. He urged all participants to share knowledge, experiences and best practices in shifting towards inclusive green economy to create better outcomes in terms of reduction of greenhouse gas emissions, poverty eradication and increase in resilience of socio-economic crises.

Keynote Address entitled *"SCP in Asia in light of the Rio+20 Outcomes"*: **Mr. Kaveh Zahedi**, Regional Director and Representative for Asia and the Pacific in UNEP mentioned that UNEP is proud to be one of the founding partners and continuous supporters of the APRSCP as it has emerged as an important platform to share ideas and enhance cooperation in the region.

He mentioned that the EU funded and UNEP managed SWITCH-Asia Programme that supports policy makers in the Region to upscale and mainstream SCP in the Region is providing support to the 11thAPRSCP as it did in the 10th APRSCP organized in Indonesia on 2011. The 10th APRSCP embraced a resolution that explicitly promoted the adoption of the 10 YFP on SCP at the Rio+20 Conference. The 11th APRSCP's theme, "Paving the Way to the Future We Want in Asia and the Pacific," showed a clear continuation of its support to the 10YFP on SCP. SWITCH-Asia Programme also organized the 1st regional post-Rio+20 conference in the Region in November 2012 in Bangkok developing the regional roadmap for the implementation of the 10YFP in the region.

Mr. Zahedi highlighted the time for action is urgent drawing from important facts on resource efficiency and SCP in the Region. Even with an abundance of national policies, laws, regulations and programmes to support SCP in Asia, the region has become more resource inefficient as policy implementation remains to be a challenge. This can be addressed by supporting the formulation of tools that will reinforce the implementation of existing SCP related polices. He also mentioned the need to invest in frameworks, knowledge and data generation and indicators as SCP requires data and indicators that incorporate economic accounts, as well as environmental and social accounts. A comprehensive framework of "Indicators for a Resource Efficient Green Asia" in the Region that includes 32 indicators on Resource Efficiency, Green Economy and SCP, has been initiated by UNEP in partnership with countries in the region, the APRSCP and the CSIRO (Commonwealth Scientific Industrial Research Organisation). This will be used in 22 countries in Asia for the last 30 years.

He mentioned other notable regional accomplishments in scaling up SCP in the Region such as the establishment of a national SCP Centre in Pakistan, the development of a national framework of SCP indicators in China, the development of a national action plan on SCP in Viet Nam, and the development of action plans for sustainable products in Cambodia and Lao PDR. In addition, under the leadership of the government of Indonesia, UNEP has supported the establishment of the ASEAN forum on SCP, which developed a concrete portfolio of sub-regional activities on SCP for the next 2 years. Current work is being done with partners in South Asia to establish a similar forum. Other sector-oriented initiatives and platforms include the ASEAN+3 Network on Green Public Procurement and Eco-labels, the Asia Pacific Network on Sustainable Tourism and the Sustainable Rice Platform among others.

He highlighted that to achieve systemic change requires attention to four dimensions towards a transformation to a greener and more resource efficient region:

1. **Changes to consumption and lifestyle habits and business models**. The challenge is to reduce extremes of both poverty and wealth and also to ensure that the increase in consumption follows a model with the least impact on the environment.
2. **Technological improvements** that permit efficiency gains to be achieved without encroaching nutritional budgets or quality of life in developing countries.
3. **Strengthen existing fiscal and financial instruments** for creating incentives for resource efficiency interventions. This includes taxes, national budgets and incentives.
4. **Transformation is massive public and private investments in sustainable infrastructure and green businesses**. Massive green investments are not only capable of reducing the environmental and social impact of economic growth but they can also ensure a better development trajectory for the future.

Lastly, he highlighted the importance of including SCP in the heart of the debate in the SDGs and Post-2015 Development Agenda, and the opportunity for the Region to reaffirm SCP as a priority agenda in the first ever United Nations Environment Assembly.

The Video on Envisioning the Future We Want in Asia and the Pacific was shown afterwards. (See the Video at http://www.youtube.com/watch?v=VKQ59W3Cwhk&feature=youtu.be)

2. Plenary Sessions

a. First Plenary Session: Public-Private Regional Policies, Initiatives and Cooperation toward SCP and Green Growth

The first plenary session highlight national, regional and global perspectives and key developments on public-private regional policies, initiatives and cooperation toward SCP and Green Growth in the Region.

Mr. Issara Vongkusolkit, Chairman of The Thai Chamber of Commerce and Board of Trade of Thailand presented his keynote speech focusing on the *"Private Sector Policies and Initiatives on SCP and Green Growth."* He provided examples on how scaling up SCP can be achieved. He highlighted the importance of agriculture and food production due to the growing population in the Asia and Pacific. Globally, one third of agricultural land is in Asia. The growing population coincides with the growing income in Asia particularly in China. This has increased demand for food, which has also increased consumption and production and trading of goods and services in the Region. This has led to concerns on food quality and standards calling for food safety, organic food choices and energy efficiency.

Agriculture and food industry is essential in the supply chain from cultivation to production, logistics, and marketing to consumers. He shared an example on private sector best practices and initiatives on SCP based on his experience in the sugarcane industry and agriculture. 34 million hectares is dedicated to agriculture in Thailand with 11 million hectares for rice fields mostly in the uplands. Other crops are tapioca and sugarcane. Thailand is the 2nd largest consumer exporter supply of sugarcane in the Asia market. He emphasized the importance of sugarcane cultivation in the most efficient way, by modernization of farming, reducing use of energy and chemical waste, preserving the soil for cultivation, and better management from planning to harvesting, and support to farmers' social welfare by supporting them through extension services and financing. For the manufacturing and processing, it is important to ensure that sugar manufacturing operators obtain world class equipment that reduces energy consumption. They currently use the bi product of sugarcane to produce ethanol, which goes through carbon trading and other bi products are used as fertilizer for the land and as animal feed.

This initiative addressed today focus on supply chain from upstream to downstream. There is a need for more investment on research and development. SCP should be reflected in private sector policies and initiatives towards the country's green growth.

Dr. Anthony Chiu, Past President, APRSCP Board of Trustees chaired the Session. He presented an introduction on the session stating the following objectives as follows:

- Provide national, regional and global perspectives on where the Region stands in terms of scaling up SCP through public-private cooperation and partnerships.
- Review and better define the challenges and opportunities for SCP in Asia Pacific in light of the Rio+20 Outcomes such as the adoption of the 10YFP (Roadmap for Asia and the Pacific) and other initiatives in the Region such as the ASEAN Forum on SCP).
- Assess how SCP, Resource Efficiency and Green Economy can be best integrated into national planning and in the Sustainable Development Goals post 2015 at the regional and national level.

Dr. Chiu mentioned that the plenary consists of participation from many stakeholders, the APRSCP network, RECP network, and the ASEAN forum. He invited the Panel to provide concrete proposals where action plans and public private programs can be implemented in the short, medium and long term through the 10YFP stakeholder engagement in scaling up SCP. He highlighted key points in the keynote message such as the competitiveness on agro industry in the region and the importance of the supply chain towards greening the region through life cycle, sustainable resource use, eco innovations, and energy efficiency.

Dr. Arab Hoballah, Chief of SCP Branch, Division of Technology, Industry and Economics of UNEP emphasized the importance of APRSCP in bringing stakeholders to work together to scale up SCP. It has been more than 20 years for SCP to become a priority agenda, with all involve to be properly informed on

what SCP means, leading to the adoption of the 10YFP. He highlighted the growing challenges such as the increasing ecosystem and environmental degradation, rising temperature due to climate change, and the increasing consumption and resource use with 2 to 3 billion additional middle class consumers by 2030 in the Region. He mentioned that poverty has to be alleviated and this will initiate changing consumption patterns. Policy interventions in relation to SCP and Green Economy are needed towards implementation through the use of SCP policy tools, proper investments, and competitiveness in the supply chain. SCP is a driving force to integrate the ecological or resource foot print of a city or country and to move further on how to improve inefficiency by giving the right tools to pursue implementation of SD or SCP policies.

He also mentioned the importance to look at the business case on SCP through quantifiable measures using market-based instruments and cost benefit analysis. He highlighted the need for a financial mechanism that supports SCP moving further from business-as-usual investments and looking at opportunities on implementing sustainability measures in companies, recovery recycling, life span of goods, and adopting instruments for more productive practices and cleaner production. He mentioned the growing demand for sustainable markets and sustainable products and interest on SPP; eco-labelling; reporting; and public-private partnerships. Financial mechanisms to support sustainable investments for companies of all sizes are important such as looking at microfinance, capital markets to foster SCP; clean technology, energy efficiency technology and the carbon and green markets.

Dr. Hoballah mentioned that the SCP community wants to move forward and not to reinvent the wheel. The foundation is already there in the Region, with the 10YFP accelerating implementation through a framework of action in scaling up SCP. He highlighted key developments such as the launch of the sustainable public procurement initiative in support to the 10YFP implementation. More support can be provided to the Region through SWITCH- Asia and other means to provide quality impacts in making this possible. Lastly, he provided key points to move forward:

- Making the Business Case: Efficiency and market opportunities; innovation;
- Combine different policy approaches and develop well-design mixes: PPP, regulations, incentives, and voluntary initiatives;
- Adopt a life cycle and value chain approach
- Enabling conditions, capacity building

Dr. Wicharn Simachaya, Deputy Permanent Secretary Minister of Natural Resources and Environment (MoNRE) highlighted the topic on the importance of public private partnership to work together towards SCP policy planning and implementation on various cross cutting issues such as the reduction of greenhouse gas emissions (GHG). Developing related polices on such issues is not easy and require joint collaboration. It is important to develop joint performance indicators like in the green city, chair of the KPI that requires partnership with agencies and stakeholders to implement this. Public private partnership is important particularly on implementing green public procurement. The government sector, private sector and communities have to work together to move forward. There are many opportunities in terms of eco tourism, eco industry following the life cycle assessments.

Mr. Noer Adi Wardojo, Asst. Deputy Minister for Standards and Technology Ministry of Environment, Indonesia/ Candidate Leader to the ASEAN Forum was the last panellist. He mentioned that Indonesia serves as the vice chair of the 10YFP board until 2015. The 10YFP board must work with all stakeholders and they have yet to arrange a meting with business leaders. He acknowledged other board members of the 10YFP present in the 11th APRSCP from Germany and Korea. He highlighted the outcome of the 10th APRSCP 2011 in Yogyakarta, which is the Yogyakarta declaration that stated the promotion of stakeholder collaboration in Asia Pacific and the support for the SCP agenda in the future we want in the Rio+20. That is why the 11th APRSCP continues this initiative with the focus on paving the way for the future we want drawing from the outcomes of Rio+20. Indonesia and UNEP launched the Asia pacific roadmap on 10YFP in Jakarta. This message highlights full engagement of all stakeholders towards implementation and action.

He mentioned that Indonesia leads the ASEAN Forum on SCP that was launched in 2013. In the national level, he mentioned the launch of the National Program on SCP with the mission to improve quality of life, not only environmental quality and economy but to go back to the people. They are currently drafting the National Development Plan 2015 – 2019, with subchapters on SCP. He stated that the core of the document is the transformative policy of the government, green business and public service to the people.

The Ministry of Environment and Chamber of Commerce has joint secretariat on the engagement with business sector on updating the business roadmap towards SCP looking at SCP indicators that can be valuable and meaningful for business. As for public awareness, there is still much to do in terms of changing mindset on awareness, lifestyle and public service. In doing this, resource mobilization should be done by both government and the private sector towards the betterment of public service. He mentioned that it is also important to mobilize resources on competency, technology and financing. An example he provided is the need for readiness on government audit for tax reduction scheme for business sector. It is better to work with private sector on financing through investment, technology and social service.

For the ASEAN Forum on SCP, he mentioned that ASEAN has 10 member states with population of over six hundred million of people and an annual GDP of US$ 2 trillion in 2011. WB Report said that Indonesia is no. 10 in 2011. The ASEAN (Economic, socio-cultural, and political) Community will be launched in 2015. In the ASEAN, discussion is ongoing on the harmonization of product standards, which is an important SCP agenda. The ASEAN forum on SCP is a network of leaders of focal points of national SCP consisting of ASEAN Governments, business, and NGO representatives. Annual meetings will be held. The forum's work program focuses on information sharing and policy dialogue, research, and capacity building through trainings. The forum's work program for 2014-2015 will have the following activities:

- A senior-official policy dialogue on harmonizing regulatory frameworks within the ASEAN agenda, including ASCC and AEC process (Indonesia)
- ASEAN (Environmental) Ministerial Forum (Indonesia) focused on technologies and finance for SCP in ASEAN priority sectors. (Buildings, Tourism, Cities, Food).
- Studies: A compendium on SCP-friendly tradition practices and a study on the integration of SCP into development planning: indicators on SCP for ASEAN countries
- Capacity building for local governments and communities on sharing experiences, and on financing for SCP; potential cooperation with Korea
- Facilitate training for the private sector, focusing on small companies with the support of UNIDO, NCPCs and the Asia Pacific Charter of RECP Network
- R&D and training platform under the ASEAN-China Environmental Cooperation Action Plan, incl. follow up from the ASEAN Cooperation on Environmentally Sound Technology (EST)

For the cooperation network in the ASEAN, there are opportunities working on SCP programs with international partners such as the ASEAN+3, ASEAN+5, and through international partnership under the APRSCP, the 10YFP, and EU SWITCH-Asia among others.

Panel Discussion: Afterwards, Dr. Chiu summarized the key points raised by the panellists. The first speaker highlighted the importance in working with private sector, speaking in their language such as quantifying project proposals. Global action is ongoing with the 10YFP being implemented. The issue is scaling up and decoupling through resource efficiency. For the second speaker, there are some challenges such as in promoting green public procurement and ensuring the greening of the public sector and cooperation of the private sector working with government. These initiatives can be done through joint indicators such as Key Performance Indicators (KPIs) that need to be identified, which were addressed by the third speaker. As he mentioned, it is important to support government and private sector to come up with the business case on SCP focusing on benchmarking and scaling up of best practices. He then asked questions to the panel on what is the role of the stakeholder, especially the private sector in promoting SCP and how can government

and civil society support business sector. He also asked what is the entry point, how to do benchmarking and how to scale up towards regional collaboration.

Dr. Hoballah answered that private sector has to be involved towards cleaner production through the supply chain from manufacturing, processing, and distribution of products. Resource efficiency in the supply chain should be considered to create savings. By saving resources and money, funds can be used for other investments towards clean technology and so forth. But Government has to lead by example and one example is by practicing sustainable/green public procurement (SPP/GPP). With money saved, funds can be put in public service such as health. By leading by example, the business sector will follow. And in the regional level, this can be scaled up ensuring that there are resources with better prices and with savings. Dr. Chiu added that economy of scale is the focal scope in promoting this through GPP.

Dr. Simachaya highlighted the importance on implementing government regulations to ensure cleaner production of products in the business sector. Monitoring is also important in reducing waste and consumption. Life cycle assessment is important to support policy and for companies to be more efficient. Mr. Vongkusolkit highlighted the importance of extension services to promote sustainability, social welfare, and youth education to provide sufficient work force in agriculture. Mr. Wardojo mentioned the importance of convergence from the global level through the Rio+20, SDGs, and other UN initiatives with government and the society leaders teaming up for SCP implementation through joint planning, implementation, resource mobilization and monitoring and evaluation. He mentioned the SWITCH-Asia publication already compiling the business cases on SCP and suggested for this to be expanded by partners in the 11th APRSCP.

b. Second Plenary Session

Plenary Session 2: SCP Regional Program/ Activities to be implemented in the next 3 years toward SCP and Green Growth in line with the new 10YFP on SCP Roadmap on Implementing the 10YFP in the Asia and the Pacific Region

The second plenary session discussed SCP Regional Program/Activities particularly the main outcomes and follow up of Rio+20 related to SCP such as identifying synergies and building cooperation to engage actively in the development and implementation of the 10YFP in the region.

Mr. Rajan Gandhi, APRSCP Board of Trustees, Chair of the Session, introduced the Speaker and Panelists and the objectives of the Session:

- Provide national, regional and global perspectives on where the Region stands in terms of scaling up SCP through public-private cooperation and partnerships.
- Review and better define the challenges and opportunities for SCP in Asia Pacific in light of the Rio+20 Outcomes such as the adoption of the 10YFP (Roadmap for Asia and the Pacific) as well as focusing on SCP in the ASEAN.
- Assess how SCP, Resource Efficiency and Green Economy can be best integrated into national planning and in the Sustainable Development Goals (SDGs) at the regional and national level.

Keynote Address: Mr. Noer Adi Wardojo, Deputy Minister for Standards and Technology Ministry of Environment, Indonesia/ Candidate Leader to the ASEAN Forum provided the keynote address on behalf of Dr. Henry Bastaman, Deputy Minister of Ministry of Environment Indonesia and Vice Chair of the UN 10YFP Board. He stated the mandate to work on SCP highlighting the adoption of the 10YFP in Rio+20. Mr. Wardojo then provided information and updates on the 10YFP, which is a global framework of action to enhance international cooperation to accelerate the shift towards SCP to achieve sustainable development by decoupling environmental and social impact from economic growth. The 10YFP will develop, replicate and scale up SCP and resource efficiency initiatives, at national and regional levels, by providing support for capacity building and technical and financial assistance to developing countries for this shift. As for the organizational structure, the board and the Inter-agency cooperation group, and secretariat are established

and fully operational. The Trust fund, the National Focal points in 108 countries, Stakeholder focal points have already been established.

As for the 10YFP Programmes, the Sustainable Public Procurement Initiative has already been launched and an inclusive and new priority identified is sustainable food system. He then presented the Roadmap for Asia and the Pacific 2014-2015 of the 10YFP on SCP, which has been recently developed as one of the outputs of the First Asia-Pacific Regional Meeting on the 10YFP in November 2013 and was launched in March 2014 in Jakarta. The Asia Pacific region is the first in the world to develop such a roadmap under a multi-stakeholder process, complete with indicators and comprehensive outputs to mainstream SCP in different sectors such tourism, buildings and construction, public procurement, product sustainability information, lifestyles and education for sustainable consumption.

Mr. Rajan Gandhi then invited the panel members to discuss about the keynote presentation and to provide their views on key developments on public-private regional policies, initiatives and cooperation toward SCP and Green Growth in the Region and to propose their recommendations. He proposed specific questions for discussion:

1. What is the role of stakeholders particularly the business sector on promoting SCP and green growth?
2. What are the challenges and opportunities terms of engagement among stakeholders on scaling up SCP in the region?
3. How can the 10YFP Roadmap facilitate better engagement through partnerships among stakeholders?

Dr. Stefanos Fotiou, Senior Regional Coordinator on RE/SCP at UNEP Regional Office for Asia and the Pacific highlighted that one area to be discussed towards solutions in up scaling SCP is on fiscal measures. This requires change in the way economics work in the free market approach. A tool for change is to get the prices right on commodities to achieve SCP. He also mentioned the need to look at market-based instruments such as tax reforms to ensure that these are good incentives to initiate change that supports decoupling environmental degradation from economic growth. Dr. Fotiou also commented that hidden costs should be incorporated into pricing of a product.

