



**Asia-Pacific  
Economic Cooperation**

**Advancing** Free Trade  
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# **APEC Bio-Circular-Green (BCG) Symposium *Summary Report***

**APEC Committee on Trade and Investment**

August 2022





**Asia-Pacific  
Economic Cooperation**

## **APEC Bio-Circular-Green (BCG) Symposium**

*APEC Best Practices for Green and Innovative  
Micro, Small and Medium-sized Enterprises  
(MSMEs)  
by using the BCG Economy Model*

**SUMMARY REPORT**

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## Background

In light of the global crisis caused by the Covid-19 pandemic, adverse environmental effects resulting from unsustainable use of natural resources and corporate profit maximization have become increasingly prevalent. Thailand recognizes the need for a new paradigm for growth and has embraced the concept of Bio-Circular-Green Economy Model or the BCG Economy Model, as a strategy for Thailand's long-term economic development.

### **The BCG Economy Model**

“B” is derived from “Bioeconomy” which involves the production of renewable biological resources and the conversion of these resources into value-added products.

“C” is derived from “Circular Economy” which aims at reusing and recycling materials to maximize the value of limited resources and using technology to transform the production process to reduce greenhouse gas emissions and carbon footprint.

“G” is derived from “Green Economy” which aspires to keep the economy, the society and the environment in balance, and reduce the impact on the environment i.e. by reducing the use of chemicals or replacing them with more sustainable alternatives, leading to a sustainable development.

Thailand recognizes the benefits of the BCG Economy model in the global economy and would like to encourage all APEC member economies to exchange technological and scientific resources to implement the BCG Economy Model in post-Covid-19 recovery efforts. Once the BCG Economy Model is applied, we can expect increasing sustainable trade and investments both within and outside APEC economies.

In addition, this project is in line with global initiatives to tackle climate change and its impact by focusing on promoting the efficient use of natural resources, the use of innovation and technology, the shift from fossil fuels toward clean energy, while maintaining business competitiveness in the global market which sees all stakeholders increasingly influenced by Environment, Social and Corporate Governance (ESG) aspects in their efforts to propel economic growth.

As the APEC 2022 host economy, Thailand's priority is to drive the region towards an inclusive, sustainable and balanced growth under the theme “Open. Connect. Balance.”.

The APEC BCG Symposium is aimed at increasing knowledge of the BCG Economy Model among APEC economies so that it can be a choice of options for them to use to alleviate their environmental problems. For the private sector, especially the Micro, Small and Medium Enterprises (MSMEs), the Symposium intends to equip them with the necessary knowledge and knowhow for preparing for a sustainable future and thus helps to enhance their business opportunities and boost their competitiveness in both local and global markets. For the public sector, the Symposium will provide guidance on how governmental organizations should implement relevant policies or incentives to facilitate and stimulate the private sector to apply the BCG Model efficiently. In addition, the project helps build a network between stakeholders across the region and provide motivation through the sharing of policies for sustainable development and success stories, best practices and product champions in the green business amongst APEC members in order to gain insight into various methods that could prove useful for participating economies.

## Introduction

The full-day hybrid Symposium was held on 20 May 2022 at Centara Grand and Bangkok Convention Centre at CentralWorld, Bangkok. The Symposium was hosted by the Department of International Trade Promotion and the Department of Trade Negotiation, Ministry of Commerce, Thailand, with an attendance of 531 participants from 19 APEC economies. Expert speakers from APEC economies shared their insights on sustainability policies and business success stories, best practices and product champions amongst APEC members.

**The morning activity** consisted of two sessions.

**Session 1:** An overview of Thailand's BCG Economy Model by Dr Janekrishna Kanatharana, Executive Vice President of the National Science and Technology Development Agency (NSTDA), Thailand

**Session 2:** Panel policy discussion on “How to Make Trade and Environment Policies Work Together in the Next Normal Era” moderated by Mr Akanit Wichiencharoen and participated by four expert speakers:

1. Mrs Elizabeth Zapata, Technological Development Director, Chilean Economic Development Agency, Chile
2. Mr Takashi Hattori, Deputy Director-General, Trade Policy Bureau, Ministry of Economy, Trade and Industry (METI), Japan
3. Mr Peter Govindasamy, Dean and Director (Special Projects & Climate Change International Team), MTI Academy, Ministry of Trade and Industry, Singapore
4. M.L. Kathathong Thongyai, Assistant Director General, Department of International Trade Promotion, Ministry of Commerce, Thailand

**The afternoon activity** consisted of panel discussions on “Sharing Sustainable Business Best Practices, Success Stories among APEC Economies”. The discussions were divided into 3 breakout sessions held in parallel.

### **Session 3, Room 1: Food & Agri Products and Services**

The four expert speakers in this session were:

1. Mr Alessandro Chen, Vice President, MetaMeat (Shanghai) Food Tech Co., Ltd., People's Republic of China
2. Mr Miguel Malnati, CEO & Co-founder, Bio Natural Solutions, Peru
3. Dr Visit Limlurcha, Chairman of Processed Food and Future Food Committee, Thailand
4. Mr Pravit Prakitsri, Chief Operating Officer - Thai Sugar, Energy and New Business, Mitr Phol Sugar Corporation., Ltd., Thailand

This session was moderated by Mr Surasant Kongsiri.

### **Session 3, Room 2: Fashion & Lifestyle Products and Services**

The four expert speakers in this session were:

1. Ms Ricca Tezuchi, Product designer/Founder, Propeller Design/ALL, Japan
2. Mr Kosin Virapornsawan, Managing Director, Plan Creations Co., Ltd., Thailand



3. Ms Thamonwan Virodchaiyan, Co-founder, Moreloop Co., Ltd., Thailand
4. Ms Tran Hoang Phu Xuan, CEO, Fashion Link JSC, Viet Nam

This session was moderated by Mrs Natchanan Liengaroonwong.