Dr. Fotiou also mentioned the importance to address the increased consumption and resource use in the region through capacity building and networking among policy makers and stakeholders such as the private sector. He mentioned the importance of the 10YFP Roadmap for Asia and the Pacific where the region identified over 10 priorities, such as: national and regional indicators on SCP; eco-labels, Sustainable Public Procurement, sustainable consumption and eco-innovation for cleaner production. The roadmap focuses on the development of the five initial 10YFP programmes. He also mentioned the upcoming Summer School on SCP to be held this December 2014. The summer school would be overseen and governed by a curriculum board, bringing together the lead UN agencies, representatives of their networks and initiatives, and other knowledge and practice initiatives (including for example the International Resource Panel, the Global Green Growth Institute, and others, as appropriate). In supporting capacity building related to SCP, this Summer School will be an important collaborative contribution of UNEP, UNU-IAS, UNIDO and other partners to the implementation of the 10 Year Framework of Programmes on SCP.

Mr. Sena Peiris, President of the APRSCP Board of Trustees highlighted that SCP issues have advanced in various initiatives particularly in sustainable public procurement and in the use of SCP tools such as the life-cycle assessment, SCP Indicators and so forth. However, individual countries in the region are not ready especially as political will is needed for change to happen. Involvement of the business sector in current initiatives for SCP has yet to be explored further and there are a lot of opportunities for engagement as there are various initiatives involving the business sector engaging with policy makers and stakeholders, on greening the industries through resource efficient & cleaner production, involvement in SPP and ecolabeling, sustainable tourism and the use of SCP tools for cost effectiveness. There is also much work to be done in terms of awareness raising for behavioral change towards sustainable consumption and all stakeholders have to be involved stressing the importance of media to report on the communities' role to promote sustainability and success stories.

Mr. Jonathan Sanchez, Vice President on Global Communications in Unilever Asia mentioned that Unilever's 3 year anniversary plan focuses on their commitment to put sustainable and equitable growth at the heart of its business model and not just on sustainable corporate responsibility. This has helped on increasing sales while reducing costs and risks. The more their products meet social needs and help people live sustainably, the more popular their brands become and the more growth they achieved. They were also able to lower their costs and reduce the risks to business through eco-efficient practices such as managing resources and reducing energy, water, materials and wastes. The savings produced are now being used to invest in sustainable innovation and brands.

Unilever's Sustainable Living Plan has set 3 big goals to be achieved by 2020: Help more than a billion people take action to improve their health and well-being; source 100% of agricultural raw materials sustainably; and halve the environmental footprint of its products across the value chain. He stated that to reach these goals and achieve large-scale change, Unilever believes even more collaboration is needed between companies, governments, NGOs and consumers. He stated the important to put more pressure on industries to do better. Mr. Sanchez added that it is important to build the market for sustainable products. Unilever highlighted the importance to get sustainable source of ingredients in their products and not pass the costs to consumers. He mentioned that the driver is the supply chain to decouple environmental degradation from economic growth and the importance of marketing to raise consumer awareness. It is important to lead by example and there is no time to waste.

Prof. Donald Huisingh from the Institute for a Secure and Sustainable Environment, University of Tennessee, USA and Editor-in-Chief of the Journal for Cleaner Production mentioned that the biggest barriers to change is ourselves as change has to happen through individuals. He highlighted the importance to transition to post fossil fuels use and requires a paradigm shift. He provided information on the Global Conference on Cleaner Production & Sustainable Consumption: Accelerating the Transition to Equitable Post Fossil – Carbon Societies to be held on November 1 – 4, 2015 at Sitges, Barcelona Spain, which Elsevier is hosting to celebrate more than two decades of the *Journal of Cleaner Production*. He invited the participants to participate and put forth recommendation of the 11th APRSCP to catalyze dialogue among leaders from academia, industry, business, government, and non-governmental organizations, to make the transition to dematerialized and post-fossil carbon societies.

3. Roundtable sessions

There were five Roundtable Sessions focusing on selected priority areas on SCP. Each Roundtable had four sessions where speakers (resource experts and country representatives) presented on the selected topics followed by interactive discussions and insights from participants, including presentations of submitted technical scientific papers with latest research findings and best practices on technology, management, and policy on SCP. The session discussed and consolidated the following:

- Progress achieved and initiatives, programs on SCP including related initiatives focusing on green economy/growth in the Asia and the Pacific region.
- Challenges on scaling up the use of SCP strategies, tools and approaches and identify gaps in terms of technical and/or financial support, capacity building, research or policy support on SCP methodologies and tools.
- Identification of new challenges and opportunities to scale up SCP policies and implementation and exploring areas for further cooperation under regional initiatives, such as the 10YFP, the ASEAN forum on SCP, and the Sustainable Development Goals.
- Recommendation of regional programmes/activities for research, communication, capacity building, financing and monitoring and evaluation to scale up the best practices and initiatives in SCP priority areas.

a. Roundtable 1: SCP in planning and implementation

RTD1a: Bringing SCP to the SDGs – for government and international cooperation

Moderator: Mr. Noer Adi Wardojo, APRSCP Board of Trustees

Rapporteur: Local Organizing Team (Janet Salem, UNEP)

Objectives:

- To identify decoupling and resource management issues that are most relevant to the Post-2015/SDG process;
- To discuss the use of material resource and decoupling targets and to contribute towards the SDGs indicators in the region;
- To assess how SCP, Resource Efficiency and Green Economy can be best integrated into national planning and in the Sustainable Development Goals (SDGs) at the regional and national level.

Speakers:

Dr. Arab Hoballah, Chief of the SCP Branch, Division of Technology, Industry and Economics, UNEP gave an overview on SCP being in the forefront on sustainable development from the Earth Summit in 1992 to the Rio+20 in 2012. Particularly, Rio+20 had put green economy (GE) in the context of sustainable development and poverty eradication. SCP and GE are integrated and interlinked solutions through resource efficiency, production practices, lifestyles/consumption patterns, and education/training, cross-sectoral cooperation and business models. This has set the stage for SCP and sustainable management of natural resources and ecosystems in the Sustainable Development Goals. He presented the basis for possible SCP Targets & Indicators such as review of commitments in MEAs, international and regional frameworks, past work on SCP and resource efficiency indicators, information on scientific data sets and costs/efforts required to apply SCP targets and indicators, aiming to integrate social, economic and environmental objectives, and grouped under OWG "focus areas", responding to Member States' expressed concerns/needs.

He mentioned the various discussion papers that contribute to the debate including the Issue Brief on SCP, including Chemicals and Waste; UNEP-International Resource Panel (IRP) Discussion paper on SDGs, Managing and conserving the Natural Resources base for Sustained Economic and Social Development, by Development Alternatives, Jan2014; and the UNEP's discussion paper on: "Sustainable Consumption and Production (SCP) Targets and Indicators"; by IISD and CSIRO, May 2014. The SCP targets and indicators provide a strong scientific base that is consistent with multilateral agreements, processes and requests from member states; and which is also enhancing resource efficiency, maintaining life support systems, and contributing to poverty eradication. The UNEP/IRP Paper highlighted the need to ensure that natural resource use and decoupling are incorporated into Sustainable Development Goals/targets/ indicators and recommended a possible separate goal for Decoupling/Resource Efficiency.

He provided updates in the last Open working Group on SDGs where there was a large consensus among delegates for a SCP Stand Alone Goal. Lastly, he mentioned the opportunities in the 10YFP as a means of implementation for the SDGs; therefore need to be adequately resourced if to effectively contribute to and deliver SCP at Regional and National levels. There are also opportunities for strengthening linkage between SCP and SDGs in the UN Environment Assembly, Ecosoc and the High-level Political Forum on SD.

Dr. Magnus Bengtsson Principal Policy Researcher from IGES mentioned that SCP is highlighted in the SDGs' overarching objectives and basic principles and SCP in not just a responsibility of the few but an important agenda and a major challenge for all. He also highlighted that SCP is beyond efficiency with sustainable consumption looking also at equity by expanding consumption opportunities, especially for low-income groups and working against consumerism and promoting sufficiency.

He then provided the advantages and disadvantages of SCP as a Stand-alone Goal and SCP Integrated in Other Goals. As for looking at SCP in the SDGs, he provided the best scenario as SCP represented both as a stand-alone goal and integrated in other relevant goals through well-selected and ambitious targets. The worst scenario is that there is no stand-alone goal on SCP and SCP targets under other goals get watered down to a few "low-hanging fruits" on eco-efficiency and green products/ consumerism. 10YFP and SDGs are two complementary global frameworks. He posed questions of importance on linking SCP with SDGs:

How can the 10YFP contribute to implementing the SDGs and how can the SDGs help give focus and direction to the 10YFP?; How to make the two frameworks mutually supportive? On implementing the SDGs, he asked key questions for discussions: How to integrate SCP into the mainstream of governments' policy making? How can we set goals and targets that can engage powerful ministries in a shift to SCP?; and How can we avoid that SCP gets watered down mainly to the promotion of green products/consumerism?.

Dr. Porametee Vimolsiri, Deputy Secretary General, Office of the National Economic and Social Development Board (NESDB) of Thailand presented the NESDB's strategy on SCP and highlighting the seven groups of indicators link to SCP. He mentioned that their strategy is based on existing Policies and Plan related to SCP under Sustainable agriculture, Sustainable production through green industry, sustainable energy, sustainable transport, and sustainable tourism. Particular mention was on zero-waste management (urban city, agriculture, tourism, and industry) as a priority. As for transforming SCP to SDGs, the focus areas he identified as entry points are as follows:

- Sustainable consumption & production:
  - Producers change to environmental-friendly production process
  - Consumers make the right choice on green products & services
- Green public procurement
- Green building; Green City
- Green infrastructure: shifting traveling mode from road to rail
- Equitable right in access & use of natural resources
- Encourage sustainable use of natural capital
- Provide legal incentives for investment promotion
- Use of tax and fiscal measures in environmental mgt.
- CSR in private sector

Summary of Discussion:

The discussion focused on SCP work and opportunities for collaboration in support of national and regional discussions on SDGs in the Asia Pacific Region. The focus of discussion was on Indicators as one of the SCP tools to help policy makers and the public, to a degree, make decisions and actions based on information and evidence amidst the challenges faced in the context of globalisation and global environmental change. Therefore, there is an opportunity to look at new indicators in relation to the SDGs that are needed to supplement the current economic indicators and inform society about the challenges, options and pathways to success in the domains of sustainable consumption and production (SCP), resource efficiency (RE) and the green economy (GE).

RTD1b: The business and poverty eradication cases for SCP

Moderator and Speaker: Ms. Laksmi Dhewanthi, APRSCP Board of Trustees

Rapporteur: Local Organizing Team (**Trakarn**, MU)

Objectives:

- To provide an in-depth dialogue on translating sustainable resource management and resource efficiency into a strategy for poverty eradication and sustained and equitable economic growth in the SDGs;
- Presentation of ongoing regional/national initiatives/programs showcasing practical measures and actions focusing on the business and poverty eradication cases through SCP;
- Recommendations on scaling up SCP best practices and initiatives through partnership and collaboration that contributes to poverty eradication at the same time supporting sustainability efforts in the region.

Presentations of Speakers

Mr. George Varughese, President of Development Alternatives, India presented SCP and the business opportunities for poverty eradication. He highlighted the importance of SCP and the contradicting global scenario where affluence and poverty are side by side. He mentioned the various ways on what can be done to address this such as adopting lifestyle changes among the rich and middle class and also creating opportunities for the poor through inclusive growth, which is a people driven approach and is measured in livelihood security. He further explained that this can be done through the Opportunity Triad with SCP targeting 30% less materials, waste utilised and less energy use; poverty eradication targeting 3-% more jobs and income; and business/enterprise that is financially viable and provides 30% more contribution to local economy. He further explained the three strands of opportunities.

Natural Resource Management looking at food security through climate adaptation (wadi) and enhancing agricultural production and productivity by managing land use and availability of arable land, improving irrigation systems and practices and improving farming practices and cropping patterns, and improving Accessibility to available food. Climate change resilience and disaster risk preparedness and management have to also be considered. Water scarcity will likely increase due to high population growth; coupled with growth of irrigation, industrialisation & urbanization. Effective policies and implementation mechanisms with technologies and incentives are needed for trans-boundary basin management, ground water use, and water as a right and yet priced through participatory approaches (enterprise/community based) for drinking water and sanitation and farmer managed irrigation systems.

Basic Infrastructure and Facilities. He mentioned the various opportunities for livelihood in building and construction such as walling using compressed Earth Blocks, micro concrete roofing, Roofing Channels, Vertical Shaft Brick Kiln; Rural (renewable) Energy; and Rural Communication Services. *Livelihood Enterprises* look at innovation that delivers business solutions on a large scale so that billions of people can work their way out of poverty. This is being done through Farm Based Enterprises, Off-farm Waste to Wealth Enterprises and Literacy to Livelihoods. For this to happen, there is a need to foster Regional Cooperation with essential foundations in place such as community awareness and mobilization in the local level that provides training, capacity building, and entrepreneurship development. An essential foundation is the support system through partnerships reaching the government, tapping the innovativeness of Academia and the efficiency of Industry, bringing in the objectives of NGOs and providing access to information and participation of the Community.

Ms. Joyce Lee from UNDP- UNEP Poverty – Environment Initiative (PEI) presented the key components of poverty-environmental mainstreaming and the country-led efforts supported under the Initiative. Ms. Lee stated that the poor often are most dependent on the environment and ecosystem services for their livelihoods and are most vulnerable to changes through environmental degradation. Excessive exploitation of natural resources and increasing pressure to the environment can exacerbate poverty.

That is why the Poverty – Environment Initiative (PEI) was launched to contribute to poverty reduction and improved livelihoods of communities through better and more efficient natural resource use and management. The approach of the PEI is to ensure pro-poor and gender-responsive natural resource management objectives are embedded in economic decision- making (policy-making processes) by mainstreaming pro-poor environment management into national, sector, sub-national planning, budgeting, implementation and monitoring processes. Nine countries in Asia Pacific are part of the PEI: Bangladesh, Bhutan, Indonesia, Lao PDR, Mongolia, Myanmar, Nepal, Philippines, and Thailand. PEI provides services through research and analysis; technical input into policies, plans and budgets; capacity development (training, sensitization workshops). The entry points for support are the following: promoting quality investments, climate financial framework and environment expenditure reviews, improve local governance.

In these participating countries, projects have been or currently being conducted working with stakeholders focusing on policy and institutional changes (long term planning and budgeting processes and legal frameworks) at both national and local level. The PEI still has to face remaining challenges such as providing more focus needed on gender-responsive natural resource management, linking PE mainstreamed policies with SCP practice on the ground, knowing the best practices of how SCP can work

for poor and marginalized people to influence policy, planning/budgeting processes, and how to track impact on implementation of policies and plans and allocation/use of budgets.

Mr. Yodphot Wongrukmit, Senior Executive Vice President Corporate Administration and Information Technology from the Bangchak Petroleum Public Company Ltd Thailand provided a presentation on the company's public private best practices and initiatives that contributes to poverty eradication with partnership with government and stakeholders. He said that renewable energy is secured energy and provided a roadmap of the company's renewable energy development. Bangchak Petroleum PLC operates more than 1,000 service stations under the trademark and has grown its businesses to new ones both related and unrelated to its current business.

He explained their Sustainable Rural Economic Development Project: The Community Service Station aims to contribute to a better quality of life for Thais. The Center provides a learning center that supports agricultural cooperatives and supports the selling of community products and promotional gifts as additional income of cooperatives. It provides the venue to sell agricultural goods for a better price. These centers support farmers in providing cheaper oil for agricultural use creating savings. They also provide retail of gasohol and biodiesel.

The company hopes that it benefits the country by providing savings in agriculture, energy security, pollution reduction, improved health with environmental restoration, strengthen rural communities, and reduce pressure on urbanization. Community service station has been sustainably successful up to the present and able to bring benefit to over 1 million household or 4 million people throughout the country, playing a part in developing and strengthening the community.

Summary of discussion:

The Session addressed some widely held misunderstandings, including that there is a conflict between SCP and poverty alleviation. SCP is a critical element of poverty reduction that needs to be part of a holistic poverty alleviation policy. SCP calls for different growth paths, not curtailed growth. Aspirations for a better quality of life by the poor can also be met; consumption need not be restrained, but merely channelled into more sustainable goods and services.

Key points discussed:

- SCP is always a critical element of poverty eradication.
- SCP calls for different growth paths, not curtailed growth. Aspiration for a better quality of life by the poor can also be met. Consumption needs not to be restrained but merely channeled into more sustainable goods and services. SCP cannot be successful without *INCLUSIVE* green economy & natural resource management.
- Partnerships for creating shared values are the most important point for successful implementation.

Challenges:

- More focus needed on pro-poor and gender-responsive natural resource management.
- Linking poverty eradication mainstreamed policies with SCP practice on the ground.
- Best practice of how SCP can work for poor and marginalized people to influence policy, planning/budgeting processes.
- Track impact on implementation of policies and plans and allocation/use of budgets.

Solutions:

- Build community awareness; education and literacy to Livelihoods; support training and capacity building; strengthen partnerships; mobilize financial resources; and establish information exchange platforms are among the essential foundations of creating opportunities for the poor.
- Linking the policy and programs with SCP practices on the ground is a must. SCP is a multi-disciplinary approach in paving a path for the future we want which requires multi-stakeholder engagement and participation at all levels.

RTD1c: Life-Cycle Thinking and Systems Approach for SCP: Achievements, Challenges, and Prospects

Moderator: **Dr. Thumrongrut Mungcharoen**, APRSCP Board of Trustees

Rapporteur: Local Organizing Team (**Dr. Shabbir**, JGSEE)

Objectives of the RTD is to contribute to develop a common understanding among policy makers and stakeholders in developing countries in Asia on LCT/ LCI/ LCA together with applications and systems approach, as a tool to assess and reduce environmental footprints towards SCP and related initiatives.

Expected Outcome is a concrete proposal for policy makers and different stakeholders on how to promote the adoption and integration of LCT/ LCI/ LCA as a contribution to a resource efficient and green economy, as well as the dissemination of this systematic approach on SCP.

Speakers:

Dr. Llorenç Milà Canals, Programme Officer at DTIE, UNEP presented on the "Mainstreaming of Life Cycle Approaches for SCP." He went over some of the past accomplishments of the Life Cycle Initiative and the current focus areas. He mentioned that Life Cycle is often referred to as value chain, which are mostly the same but are different in terms of the actors considered. In LCA, the focus is on those actors who physically handle the product along the various stages from raw materials to waste management. All these inputs and outputs are quantified, from all life cycle stages, and the potential related environmental impacts at different levels of modeling. Performing an LCA focuses on the total cost of a product but quantifies environmental impacts instead of monetary cost.

Used more broadly, LCA and life cycle approaches are very useful in informing environmental policies for SCP. In all these basic applications, LCA also avoids unintended trade-offs or burden shifting. The life cycle approaches and LCA are used in the following: Ecodesign, eco-innovation: focus on key opportunities, Energy efficiency, Sustainable Buildings and Construction, Ecolabels and other sustainability consumer information, Sustainability Reporting, Sustainable Public Procurement among others. He then provided examples such as the the European Commission's Energy-using Products Directive, a regulation that requires electronic products to carry an energy label. The Directive has driven competition among producers to reduce the energy use of their products and the most energy-intensive products have disappeared from the market. He also mentioned examples of using LCA in the building sector using eco-labels.