### **Session 3: Room 3 Health & Wellness & others Products and Services**

The four (4) expert speakers for this session were:

1. Mr Young Kyun Kim, Founder and CEO, Aromatica Co., Ltd., Republic of Korea
2. Mr Shinji Yamasaki, Founder and CEO, RE:TERRA Pte. Ltd., Singapore
3. Mr Anak Navaraj, Director, Patom Organic Living Co., Ltd., Thailand
4. Dr Weerachat Kittirattanapaiboon, CEO, Biodegradable Packaging for Environment Public Co., Ltd., Thailand

This session was moderated by Mr Pichapat Rattanukul Serireongrit

## Opening remarks

H.E. Mr Jurin Laksanawisit, Deputy Prime Minister and Minister of Commerce, Thailand, made the following opening remarks.

The objective of this Symposium is to promote better understanding of the BCG Economy Model and provide a space for conversations on potential policies to promote ways for MSMEs to prepare, adjust and take advantage of opportunities presented by the development of BCG economies. The Symposium is also a chance for us all to learn about the experience and benefits of the BCG Economy Model from one another.

Global population growth and economic development through resource utilization without regard to its social and environmental impact have caused a great strain on our natural resources. Our traditional manufacturing practices allow for pollution and waste to be released into the environment unrestrictedly, which then impact the livelihoods of human, animals and plants. We saw that there is a disconnect between our current consumption demands and the existing natural resources. To put it simply, our current economic model is not sustainable. The impact of the Covid-19 pandemic and the current geopolitical climate only exacerbated the problems. We are witnessing a global recession and its impact on the business sector, particularly the MSMEs.

On the upside, it has been promising to see many economies utilizing the BCG Economy as a development model to ensure that their economies are sustainable and environmentally-friendly. For Thailand, we have established the BCG Economy as a sustainable development model and a part of our agenda since 2021. The BCG Economy Model is the basis for building our strengths in biodiversity, culture, agriculture, medical services and tourism, and for increasing our competitiveness and revenues. Our BCG strategy is made up of 3 main components:

- (1) Bioeconomy which focuses on utilizing our biological resources through technologies such as the production of bioplastic and bioenergy.
- (2) Circular economy which focuses on finding the most effective use of natural resources in order to minimize wastes through reduce, reuse and recycle measures.
- (3) Green economy which focuses on economic development policies which take environmental concerns into consideration. These policies also support the Sustainable Development Goals (SDGs) of the United Nations (UN).

Economic development through the BCG Model means that each economy gets to utilize its own assets, both tangible assets such as natural resources and intangible assets such as culture and indigenous knowledge, to produce high-quality goods and services. In this regard, it is imperative that we utilize scientific advancement, technology and innovation to increase the value of our products. This is the core of a BCG-centric policy. The BCG Model also supports the UN's SDGs, especially the goals to eliminate poverty, create decent work and economic growth, reduce inequality, ensure sustainable consumption and production patterns, and to combat climate change. The success of the BCG Model depends on adoption by the private sector, as the government should only play the supporting role. This includes seeking ways to connect the BCG development to a wider audience and ensuring a more equitable wealth distribution. All of the work will enable each economy to progress more equally.

Thailand has launched a pilot project to promote the adoption of the BCG Economy Model among Thai entrepreneurs. The project is called "Platform Economy Drives Thailand to be New BCG Leader". The objective of this project is to develop BCG entrepreneurial skills, especially among MSMEs, which will help improve the competitiveness of sustainable trade for Thai entrepreneurs to respond to global trends, such as climate change. Online trading platforms provide greater opportunities for MSMEs to access the global market. For the implementation of the project, the main activities include capacity building, product development and innovation, raising awareness of Thailand's BCG products, and sales promotion through online channels, including online business matching. In terms of potential products under the BCG project, we have initiated some pilot products such as future foods (which include functional food, novel food, medical food and organic food), herbal products, lifestyle products and social enterprise products.

If APEC economies work together to foster the BCG Economy Model, ambitious goals can soon be reached. These goals include (1) unemployment reduction through making agriculture more attractive to young people and creating decent employment opportunities in rural areas, (2) more efficient utilization of resources to improve profit and income, (3) increased competitiveness of the economy through technology and innovation, (4) increased income through sales of high-value products and services, (5) income distribution improvement, especially to rural communities, through connecting farmers and local businesses to the global value chain, (6) wellbeing improvement through better safety standards for food and products, and environmentally-friendly policies, and (7) sustainability through reducing natural resources consumption and pursuing environmental conservation policies.

The Leaders' Declaration at the 28<sup>th</sup> APEC Economic Leaders' Meeting 2021 addressed our commitment to steer our economic and environmental policies towards sustainability. The BCG Economy Model is another strategy to comprehensively revitalize the economy with the aim of generating more prosperity, income and opportunities. With this model, we can achieve inclusive growth without making compromises on environmental conservation and biodiversity protection. Furthermore, cooperation among the APEC economies in areas such as research and development (R&D), and technology transfers can magnify our recovery efforts, protect the environment, and safeguard against climate change.

We hope this BCG Symposium will provide an opportunity for APEC economies to exchange our experiences and find new ways to work together. We believe the APEC is a strong platform for economic cooperation with a strong emphasis on equal opportunities. We aspire to see a balanced and sustainable economic revitalization under our umbrella theme of "Open. Connect. Balance."