He mentioned the UNEP/SETAC Global Partnership on Life Cycle Approaches for Sustainability which aims to enable the global use of credible life cycle knowledge in order to facilitate identification and implementation of improvement policies and practices for promoting and delivering RE and SCP. The intergovernmental work on LCA cooperation also laid out the foundation for international collaboration on LCA database interoperability. Through UNEP, particularly as the Secretariat of UN's 10YFP, there can be more focus on implementation to leverage the LCA expertise of the Life Cycle Initiative for the benefits of mainstreaming SCP. Currently approved 10YFP programmes already consider several LC approaches. In some cases formal links with Life Cycle Initiative activities are already in place. The expertise and activities within the LC Initiative are also leveraged in UNEP Initiatives with the private sector, such as the eco-innovation project and in relation to sustainability reporting. As conclusion, Dr. Canals mentioned that Life Cycle Thinking is essential for SCP. It is important to avoid unintended trade-offs and there should be more effort and investment in this. He sees challenges and opportunities on embedding SCP/LCT in SDG and in database development and interoperability.

Mr. Marc-Andree Wolf, Maki Consulting, Germany provided the current status of National Life Cycle Inventory (LCI) databases and how this has been the foundation for effective and efficient decision and monitoring support to industry and governments. He stated that a National LCA database provides a relevant number of methodologically and technically/IT-wise consistent data sets that sufficiently represent the national production situation, that have a sufficient overall quality to be used for reliable LCA studies, that are actually used for one or more relevant LCA applications in industry or government, that are recognized by the national government and industry to provide the best available data for the country it

represents (compared to alternative data sources), and that are maintained and updated beyond the initial database establishment.

He stated some key factors for successful national databases: having a dedicated demand to ensure that these databases are used; rules to ensure consistency within the database considering the various roles of government, industry and reviewers, also with key trade partners (full inter operability); avoiding dependency on one or few actors, or on political decisions that may change at every legislature; key to continually build up the expertise in government and industry to use the database; ensuring efficient online access mechanisms. He mentioned that there is a limited availability of LCI background data due to the key limitation of LCA-based policies, especially in countries with less LCA experience. From a survey on National LCA databases, there are close to 20 National LCA databases world-wide in support of national policy and industry.

He mentioned that product supply-chains are globally connected that is why LCI data from worldwide supply-chains is needed. Data interoperability is one key problem to overcome. Main technical issues he mentioned are elementary flows and data format. There is a need for the following: international agreement on LCA methods, minimum review requirements, and documentation to be reached for mutual data recognition. The Environmental Footprint (PEF/OEF) and ILCD developments in Europe can serve as technical basis / starting point. As conclusions and recommendations, he mentioned that the use of LCA is a valuable tool for steering and monitoring SCP in policy and/or private instruments. If life cycle data availability & quality is issued in the country, it is important to develop a successful national database. It is also important to ensure interoperability of National data sets with databases from key trade-partners.

Prof. Shabbir Gheewala, Professor and Head of the Life Cycle Sustainability Assessment Lab, The Joint Graduate School of Energy and Environment, King Mongkut's University of Technology Thonburi, Bangkok, Thailand highlighted the main activities that have mainstreamed LCA in Thailand. Specific promotion of LCA in agri-food sector is a key focus in the region. He mentioned the various LCA- based labels in Thailand and the Thai National LCI Database on infrastructure, recycle and waste management, building and construction, materials, and industrial materials in agriculture. He also mentioned that there are many LCA studies in Thailand focusing on the following topics: aquaculture, biofuels, conventional energy, and carbon and water footprint among others. He mentioned the 3 year capacity building project focusing on Food, Fuel and Climate Change: Network for LCA and Policy Research. He mentioned that there is currently a big effort to build capacity on LCA through a 3 year project promoting PhD and MSc level students.

He also provided information on the LCA Agri-food Asia network which aims to expand LCA applications in the agri-food sector at the regional level, collaborate in R&D on LCA in the agri-food sector at the regional level, and develop an "Asian Food Database". On feedback from LCA/CF activities, some achievements he mentioned are the following: increased market opportunities and competitiveness, readiness for future related regulations, and reducing emissions and improving efficiency. He mentioned the challenges that Thailand still faces on LCA particularly the absence of technical capacity especially in small enterprises, the National LCI database that is still under developed, more information on LCA and success stories needed to initiate a change in mindset, use of LCA in harmonization and trade issues, and use of LCA for carbon offsetting.

Summary:

This session provided an overview of the current status and expected evolution of Life Cycle Thinking (LCT) as a system approach contribution to a resource efficient and green economy, as well as the dissemination of Life Cycle Inventory (LCI) Data and Life Cycle Assessment (LCA) on Sustainable Consumption and Production (SCP). The discussion also contributed to providing an understanding of their applicability in the Asia Pacific. The session discussed and consolidated experiences on best practice, programs, initiatives and lessons learned on LCA and related projects in Asia and the Pacific region. The challenges and solutions mentioned are as follows:

- Meeting a dedicated demand in database development and interoperability in policy and industry and having an International Agreement on LCA methods, consistent documentation, and mutual

data recognition.

- Integrating life cycle thinking into SDGs with LCA as a tool for steering and monitoring SCP.
- "LCA is complex" but what is important is to know what LCA can do and build capacity to use it. LCA software is also expensive but open LCA tools are available.
- Involving/engaging supply chain is not so easy but an avenue is greening the supply chain.

Key points discussed are the following:

- Life cycle approach is one of the key foundations for SCP to identify environmental "hotspots", avoid unintended trade-offs. LCA underpins SCP.
- Main advantages of national databases particularly for environmental labeling and GPP.
- Data should be shared for mutual benefits with private sector involvement.
- There is a need for more proposals for policy makers/stakeholders in terms of capacity building.

RTD1d: Technical paper presentation (SCP focusing on Energy, GHGs, LCA, Green industry)

Chair: Prof.Shabbir Gheewala, The Joint Graduate School of Energy and Environment, King Mongkut's University of Technology Thonburi, Bangkok, Thailand (JGSEE/KMUTT)

The Technical papers were presented (See 11th APRSCP Conference package for synopsis):

1. *The Cost Benefit of Energy Management and Greenhouse Gas Mitigation for Payap University Dormitory* by Dilok Kiatlertnaphaa, Natanee Vorayosa, Nat Vorayosa
2. *Factors Influencing Carbon Footprint Labeling in Rubber Products in Sri Lanka* by Sampath Prasanna Dayaratne, Samadhi Wickremathillake, and Kennedy D. Gunawardena.
3. *Life Cycle Analysis of S2 Clay Roofing Tile* by K.A.B.N Kuruppuarachchi, R.K. Ihalawatta, A.K. Kulatunga
4. *Adaptation to Climatic and Non-climatic Food Insecurity: Empirical Study on Poor and Low-income Household in Malaysia* by Md. Mahmudul Alama, Chamhuri Siwar, Abdul Hamid Jaafar, Basri Abdul Talib
5. *Mapping Sustainable Procurement Practices in the Asia-Pacific & Strategy for Future* by Sanjay Kumar
6. *Green Industry Certification Scheme for Sustainable Consumption and Production Practice: Lessons Learnt from Thailand* by Rattanawan Mungkung, Singh Intrachooto, and Tananon Nuchanert
7. *The use of carbon footprint evaluation to reduce GHGs emission and energy consumption in plan wooden toy* by Phumpradab Kamalaporn, Singrattanapan Pornnalat, Samneangngam Jantima, and Annanon Kittinan
8. *Urban Residential Energy Consumption and Human Behavior in Seven Chinese Cities* by Shengyuan Zhang, Jimin Zhao and Yi Jiang

b. Roundtable 2: Mainstreaming SCP in priority sectors

RTD2a: Sustainable Agriculture and food systems (1st session)

Moderator: Mr. Bob Pagan, APRSCP Board of Trustees

Rapporteur: Local Organizing Team (**Dr. Rattanawan Mungkung**, KU)

Objectives:

- To discuss ongoing regional/national and local initiatives/programs showcasing practical measures and actions focusing on sustainable agriculture and food systems in the Region;
- To discuss and identify key recommendations on scaling up SCP best practices and initiatives on sustainable agriculture and food systems through partnership and collaboration among stakeholders;
- To recommend key policies and actions that can be done in the Region that can be supported under the 10YFP on Sustainable Food Systems.

Speakers:

Ms. Rosa Rolle, Ph.D, Senior Agro-Industries and Post-harvest Office of the FAO Regional Office for Asia and the Pacific presented on the **FAO/UNEP Sustainable Food Systems Program (SFSP) and Linkages to FAO's Work in Asia.** The SFSP was established in 2011, with the support of the Government of Switzerland, with the aim of improving resource use efficiency and reducing the pollution intensity of food systems, from production to consumption, while addressing issues of food and nutrition security. The programme brings together a broad coalition of concerned stakeholders, including governments, food and fish producers, agro-industry, retailers and consumers. She mentioned some activities under SFSP such as workshops during the World Food day, and on various topics such as on voluntary standards for sustainable food systems, save food campaigns, and activities to develop networking and partnerships.

Case Studies are then presented focusing on Asian SMEs for sustainable agriculture and food systems. **Mr. Le Xuan Thinh**, Vietnam Cleaner Production Centre presented the Project on **"Establishing a Sustainable Pangasius Supply Chain in Vietnam."** The project targets pangasius producing and processing SMEs, as well as feed producers and small independent production SMEs to implement cleaner production practices. Furthermore, the project will promote Aquaculture Stewardship Council certification for sustainable SMEs, thereby creating a market pull for sustainable pangasius products.

Mr. Jokin Garatea, Project Coordinator, Gaia Spain presented the project on **"Sustainable Production and Consumption Models and Certification Tools in Chinese Food Supply Chain."** The project addresses SMEs from the food supply chain in Sichuan, Henan and Qinghai provinces, promoting tools and methodologies to ensure cleaner production principles are integrated into their production processes. To promote and pursue sustainable consumption in the food sector, a certification and eco-labelling approach aims to raise consumer awareness and market demand.

Prof. Dr. Morakot Tanticharoen from the National Science and Technology Development Agency, King Mongkut University of Technology Thonburi Thailand presented on the **"Low Carbon Economy: A Case Study from Thai Cassava Industry."** The presentation focused on Thailand's cassava Industry towards providing sound policies and technology development towards resource efficiency. He mentioned the use of value chain analysis for sustainable agriculture and food systems and contribution to zero waste management and alternative energy use. He identified key priority areas/targets in the Industry towards resource utilization, zero waste management, and potential sources of biogas energy. He mentioned an example where one factory saved 1.8 M. baht from water use and gained 45 M baht more from starch recovery per year.

Dr. Rathana Peou, South East Asia Regional Scenarios Coordinator, CCAFs presented **"the CCAFS Scenarios on food security, agriculture, environments and livelihoods globally and for the South East Asia: *"The MEAL Scenarios, A tool for guiding policy actions and investment in SEA."*** She presented CGIAR CRP 7's work on South East Asia Regional Scenarios on Agriculture and Food Systems. She highlighted the importance of using scenarios to integrate analysis of challenges and opportunities and in policy planning and implementation from local, national and global level. Scenarios are used to test and improve the flexibility, robustness and concreteness of plans. She provided recommendations for better policy implementation through the use of scenarios to have better informed decisions towards achieving SCP.

Summary

The Roundtable discussed the various initiatives towards sustainable food systems and agriculture in the region and discussed opportunities on how to scale this up.

The following key points were discussed:

- Various and many activities on SCP for the sector in the region (FAO/UNEP, Switch ASIA National projects)
- Linkages of SCP for food systems, food safety & food security – many possible interventions
- Market-based systems based on supply chain approach (e.g. certification and labelling)
- Many issues in multitude of certification programs, need for harmonisation or selection of suitable systems for scale up/regional use

The following challenges were discussed:

- Small holders/ businesses do not yet understand sustainability or possible benefits from changing modes of production
- Little market incentive from the demand side (e.g. no differences of certified and non-certified products)
- Need long-term scenarios (not short term thinking) and methodologies on how to prepare to respond to changes in markets, climates, demographics, consumer tastes, urbanisation etc

The following solutions were discussed:

- Capacity building of SMEs, Education of consumers
- Identifying and supporting emerging and innovative technologies – strong institutional/industry interaction
- Supporting policies in place
- Good RECP assessments to promote production efficiencies and show savings
- Good data collected re food wastes in the chain, customer preferences, consumer decision making criteria
- Raising awareness (some initiatives: Global Initiative on Food Loss and Waste Minimisation; Save Food Asia-Pacific Campaign, Food Habit Campaign)
- Marketing/testing credible labels/certification programs to gain consumer trust

The following contradictions were discussed:

- Some actors (such as retailers) may want people to consume/purchase more for their own benefit

The following policy implications were discussed:

- Capacity building of SMEs & Scaling up
- Linkage of SCP for food systems & Food security
- Supportive policy on market-based certification systems
- Building strong credible scenarios to develop implementable policies
- Ensuring all relevant stakeholders are represented in decision making
- Policy support for technology innovation and implementation needed at early stages

RTD2b: Sustainable Agriculture and food systems (2nd session)

Moderator: Mr. Nihal Cooray, APRSCP Board of Trustees

Rapporteur: Local Organizing Team (**Dr. Rattanawan Mungkung**, KU)

Objectives:

- To discuss ongoing regional/national and local initiatives/programs showcasing practical measures and actions focusing on sustainable agriculture and food systems in the Region;

- To discuss and identify key recommendations on scaling up SCP best practices and initiatives on sustainable agriculture and food systems through partnership and collaboration among stakeholders;
- To recommend key policies and actions for resource efficiency improvement in national and/or regional food systems in the Region that can be supported under the 10YFP on Sustainable Food Systems.

Presentations of Speakers

Case Studies: Asian SMEs for sustainable agriculture and food systems:

Ms. Li Yanxia from INBAR China presented the project on **"Sustainable edible bamboo shoot value chains."** At present, overuse of preservatives, water pollution, and low resource efficiency are pervasive throughout China's agro-food processing industry, including packaged vegetables, fruits and meat products. The project aims to revive and increase sustainable bamboo shoot markets and build a green standardized production value-added chain for safe bamboo shoots by engaging food-processing SMEs of the provinces Zhejiang and Sichuan.

Ms. Aruna Rangachar Pohl of the India Foundation for Humanistic Development (IFHD) presented the project, "Promoting sustainable cotton through fair trade and certification in India." The projected created a consumer market for fair trade products in India that measurably contributed to the improvement of rural livelihoods and provides farmers and artisans with the resources necessary to follow environmentally sustainable production practices. With the launch of the Fair Trade India umbrella brand, fair trade has gained a much more visible and unified message across the country.

Ms. Kularb Kimsri of Global Standards System Center, Charoen Pokphand Foods PCL. (CPF) Thailand presented the **"Product Stewardship and Sustainability for Agriculture and Food."** Ms. Kimsri provided the CPF Thailand's experience on pursuing the value chain for food systems being implemented as an initiative for product stewardship and sustainability for agriculture and food and the how this can be replicated and strengthened through collaboration and partnerships.

Dr. William Wyn Ellis, Coordinator, Sustainable Rice Platform gave a presentation entitled "**Facilitating wide-scale adoption of sustainable best practices in rice",** focusing on the role of rice in global food security, the key sustainability challenges in rice, and providing an overview of the Sustainable Rice Platform. He stated that 90% of Asia's population depends on rice as a source of food that is why rice dominates both production and consumption to a much greater extent in rice-producing Asia. He added that according to IRRI's analysis, for every 1 billion additional people, the world will need to produce an additional 100 million tons of rice per annual. He then explained the implications of such intensification in terms of environmental impacts exacerbated by rapid urbanization and industrialization, increased production of high-value foods and biofuels, and the impacts of climate change.

To address these challenges, he explained the role of the Sustainable Rice Platform (SRP) as a global multi-stakeholder platform co-convened by UNEP and IRRI to promote resource efficiency, sustainable production and consumption operations. SRP is open to participation by public and private sectors, research institutes and NGOs; SRP today has 21 institutional members. SRP's goal is to minimize environmental impacts or rice production and consumption, whilst alleviating poverty and enhancing food security for smallholder rice farmers. He mentioned other key messages like there are already proven technologies available to enhance resource use efficiency and mitigate climate impacts in rice. Incentives and farmer outreach is key to adoption of sustainable best practices. However, only a broad-based, scaled-up response can hope to accomplish development objectives, e.g. by aligning / mainstreaming as part of the broader SCP agenda. By developing practical guidelines, impact indicators, tools, modular standards and incentive mechanisms, SRP aims to boost wide-scale adoption of sustainable best practice throughout rice value chains.

Dr. Uwe Weber, Team Leader SWITCH-Asia Network Facility introduced the EU Switch Asia Network Facility and gave a brief introduction on the SWITCH-Asia projects promoting sustainability in SMEs including contribution

of SMEs for sustainable food systems. He mentioned that the presentations of the session highlighted the importance of downstream food processing SMEs and product information systems for consumers to reduce the distance between sustainable agricultural production and food consumption. Finally, he stated that rural poverty could only be reduced if wealth is created both in rural and urban areas; this requires a dynamic SME agriculture sector. He also mentioned the SWITCH-Asia Programme networking session on the topic of "Policy Advocacy for Sustainable Agriculture and Food Systems in Asia" to be held after the 11th APRSCP.

Summary:

The Session is the second part focusing on presenting current initiatives on sustainable food systems and agriculture from, local, national and regional level. In the EU Switch Asia projects, two main strategic project approaches were identified. First, policies follow enhanced practices. This is the case for example of policy changes related to agricultural subsidies, food labelling and certification that are triggered by the demonstration of effective alternative approaches coupled with broad awareness and promotion campaigns involving prominent civil society opinion leaders and media, as experienced by the SWITCH-Asia Pro-Sustain project in India. Second, the SWITCH-Asia Project "Edible Bamboo Shoot", demonstrated how direct engagement with policy makers and regulators can lead to the development of new regulations (e.g. on fertiliser and pesticide use), intended to improve current unsustainable practices.

Based on their experiences, SWITCH-Asia project representatives and participating experts also discussed policies conducive to more sustainable agriculture and food systems. Key ensuing recommendations included:

- Broad education and consumer awareness campaigns on food quality and security to influence food consumption patterns and agricultural practices;
- Adaptation of food quality standards, labels and certification to regional, national and local food consumption habits to ensure wide acceptance and promote traditional, indigenous products and agricultural practices;
- Capacity-building with public agriculture and food surveillance agencies, in particular related to sustainability aspects of their work;
- Development of financing opportunities for sustainable agribusiness, so to support new cooperative structures and design guaranteed loan programmes intended to improve resource efficiency in agriculture.

In this context**, Mr Arab Hoballah**, Head of UNEP Division of Technology, Industry and Economics SCP branch shared his insights on the development of an additional programme on Sustainable Agriculture and Food Systems under the 10-Year Framework of Programmes (http://www.unep.org/10yfp/) (10YFP). This new Programme will be highly relevant as achieving Sustainable and Millennium Development Goals (SDGs and MDGs) must address the unsustainability of today's agricultural practices and food consumption.

The SWITCH-Asia Programme is already taking the lead in demonstrating alternative and improved practices in these sectors and will keep on working in this direction as it enters its second phase. SWITCH-Asia Programme Officer Ms. Alina Neacsu informed the audience that the second phase of the SWITCH-Asia Programme, comparable in size to its 2007-2014 predecessor, shall be announced during the fourth quarter of 2014 and is expected to bear a distinctive link to the 10 YFP. The very productive discussion and conversation continued during the following dinner leading to a productive exchange of ideas between participants.

Key points discussed:

- Variation among different practices and not yet efficient
- Incentives and farmer outreach are the key to adopt sustainable practices
- Supply chain/life cycle thinking are the principle to move towards sustainability

Strategies:

- Environmental footprint by using LCA (Life Cycle Assessment)
- Eco-efficiency assessment
- Customer focused approaches
- Product stewardship via certification and labelling (carbon footprint, fair trade, eco-friendly standard)
- Benchmarking

Challenges:

- Rising demand while falling productivity
- Impacts from climate changes & GHG mitigation measures/technologies
- Lowering marginal return

Policy implications:

- Improving the resource efficiency and controlling pollution including GHG mitigation measures based on the supply chain/life cycle approach (i.e. Environmental footprinting)
- Benchmarking to identify best practices and sharing of knowledge & Promoting product stewardship for sustainability
- Harmonised eco-friendly standard

RTD2c: Green building design and materials for sustainable cities

Moderator: **Assistant Prof. Chanikarn Yimprayoon**, Ph.D., LEED AP BD+C, TREE-A Center of Building Innovation and Technology (CBiT) | Faculty of Architecture Kasetsart University Thailand
Rapporteur: Local Organizing Team (**Dr. Pattaranan**, KU)

Objectives:

- to bring together a group of key participants in the areas of green building/material design
- to provide information on sustainable material and design for future green buildings
- to share real-world experiences and lessons-learnt
- to identify key success factors and strategies

Presentations of Speakers:

Dr. Chanikarn Yumprayoon, presented an introduction on the topic, "the next generation material standards toward sustainable/low-carbon cities" focusing on Thailand's experience. On materials and green buildings, there are 3 billion tons of raw materials each year that go into Building and Construction and they represent 40 percent of total global use of resources. Green buildings reduce resource consumption, divert construction waste from landfill and provide healthy environment for occupants. The Green Materials are materials that save natural resources through Reduce-Reuse-Recycle and are rapidly renewable. It reduces energy use during extraction, production, transportation, use and demolition. Green materials are health friendly as it does not produce toxic materials and is low in VOC and have no CFC content with reduced impact to environment.

She explained Thailand's Green Building Rating System Requirement that includes storage and collection of Recyclables. The System provides an easily accessible dedicated area for the collection and storage materials for recycling for the entire building. Materials must include, at a minimum, paper, corrugated cardboard, glass, plastics and metals. She provided the achievement rate under the system. The rating system requirements include Building Life Cycle Impact Reduction (Reuse/Whole BLDG LCA) and Environmental Product Declarations (Product LCA), Sourcing of Raw Materials (Recycled/FSC/etc.), Material Ingredients (demonstrate the chemical inventory of the product), and Construction and demolition waste management (Divert waste from landfill/reduce waste). She explained the future trends on moving towards a more scientific-based method that verifies sustainable products. Lastly, she highlighted that LCA databases are important.

Prof. Chen Yi, College of Architecture and Urban Planning, Tongji University, China presented the Green Building Design in China focusing on Shanghai. He explained that green design eliminates negative environmental impact through skillful and sensitive design. This can be applied in the fields of architecture, landscape, urban design, urban planning, interior design, graphic design, industrial design, fashion design and engineering etc. Green design mainly includes the following impacts: reduce consumption by using renewable resources, reduce negative impact on the environment, and also relates people with the natural environment. Green building reduces the negative environmental impacts during the production of building components, during the construction process, as well as during the lifecycle of the building. He emphasized the resource efficiency in green building in the heating and cooling systems, in the reuse or recycling of building materials, the use of renewable energy, appropriate building site, rainwater collection for gardening and washing, and on-site waste management.

He then provided an overview of how China has evolved and the challenges and success stories in promoting green building. He mentioned that China has an Evaluation Standard for Green building and resource utilization. The most important aspect on green building in China is not to design and build some hi-tech buildings with high standard, but to put more attention on popular housing and commonly buildings. The rural area houses in which 50% Chinese people still live must also be geared towards view on green building. He then provided examples of green building demonstration projects, which show the advanced green design ideas and green technologies. Some examples are the center area of World Expo site --- China Pavilion, Theme Pavilion, the Expo Center, Performing Art Center and Expo Axis, which use green design principles. He then provided the principles of Green Design: revalue, renew, reuse, recycle & reduce.

Mr. Sern Vithespongse from The Palmer & Turner Group, Thailand Ltd provided an overview of the Ecoplex on Witthayu. The Park Ventures is an infrastructure that is designed with 25% of its total building area as usable green area with landscaped gardens. In addition, it uses low carbon technologies employed within the building's fabric such as low emission coated laminated insulated glass, low energy consuming air conditioning system, and grey water recycling systems.

Assist. Prof. Atch Sreshthaputra, Ph. D., Faculty of Architecture, Chulalongkorn University, Thailand and member of the Executive Committee of Thai Green Building Institute, shares his insight on the current market trends in Thailand's green building industry. A significant increase or higher construction cost in adopting green building norm is a common false perception in Thailand. While there is admittedly an additional cost accrued, a proper planning to build green early on will effectively minimize it. Commercial segment is currently the biggest green building adopter in Thailand, mainly due to (mostly foreign) corporations' green policies and CSR initiatives on sustainability. It is expected that in the future, residential and hospitality segments are also jumping into these green building trends in Thailand. He also provided some information on green building design and matters that provides better airflow and ventilation, energy use, and temperature among others.

Mr. Petch Kotrajarus, Nern Ma Business Co., Ltd, Thailand provided an overview about the company. 76% of their sales is from construction industry and 24% is from automotive industry. For construction industry, their products can be categorized into 2 groups, green and other building materials. For green building materials, these are the products that are LEED or TREES compliant. In terms of sales, 83% of their sales in construction industry are from green building materials. The types of green building projects that they worked on or currently working on are banks, office buildings, library, mixed-use buildings, fastfood outlets and condominiums. They also promoting the use of green building products by offering these products a competitive price when compare to both green and non-green products on the market. He said that it is important to link the use of green building products with green design because often times the designer chose the green products like bamboo flooring products for their aesthetic properties and not because it is green. As for solar panels, they added aesthetic attributes to the product. He mentioned that material performance certificates create barrier to entry for smaller or local company. So, these certificates favor larger or multi-national companies who can spread the certification cost to several markets.

There is wide spread perception that green building must cost much more than ordinary building. This is definitely true for some extra costs that ordinary building does not have, for example, green building consulting fees or the cost for the design particular to the green building. But in terms of building materials, the cost is the same, at least for their own products. Another challenge is that it is quite difficult to change the current construction practices. For example, changing from solvent based to water based adhesive requires a change in work process. It is not more difficult or more complicated, but it is different. This causes problems to a number of projects that we work on.

LEED V. 4 has a lot of changes that affect the material part and there is work ahead for them to comply with LEED V.4. Wood and bio-based products are natural carbon sink. The production of wood, the cutting and processing, does not release as much carbon as other materials, e.g. concrete. The use of wood and bio-based products will help capture carbon in the form of building materials. This makes it the greenest building materials. A glass curtain wall is a waste of space. At lease BIPV can be installed in the spandrel panel area. Solar farm uses the valuable land area that can be used for agriculture or reforestation. Finally, he shared that a successful product will need to have not only its' green attributes, but will have to have other attributes too, for example, aesthetics, costs and functions.

Summary: As designers and owners strive toward efficiency and net zero developments, buildings must perform better with less resource in order to achieve low-carbon future. Wise material selection and resource reduction become key sustainable design strategies. Materials also significantly affect building occupant health. Green building rating schemes and movements such as the Living Building Challenge, USGBC-LEED and Architecture 2030 increasingly emphasize environmentally responsible material selection. New products and materials from improved and advance technology are reaching the marketplace. There are, however, numerous barriers such as budget constraint, material performance certificates and lack of information readily available for final specifications.

Key points discussed on Challenges & Solutions:

The focus of the discussion was on green materials for green buildings and construction, the future trend for green building design, and the sharing of experiences and lessons learned. Examples in countries are shared such as in China where urbanization ratio in China is about 50% and focus in China should be on housing. Discussion led to conclusions that green material selection criteria are varied, as well as their achievement rates. The implementation of green building must start with the owner of the project. There is still very limited number of products for green buildings but in fact the cost added to the new green materials is not high as it should be.

The challenges discussed were the following:

1. How to enhance function versus form: (Bamboo Flooring Products and PV Panels)
2. Material performance certificates- e.g. Floorscore
3. Budget constraint- perception
4. Current construction practices- e.g. Low VOCs Adhesives Application
5. LEED V.3 VS LEED V.4
6. Thai workers get used to working with existing products
7. Cost of green buildings is still high in Thailand
8. How to communicate with the public: media usually presents only high technology, hi-tech materials. To change lifestyle, there should be options and ways to prove the design.

The solutions discussed are the following:

- Governments should improve bldg code and also use demonstration projects especially for government buildings.
- Manufacturers should not wait for the trend but lead the trend.
- Research projects have proven different solutions for different design conditions so it's important to choose design strategies suitable for each case.

RTD2d: Urban Environmental Planning and Resource Management (EPM) approaches, technologies for Sustainable Cities

Moderator: HE. Dr. Chhunn Vannak, Former Secretary General of NCGG and Senior Minister's Advisor, Ministry of environment, National council on green growth, General Secretariat for Green Growth, APRSCP Board of Trustees

Rapporteur: Local Organizing Team (**Dr. Cheema**, KU)

Objectives:

- Share information on how to achieve sustainable cities through the use of tools and methodologies
- Learn from existing city practices that contribute to resource efficiency, including how to overcome barriers to this.
- Identify and/or recommend strategic entry points towards resource efficient/low carbon cities.

Presentations:

Ms. Mariko Sato, Chief of Bangkok Office, UN HABITAT provided an overview of Asia's urbanization trends and how it is redefining the region, economically, socially, politically, and environmentally. 42% urban areas account for 84% of the region's GDP. However, despite rapidly increasing urbanisation, there is evidence of declining density. She mentioned the advantages in urban setting such as lower per-capita resource use and emissions through agglomeration; driving innovation through institutional nodes, testing new models through economies of scale, and resilience in the face of uncertainty. There are four ways to regain the green economy in the urban setting such as working with nature, leveraging density, optimizing infrastructure, and clustering for competitiveness. Business as usual urbanization produce urban sprawl, segregation and congestion while sustainable urban development focus on more compact in terms of space, integration, and connectivity.

A new approach for a new urban agenda looks at a new generation of national urban policies, city regional planning, and creation of planned city extensions. Ecosystem-based adaptation is also important as it looks at restoring and maintaining ecosystems and their services, creating vegetation buffers on river banks, improving water quality and access, increasing forest coverage, and strengthening opportunities for urban livelihood. As the way forward, she highlighted the importance of moving beyond urban sprawl towards sustainable consumption of space. Countries need to be able to design and implement laws and policies that allow for improved land management, decentralization, and access to finance, especially for local government, integration of Sustainable Urban Development into new and existing urban development plans enhanced through public – private partnerships.

Ms. Sato then mentioned the milestone in Sustainable Urbanization from 1976 towards 2016 in the upcoming Habitat III. She emphasized the need for an Urban Sustainable Development Goals, which is pushed by the following organizations: SDSN, UN-Habitat, UCLG, ICLEI, and Cities Alliance. This will provide the needed push for the following key actions on sustainable urbanization: Educate and focus attention on urgent urban challenges and future opportunities; Mobilize and empower all urban actors around practical problem solving; Address the specific challenges of urban poverty and access to infrastructure; Promote integrated and innovative infrastructure design and service delivery; Promote land use planning and efficient spatial concentration; and Ensure resilience to climate change and disaster risk reduction.

She then introduced the Sustainable cities programme, a joint UN-HABITAT/United Nations Environment Programme (UNEP) capacity building and institutional strengthening facility, with the goal of ensuring environmentally sustainable local development fully realises the vital contributions that urban areas make to overall social and economic development. Concrete country cases will be introduced under the initiatives as well as the challenges, opportunities and lessons learned under the initiative towards SCP.

Ms. Catherine Bermudez Diomampo from the ICLEI - Southeast Asia Secretariat provided an overview of ICLEI's work on sustainable cities. ICLEI was founded in 1990. In 2003, the organization became "International Council for Local Environmental Initiatives (ICLEI) - Local Governments for

Sustainability." It is an international association of local governments and national and regional local government organizations that have made a commitment to sustainable development with more than 1000 members in 85 countries. There were more than 200 local governments from 43 countries that convened at the inaugural conference, the World Congress of Local Governments for a Sustainable Future. Sustainable city is marked by a green economy, a healthy and happy community, smart infrastructure, and is low-carbon, resilient and resource-efficient.

She then mentioned that ICLEI operates in Cambodia, Indonesia, Thailand, and the Philippines and the Secretariat is based in Manila. She mentioned the various projects that promote networking and the use of tools for capacity building under various programs such as the Ecobudget @ Asia. The ecoBUDGET environmental management system has been developed by ICLEI especially for local governments, in order to plan, monitor, and report the consumption of natural resources within the municipal territory including assessments on climate change impacts and developing an adaptation strategy and action plan. Another project is the Realising DReAMS (Development of Resources and Access to Municipal Services) that supports Local Authorities to achieve the attainment of the MDGs 1 and 7 which is to improve the capacity of the local authorities in environmental management and reduction of poverty and to build the capacity of non-state actors and local communities to support and monitor the actions undertaken by local authorities using poverty indicators. Another project is the Urban Nexus: Integrated resource management in Asian Cities that supports ten cities in six countries, namely: China, Indonesia, Mongolia, Philippines, Thailand and Viet Nam. Another project is the SWIM: Sustainable Water Integrated Management and Governance that encourages the development of local water actions to achieve tangible improvements in local water quality, access, and consumption. Other projects mentioned were Urban LEDS (Low Emission Development Strategy) and the Asian Cities Climate Change Resilience Network (ACCCRN).

In conclusion, she highlighted that Sustainable city development initiatives are gaining more attention. With the rapid urbanization, there is an increasing trend towards integrated management. There is no blanket solution. Local context should be considered (e.g. governance structure, culture, local knowledge). Environmental values are being recognised by local governments while using economic tools. Lastly, she highlighted the importance of public participation as key for legitimacy of actions.

Mr. Suriya Yeekhun, Mayor of Prik Municipality and Advisory Coach on The promotion of Low Carbon City across Municipalities in Celebration of His Majesty the King's 84th birthday project (LCM project), The Municipality League of Thailand, presented how Prik Municipality has applied the concept of Sustainable Green Growth Development and good governance through partnerships under the Livable City Project. In the local level, good governance is key that provides transparency, accountability, and access to participation. A flexible administrative style is also practiced in the municipality that integrates coaching to build up understanding, knowledge and awareness raising. The Municipality and its communities follow the green growth strategy looking at 5 key areas that puts pressure on the environment: Energy, Transport, Water, Food, and Waste. This model can be sustainable and Prik municipality has been a "role model" for many other local governments to learn from. This municipality has served as "a leaning center" for outsiders as at least 10 local governments visit Prik a month.

Influencing household practices remains a major policy challenge. Better and trustworthy information is essential. Developing growth strategies that promote greener lifestyles requires a good understanding of the factors that affect people's behaviour towards the environment. Some households are also changing their eating habits – the percentage of household spending on fruit and vegetables carrying the organic label has increased over the past couple of years. It is important to encourage people to factor the environment into their everyday lives. Their initiative is leading to more sustainable consumption and households 'going green'. Less waste and households water consumed are used more efficiently and people have made compromises to green their lifestyles. Local Governments can lead the way by supplying environmentally sound public services and infrastructure to foster the transition to sustainable consumption. *Greening Household Behaviour* provides insights into what people think and actually do about pursuing greener lifestyles. Lastly, he highlighted that green growth is the way to sustain growth and development over the long-term.

Summary:

The Roundtable discussed how cities in the Region are pursuing initiatives in decoupling economic growth from resource use and its environmental impacts and find a balance between social, environmental and economic goals by mainstreaming SCP in policy and planning. There are various programs discussed from the regional to the local level that can be done to support this process. The following key points were discussed:

1. Challenges & Solutions

- Urbanization is redefining the Asia Pacific region (previously it is factories/industries) promoting compact cities, needs of urban policies.
- International Council for Local Environmental Initiatives (ICLEI) promotes key focus such as sustainable city, resilient city, biodiversity, resource efficiency and low carbon city.

2. Key Emphasis Points

- Increasing trends toward integrated management.
- Public participation is a key for legitimacy for actions.

In cities, resource efficiency enhances the quality of life in urban areas by minimizing resource extraction, energy consumption and waste generation and while simultaneously safeguarding ecosystem services. There are genuine opportunities for national and city leaders to contribute to sustainability by improving resource efficiency, reducing carbon emissions, minimizing environmental risks and enhancing ecosystems. Urban planning in light of sustainability should address how cities can be built and run sustainably so that they can achieve successful socioeconomic development, while producing limited waste and pollution through the efficient use of inputs such as energy and raw materials.

c. Roundtable 3: Sustainable Consumption

RTD3a: Sustainable Public Procurement

Moderator: Ms. Jenny Tan, APRSCP Board of Trustees

Rapporteur: Local Organizing Team (**Dr. Cheema**, KU)

Objectives:

- To discuss ongoing SPP global, regional and national initiatives/programs and further actions that can be initiated to scale up SPP best practices and initiatives in the Region; through partnership and collaboration among stakeholders;
- To recommend key policies and actions for SPP in the Region that can be supported under the 10YFP on Sustainable Food Systems.

Speakers:

Mr. Rajan Gandhi, presented the various countries in terms of where they are on implementingthe Sustainable Public Procurement. He mentioned that countries with advanced SPP Programmes are Japan and South Korea since the early 1990s. Countries with evolving SPP Programmes are China, Indonesia, Malaysia, Philippines, Singapore, and Thailand while countries in Asia are just starting towards SPP mainly Vietnam, Cambodia, Laos PDR, and Myanmar. He stated the major factors for success on implementing SPP which are the following: Political will, supportive legislation, carefully drafted, target-setting, reporting (with penalties sometimes), identification of 'green' products – Ecolabels or Directories, wide range of products, co-opting producers – treated as partners, and an ease of "green" certification. The challenges and hurdles faced are the following: lack of awareness, sensitization at highest levels, data of products, inadequate training of procurement officials and suppliers, questioning by oversight bodies (lowest price syndrome), differing national priorities or split responsibilities because of different

Ministries, poor availability of "greener" goods at provincial level, dependence on imports, concerns about creating monopolies or favouring imports, confusion about scope – define "public", inadequate testing and verification facilities, and cooperation in meeting challenges.

For Discussion by Participants, he provided key questions for discussions such as the role for SPPI, WTO, and others such as ISO, IGPN, GEN and other trading blocs to upscale implementation of SPP in the Region.