## Presentations and Discussions

### Session 1 – An Overview of Thailand's BCG Economy Model

Speaker: Dr Janekrishna Kanatharana, Executive Vice President of the National Science and Technology Development Agency (NSTDA), Thailand

Thailand's BCG Economy Model focuses on inclusive and sustainable growth as an integral part of economic development by leveraging on its strengths in food security, health security, biodiversity and cultural richness. It employs mechanisms of technology and innovation to transform Thailand into a value-based and innovation-driven economy that aligns with the global megatrends.

In four key sectors — (1) food and agriculture, (2) medical and wellness, (3) energy, materials and biochemicals, and (4) tourism and creative economy — the BCG Economy Model will help prepare Thailand to combat climate change, ageing society, social division and other challenges. Bioeconomy involves the production of renewable and bio- resources and their conversion into high value-added products. Circular economy aims at perpetuating the use of resources, while green economy highlights the economic, societal and environmental balance.

The BCG policy features 13 measures which include creating a digital repository of bioresources, transforming the agricultural system, improving the quality and safety of street food and local food, promoting sustainable and green tourism, supporting BCG startups, and promoting international collaborations. This will lead to outcomes covering the sustainability of resources and environment, economic growth, socio-economic prosperity, and self-reliance.

Thailand aims to reduce 25% of natural resources consumption and 20% of greenhouse gas emissions, and achieve reforestation of at least 0.5 million hectares. With 11 million people accounting for approximately 15% of the economy's Gross Domestic Product (GDP), not only will the agricultural sector see an increase in premium farm products with good agricultural practices and more product diversification in rice, cassava, rubber, sugarcane, corn and palm oil, it will also be able to respond to the rising demands of herbal extracts and natural products, as well as functional health food and beverage for the medical and wellness sector.

Thailand also aims to increase renewable energy consumption to 30% by 2030, up from 16.5% at present. Advanced energy storage will help buffer the demands and supplies of renewable energy and traditional energy in the materials and chemical sector. Currently, Thailand is the largest petrochemical producer in ASEAN and is ranked in the world's top 20.

Pre-pandemic, the steady growth of the cosmetics and medical industries was witnessed thanks to medical tourists and strengths in biologics and precision medicine based on the combination of technologies within the energy, materials and biochemical sector. As for the tourism sector, Thailand has welcomed more than 40 million foreign tourists, generating over USD 100 billion per year. The tourism hotspots were however only concentrated in eight provinces, mainly among lower-income tourists. Therefore, the growth of the tourism industry has shifted its focus to secondary city destinations as well as targeting higher-income tourists.

The current value of the creative economy is estimated at 10-12% of Thailand's GDP. Sustainable goods and services with circular designs and green concepts are an emerging segment that is also gaining popularity locally and internationally.

The BCG Economy Model also extends to orchards and farmlands where the Smart Plant Watering Control and Weather Monitoring System have been implemented to help reduce the use of water and labor, resulting in production cost reduction, and productivity and income growth for orchard owners.

To support the BCG Strategic Plan, an innovation park called the Eastern Economic Corridor of Innovations (EECI) is being developed with the primary objective of connecting research and investments across Thailand as well as supporting the BCG industries' large-scale infrastructures and promoting technology localization. EECI, set to open by the end of 2022, will feature pilot biorefineries to support the conversion of biomass into various products such as food supplements, nutraceuticals, cosmeceuticals, biochemicals and bio-based materials.

In line with the APEC's theme of "Open. Connect. Balance.", Thailand encourages collaborations in the areas of supporting high-value product development from local bioresources, localization of advanced BCG technologies, partnership in research and sharing of advanced transnational infrastructures, as well as joint development of talents between international and local agencies.

## Session 2 – Panel policy discussion on “How to Make Trade and Environment Policies Work Together in the Next Normal Era”

Moderator: Mr Akanit Wichiencharoen, Thailand

Speaker 1: Mrs Elizabeth Zapata, Technological Development Director, Chilean Economic Development Agency, Chile

Mrs Zapata began her session with the topic of Chile's top place in various rankings for difference kinds of sectors in relation to the circular economy. For example, Chile was ranked first in its region for renewable energy investments and also for solar energy generation with approximately 2,600mw of solar energy produced last year. With regard to the economic overview of Chile, mining is Chile's main industry. Chile is the world's principal producer of copper, nitrate, iodine and lithium, and the sixth largest silver producer in the world. As for other industries, Chile is the world's fourth largest wine exporter and the second largest salmon producer.

Mrs Zapata then shared about CORFO or the Chilean Economic Development Agency from the Ministry of Economy of Chile. CORFO was established in 1939 with the key missions of improving Chile's competitiveness and productive diversification through the promotion of investments, innovation and entrepreneurship, and strengthening Chile's human capital and technological capabilities to achieve a sustainable and territorially balanced development. CORFO oversees a variety of programs aimed at generating economic development for Chile through the promotion of inward investments and the advocacy of competitiveness for domestic companies. CORFO's main areas for funding covers the following: (1) Innovation - innovation grants and tax incentives for R&D, (2) Entrepreneurship - seed capital, incubators, Co-Works and Start Up Program, (3) Financing – guarantees for access to bank financing for SMEs, (4) Business productivity - smart specialization programs, labor skills and SMEs programs, and (5) Technological capabilities - technology center, R&D consortiums, technical school innovation capabilities and Open Innovation Program. Between 2022-2026, CORFO will focus in 3 areas, namely: (1) Financing for Development - building new

development bank to support new technologies, (2) Entrepreneurship and innovation promotion, and (3) New Industrial Policy.

A Circular Economy Roadmap for Chile in the recycling sector is beginning to take off as Chile generates the most solid household waste per inhabitant (Chile's annual waste is rising higher than other economies in their region) and this challenge leads to Chile's "Roadmap to a Circular Economy Chile 2040".

The roadmap began with initial studies and regional workshops in 2019, went through the strategic committee stage, the 11 thematic discussion groups stage and the public consultation stage in 2020, before it obtained approval from the Council of Ministers for Sustainability in 2021. The common vision for Chile in this roadmap is "an economy where nothing gets wasted and everything is transformed for the care of life". The strategic axes of this roadmap are: (1) Circular Innovation - the creativity for the transition to production systems with low socio-environmental impact throughout life cycles, (2) Circular Culture - transparent information and comprehensive education for a conscious society that cares for its environment, (3) Circular Regulation - a regulatory framework that recognizes the potential of the circular economy and facilitates its implementation, and (4) Circular Territories - sustainable local development that is compatible with the vision and vocations of each territory.

Chile also has a program called "Transforma" which is a strategic program with three elements: (1) public-private governance, (2) multilevel coordination, (3) and long-term roadmap. The Circular Economy Strategic Program will enable Chile to foster a new industry, develop new products, new services and circular technologies, and generate local impact through entrepreneurship support and business with local production. The roadmap's focus is to reduce technology and competitiveness gaps in strategic sectors of Chile's economy and to gather stakeholders with a shared vision to work with innovation ecosystems through industry challenges in each region, and to develop circular value chains into local areas.

**Speaker 2: Mr Takashi Hattori, Deputy Director-General, Trade Policy Bureau, Ministry of Economy, Trade and Industry (METI), Japan**

Mr Hattori began with the overview of the Ministry of Economy, Trade and Industry's policy towards carbon neutrality which divided into two sections. The first section was about the domestic initiative. In October 2020, Japan declared its intention to achieve a carbon neutral society by 2050. Japan set up the "Green Growth Strategy" and selected 14 sectors for this strategy: 1) offshore wind, solar and geothermal power, 2) hydrogen and fuel ammonia, 3) next-generation heat energy, 4) nuclear, 5) automobile and battery, 6) semiconductor, information and communication, 7) shipping, 8) logistics, people flow and civil engineering infrastructure, 9) food, agriculture, forestry and fisheries, 10) aircraft, 11) carbon recycling and material, 12) housing, building and next-generation power management, 13) resource circulation-related sector, and 14) lifestyle-related sector. Moreover, the Japanese government has also mustered all available and necessary policy measures such as budget, tax system, finance, regulatory reform/standardization and international cooperation under the Environment Innovation Strategy to boost innovation, including in MSMEs.

The second section was about the international initiative. Japan started two initiatives, namely the "Asia Energy Transition Initiative (AETI)" and the "ASIA-Japan Investing for the Future Initiative (AJIF)" for an economic cooperation between Japan and economies in ASEAN in the post-pandemic era. Those initiatives aim to offer effective

solutions to the reality faced by ASEAN economies, to create a foundation for a sustainable economic society by using the private sector's innovation to the maximum extent, and to co-create the region's future through collaboration with local businesses and the partnership between Japan and ASEAN economies. The three ideal images of the future which Japan and ASEAN co-creates are to improve the attractiveness of the region as a hub of global supply chain, to create innovation to enhance sustainability and solve social challenges, and to promote energy transition.

In addition, Mr Hattori also mentioned about APEC's works relating to trade and environment by first talking about environmental goods and services. He said that in 2012, APEC agreed to a list of 54 items for "environmental goods", e.g., renewable energy and cogeneration, recycling and waste management, water and air pollution control, and this then developed into a negotiation at the World Trade Organization (WTO). Later in 2021, APEC also agreed to a reference list of "environment services" which will be reviewed in 2023. Secondly, he mentioned about the issues of non-tariff measures (NTM) in APEC. In order to achieve carbon neutrality, NTM is an important factor for promoting usage, trade and investments in environmental products and technologies. Moreover, he also raised Japan's initiative in APEC which is a study aimed to identify NTM affecting the trade in goods reducing greenhouse gases, as well as recommending concrete areas regarding regulatory cooperation concerning trade and climate change to assist in outlining priority areas for further work within APEC and beyond. Most importantly, he said that 120 economies already pledged to achieve carbon neutrality by 2050.

Mr Hattori concluded his presentation by mentioning that it was necessary to tackle climate change to transition towards carbon neutrality in each economy and in APEC, and APEC needed to facilitate the work by updating existing ideas and initiating new ideas to encourage APEC economies to adopt mutually beneficial policies in this area.

**Speaker 3: Mr Peter Govindasamy, Dean and Director (Special Projects & Climate Change International Team), MTI Academy, Ministry of Trade and Industry, Singapore**

Mr Govindasamy spoke on how policy makers can optimally combine trade and environment policies in order to harness the benefits of trade while minimizing environmental costs. In his presentation, he drew on the development of United Nations Framework Convention on Climate Change (UNFCCC), WTO's system of rules and Singapore's experience in this area.

Mr Govindasamy outlined that his sharing would be organized into two parts. Firstly, he would highlight the issues of the new normal by introducing the notion of "double impact of climate change and climate mitigation measures". Secondly, he would introduce the notion of "pre-emptive cooperation" to support efforts to meet both climate challenge and trade obligations in an equivalent and consistent manner. In addition, he would explain the five pillars of pre-emptive cooperation.