Ms. Araya Nuntapotidech, Deputy Director General of Pollution Control Deparment of Ministry of Natural Resources and Environment (MoNRE) Thailand presented how the country's commitments towards green/sustainable public procurement through the prioritization of GPP in policy planning and implementations towards SCP. She highlighted that for the National Government Budget in 2014 (2.52 Trillion Baht), about 21% is for public procurement. Thailand moves toward to sustainable development with the SCP to reduce pollution and utilize resource effectively by stimulating the demand and market for environmental friendly products and services, initiating Public awareness on both consumer and producer, and setting up criteria to protect the environment but not to become trade-barriers. She highlighted 6 mechanisms for them to do this.

First is to integrate SCP into the national development plan and various environmental policies. This has resulted to Thailand's 1st GPP Promotional Plan from 2008-2011 has and the 2nd Green Public Procurement Plan (2013 – 2016). The plan focuses on encouraging the public sector towards GPP and supporting private sector towards green production and the public to change consumption behaviors. The strategies used are: increasing the GPP volume, stimulating more green products, supporting sustainable consumption in public and private sector and general public, and monitoring and steering the GPP Plan. Second, the institutional mechanism should be operational with key government agencies working together. In Thailand, the various agencies involved on GPP are the following: the Cabinet, the National Environmental Committee, the Pollution Control Committee and the Pollution Control Department (PCD) within Ministry of Natural Resources and Environment. PCD was assigned to implement GPP Plan with relevant ministries and stakeholders.

Third, the legal mechanism on GPP should be in place through regulations to secure efficient use of government budget. Fourth, there should be availability of green products with more labels integrated and have been under review. This requires supporting the private sector and encouraging them to produce green products through tax incentives and other supporting measures. Fifth, Monitoring is important to ensure that GPP is being implemented effectively and data is easily accessed. This is done through an e-reporting system and through the Government's information Indicator Development Program. Sixth, information and capability building are important. There is a GPP website and Database Updates and a new version and mobile application are currently being developed. Promotional Document and Manual Publication are also important.

Currently, PCD conducts Target Group Outreach such as Roadshow Exhibitions and Train of the trainers Program in the region. Ms Nuntapotidech provided the key success factors for implementing GPP. It is important to have the Government's commitment to GPP and regulation for government offices to procure green products should be present as well as eco label mechanisms in place. There should be a guideline and manual for consumer information. Green supply chain is important as well as Corporate Social Responsibility (CSR) and monitoring and evaluation system. In Thailand, there is still much to do in terms of monitoring SPP practices and promote best practices, promoting collaboration with private sector, awareness raising to wider society, improving legal registration Development, providing technologies / knowledge support for SMEs, and encouraging the sustainable Green Market.

Dr. Ulf Jaeckel, German Ministry of Environment presented on the prioritization of SPP in Germany. He mentioned that Green Public Procurement has been recognised as an instrument in environmental policy in the EU and in Germany (also partly on the state and community level). Sustainable Public Procurement in Germany is backed up by legislation from regional to the community level (EU, Federal, State, and Community). However, SPP is not mandatory. The federal system and budget autonomy, the

30.000 procurement offices in the country, no mandatory requirements, `Old thinking´ and prejudices, lack of information and transparency on legislation, procedures, and green alternatives remain to be a challenge and also an opportunity. Procurement law widely accepts sustainability aspects and political will is there.

The general activities to promote SPP are to enable and reform legislation (EU and National and Federal States), provide more information, develop benchmarks, and promote of model role on SPP. In the national level, the energy efficiency regulation on the federal level (2007) is the most efficient (Blue Angel- labelled electric appliances) and the regulation for wood or wooden products (Certified products only).

He mentioned the Competence Centre for Sustainable Public Procurement, which is part of the Procurement Agency of the Ministry of Interior since 2010. The centre provides central information point for federal, state and community level on sustainable products (labels, benchmarks etc.), procurement processes (best practice examples, procedures etc.), legal provisions and implications, cooperation with other federal procurement agencies (Ministry of Defence etc.) and already existing information sources, and training courses.

Other activities on the Federal Level includes the Sustainable Public Procurement Alliance with states and communities that develop and exchange information on standards/benchmarks, develop policies, rules and procedures, pilot projects, and do monitoring and evaluation. He provided the website of the Ministry of Environment (BMUB) (Website www.beschaffung-info.de) and discussed the various activities that supports SPP in the country (providing information, development of benchmarks and criteria, providing training courses and partnerships with other sectors and stakeholders).

Mr. Rajan Gandhi, APRSCP Board of Trustees (SPPEL Project) presented the Sustainable Public Procurement and Ecolabelling Project (SPPEL) feasibility study for the regional SPP cooperation in the ASEAN_3 region. The aim of the study was to investigate whether intra-regional cooperation on Ecolabelling was feasible and advantageous to all. It involves ASEAN Countries (Cambodia, Indonesia, Laos PDR, Malaysia, Philippines, Singapore, Thailand, and Vietnam) and the +3 Countries (China, Japan, and South Korea). The major concern was the effect of common Ecolabel on public procurement. The study looked at all types of environmental labels: Type 1 mainly but also others, e.g. Type 2/3 and ISEAL type labels.

The Major findings of the studies are as follows. Evolution of Eco Labelling schemes go hand in hand with SPP policies – Japan and S. Korea most evolved, Myanmar at the opposite end. Countries with evolved SPP policies invariably use national Type 1 Ecolabels ware mostly with some acceptance of verified Type 2. ISEAL type labels are not generally used for SPP but rather more for exports to Western countries.

As for Major challenges and barriers, the following are highlighted in the study: low sensitivity and training at all levels, poor availability of ecolabelled products, reluctance of manufacturers to produce ecolabelled goods if no incentives, not mandatory for public sector to buy EL goods in most countries, ecolabelled products are more expensive. (Public sector typically buys at lowest price), LDCs dependent on imports – buy what is available, technical/legal skills to draft EL schemes not always seen in LDCs, lack of testing and verification facilities, and differing priorities.

On moving forward, there are three possibilities, Mutual Recognition Agreements, Harmonization, and/ or Inter-operability. In all cases agreement on common core criteria is a must. The major players suggested in the study to take the lead is the ASEAN Secretariat supported by UNEP's ASEAN+3 GPP and Ecolabelling Network & SPPI with contributions from GEN/GENECIS, ISO, ISEAL Members, IGPN, and other UN agencies.

Summary:

In this Roundtable, participants have come to a number of ***conclusions and recommendations***, including, but not limited to, the following:

- Many Asian countries have legislated SPP and the big challenge for these countries is implementation of the SPP legislation. Specific policy instruments tailor-made for each country will be needed for effective implementation
- There is a difference between Green (G) and Sustainable (S) Public Procurement (PP). SPP theoretically involves social and ethical issues on top of GPP.
- Both SPP and GPP are good starting points for countries. The GPP approach might be easier though as a start.
- There is a need for common criteria for green products at least at the sub-regional level.

With these recommendations as guiding principles and on the basis of the work under the 10YFP, the presentations will look at national, regional and global experience on SPP and discuss further recommendations for scaling up SPP in the Region.

Priorities Actions: Monitoring SPP; Measuring SPP benefits; Promoting good practices: Incorporating product-service systems: Ecolabel and sustainability standard

Challenges & Solutions discussed:

- Thailand is on the 2nd Plan (2013-2016) for sustainable public procurement (SPP). Stimulating more green products is the key.
- How to get SPP to go globally is make it as easy/simple as possible.
- One of major of success of SPP: wide range of products, co-opting producers, ease of green labeling.

Key Emphasis Points

- Political will is the most important.
- Thai Government's commitment to public procurement.
- Harmonize the SPP labeling.
- Overcome the "lowest price syndrome"

RTD3b – Harmonization of Standards and Eco-labeling

Moderator: **Mr. Rajan Gandhi**, APRSCP Board of Trustees

Rapporteur: Local Organizing Team (**Shabbir**, JGSEE)

Objectives:

- To discuss ongoing global, regional and national initiatives/programs to harmonize standards and eco-labeling
- To recommend further actions that can be initiated to scale up SPP best practices and initiatives in the Region; through partnership and collaboration among stakeholders;
- To recommend key policies, actions and collaboration in the Region that can be supported under the 10YFP on SPP and Ecolabeling.

Speakers Presentations:

Prof. Hideki Nakahara, Professor from Tokyo City University and Chairman of the International Green Purchasing Network (IGPN) provided a presentation entitled "**Consumer Decision and Consumer Information: Reliability for Standards and Ecolabeling."** He provided information about the 2012 IGPN Survey on greenwashing in the Asia-Pacific region. The interviews and questionnaires were done in the participating countries and areas: Hong Kong, Taiwan, China, Korea, Philippines, Thailand, Malaysia, Singapore, Vietnam, Indonesia, India, and Japan (retailers interview only in Japan). The summary of the survey findings is as follows:

1. The number of environmental labels is likely to further increase. This could pose a threat to the credibility of the labels.

2. Watchdog bodies and green claims codes are already set up in various European countries and north America.
3. Demand for green products and services have increased in all the countries surveyed and would continue to grow in the future. The reasons are governments' green policies, concern for global warming, and eco-boom. Environmental claims are also increasing in all the countries.
4. Green products appear to be sold at various stores as well as at shopping malls. Energy-saving products appear to be the most widely sold green products. Other major green products are recycled products and organic foods.
5. Environmental labels, particularly type I labels, have been developed in all the countries surveyed but the levels of effectiveness and success are varied. The role of type I label is seen to be highly important.
6. Many countries don't have the standards, guidelines or watchdog bodies. Even if they're set up, they're not utilised.
7. Greenwashing appears to already exist in the Asia-Pacific region but the awareness is very low and not seen as a problem.
8. While interest in sustainability and the environment grows and consumers' demand for green products & services increases, the lack of understanding for the term "green" leads to create greenwashing. This problem applies to both purchasers and suppliers.
9. Many cases of greenwashing are believed to be unintentional. To prevent negative impact on green growth in the Asia-Pacific region, governments, businesses, environmental NGOs, consumer groups, and consumers need to recognise the respective roles and address greenwashing in a proactive manner.
10. Encouraging and rewarding genuine efforts towards sustainable innovation is highly important.
11. Lastly, an environmental NGO in Japan have started a project to prevent greenwashing. The aim is to build a social mechanism and to promote corporate behaviour guidelines to encourage appropriate environmental claims.

He highlighted the importance of the project and for it to be disseminated through international networks and international institutions to take a proactive role to prevent further greenwashing in the region. He gave information about the ISO 14000 series of environmental standards. The International Standards Organization (ISO) set up a group of standards to govern environmental labeling. The ISO 14020 family covers three types of labeling schemes: Type I (ISO 14024): a multi-attribute label developed by a third party, Type II (ISO 14021): a single-attribute label developed by the producer, and Type III (ISO 14025): an eco-label whose awarding is based on a full life-cycle assessment.

He added that there are also many other environmental labels developed in electric/electronics, constructions, food, and tourism industries. There is also eco label confusion copy. Consumer Information and education are needed for consumers. For producers, information is also important to be able to make the right choice on what eco-label is better for their brands. According to Greenpeace, greenwashing is "used to describe the act of misleading consumers regarding the environmental practices of a company or the environmental benefits of a product or service." To avoid greenwashing, it is important to compare ecolabels. Not all environmental claims are created equal. It is important to know the validity of standards, standard setting processes, and verification processes. He then provided information about the IGPN and it's initiatives and how it aims to globally promote the spread of environmentally friendly product and service development and Green Purchasing activities.

Ms. Jenny Tan, APRSCP Board of Trustees (SPPEL Project) presented the continuation of the Sustainable Public Procurement and Ecolabelling Project (SPPEL) feasibility study for the regional ecolabelling cooperation in the ASEAN_3 region. She mentioned that the Study investigates the possibility of scaling up

regional cooperation on ecolabelling (including voluntary standards) amongst the ASEAN+3 countries for better alignment and interoperability towards the promotion of GPP/SPP at national levels. It provides an analysis of to what extent would a common or interoperable ASEAN+3 Ecolabel is feasible, able to assist national governments in implementation of GPP/SPP policies, and able to serve as a facilitator to intra-regional trade. She then provided the current scenario of the various countries in terms of GPP/SPP present in legislation, policies, and practices.

Some concerns over ecolabels are as follows:

- Generally not mandatory in ASEAN countries
- Manufacturers do not really see the need except where there are ecolabel requirements for exported products (e.g. to Europe, Japan, etc)
- A lot of wait-and-see attitude amongst manufacturers, resulting in a lack of availability of labelled/green products for competitive pricing to occur.
- Public and even government are still focused on price considerations and not so much on environmental /sustainability. Ecolabelled products are perceived or really are more expensive.

There were vastly differently levels of development and implementation, not only between ASEAN and the 3 countries – China, Japan, South Korea – but also within the ASEAN countries. With the various differences in terms of laws on Policy/ Implementation of SPP in the participating countries, there exist different approaches from country to country. Another issue in harmonisation of ecolabels across ASEAN is the different criteria that may be used in quantifying limits when assessing performance of products, based on local culture, climate, etc., e.g. There are different types of ecolabels: Type II (self declaration) – many; Type III (third party, quantitative) – few – but moving towards this type; and other ecolabels for energy, water, export items – organic, forest products, marine products, palm oil (RSPO certification), Fairtrade, etc.

The study also looked at the coverage of ecolabels. It revealed so many different product categories, the diversity depending on the countries' requirements and needs, and most importantly availability of local products that could meet the criteria. Some categories of products not included in the green/eco labels include food, drugs. Food products already have many forms of labels such as 'organic', 'natural, pesticide free, antibiotic free, etc., which generally seems to make them more expensive to consumers. In most of the ASEAN + 3 countries, where there are no existing national ecolabels for products, ecolabels from other countries are acceptable. Also in applying for the national ecolabel, a product already with an ecolabel from another country is generally viewed more positively in the certification process, if it is deemed necessary to undergo the process (e.g. if national product criteria exists).

The study highlighted that harmonisation of ecolabels seems to be an insurmountable task given the differences in governance and requirements of the different ASEAN + 3 countries. On moving forward, there are avenues for cooperation and partnerships through the establishment of an ASEAN+3 group at the ASEAN Forum on SCP, with support from UNEP, on harmonising of ecolabels with the view of promoting SPP to government, generally the biggest consumers in every country.

However the results should aim towards greater synergy amongst countries to scale up eco labeling. It is important to have a positive outlook on ecolabels, and to encourage more manufacturers to secure ecolabels for their products. It is also important to develop economy of scale for availability and competitively pricing of such products that reduce adverse environmental impacts in the country and the region and towards resource efficiency. If ASEAN+3 countries believe in the above and/or more, then it would be easier, at minimum, to establish regional cooperation for interoperability of ecolabels. She raised the following issues for discussion:

- Additional constraints in terms of assessing and communicating product sustainability; economic, social, environmental, and public policy conditions for provision of credible information on product sustainability and use of ecolabelling (e.g. SPP, consumer demand) and challenges and opportunities faced; and

- recommendations to overcome such constraints such as best modalities for cooperation and tools that can be used for monitoring.

Ms. Jing Wang, Deputy Director of R&D Department of China Environmental United Certification Center (CEC) Ms. Jing Wang present the case study on the harmonization of standards and eco-labelling based on the experience in the PR of China. She highlighted the importance to promote SCP to achieve efficient resource allocation based on full LCA thinking. The problem however is it can cause trade dispute, raise technical barriers, and high competitive cost for foreign products. The China Environmental Labeling is owned by the Ministry of Environmental Protection, which aims to "reduce emission, protect health, and achieve resource efficiency." Initiated in 1993, there are now more than 52000 products and 97product category 2162 company's awarded CEL. It is part of the Advisory Committee Member of SPPI (International Sustainable Public Procurement Initiative), Member of IGPN (International Green Procurement Net), Member of GED (Global Environmental Declarations Network), Member of GEN (Global Ecolabelling Network), and a Broad member of GEN. It is awarded with a GENICES certificate in 2012. China Environmental Labeling has already signed the cooperation and mutual recognition agreement with Germany, Japan, Korea, Australia and New Zealand, and lays the groundwork for future cooperation between China and these countries on environmental labeling.

She provided CEL's experience from cooperation and recognition of certification procedures and methods to research to provide GPP guidelines and develop common criteria towards certification, as a sole agent on ecolabeling in the country. The challenge however is the long time cost. There is also relatively big technology gap between developed and developing countries and there is still a limited market. It is important to establish cooperation platform and develop MRA and common criteria regionally on various product category so it will be easier to achieve one standard that is accepted regionally.

Summary

The Roundtable discussed the use of ecolabelling and initiatives on harmonizing standards and ecolabeling as well as the challenges and opportunities faced from regional to national level.

It highlighted the following challenges and solutions:

1. Different levels of development of countries/ different priorities / different levels of technical capacity (Intra-regional trade (e.g. ASEAN))
2. Hundreds of ecolabels / administrative differences (One standard / one test – mission possible?)
3. Beware of greenwashing (Validity of labels, verification)
4. Consumer awareness / variety of issues and priorities

Key emphasis points*:*

1. ASEAN (+3) forum on SCP – could put harmonization / interoperatability issue on the agenda
2. AFTA – already some efforts on harmonization of standards
3. Superiority of harmonization / interoperability over multiple agreements (e.g. China-Germany, China-Korea-Japan, China-ASEAN)
4. Harmonization could "reduce" trade barriers

RTD3c: Sustainable Life Style and Education: Supporting Sustainable Consumer Behavior

Moderator: Dr. Magnus Bengtsson, Principal Policy Researcher, IGES

Rapporteur: Local Organizing Team (**Dr. Trakarn**, MU)

Objectives:

- To discuss and share experiences and lessons learned on initiatives/programmes on mainstreaming sustainable consumption in policy and implementation through awareness raising, incentives for consumer behavioral change and in promotion through education.

- To look at possible solutions or specific measures – regulation, fiscal and other pricing signals, awareness, innovation, enforcement – that can help Asia consumers become more conscious of their responsibilities to planetary and societal imperatives.
- To provide key recommendations to upscale efforts to mainstream sustainable consumption through regional programs such as the sustainable lifestyles and education (SLE) programme of the 10YFP.

Presentations of Speakers:

Dr. Paul Ofei-Manu, Institute for Global Environmental Strategies (IGES) presented their study on the ***"Grassroots approaches to education for Sustainable Consumption and Lifestyles: Experiences from the Regional Centres of Expertise."*** His presentation introduced the Regional Centres of Expertise (RCE) on ESD, which can provide the platform to look at development of new values, competencies and knowledge embedded in education for sustainable development (ESD) principles and outcomes in policy and practice in all relevant sectors of society. He also presented the cases of his study focusing on good practice on education for sustainable consumption and lifestyles (ESC/L) in daily living at the local level from the RCEs and demonstrated effective ways in which ESC/L policy can be translated into practice. Selected multi-stakeholder, participatory ESC/L initiatives of six RCEs in the Asia-Pacific region (RCE Penang (Malaysia), RCE Phnom Penh (Cambodia), RCE Yogyakarta (Indonesia), RCE Kitakyushu, RCE Chubu, and RCE Okayama (all in Japan)) and the approaches used to realize the objectives are presented.

Dr. Chamnien Vorratnchaiphan, Country Representative of IUCN, Thailand touched on environmental ethics and education as the heart of development focusing on the 4 principles of sustainability: future generations, equity, partnership and carrying capacity. He explained how ethics is a stronghold for behavioral change patterns towards sustainable lifestyle, which is a mode of living and not just a set of moral rules. To find this mode of living, Dr. Chamnien explained a new paradigm for environmental education (based on Buddhist philosophy) in which the educator is a provider, supporter and one who empowers. Another highlight for his presentation was focusing on equity, in terms of the growing gap between rich and poor; and partnership, in terms of the participation of everyone in decision-making processes.

She provided key issues towards sustainable shrimp farming giving importance to mangrove integrated poly-culture, nature based system, Non chemical use, mangrove coverage, and aquatic animal welfare. She emphasized the need for education for sustainable development through the community-based sustainable forest management and linking children through education and awareness through formal and informal education and involvement in community activities. She provided examples like the local governments who signed a Memorandum conserving Ang-Karn Mountain. Ang-karn has been used as a off-class learning center for school children and they learnt mangroves ability to shield coastal areas against destructive sea wave, protecting lives and villages. They had often joint in various activities of charity organizations. Communities with supported by CHEVRON, IUCN and ITTO have been continuously advocating their learning. This involvement of the youth enhances knowledge and awareness and leads to more action towards forest protection and management. Additional actions are needed such as gearing for zero waste management, the use of organic fertilizer, Spirituality determines modes of relationship of humans and nature; modes of production and consumption.

Ms. Kirana Chomkhamsri, Institute for Sustainable Engineering, Technical University Berlin, Germany focused on the importance of life cycle sustainability assessments in support of Sustainable lifestyles. She discussed LCA as the 'product that incorporates environmental and social factors and minimizes its impact throughout the life cycle, throughout the supply chain and with respect to the socio-economic surroundings') to make better-informed decisions and public communication. LCA applications can be used in eco-labeling, eco-design, environmental and carbon foot-printing, and waste management. LCA also successfully addresses strategic questions on the environmental impact of policy options and the potential for improvement in the use of natural resources. She provided cases where LCA is used in promoting sustainable consumption where products incorporate environmental and social factors and

minimise its impact throughout the life cycle, throughout the supply chain and with respect to the socio-economic surroundings. Such example are cases in Europe that have product policies that use LCA in resource extraction and processing; design; manufacturing and retail; distribution; use; collection; and re-use, recycling, energy recovery, and disposal.

Examples of sustainablity assessment methods are as follows: Product Sustainability Assessment tool (PROSA); Toolbox on Life Cycle Sustainability Assessment (LCSA); Socio-EcoEfficiency Analysis (SEE Balance); and PROspective SUstaInability Assessment of TEchnologies (PROSUITE)

Some key findings she mentioned are as follows:

- The environmental assessment part is the most advanced one and can be used to help consumers choosing environmental advantageous products
- No impact pathway for neither the economic nor social dimensions
- Simplified approaches such as e.g. Global reporting initiative (GRI) can lead to shifting-of-burden and green washing
- No coherent assessment tool/method to evaluate both the social and environmental impact
- Data availability especially for social dimension is limited

In Summary, she look said that there is a way forward to look at possible solutions or specific measures – regulation, fiscal and other pricing signals, awareness, innovation, enforcement – that can help Asia consumers become more conscious of their responsibilities to planetary and societal imperatives. It is important to avoid shifting of burden across dimensions. There is a need for coherence, cause effect chain, regional information, and quantifiable indicators. It is important to work together in case studies on implementation of integrated Life Cycle Sustainability Assessment. She mentioned that their study is funded by the German Research Foundation under SFB 1026.

Prof. Suren Erkman, PhD, Head, Industrial Ecology Group, Faculty of Geosciences and Environment, University of Lausanne, Switzerland presented on industrial ecology (where ecology is the science of ecosystems) linking it to sustainable consumption. Industrial ecology looks at limits to economic activities and how it is a constraint and also a source of innovation. He introduced the importance of achieving a mature industrial ecosystem, which needs to understand how the ecosystem works (inputs and outputs of the economic system) looking at the economic valuation of natural resources. Collective and cooperative strategies are important to work in a systematic level to use natural resources more effectively. Towards more sustainable consumption, it is important to combining industrial ecology and social practices. He provided examples of patterns of consumption in Europe. Lastly, he mentioned that it is important to articulate the understanding of/ action on the «biophysical ubstrate» of economic activities (industrial ecology) and the understanding of/acting on relevant drivers of consumption (social practices).

Summary of the Roundtable:

The Roundtable session discussed initiatives and build on lessons learned on mainstreaming sustainable consumption in policy and implementation through awareness raising, incentives for consumer behavioral change and in promotion through education. Behavioral change is a needed where conscious choices of individual, not only as consumers but also as human beings, can contribute to sustainability of natural resources, to transforming the production and consumption systems and improving lives of others.

Presenters shared initiatives in making this happen where such changes call for development or enhancement of intrinsic values and principles through awareness, education and marketing - Sending the right message. This includes awareness raising campaigns and education to facilitate learning that allows people to act as informed consumers, and marketing to strengthen communications strategies of public and private actors. The session discussed on how sustainable consumption underpins sustainable poverty reduction. Lastly, it hopes to provide key recommendations to upscale these efforts through regional programs such as the sustainable lifestyles and education (SLE) programme of the 10YFP.

Key points discussed:

- Ultimately "what people learn, how people learn, where people learn, with whom and in what context people learn" are critical to the effectiveness of any form of education. Towards successful education for Sustainable Consumption and Lifestyles, it is important to strengthen local/regional application of education for sustainable development, sustainable consumption and lifestyles and to provide a knowledge base that is locally appropriate and culturally relevant. Children are the linkage, power and future of community.
- Spirituality (*driven by beliefs-religions, ethics, cultures & traditions*) determines modes of relationship of humans and nature; modes of production and consumption
- Life cycle assessments can make better-informed decisions and public communication and addresses strategic questions and the potential for improvement.
- Towards more sustainable consumption we need broad and rigorous conceptual framework (scientific ecology), operational strategy (practical approach to sustainability) and collective & cooperative strategy (systemic scale)

Challenges and Solutions:

- How can we you measure the effectiveness of education for Sustainable Consumption and Lifestyles?

  Learning Performance Framework (LPF) can identify the characteristics of effective learning hence act as a point of reference for implementing effective education for sustainable consumption and lifestyles (ESC/L) activities locally and subsequently scaling them up.
- How can we help Asia consumers become more conscious of their responsibilities to planetary and societal imperatives? Working together in case studies on implementation of integrated Life Cycle Sustainability Assessment to capture sustainability to support sustainable life style/consumption.
- How can we articulate the link between "biophysical basis of consumption" and "social practices of consumption" because of VALUE/ACTION GAP and INFORMATION/ACTION GAP? We need to understand consumption practices as a dynamic system by incorporating social practice approach and practice theory because it provides answers to what is meaningful & which aspects of practices have a potential for Progress; assesses environmental impacts combined with industrial ecology tools.

RTD3d: Technical paper presentation 2 (SCP focusing on Cleaner technology & Eco-efficiency for Industry)

Chair: Mr. Bob Pagan, APRSCP Board of Trustees

The Technical papers were presented (See 11th APRSCP Conference package for synopsis):

1. *Efficient chemical management in global paint industry – A case study in Sri Lanka* - T.Sunil Somasiri Gomes
2. *Zig-Zag Brick Kilns to Reduce Carbon Emisions in the Himalayas* by Darrell Reeve and Gilbert Habla
3. *Zero Liquid Discharge and Solids Recovery via Novel Evaporation Technology* by Darrell Reeve, Stephen Shelley, Willem Vriesendorp
4. *Eco-Efficiency Assessment of Clean Technology for Rubber Condom Product* by Cheerawit Rattanapan, Thunwadee Tachapattaworakul Suksaroj, Weerawat Ounsaneha
5. *Global centrifuged latex maturation technology driving in to an inventive sphere* by T.Sunil Somasiri Gomes
6. *Potential of Converting Paddy Straw to Bio-char and Electricity in Sri Lanka* by Renuka T.K. Ariyawansha, S.A. Dileepe N. Senevirathne, Benedict F.A. Basnayake
7. *The Role of Sustainable Entrepreneurship to Develop Corporate Social Responsibility Programs in Geothermal Industry* by Dali Sadli Mulia and Sulastri Sardjo

d. Roundtable 4: SCP progress – for business and policy makers

RTD4a: Adoption and Integration of Corporate Sustainability Reporting and Standards in relation to SCP

Moderator: Dr. Chaiyod Bunyagidj, APRSCP Board of Trustees

Rapporteur: Local Organizing Team (**Dr. Pattaranan**, KU)

Objectives:

- To contribute to the development of a common understanding among policy makers and stakeholders in developing countries in Asia on corporate sustainability reporting and on standards for SCP, as a tool to measure and monitor progress towards SCP and related initiatives.
- To present the importance of sustainability reporting and standards for SCP in contributing to strengthening the sustainability of production practices throughout the organization's entire value chain (from suppliers to clients).
- To determine how corporate sustainability reporting reduces risk in potential investments and how it can be a tool to gain better access to finance and better contracts with insurance and financial of companies.

Speakers Presentation:

Dr. Chaiyod Bunyagidj, APRSCP Board of Trustees gave an introduction on the session as moderator. He emphasized the need to address the decoupling challenge and the objective of social responsibility to contribute to sustainable development. He emphasized the importance of Integration of social responsibility throughout the Organization and this can be done through various means. On the environment, such actions can be done such as prevention of pollution, sustainable resource use, climate change mitigation and adaptation, protection of the environment, and biodiversity and restoration of natural habitats. On consumer issues, such issues has to be addressed: fair Marketing, factual and unbiased information and fair contractual practices, protecting consumers' health and safety, sustainable consumption, and consumer service, support, and complaint and dispute resolution. He provided questions for discussions:

1. What would be your recommendations to promote further dissemination of corporate sustainability reporting and / or standards for SCP?
2. What are the roles of policy makers?
3. What are the roles of other stakeholders?

Mr. Robin Edme, Chair of the Group of Friends of Paragraph 47 Senior Advisor Responsible Finance Economy, Evaluation and Sustainable development integration Department [SEEID] from France provided an overview on the **"Adoption and integration of Corporate Sustainability Reporting & Standards in relation to SCP**" and how it has progressed in the global arena. He mentioned that Corporate Social Responsibility is now in the forefront of the Sustainable Development Agenda with Paragraph 47 of the Outcome Document, *The Future We Want*, acknowledging the importance of corporate sustainability reporting (SR). There is a Call for Governments, the UN and other stakeholders to engage to further advance SR, to build on the experience of existing frameworks, and to recognize that SR is relevant globally. Brazil, Denmark, France and South Africa launched 'Friends of Paragraph 47' initiative to take the lead in responding to this call for action. UNEP and the Global Reporting Initiative (GRI) provide support in a Secretariat capacity.

He emphasized the Group's common understanding is that corporate transparency and accountability are key elements in enhancing the private sector's contribution to sustainable development. The Group's main objective is to strengthen the role of governments in fostering a culture of corporate transparency through the promotion of sustainability reporting. The Group's Charter emphasized the Government's role in positively influencing corporate behaviour and moving society towards a sustainable model of development. SR should become a widespread practice to allow for a transparent, well-functioning market economy by bringing Governments together to share experiences, promote & develop best

practice models of SR policy/regulation, building upon existing reporting guidance and giving particular consideration to the needs of developing countries and small and medium enterprises. It is important to maintain and promote SR agenda at the international level particularly linking it to the **Post-2015** Development Agenda and SDGs by engaging with strategic stakeholders and holding multi-stakeholder dialogue with leading experts. For more information, he provided the website: (www.unep.org/FAQsonSustainabilityReporting).

Mr. Gamini Gamage, Additional Secretary, Environment Policy & Planning, Ministry of Environment, Sri Lanka presented the **National Green Reporting System (NGRS) of Sri Lanka (2009 – 2016**). It is a unique initiative taken by the Ministry of Environment in 2011 for greening the industries in Sri Lanka. The Reporting Guidelines of NGRS of Sri Lanka was prepared based on Global Reporting Initiatives (GRIs). He explained what green reporting system is, which is a form of reporting on values of environmental, social and economic performance of an organization especially a manufacturing and services sector. Also, it provides the holistic picture of the company/industry profile in terms of resources consumption (raw materials, water, electricity etc..) and production (carbon content, water footprint, etc..) The goal of the NGRS is to integrate environmental aspects into the socio-economic development process encouraging self monitoring and reporting of the performance in manufacturing and service sectors of Sri Lanka; to establish voluntary reporting system on sustainability performance in state and private manufacturing and service sectors; to raise awareness on integrating environment aspects into socio economic development; and to build the capacity of entities in the manufacturing and service sectors to quantity and report on their sustainability performance.

The NGRS measures and reports economic, environmental and social performance of an organization, with respect to laws, norms, standards, and voluntary initiatives. The NGRS has environmental, social, and economic indicators with different reporting tiers, with organizations providing external green reporting verification. He mentioned that the benefits of NGRS to manufacturing and services sector are reducing operational costs, optimizing resources utilization, building trust and strengthening stakeholder partnerships including investors, and providing availability of information and data for decision making. Sri Lanka expects to join with the Group of Friends of paragraph 47 in the near future. He mentioned the challenges for implementing NGRS:

- Entities are not giving high priorities to this system
- Less capabilities of entities to select indicators and reporting
- Stakeholders with different mandate to collaborative with each other
- Minimum condition for win-win outcome
- No tangible recognition for Green Reporters
- Lack of attitudes to report economic and social indicators
- Lack of trust

Mr. Cholatorn Dumrongsak, Director, Center of Excellence and Sustainability Development, Siam Cement PLC Thailand reported the Company's effort towards sustainable development through waste management, protection of forest and biodiversity, green procurement, and green buildings. By the year 2015, SCG aims to be well recognized as an innovative workplace of choice, and a role model in Corporate Governance and Sustainable Development.

Mr. Martin Rueegg, Chief Executive Officer, AXA Insurance Public Company Limited presented the adoption and Integration of Corporate Sustainable Reporting & Standard in relation to SCP in AXA. He presented AXA's Corporate Responsibility Framework & Governance Structure and emphasized that Corporate Responsibility into its core businesses through its strategies in terms of structure, research, and engagement with stakeholders. He emphasized that Corporate Responsibility also has a strong business case looking at the business value dimension. He highlighted the importance of corporate sustainability reporting and standards for SCP for AXA and why this is an important tool for decision-making from performance evaluation to strategy planning in promoting collective action to serve public needs.

Summary:

This session provided an overview of the current status and expected evolution of Corporate Sustainability Reporting as a contribution to a resource efficient and green economy, as well as the dissemination of Standards on Sustainable Consumption and Production. The discussion contributed to providing an understanding of their applicability in Asia.

Key points discussed:

Recommendations were discussed to promote further dissemination of corporate sustainability reporting and/ or standards for SCP and identifying the roles of policy makers and other stakeholders.

Challenges & Solutions:

The challenges discussed was how can CSR be promoted, what framework, how to start and get government involved, data precision is in question, how to make a group/ integrated report.

The following solutions were recommended below:

- It is important for CSR to be in environmental framework but this has to be scaled up.
- In some organisations (i.e. SCG), sustainability reporting is possible because it's initiated by the top management team that are aware of competency at international level and taking the lead in Thailand.
- Integrated report could be too complicated. It's suggested to understand the characteristic of the individual company and provide suitable indicators.

Contradictions or Surprises:

- There are ways to promote CSR: mandate V.S. incentives, push and pull.
- Not only the report, but Corporate Sustainability Index is also very important.
- It's worth investing on CSR in the long run.
- The first benefit of reporting is the communication with people internally, 2nd: it's PDCA for the company, 3rd: to create the license to operate, outsiders know your intention, and 4th: get investor's interest.

RTD4b: Eco Innovation: sustainability at the core of the business strategy

Moderator: Mr. Darrel Reeve, APRSCP Board of Trustees

Rapporteur: Local Organizing Team (**Dr. Kittikorn**, MU)

Speakers Presentation:

Dr. Arab Hoballah, Chief, SCP Branch, Division of Technology, Industry and Economics, UNEP presented on "**Eco-Innovation – Sustainability at the core of the business strategy."** He stated the IRP reports estimating that consumption of natural resources will triple by 2050 unless urgent action is taken to decouple economic growth from natural resource use. The reports spell out the risks but opportunities on how to proceed as well. He highlighted that resource flows (driven by consumption and production) are driving the trends. On consumption patterns, he mentioned that by 2030, Asia is projected to account for 2/3 of the 4.9 billion global middle class. Consumption changes are bringing increased standards of material welfare, but also shifting middle class to resource intensive consumerism. Few years remain to mainstream sustainable lifestyles in Asian rapidly industrialising countries, before consumerism is mainstreamed. He further explained that businesses have to take on the risks for higher operational costs and supply chain disruption, shifting production and transportation patterns to adapt to local conditions. There will also have increased public pressure for greater transparency. Regulatory and fiscal instruments increasingly will be more complex.

Dr. Hoballah mentioned opportunities in the midst of these challenges. There is now a market shift towards 'greener' products – water-efficient technology, green plastics and chemistry, sustainable infrastructure

etc. There is also a growing market opportunity to recover, reuse e-waste. There is also reputational advantage from incorporating environmental trends into company strategy. That is why more companies are changing sourcing strategies. Resources depletion and scarcity create risk of *price volatility* and *resource availability.* Large companies are adopting *holistic supply chain approaches* with sustainability in the forefront ensuring continuity and quality of supply. There are also market demand for sustainable products & services. Countries are setting standards for public procurement linked to sustainability. There are stricter regulations driving companies to reconsider business models and redesign products.

He also highlighted the importance of life cycle thinking (LCA), and the interconnectivity of the life cycle stages, to help identify where to focus and avoid burden shifting. LCA transforms data on products and processes into insights and enables businesses to implement the most profitable and high impact sustainability initiatives. He highlighted the rise of importance of resource efficiency (RE) to improve productivity and less waste in production and consumption, promote cleaner investments, and more sustainable lifestyles. RE is understood to be a "win-win" and many companies and policy makers understand the need to improve resource efficiency in production and consumption. Many initiatives being promoted at the Roundtable highlight what is being done to improve efficiencies and company bottom lines. Resource efficiency is woven into global, regional and national policies. In UNEP, it is one of our 6 priority areas and the basis of much of the work areas cited here.

There are various ways in which eco-innovation is used. In UNEP's working definition, eco-innovation operates at the level of a company strategy, mainstreaming a holistic life-cycle approach throughout all company's operations. The added value for companies to apply eco-innovation is based on the following benefits/drivers for eco-innovation: access to new markets, increased profitability, being ahead of regulations, attracting investments, and increasing technical capacities. Companies doing eco-innovation have shown (average) 12% growth rate - when competitors have been stagnant. Eco-innovation can happen through technical capacity to eco-innovative, investment in R&D capacity, interest and readiness of companies to innovate and mainstream sustainability to ensure the supply side of the market, and national and regional policy to provide a conducive framework to promote and recognize SCP and set incentives for eco-innovation through a policy mix through both regulatory and voluntary measures. It is also essential to work with other stakeholders who have other skills and resources to innovate new solutions. (academia, technical institutions, partnering along value chain).