Mr Govindasamy shared that the Paris Agreement highlighted that "parties may be affected not only by climate change but also by the impact of the measures taken to combat it". Most of response or mitigation measures are either trade-related or measures with downstream trade implications. Some of the measures were carbon or energy taxes, cap-and-trade schemes, carbon trading initiatives, carbon efficiency standards and carbon subsidies. All these measures would interface with WTO law and their impact could be positive or negative.

Mr Govindasamy described that there were two aspects of the double impact on employment and workers. The first aspect is the quantitative impact including job creation, job substitution, job elimination and job transformation or re-definition. The second aspect is the qualitative aspect including adequate income, social protection, safe working conditions, respect for the rights at work and opportunities for an effective social dialogue. Policymakers must smooth this transformation by developing just transition policies for affected workers, enterprises and their communities.

Mr Govindasamy summarized that the double impact of climate change and response measures would intensify and become the new normal in the coming years. The more ambitious the response measures, the greater the domestic and cross border impact will be on parties. The impact could be positive or negative. It could also potentially modify the condition of competition in various sectors. Response measures would interface with various WTO agreements, namely, carbon tax with most-favored-economy and treatment, energy efficiency or carbon footprint standards with the Agreement on Technical Barriers to Trade. Depending on how these response measures are designed and applied, they could be incompatible with WTO law. The interlinkage between response measures and WTO law will become more pronounced as parties take actions to implement the Glasgow Climate Pact.

Therefore, trade and environment officials can work together to achieve economies' climate obligations while respecting their WTO obligations. But policy coherence between trade and environment (climate) policies is not automatic nor a given. There is a need of proactiveness from trade and environment officials to foster the coherence between the two regimes. The UNFCCC-IPCC<sup>1</sup> calls this proactive collaboration "pre-emptive cooperation".

Mr Govindasamy then introduced the five pillars of pre-emptive cooperation:

Pillar 1: Coordination at the domestic and international levels;

Pillar 2: Good practices to foster coherence between trade and response measures;

Pillar 3: Transparency of response measures;

Pillar 4: Engaging stakeholders to promote climate-friendly response measures; and

Pillar 5: Just transition of the workforce and creation of decent work and quality jobs.

In conclusion, Mr Govindasamy presented two concluding thoughts. First, he presented a visionary of the trade response measures based on the five pillars of pre-emptive cooperation. This must occur on the rule-based systems ranging from the UNFCCC, Paris Agreement, Kyoto Protocol, WTO to the International Labour Organization. Second, while many of the actions addressing the impact of responses to climate change might take time, some actions could be adopted more immediately, namely, the efforts to keep markets open and the efforts for member economies to take into account of the circumstances of one another. Last but not least, workers must be at the center of the low carbon transition, and with collective thoughts and efforts we would be able to solve an issue of carbon and energy constraints.

Regarding Singapore's strategies towards a low carbon economy, Mr Govindasamy mentioned that the Paris Agreement was founded on the social and domestic-level circumstances. In terms of domestic-level circumstances, Singapore imported all of its energy needs. Even though Singapore is considered an alternative energy-disadvantaged economy, we submitted our enhanced Determined Contributions and Long-Term Low-Emissions Development Strategy in March 2020 as part of our longstanding support for the multilateral cooperative efforts at the UNFCCC. Furthermore, in March 2022 Singapore announced the aim to achieve net zero emissions by around mid-century. Since 1965, sustainability had formed Singapore's

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<sup>1</sup> The Intergovernmental Panel on Climate Change

economic strategies. Therefore, in the context of climate change, Singapore continues to enhance the energy efficiency of power generation plants as well as further accelerating solar deployment, despite land constraints and dense population.

Moreover, carbon tax is a key policy lever to decarbonize Singapore's economy. Singapore is the first economy in South East Asia to implement the carbon tax in 2019 and also has one of the highest carbon tax coverage rates globally.

#### Speaker 4: M.L. Kathathong Thongyai, Assistant Director General, Department of International Trade Promotion, Ministry of Commerce, Thailand

With global warming taking center stage on many economies' agendas, the demand for tangible and far-reaching actions to reduce carbon emissions, greenhouse gases, as well as waste reductions has galvanized efforts to change towards clean energy and decarbonized living.

Thailand's recent participation at the 2021 United Nations Climate Change Conference (COP26) in Glasgow, Scotland, and the commitment to reach carbon neutrality by 2050 and net zero greenhouse gas emissions by 2065 have paved the way for a more tangible environmental policy for Thailand and have given impetus to organizations both public and private to implement strategies, which include the BCG Economy Model which is also part of Thailand's agenda.

Presently, Thailand's BCG Economy contributes around 21% of GDP and employs approximately 16.5 million people.

In terms of trade, the Ministry of Commerce is making efforts to urge local industries to adopt the BCG Economy Model, especially enterprises that are engaged in international export and trade.

In 2021, Thai exports were valued at USD 271 billion, accounting for approximately 53.6% of GDP.

In terms of contribution to the total GDP, Large Enterprises contribute around 59.2%, mainly through foreign direct investments from multinational corporations and international partners. Micro, Small and Medium Enterprises (MSMEs) comprising domestic businesses using local resources contribute around 34%.

The Ministry of Commerce focuses mainly on MSMEs, which number just over three million enterprises and account for 99.54% of all enterprises in Thailand and employ over 12 million people or around 71.7% of total Thai employment. They also have great agility and a potential for adoption of the BCG principles as well as having significant social and environmental impact.

The ministry's goals with respect to the BCG principles are:

1. To adopt the BCG Economy Model as a catalyst for increasing GDP and economic growth.
2. To increase competitiveness through the utilization of technology and innovation to support more efficient and sustainable production processes and trade practices, fostering a more knowledgeable and skilled labor force and a sustainable and efficient use of natural resources as well as Thailand's abundant biodiversity.
3. To foster "Value Creation" throughout the supply chain in local industries through the BCG Economy Model.