These elements are the rationale behind the EC supported UNEP Resource Efficiency and Eco-innovation Project, which promotes eco-innovation by targeting the enabling conditions necessary for eco-innovation in companies: technical expertise and capacity (manual, supplements and training of NCPCs to work with SMEs), developing the business case for eco-innovation, enhancing the policy context and international and regional cooperation through RECPnet (e.g. eco-innovation fora). Over the next years, the project will work in close cooperation with synergistic projects such as SWITCH ASIA and under the umbrella, contributing to the 10YFP programmes and the joint UNIDO UNEP RECP Programme

Mr. Long Nguyen Hong, Director, Centre for Creativity and Sustainability, Vietnam presented the Eco-Innovation related activities in SPIN project (2010 to 2014), which was funded by the EU Switch Asia Program. The objective of the project is to promote potential innovation in the industry and increase social and environmental quality of the products produced in Vietnam, Laos and Cambodia in a large scale. The main activities of the project are the following: studies, training and capacity building, in-company SPIN implementation, awareness raising and visibility, and SPIN support policy consultation.

From strategy to implementation, the project was able to help around 540 companies to re design and have new-design, have a product strategy, and pursue clean technology transfer/consultation. It was able to assist companies on accessing 30+ sustainable technologies to support the product innovation such as using solar heating and gasification, pursuing zero waste agri-food technology and using renewable materials. It was able to organize trade fair/exhibitions for market access. For its standard approaches, it focused on redesign (mostly process- focused, life-cycle thinking) and new Product Development (balance b/w process & product, life-cycle thinking. Adapted approaches are used for packaging for food processing companies. The project also pursued an electronic-platform for open

innovation (Spin-E) providing smart database and library, basic web-based expert system and e-channels and Forum for designers, experts, and companies to share the experience, ideas.

Lastly he highlighted that in many SPIN companies, sustainability has been successfully adopted in the business strategy but still somewhat bottom-up. He stressed the importance of not only focusing the intervention in one company but also on the 'system innovation' can be much more potential. A cluster of companies needs a good 'leader' for common innovation efforts.

Mr. Kiatchai Maitriwong, Acting Senior Petroleum Refining Executive Refinery Business, The Bangchak Petroleum Public Company Limited, Thailand presented the company's efforts towards eco innovation and incorporating sustainability in their core business strategy. Their 4 Pillars of strategies are (1) Grow the business and diversify risks to businesses with secure income; (2) Low carbon dioxide emission to minimize environmental impacts; (3) Socially and Environmental Friendly Business Models; and (4) Open, Transparent and Verifiable in Operations. At its core, our business model is R&M Model (Refinery and Marketing). Their expansion to Clean Energy Businesses has supported the company not only on ensuring the supply, but also creating a diversify company portfolio. It's Renewable Energy Development Roadmap focuses on Gasohol, Biodiesel and Algae oil. They also have a Renewable Energy Learning Center and a Program to involve communities through education. Green Procurement is also being pursued by having a Green Supplier List and network. Their CSR Projects consists of Promotional Gifts from Community Goods, Renewable Leading Products, Self-Serve Service Station, CSR & SHEE Development Process among others.

Mr. Bob Pagan, APRSCP Board of Trustees and the Ecoefficiency Group presented on eco- innovation for better business in a changing world. He provided examples such as Campbells and Marks and Spencers strategies. He then highlighted climate change as one of the global issues that is increasingly putting pressure to companies to rethink their strategies looking more towards the long term goals and pursuing radical innovation with new forms of engagement and collaboration. The result is to create more resilient companies that can manage increased volatility. Some aim to use renewable energy (Apple, BMW, Honda, Unilever etc). Other groups reduce energy intensity, and others shrink their product footprints. Innovation is about collaboration. Some examples he mentioned were the experience of Walmart on public reporting of toxics from suppliers and phasing out these products. HP encourage suppliers to reduce carbon emission by 25% collaboration of Coca Cola with suppliers and partners like Unilever, Greenpeace and pepsi to find new technology for refrigeration that benefits all in the chain. Mr. Pagan explained the extensive use of resources over life cycle from energy use, water, chemicals, packaging and labelling and distribution.

In addressing eco-innovation issues, resource efficiency, product innovation, CSR, quality assurance, customer satisfaction and global KPI programme are priorities. He ten provided an example on eco innovation on fresh food processing through waste recoveries. He mentioned the need to continually innovate to compete or else, companies will get pushed out of the market. Staff engagement is important together with the supply chain, customers and suppliers. It is important to measure and set targets for improvement. Food safety is a key risk factor that has to be considered. There is also a need to refine thinking to aim for zero waste and emissions. Lastly, he mentioned the Technology and innovation ProSpare project where 50% of the animal weight processed in the meat industry ends up as compost or is incinerated and 22% leftover meat has been turned to feed while 3 percent is consumed as food. A solution is to use these waste into products partnering with those who make protein hydolyzates.

Summary of discussion:

Key Points:

- Rethinking of the strategies
- Right partner (collaboration) and Government support
- Knowledge contribution and communication
- Implementation of Eco-innovation concept into the supply chain

Challenges:

- Implementation of Eco-innovation into all levels of life cycle of product
- Integrate more natural to product
- Build up the green society
- Innovation to increase resource efficiency and reduce energy intensity

Surprise:

- Bottom-up strategy to build up the Eco-innovation product

RTD4c: SCP Indicators
Moderator: **Dr. Anthony Chiu**, APRSCP Board of Trustees

Rapporteur: Local Organizing Team (**Dr. Ratcha**, MU)

Speakers Presentation:

Dr. Anthony Chiu, APRSCP Board of Trustees presented the "Indicators for a Resource efficient Green Asia. He provided an overview of the selection of high priority SCP indicators from the Beijing Workshop on SCP Indicators last 2013 supported by the SWITCH Asia Regional PSC and the 10YFP. He explained the importance of the new indicators as supplementary to the current economic indicators to inform, monitor, communicate, and support decision-making on regional and/or national scale SCP, resource efficiency (RE) and the green economy (GE) progress and activities. He presented the conceptual framework and the process on developing and selecting the high priority SCP Indicators. There were more than 32 headline indicators for 8+1 main headline domains that were proposed and 60 experts (governments, academia, NGOs, private sector) were asked to prioritize the proposed indicators and assess their feasibility using a 3 digit Likert scale (10 indicators classified as high priority, 12 indicators as medium priority and 10 indicators as low priority). The selected SCP indicators are as follows:

1. Material, energy, and water that fuel economic development and human wellbeing in Asia,
2. The emission cost of growth and wellbeing
3. Using Asia's natural resources most efficiently (resource productivity)
4. The water for Asia's food production
5. Emissions for producing Asia's energy
6. The materials for the consumer goods
7. The materials for Asia's housing and infrastructure
8. Emission for getting around
9. Material footprint of services
10. The material, energy, and water for consumption
11. The emission cost of consumption

Dr. Chiu then provided the next steps in finalizing the pilot dataset of SCP indicators and how this can be used, the next steps needed under institutional arrangements such as integrating these indicators in other UN initiatives, and the opportunities for working on indicators for sustainable cities. He also highlighted some challenges such forming cooperation from various sources in retrieving data sets for the Indicators and having clarity of concepts such as Green Investment. UNEP's program for SCP Indicators have 2 different levels of data collection which is stand alone and a portal for integrated data.

Dr. Chatchai Intatha, Professional Environmentalist, Policy and Planning Section, Office of Natural Resources and Environmental Policy and Planning Thailand then presented the National SCP policies in Thailand (11th NESDB Plan, Environmental Quality Management Plan 2012-2016, and the Green Growth Strategy 2014 – 2018). The SCP strategy aims to shift towards more environmental-friendly production processes and consumption behavior while resulting in better quality of life, more environmental safety and better health conditions for citizens.

Dr. Intatha then provided the criteria to select key indicators, which can provide a useful reference guide for selecting indicators. He highlighted that Indicators should be formulated in a simple and clear manner, should be relevant, has graphically representation and data requested are available and reasonable. He highlighted the importance of the measurement of the indicators to be distributed amongst different authorities as the key element of monitoring and reporting on the indicators is the institutional arrangements.

Summary of the Session:

The Session look at the results of the Regional Workshop on the Indicators for SCP, Resource Efficiency and Green Economy held last October 2013 in Beijing China where a comprehensive framework was initiated that includes 32 indicators on Resource Efficiency, Green Economy and SCP for the Region. An initiative led by UNEP in partnership with the CSIRO will be measuring these indicators for 22 countries in Asia for the last 30 years. The session then discussed country perspectives on how this set of data and indicators can be useful to incorporate economic accounts, as well as environmental and social accounts and how the 10YFP can scale up the use of such SCP Indicators to help countries invest in frameworks, knowledge and data generation and indicators for SCP.

Key points discussed:

- There are several tools and indicators that can be used to evaluate SCP. Indicators need to be benchmarked and combined with other indicator where baseline data can be accessed.
- Suitable and possible criteria are important for the development of SCP indicators.
- Many countries, especially in Asia and Pacific are working on SCP indicators focusing on production, consumption and awareness with the goals of using natural resource efficiently and reducing environmental problems.

Challenges & Solutions:

- Each country has different data collecting systems as well as different nature of data (due to different culture/religions). Therefore, benchmarking data obtained from each country is needed for SCP indicators to be able to compare the results among countries.
- Collecting data for SCP indicators in each country is difficult. Thus, there should be suitable criteria to help select key data for SCP indicators such as availability of data, reliability of data.
- Capacity building is much needed in using SCP indicators. Therefore, providing assistance especially from UNEP and capacity building of local staff will help each country to use SCP indicators effectively and efficiently.

Contradictions or Surprises

- Centralizing data and good data collecting system of each country is a very important key for the use and success of SCP indicators. (Example: incorporating into census)
- Prioritizing SCP indicators of each country is also important and selected SCP indicators are different from country to country due to availability of data.

e. Roundtable 5: Resource, Efficient Cleaner, and Safer Production

RTD5a: Green Industry, From Policy to Practices (P2P)

Moderator: Dr. Doungdao Mahakitsiri, Ministry of Industry, Thailand

Rapporteur: Dr. Jutharat Ahchawarattaworn , Ministry of Industry, Thailand

Objectives:

- To bring together a group of key participants in the areas of green industry and green product procurement

- To provide information on the current progress on SCP as the results of policy actions on Green Industry (GI) in the Asia-Pacific region
- To share experiences and lessons-learnt
- To identify key success factors and strategies

Speakers Presentation:

Dr. Decha Chatutananant, Director, Green Industry Promotion and Development Office, Office of Permanent Secretary, Ministry of Industry, Thailand shared their experiences and methodologies in developing Green Industry in Thailand. He gave an overview of the twenty-years industrial development master plan with three stages of development. The first five year is aimed to build knowledge based industry by strengthening clusters, promoting new industry and undertaking progressive ASEAN liberalization and layout supporting foundation of industrial development. The second stage is aimed to promoting innovation, intellectual property and value creation along the integrated supply chain and this includes the promotion of green industry. The third stage is aimed to build sustainable industry by promoting product image in global market but the success of this stage depends on the outcome of the first two stages.

Having discussed with many sectors including public private and academics, he mentioned that Green Industry is prospering considering that flow of production and consumption has changed. There is awareness now among consumers in choosing products and services that have less environmental and social impact. It is important for Green Industries to be able to respond to market needs with better acceptance from the society and communities. He believes that future industries should gear towards energy efficiency, safe and environmentally friendly production, and awareness on their impacts to society and communities. Therefore, in early 2010, the Ministry of Industry launched the green industry project right after the Manila Declaration on Green Industry in Asia in September 2009.. In order to create common understanding on Green Industry, Ministry of Industry set the meaning as the industry that commits to environmentally-friendly operations by focusing on continuous improvement and corporate social responsibility within the organization and throughout the whole supply chain for sustainable development.

He further explained the importance for Thailand's Green Industry on the use of quality standards including the international ones like ISO9000 or ISO14000. The Ministry has created the five-level framework for manufacturing firms to follow towards green industry, a networking mechanism among industries, and collaboration and partnerships.

Dr. Rene Van Berkel, Chief, Cleaner and Sustainable Production Unit, UNIDO presented on the "Policy Development and Practice for Green Industry." He provided an overview on the importance of Inclusive and Sustainable Industrial Development in the midst of increasing global material consumption. He highlighted that there is emerging consensus on the need to decouple economic development from increased natural resource consumption and aggravated negative environmental impacts. There are already new and green growth directions that shift the development paradigm from labour to resource productivity, fostering economic growth and development while ensuring that natural assets continue to provide the resources and environmental services.

He further explained that the Green Growth and Economy require investment and innovation, which are driven by business. Green Industry is the sector-strategy for realization of Green Growth & Green Economy in manufacturing and related sectors. The greening of Industry aims for continuous improvement of resource productivity and environmental performance of industries in all sectors through cleaner production, energy efficiency, chemicals management Etc. Resource Efficient and Cleaner Production (RECP) is the continuous application of preventive environmental strategies to processes, products and services to increase efficiency and reduce risks to humans and the environment. Multi-stakeholder involvement is important in scaling up and mainstreaming green growth in development policies to push for green investment, green innovation, greening skills, and climate Adaptation Policy. He highlighted examples of countries mainstreaming RECP strategies in country policies such as in Cambodia, Vietnam, and Mongolia, and China. He mentioned that there are financial mechanisms for green industry in

Bangladesh, India and Malaysia and certification and reporting/voluntary schemes in Thailand, Sri Lanka, and Indonesia among others.

He provided some observations from policy makers. Green Industry activities have been taken in the region since 2009 and it is important for this to continue in a manner customized to national circumstances. There is momentum as Green Industry is now anchored in the Rio+20 outcomes for achieving decoupling and ultimately the transition to sustainable development. He then provided key recommendations fro green industry action agenda:

1. Define vision for GI and set targets for its implementation
2. Facilitate inter-sectoral cooperation and policy coherence
3. Ensure full compliance with regulations and standards
4. Partner with business, academia and other stakeholders
5. Implement good GI practices
6. Scale up GI investment
7. Document and report GI progress

Mr. Chatree Chuenchomsakun from SCG Chemicals Thailand provided an overview about the SCG Chemicals Co., Ltd, which was established in 1986. It is one of ASEAN's largest integrated producers of upstream and downstream petrochemical products with successful partnership with world-class leaders such as Dow Chemical-USA, Mitsui Chemicals-Japan, and Mitsubishi Rayon-Japan. SCG aims to be an innovative workplace of choice, and a role model in corporate governance and sustainable development. It's 4 Stages of SCG SD Pathway is Stage 1: World Class Operation, Green Manufacturing; Stage 2: Up-stream Supply Chain (Supplier & Contractor); Stage 3: Down-stream Supply Chain (Dealer, B2B, B2C (Consumer)); and Stage 4 Other Organization: Not directly related to SCG Operations. Its business policy is to pursue Operational Excellence through TPM and ISO standard, maximize operation effectiveness to aim for Zero Loss, promote behavioral safety culture, strive to become Eco Factory; Harmony w/ Community and ensure Zero Complaint, encourage employee and partner to participate CSR Activities; and continue SCG People on 4 Core values and Open-Challenge. He also explained their CSR activities involving communities.

Summary of the Session:

This session gave an overview of the current progress on SCP based on policy actions on Green Industry from policy to practice in the Asia-Pacific region. The Session discussed on greening the industry in terms of green productivity, green systems (i.e. environmental management system), and green culture (i.e. corporate social responsibility). To accelerate the shifting to SCP at regional levels, policy dialogues on shared visions and collaborative activities is required.

Challenges & Solutions discussed:

- MOI: Greening of industry based on 2 Principles: Continuous Improvement and Corporate Social Responsibility
- UNIDO: "Decoupling"- do better for people but less damage to environment. Promote green growth by properly value natural assets.
- SCG: "OMOC" – One Manager One Community. Use less resource to produce same level of production.

Key Emphasis Points:

- Change from "Supply Push" to "Demand Pull"
- Mainstreaming / Scaling up
- Moving toward Innovation Industry
- Private consultant for Small and Medium Enterprises (SMEs) sponsored by government

Surprises & Contradictions:

There is no one definite solution to Green Industry. Each country needs to customize its own model based on culture and custom.

RTD5b: Improving Resource and Energy Efficiency through Supply Chain Management: Lessons Learnt, Opportunities, and Challenges

Moderator: Dr. Punjaporn Weschayanwiwat Rapporteur:

Local Organizing Team (**Dr. Phairat**, TU)

Speakers Presentation:

Ms. Wilasinee Poonuchaphai, Project Co-Director, GIZ gave the welcome and introduction on the Roundtable.

Mr. Somphong Hemaboot, Senior Expert on Supply Chains Management, Calsonic Kansei (Thailand) Co.Ltd gave a presentation on the following topic: "From principle to practical : Strengthening business by improving Resource and Energy Efficiency through Supply Chains Management"

Mr. Dick Van Beers, Senior Expert, Collaborating Center for SCP then presented on the International Experiences on Recourse and Energy Efficiency tools for Greening Supply Chains.

Summary of Roundtable:

As part of the APRSCP, the German International Cooperation (GIZ, Thailand) and Collaborating Centre on Sustainable Consumption (CSCP, Germany) hosted a workshop session on ''Improving Resource and Energy Efficiency through Supply Chain Management''. The session was organised as part of the EU funded SWITCH-Asia project ''Greening Supply Chains in the Thai Auto and Automotive Parts Industries'' (http://www.switch-asia.eu/projects/automotive-sccm/?tx_switchasia_projects%5Bcontroller%5D=Project&cHash=46f65214ff075633a91667bc0d247ff3).

The objective of the session was to share some good practices through three short presentations followed by an interactive world café discussion with the participants.

Two good practice presentations covered the learnings from the SWITCH-Asia project "Greening supply chains in the Thai automotive sector" from an overall project perspective (Wilasinee Poonuchaphai, GIZ) and company perspective (Mr. Somphong Hemaboot, Calsonic Kansei Thailand Co. Ltd). These were complemented by a presentation on the international learnings by Dick van Beers (CSCP), taking a broader view on multiple industry sectors. The presentations confirmed that there is a strong business case for both large companies and SMEs to get involved in greening supply initiatives such as resource efficiency assessment, green procurement, product service system, consumer choice influencing.

Overall, industries are not well aware of the benefits and available practical approaches to green their supply chains. Many good practice examples exist in the Asia Pacific and internationally. It is important to further communicate these cases to the private and public sector in a format customised to their needs and interests. The international experiences showed that supply chain measures dealing with materials supply are increasingly implemented by industries, while supply chain initiatives focusing on sustainable product designs and meeting the needs of societal systems and people's lifestyles remain relatively scarce. However, it is anticipated these latter will become increasingly important to make the required changes in the supply and value chains existing today.

In the world café discussion the participants were split into groups to brainstorm on their lessons learnt and views on the opportunities and barriers associated with greening supply chains in the Asia Pacific. The results from the world café discussions highlighted the wide range of business and collaborative opportunities along supply chains, covering raw materials supply, production, consumption, and end-of-life. It was viewed that these opportunities are hindered by a number of organisational, technical, knowledge, institutional and behaviour related challenges.