The Ministry of Commerce, particularly the Department of International Trade Promotion (DITP), helps support and promote enterprises engaged in international export and trade in three strategic areas: competitiveness, value creation and market access.

An example of the DITP's initiatives was the establishment in 2012 of T MARK as a Thai government certification label with collaboration between the Ministry of Commerce, Ministry of Industry and Ministry of Labour.

The label offers assurances in terms of international quality standards, environmental and green industry standards, and corporate social responsibility (CSR) and fair labor standards, with a special emphasis on sustainable and circular business practices.

In 2008, the DITP established Thailand's first design award under the auspices of the Prime Minister's Export Award, called DEMark or Design Excellence Award with circular and green economy principles in mind. The award has seven categories: lifestyle, furniture, fashion, industrial, packaging, graphic design and interior design. The judging criteria are geared heavily toward designs that utilize circular and green economy principles. The award is able to showcase products born from the BCG principles.

In fact, in Thailand, at the forefront and pioneering the BCG principles are design-based enterprises, designers and those in the creative industry.

Thus, the DITP has undertaken its BCG campaign within the trade sector, by focusing on key strategies to help support and promote Thai designers and design-based enterprises as well as Thai startups so that they can become role models for the industry to follow.

The DITP plans to continue to improve and streamline its services for enterprises. Many changes have been made due to climate change as well as COVID-19, such as increased online business matchmaking activities, virtual trade shows, e-commerce and e-learning, which will no doubt be the "next normal".

## Session 3 – Panel discussions on “Sharing Sustainable Business Best Practices, Success Stories among APEC Economies”

### Room 1: Food & Agri Products and Services

Moderator: Mr Surasant Kongsiri, Thailand

Speaker 1: Mr Alessandro Chen, Vice President, MetaMeat (Shanghai) Food Tech Co., Ltd., People’s Republic of China

Mr Chen spoke about the “Plant-based Meat Business in China”. He firstly introduced the process of making plant-based meat. Soybeans, peas, rice or even seaweeds can be used as raw materials to produce plant-based meat. After the process of degreasing extraction and separation, and dry and wet extrusion technology, the “Textured Vegetable Protein (TVP)” is produced. In order to create the juicy taste or good flavor the plant-based flavor elements – vegetable oil and naturally-sourced hydrophilic colloid - need to be added. With food processing machines, plant-based meat is finally produced in various forms such as meatballs, slices, cubes, etc.

Mr Chen later explained about the market activities in China to show the current development level and market preferences for plant-based products in the market. Nowadays, many top tea brands such as Nayuki and Heytea sell plant-based sandwiches with pepper and cheese flavor. Top fast food brands such as KFC, Papa Johns, Ramen Talk, Pizza Hut, Burger King, Dicos and Taco Bell launch a variety of menus with plant-based meat products, for example, plant-based beef flavor patties, chicken nuggets, rice rolls, pepper meatballs, meat toppings, burgers, snacks and tacos. Top coffee brands such as Luckin Coffee, Starbucks and Tims introduce menus such as plant-based bagels (ham & pastrami), sandwiches, rice meals and rolls with beef, pork or curry flavor. In addition, plant-based Ready to Eat (RTE) food category can be found in the Chinese market, for example, plant-based meatballs with rice, hot dogs and sausages by IKEA, or Chinese-style steamed stuffed buns, western-style sandwiches, rice balls, cumin chicken fillets, noodles with meatballs in tomato sauce and black pepper paninis sold in FamilyMart convenience stores.

There are now more than 100 brands in the Chinese market that are using plant-based meat products by promoting through canteens, e-commerce and other platforms. He recommended some plant-based meat products of MetaMeat which can be used in both Chinese and Western dishes such as plant-based bacon, beef slices, beef pastrami, beef steak, dried meat floss with sesame and seaweed, fresh crab roe sauce, crisp meat stick, pork luncheon meat, meatballs (beef or pork flavor), self-heating hot pot with plant-based meatballs, meat slices and luncheon meat. Compared with traditional meat, these plant-based meat products have high protein, zero cholesterol, zero antibiotics and low saturated fatty acids. Some of them can be kept at room temperature and have a long shelf life. Some of them are already exported to overseas markets.

Mr Chen then explained about the growing popularity of plant-based meat in China. According to a recent consumer survey, it was revealed that 34% of consumers eat less pork than the year before the study was conducted, mainly because of the negative health attributes of meat such as saturated fats, calories and high cholesterol. Meanwhile, 36% of consumers indicated that they would eat less meat in the next 12 months and 15% of Chinese consumers are likely to consume plant-based meat.

When being asked about the reason why sustainability or the green business model has become an important component of his company's strategic thinking and whether sustainability is an immediate issue today for his business, Mr Chen replied that concerns over the protection of the earth's environment, the healthy diet of human beings and the sustainable development of animal husbandry were growing. The Chinese government has put forward the goal of carbon peak in 2030 and carbon neutralization in 2060. In 2020, based on the above factors, the investment in MetaMeat along with continuous implementation of policy support was made by HEAD Group, one of the world's biggest vegetable capsule suppliers in the field of pharmaceuticals and a supplier of food-grade methylcellulose in the field of plant-based meat. In summary, sustainability is in the company's genes and blood; it runs through products, R&D, production and sales. Without it, MetaMeat will not exist.

Mr Chen also provided recommendations on how governments should implement policies or incentives to facilitate and stimulate the private sector to be sustainable or to apply the BCG Economy Model efficiently in the next normal era. MetaMeat is a supplier of plant-based products which belong to the food industry. However, unlike traditional meat, the products need much more promotion and consumer education. The government's support in terms of land lease and taxation policy is a conventional way and can be realized through application. However, in order to go one step further, more governmental engagement with forums or symposiums like today's is recommended to connect all stakeholders i.e. regulators, startups, investors and consumers, and bring more products from plant-based brands to everyone and to raise awareness of the importance of sustainable development, especially in the food field.

Regarding China's vegan food market potential, Mr Chen pointed out that, nowadays, many top brands have completed one or two product launches and promotions. The Chinese market has entered the stage of stable and continuous growth after the initial swift expansion. Considering continuous changes in consumption and eating habits, he forecast a 30% market compound average growth rate through 2025 for plant-based products which will reach RMB100 billion in value.

Finally, Mr Chen forecast about the future for plant-based protein in China. China is by far the world's largest consumer of meat. In China, per capita meat consumption is about 60kg. Among them, the per capita meat consumption of urban residents is 28.7kg and for rural residents, 24.7kg. The consumption of protein has shown significant growth in the consumer market in China in the past two decades, and it is expected that the demand for protein will continue to grow with the rise of urbanization and the growth of middle-class consumers. In China's first-tier cities, which are also where the target customers are located, the consumption of plant-based protein as an alternative will continue to rise as well due to concerns about environmental protection, animal welfare, nutrition and health, food diversity, and other factors. According to the company's analysis, the growth rate will be about 18% accompanied by the increase of product varieties, quality improvement and price decline.

## Speaker 2: Mr Miguel Malnati, CEO & Co-founder, Bio Natural Solutions, Peru

Mr Miguel Malnati mentioned that there were approximately 1,300 million tons of food waste in the world annually. Such amount of food could feed 2 billion of world population. In this regard, Bio Natural Solutions has developed the green technology called Life Cover with a view of tackling the aforementioned problem.

Life Cover is a technology based on food waste. It is natural, colorless and odorless liquid that could extend the shelf life of food by up to 200%. Life Cover is used by spraying it onto fresh products, mainly fruits, in order to create a coating film – an organic treatment to protect their surface before packing. This technology could potentially maintain flavor and good appearance of the treated products during a long transportation period. Besides, it could be identified as an edible product, without toxic compounds, as well as a clean, sustainable and biodegradable technology. More importantly, Bio Natural Solutions could develop this technology based on the production process and requirements of its clients who are farmers, packing houses, exporters, importers and retailers.

Life Cover has been well recognized and certified not only in Peru but also in many economies such as the United Kingdom, the United States and Brazil. Its market size in the local and international markets is around USD 19 million and USD 2.5 billion, respectively.

Mr Malnati also spoke about the background of his company, Bio Natural Solutions. It was established in 2016 as a startup business. A recent development of the company during the Covid-19 pandemic is an organic disinfectant product made from 100% fruit waste. Besides, the “Farmers of the Future Program” has been introduced to improve the competitiveness and sustainability of 200 family farmers through agronomic and sustainability management, good farming practices, postharvest handling of fruits and vegetables, and access to the local market.

The future direction of Bio Natural Solutions is to seek global distributors and partners who are interested in natural alternatives and to collaborate with overseas innovation centers.

Bio Natural Solutions has made efforts to reduce food waste through many solutions. The company is seeking ways to reduce carbon footprint and global pollution. Currently, sustainability is a global trend, therefore, startups or small companies in Peru and Latin America are trying to join their efforts with big businesses that have innovation, funds and interest in the line of BCG.

Mr Malnati raised that 90% of businesses in Latin America were small businesses. The government should provide benefits such as tax benefits to these small companies, especially in the BCG model, and connection between the public and private sectors either large or small scale. Another interesting point is the international networking. In this regard, the government should come up with the mechanism to promote networking among interest groups.

Mr Malnati pointed out that there were three main challenges for sustainable organizations in Latin America. First, the technology side, this is because to reach consumers who are interested in the added value of sustainability has a slightly higher cost due to the technology behind it. Second, the social side, this is because consumers are not interested in this type of solutions. Third, the supply chain complexity side, this

challenge exacerbates even more during the pandemic for each economy's collection of waste.

### Speaker 3: Dr Visit Limlurcha, Chairman of Processed Food and Future Food Committee, Thailand

Dr Limlurcha gave a short introduction of the Thai Processed Food and Future Food Committee (PFC) which consisted of 4 subcommittees on processed food and drinks, future food, standards and regulations, and activities and communications. The PFC's mission is to promote Thailand's processed food and future food business and drive the food industry to shift from conventional processing to future processing that conforms to global trends. The main activities of the PFC are organizing training programs for new and small businesses and creating a network among relevant agencies to exchange information and carry on joint projects. The PFC applies the principle of the BCG Economy Model to all activities to encourage members to do healthier and greener business.

Promoting the BCG model has pushed Thai entrepreneurs to become more aware of environmental-friendly practices, especially those that reduce greenhouse gas emissions across production lines. Through carbon footprint certification, there is a dramatic increase in the number of organizations and products concerned with the environment.

The Thai food and agriculture industry is an important part of Thailand because various businesses are getting involved in the supply chain and the industry generates approximately THB three trillion or about 18% of Thai GDP in 2021. Thailand exports food and agricultural products to the world for around THB 1.2 trillion with an 11.5% year-on-year expansion. Thai food operators have been doing their best to produce safe food to supply the world to maintain global food security.

Dr Limlurcha pointed out that the Covid-19 pandemic has affected consumer demand for healthy food and drinks, therefore, Thai food operators have created new future food products to serve this target group.