Workshop 1: From "Waste-to-Wealth" to "Upcycle Product Standard"

Facilitator: Dr. Singh Intrachooto, Kasetsart University

Rapporteur: Dr. Rattanawan "Tam" Mungkung, Kasetsart University

Organizing Partners for the Session: Department of Environmental Quality Promotion (DEQP), Pollution Control Department (PCD); National Science & Technology Development Agency (NSTDA); and British Standards Institute (BSI)

Objectives:

- to share "Waste-to-Wealth" and "G-Upcycle Standard" experiences
- to brainstorm among key participants in the areas of "UPCYCLING" and initiate a regional/international standard on Upcycled Products
- to get an agreement for the need of "UPCYCLE PRODUCT STANDARD" at the regional/international levels

Speakers Presentation:

Dr. Singh Intrachooto and Dr. Rattanawan Mungkung from Kasetsart University presented an overview of the Roundtable Session and an introduction on "From Waste-to-Wealth to Upcycle Product Standards." Mr. Emmanuel Herve, Vice President, Standards & Professional Services, Asia Pacific (Hongkong) British Standards Institute then presented on "Green Sales & Potentials: Community-based Upcycled Products." Mr. Vimiendu Jha, Founder of Green the Gap, India then presented on "PAS: Upcycle Product Standards." The Discussion was on sharing the UPCYCLE experiences & lessons learnt, development approaches to Upcycle Product Standard, regional collaboration and Outlook on PAS, and the Outlook on PAS Upcycle Product Standard.

Summary of the Roundtable:

Great efforts and investments have been put into reclaiming and managing wastes in all societies. Yet, wastes continue to grow and the battle seems endless. Tackling wastes problems with science & engineering tools have clearly been inadequate. Design recently emerges as an additional approach to tackling the growing wastes volume. National Science & Technology Development Agency (NSTDA) has developed "Wastes to Wealth" project, which aims to support Thai manufacturers in finding creative ways to bring back factory wastes and upcycle them into high value products or new materials. Despite many successes in producing design products and upcycled materials, their commercialization has been a challenge. International "green product" markets require "certifications" of upcycle products but the non-existence of regional or international standards proves a hurdle. The Roundtable was participated by Manufacturers, Consumers, Academics, and Government agencies

RTD5d: Resource Efficient, Cleaner & Safer Production Programme: Progress in Asia and new thematic developments

Moderator: **Prof. Tjandra Setiadi,** Institute of Technology, Bandung (ITB) Indonesia and **Dr. Anthony Chiu**, APRSCP Board of Trustees and Regional Executive of RECP Net

Speakers:

Mr Rene Van Berkel from the Cleaner and Sustainable Production Uni, UNIDO provided an update on UNIDO RECP activities in Asia. Mr. Berkel provided an overview about the establishment of the Resource Efficiency and Cleaner Production Centres to provide information and awareness, professional training, plant level assessments and demonstrations, policy advice, and technology transfer and investment. The Programme launched in 1994 and since expanded to 54 countries, including 8 in Asia. There are current RECP programme in Indonesia and Myanmar is starting its RECP Programme in 2014. He then presented the Swiss UNIDO RECP Programme to be implemented for 5 years in selected countries.

He provided information about the RECP*net,* which operates as a global networking initiative that brings together organizations that are professionally involved in and committed to the promotion of RECP in developing and transition countries. Its key functions are Innovation and knowledge management, capacity building, advocacy, and quality assurance and branding. RECP*net* has regular, associate and observer

members. RECP*net* operates under the partronage of the global joint UNIDO UNEP RECP Programme.

He mentioned some preliminary findings from the Global Assessment of EIPs in Developing Countries consist of the National Reviews in 12 countries, Comparative Assessment, and Good Practice Publication. He also explained the pilot programmes on innovative chemical solutions. Lastly, he provided an overview of activities of RECP net towards low carbon production particularly on the Low Carbon and Climate Resilient Industrial Development Pilot Project.

Dr. Anthony Chiu, APRSCP Board of Trustees and recently nominated Regional Executive of RECP Net provided a short introduction about the RECPnet. He provided information on the RECPnet Charter, Membership, Governance, Programme of Work, and its status in the Asia Pacific Region. The 3rd RECP Networking Conference was held last 4th-5th September 2013 with 140 participants, including representatives of 50 RECP*net* members.

Mr. Stefanos Fotiou from UNEP provided an update on RECPnet activities in Asia supported by UNEP. The Eco-innovation Project has put together a database from the mapping of organizations and experts and initiatives on eco-innovation. There is now a call for eco innovation on going. He provided more information on the Eco-innovation Project of UNEP, which is supported by the EU and key partners such as the RECPnet, RE institutions, UNIDO, NCPCs, governments, industrial associations, academia and research institutions. The Project's objective is to create conditions for service providers to support SMEs to improve their sustainability performance through eco-innovation focusing on 3 value chains, food processing and packaging, metal processing, and chemical use and production. He also mentioned other UNEP activities focusing on RECP such as the Pilot country level projects in Cambodia, Lao PDR and Vietnam that aim to initiate policy action plans focusing on Sustainable Products and Cleaner and Safer Production. The 10YFP roadmap for Asia and the Pacific is one outcome in linking with global SCP Programmes such as in tourism, food systems, and building and cities.

Mrs. YUAN Yin of China National Cleaner Production Center presented the Eco-Industrial Park Developments in China. She mentioned that up to the end of 2010, there were 6900 industrial parks in China. The Country has an intensive national Legal and Regulatory Framework to promote and implement Eco-Industrial Parks in China particularly the following: National Demonstrative Eco-industrial Parks (NDEIP) National Circular Economy Parks (NCEP); and Low-carbon Parks (LCP). For Evaluation and Monitoring, the Standing Committee of National People's Congress carried out regular inspection on the enforcement of laws and modify laws according to the results and findings from the enforcement inspection. Chinese government formulated "'12th Five-Year' workplan for controlling greenhouse gas emission". The workplan proposed to carry out low-carbon pilot projects and construct "Low-carbon Park". In 2006, MEP issued "Management measures for National ISO14000 Demonstrative Park". By the end of 2009, 15 national demonstrative ISO14000 parks among the 56 approved national development parks. She then highlighted the importance of targeted policies and evaluation system for supporting and encouraging local governments and parks to actively establish and improve eco-industrial parks and circular economy park. She mentioned key lessons based on 3 cases mentioned such as having clear functions of government roles and responsibilities and including SMEs in the planning and implementation process, build information network system and capacity building, and continuous improvement of policy and implementation through evaluation based on specific indicators including economic, material reduction, recycling economy, park management among others.

Mr. Bharat Jain of GCPC India presented on the Eco Industrial Parks – a RECP Opportunity, "A Case Study Of Transforming existing Estate to Eco Industrial Park."

Mr. Samantha Kumarasena, Chief Operating Officer of the National Cleaner Production Centre (SLNCPC) in Sri Lanka presented their experience on "Innovative Chemical Solutions and Management" in the country. With the rising of chemical related industrial accident and pollution incidents, SLNCPC decided to embark on sound chemicals management projects supported by UNIDO, UNEP and other partners to provide the platform for collaboration, capacity building activities using key strategies, tools & techniques, and information awareness activities on chemical safety. They focused on chemical leasing initiatives

implemented since 2007 focusing on variety of crops. The Lanka Responsible care Council (LRCC) was initiated as a voluntary Association with collaboration of NCPC (UNIDO Project) and Responsible Care New Zealand (RCNZ) in 2012. In 2010, the Responsible Care in Sri Lanka was launched with an RTD in the 9th APRSCP and it provided enterprises with training and awareness, technical advice, knowledge and experience sharing, international exposure, and having the seal of the logo with periodic assessments. UNEP Responsible Production (RP) activities in Sri Lanka was initiated in 2010 and covered supply chain of industries to implement risk mitigation measures in the work place including ensuring safety measures for chemical storage, good house keeping, and maintenance practices for chemical safety.

Đinh Mạnh Thắng from Vietnam Cleaner Production Centre (VNCPC) presented on Low carbon production opportunity for Rice and Coffee Sectors in Vietnam. He provided information on the "Industrial waste minimization for low carbon production" project conducted under the joint UNIDO-UNEP Programme on (RECP) that started in 2013. The aim is to achieve step-reductions in the generation of industrial waste and by-products, including organic materials and to foster their valorization. He then provided information about VNCPC and their role in providing technical assistance and capacity building on RECP. He also mentioned their activities including conducting the RECP assessment. The assessment provided economic benefits in terms of energy efficiency and conservation and reduction of emission particularly in the rice and coffee sectors.

Panel discussion with presenters and audience

The joint UNIDO UNEP Resource Efficiency and Cleaner production programmes supports building national capacities via interventions in the technical and policy areas. Resource efficiency forms a central pillar of Europe 2020, the EU's growth strategy for the coming decade towards a smart, sustainable and inclusive economy.

4. Closing Plenary

The closing plenary session was held on the end of the DAY 2 after all the parallel sessions. The highlights of all plenary and parallel roundtable sessions were summarized and reported. Afterwards, a panel discussion on the way forward was discussed among the key partners organizing 11th APRSCP. After the closing remarks, the APRSCP banner was handed over to the next host country for the 12th APRSCP, which will be in Cambodia on 2016.

Plenary Closing Session

Summary Report of the 11th APRSCP by Dr. Chaiyod Bunyagidj, Chair of 11th APRSCP Local Organizing Committee (10 mins)

Dr. Bunyagidj presented the APRSCP as a Network formed to foster dialog and partnerships between industry, governments, academia and non-governmental organizations in the region. He also mentioned the Global SCP Movement in various Regions. He mentioned the APRSCP Board Members from the following countries: Thailand, Indonesia, India, Sri Lanka, Philippines, Vietnam, Australia, Laos, Malaysia, Pakistan, Cambodia, the major partners of the APRSCP, and the APRSCP Secretariat.

He provided information on the various APRSCP held since 1997 and the different themes it focused on which are very much relevant and connected to the issues we face today in promoting and achieving SCP in partnership with all stakeholders involve in the Region.

The 11th APRSCP's theme, *"Paving the Way for the Future We Want in Asia and the Pacific",* is very timely with the global momentum towards commitment to SCP. This 2014, the 11th APRSCP was able to gather various key stakeholders from high level government representatives to local champions in government from participating countries, together with key international organizations, research institutions, academe, the business sector and civil society groups. In total, the 11th APRSCP had 82 Speakers from various countries in different Regions (25 Thais, 34 other Asians, 11 International Organizations, 8 Europeans, 3 Australians, and 1 American). In terms of regional participation, the 11th APRSCP has the highest number of

participants from Asia and the percentage of participant from the different region on the 4th APRCP and on the 5th APRCP are so similar. In terms of participants, 188 participants from Thailand attended, 103 from Asia, 4 from Australia, 9 from Europe, 1 from America, 24 from international organizations resulting to around 329 participants attending the 11th APRSCP. In terms of participants coming from sectors, 17% comes from Industries, 30% from Governments, 20% from CSOs, 25% from Academe and Institutes, and 8% from the International organizations including Financial institutions.

Dr. Bunyagidj then provided overview on the 5 Roundtable sessions focusing on SCP priority areas, 1 workshop and 2 Sessions presenting 15 technical papers for the 11th APRSCP. The following sessions have provided the platform to share and promote best practices, programs, local initiatives and lessons learned on SCP related projects in the region, and identified recommendations in scaling up existing and new SCP technologies, strategies, tools and approaches through research and information awareness, capacity building, financing, and monitoring and evaluation, which can be initiated through the implementation of the Asia Pacific Roadmap of the 10-Year Framework of Programmes (10YFP) on SCP.

He also mentioned that the 11th APRSCP is arranged to be a Carbon Neutral Conference where carbon credits from carbon-reduction project based in Thailand are bought for offsetting. Carbon footprinting (i.e. GHG emissions) from the participants' travelling, accommodation, and conference organisation (eco-saline bag, c-neutral conference proceeding, eco cuisine and waste management) will be calculated based on the national guideline of carbon footprint of service and verified by a registered verification body. The venue of the 11th APRSCP is also a green hotel. Plaza Athenee Bangkok, is the very first ISO 20121 accredited hotel in the world since 2013. ISO 20121 is a sustainability event management system designed to help event organizers improve the sustainability of their activities while creating a more sustainable environment, economic and social. The hotel's green management efforts in 2013 have been yielding encouraging results. ***Green menu was also selected for the 11th APRSCP in*** consideration of the carbon footprint to minimizing the environmental impacts of food and catering services.

Discussion on the way forward

The panel discussion on next steps followed with the following speakers, Mr. Sena Peiris, President, APRSCP Board of Trustees, Dr. Arab Hoballah, Chief of SCP Branch, Division of Technology, Industry and Economics of UNEP, Dr. Wicharn Simachaya, Deputy Permanent Secretary, Ministry of Natural Resources and Environment (MoNRE), Thailand (10 mins), Mr. Noer Adi Wardojo, Asst. Deputy Minister for Standards and Technology Ministry of Environment, Indonesia/ Candidate Leader to the ASEAN Forum, and Ms. Alina Neacsu from the European Commission. Dr. Anthony Chiu chaired the discussion.

The 11th APRSCP was closed with positive messages on the clear messages in the AP SCP roadmap and the strong mandate for the way towards SCP. There is a need to keep reporting on progress towards SCP in the different countries within AP. EC was acknowledged for their important financial contribution towards making this happen.

The Handover Ceremony then took place where Mr. Peiris handed over the APRSCP emblem (flag) to Dr. Chhun Vannak, APRSCP Member of the Board of Trustees for the 12th APRSCP to be hosted by Cambodia on 19 – 21 March 2016. Mr. Peiris also mentioned that he is now succeeded by the next President of the APRSCP Board of Trustees, Ms. Laksmi Dhewanthi from Indonesia.

1. Summary of Feedback forms:

Submitted Evaluation Forms distributed by Kasetsart University to participants

Organizations:

Organizations	**Government: 18**	**Private Institutions: 4**	**NGO: 12**	**Others: 8 (University)**
Sex	**Male: 23**	**Female: 19**		

Roundtables attended:

19 May	**RTD1a: 6**	**RTD2a: 14**	**RTD3a: 6**	**RTD4a: 5**	**RTD5a: 9**
	RTD1b: 2	**RTD2b: 9**	**RTD3b: 5**	**RTD4b: 8**	**RTD5b: 9**
20 May	**RTD1c: 6**	**RTD2c: 6**	**RTD3c: 8**	**RTD4c: 10**	**RTD5c: 6**
	RTD1d: 2	**RTD2d: 6**	**RTD3d: 7**		**RTD5d: 10**

Seminar Arrangement	**Very Good**	**Good**	**Fair**	**Poor**
Seminar arrangement	**26**	**15**	**1**	
Venue of the Seminar (hotel, room food etc)	**23**	**18**	**1**	
Presentation of media and materials	**16**	**21**	**4**	**1**
Benefits to your work or organization	**24**	**17**	**1**	
Seminar documents	**12**	**22**	**7**	**1**
	Very Good	**Good**	**Fair**	**Poor**
Useful benefits to your organization	**23**	**16**	**3**	

Others:

1. Too many parallel roundtables became difficult to choose what to attend
2. Some introduction of speakers is required to understand their specialties. Provide PPT beforehand.
3. Meeting document is very important to participant for documents to access on website
4. Meeting valuable to our organization.
5. Very good roundtable meetings and very beneficial.
6. Roundtable session: presentation screen is too small or blurred, meeting room too cold.
7. Very good venue for knowledge sharing and learning platform.
8. No wifi service.
9. Organize networking sessions with online profiles of participants. Hotel temperature in rooms too cold and food waste a concern. Better natural light in main room. Text in slides too small.

2. Media Links:

APRSCP: http://www.aprscp.net/11th-APRSCP/index.html

SCP Clearing House: http://www.scpclearinghouse.org/news/86-11th-aprscp.html

SWITCH RPSC: http://www.switch-asia.eu/multimedia/11th-aprscp/

International Institute for Sustainable Development (IISD) news:

http://chemicals-l.iisd.org/events/11th-asia-pacific-roundtable-for-sustainable-consumption-and-production/

UNEP webpage: http://www.unep.org/ecalendar/contents/details_view.asp?EventID=26374

UNEP Asia – Pacific Facebook page: https://www.facebook.com/pages/UNEP-Asia-Pacific/259096190776107

11th APRSCP teaser video at the SWITCH Asia RPSC youtube link:
http://www.youtube.com/watch?v=VKQ59W3Cwhk&feature=youtu.be

Switch Asia Network Facility:

http://www.switch-asia.eu/news/switch-asia-networking-meeting-during-the-11th-aprscp/

Ministry of Natural Resources and Environment, Thailand:

http://www.mnre.go.th/ewt_news.php?nid=2525

Kasetsart University, Thailand:

http://www.pr.ku.ac.th/pr_pic/html/05May57/190557%20Seminar%20APRSCP%2011th.html

Pollution Control Department, Ministry of Natural Resources and Environment web news:

http://www.pcd.go.th/Public/News/GetNewsThai.cfm?task=lt2009&id=17148

National Bureau of Agricultural Commodity and Food Standards. Ministry of Agriculture and Cooperatives, Thailand:

http://www.acfs.go.th/read_news.php?id=12192&ntype=09\

RYT9 news: http://www.ryt9.com/s/nnd/1898365

Chiang Mai University: http://www.arc.cmu.ac.th/read_news.php?lang=th&id_news=4542

Center for Creativity and Sustainability, Vietnam:http://ccspin.org/index.php/en/news-information/activities/164-the-11th-asia-pacific-roundtable-for-sustainable-consumption-and-production-aprscp-in-bangkok-thailand-may-2014

Vietnam Cleaner Production Center website:http://vncpc.org/en/vncpc-participated-in-the-11th-asia-pacific-roundtable-for-sustainable-consumption-and-production-aprscp/

Ministry of Education, Thailand (Office of the Higher Education Commission):

http://www.inter.mua.go.th/main2/files/file/News%20and%20Events/Calendar_of_Events_2014.pdf

National Cleaner Production Center in Cambodia webpage:

http://www.cambodian-cpc.org/ccpp/index.php/en/news-events/11-event/47-11th-asia-pacific-roundtable-on-sustainable-consumption-and-production

Ministry of Environment, Japan:http://www.env.go.jp/press/press.php?serial=14401

Conference Alert:

http://conferencealerts.com/show-event?id=130829

http://www.conferencealert.org/show-event.php?eid=1018

Thailand Cooperatives: http://www.coopinthailand.com/viewnews.php?news_id=7019

SCP Models and Certification Tools in Chinese Food Supply Chains Project website:

http://www.capacity4food.eu/en/news-events/118-capacity-project-will-be-present-at-the-11th-asia-pacific-rountable-on-sustainable-consumption-and-production-aprscp-thailand-bangkok-19-20-may-2014

Thai LCA Network in Yahoo groups:
https://groups.yahoo.com/neo/groups/Thai_LCA_Network/conversations/topics/897

Faculty of Engineering, Chiang Mai University facebook: https://www.facebook.com/3E.ResearchUnit?fref=nf

Thai News: http://www.naewna.com/local/103648

3. Participants contact list (See Annex)

4. PPT Presentations (See Annex)