Future foods mean the whole foods and processed foods that are produced under processing conditions that are safe, traceable, eco-friendly and healthy. Future foods are categorized into four groups: functional foods and drinks, novel foods, medical foods, and organic foods. Thai future food's export value has increased by 6% annually between 2014 and 2021. While domestic consumption of future foods is valued at around THB 2.4 billion and the most popular is vegetarian food which is expected to grow by 15-20% in the next three to five years.

Dr Limlurcha pointed out that the positive response to the future food market and the government's R&D funding support were factors that attracted new and old market players to this market. The variety of product lines attracts consumers to try. The food's tastiness, thus, is one of the crucial factors along with nutrition benefits and environmental impact for the consumer's decision.

This year, the global food supply chain is in a challenging food security situation. From Thailand's experience of facing the economic crisis in 1997, Thailand was able to get through the difficult times by operating under the philosophy of Sufficiency Economy of His Majesty King Bhumibol Adulyadej. The key ideas of this philosophy are, to begin with, the strengthening of economic foundation, production based on available resources, and building a stable growth. The philosophy has been adopted by Thai people at all economic levels. Therefore, the BCG Economy Model which is guided by

the Sufficiency Economy philosophy has gained absolute confidence in these challenging times.

Dr Limlurcha mentioned that in the past, food producers had to manage food loss and waste in the food supply chain to gain more profits, but with the BCG model, producers have learned to use every part of raw materials and convert production waste into new products. The model converts low-value products into value-added and premium products.

Dr Limlurcha explained that there was a big plan for the transformation of the Thai food industry under the BGC Economy Model. There are various targeted entrepreneurs including startups, innovation-driven enterprises, smart farmers or high-value service providers, deep-technology developers, and creative entrepreneurs. Manpower development is carried out in various fields at all levels from student to current manpower. There are preferred fields of study in the BCG Economy model including taxonomy, systems biology, bioinformatics, life sciences, computer engineering and data science.

In terms of government support, Dr Limlurcha mentioned that the government needs to be able to create the ecosystem, and provide a certain mechanism and big data that allow the general public to get access to the information. The government should be able to provide technologies that can help entrepreneurs start or set up business. Moreover, financial support is the crucial thing that could help accelerate business growth.

Dr Limlurcha pointed out that as most ingredients used by the Thai food industry come from local produce, smart farming technology is needed to improve farm productivity, reduce the use of chemicals and reduce food loss. Digital technology is a tool for tracking and linking big data to the demand side of the production or the market. In addition, eco-friendly packaging extends the shelf life of fresh products to reduce food waste.

The manufacturing process requires new machinery to increase capacity and productivity while reducing energy consumption and labor. Research and development of advanced machines and products is required to create added value from byproducts and reduce waste in the production process. Digital tracking systems help control inventories and trace food safety. When these systems are coordinated, the Thai food system will be completely sustainable.

#### Speaker 4: Mr Pravit Prakitsri, Chief Operating Officer - Thai Sugar, Energy and New Business, Mitr Phol Sugar Corporation., Ltd., Thailand

Mr Prakitsri spoke about the history of Mitr Phol Sugar Corporation., Ltd. (Mitr Phol) which had been operating for 65 years. Started as a small sugar company and now the number one sugar company in Thailand and number five in the world, Mitr Phol has changed a lot since deciding to adopt the principle “from waste to value” 15 years ago. The company has recently been ranked third in the global sustainability ranking in the food category according to the Corporate Sustainability Assessment (CSA) conducted by S&P Global in 2022. He also mentioned that the company would like to achieve a higher ranking next time to be the world leader in bio-based products and sugar products which are raw materials for future foods.

Mr Prakitsri showed the revenue structure of the company, of which 64% came from the sugar business followed by the energy business at 25%, wood substitutes business at 7%, and lastly fertilizers, logistics and other businesses at almost 5%. This shows

that the existing operation of the company has adopted the circular economy's "from waste to value" strategy as the company's secondary businesses are derived from sugar-related byproducts. At present, Mitr Phol is at the stage of the third S-Curve with bio-based chemicals products, which started with sugar and plantation for the first generation, and renewable energy generation for the second generation.

Mitr Phol's "from waste to value" strategy is one of the success stories of the BCG Economy Model. By doing this, Mitr Phol is investing a lot in research and development of innovations to get the most benefits from byproducts. Examples include using a byproduct from sugar processing to convert into ethanol, then using a byproduct from ethanol production to convert into organic fertilizer, and extracting yeast from the production to be used as a raw material for animal feed, etc. Moreover, the company helps farmers increase their efficiency by producing the harvesting machine which can reduce carbon emissions from sugarcane burning. Nowadays the company has 800,000 tons of carbon credit per year and also has declared to achieve net-zero carbon by 2050.

For the agriculture business, water and rain are very important for growing sugarcane. Climate has changed a lot in the last three years and resulted in serious droughts in Thailand. So right now, the company has invested a lot in an innovative water management system for sugarcane and in educating farmers to use precision farming. Mitr Phol is still thinking about the efficiency of sugarcane productivity by encouraging and financing farmers to use harvesting machines to help them reduce sugarcane burning which can in turn reduce carbon emission. Moreover, Mr Prakitsri suggested that the government should have a strong compulsory measure to impose more taxes on those who pollute the climate.

Mr Prakitsri suggested that the government should create a demand for green products through increasing government purchasing. In addition, the government should modernize the law because some regulations were made years ago and they might not fit with the current situation.

Mr Prakitsri mentioned that Mitr Phol's vision is to carry on in a sustainable way and the key factor is the younger generation. According to the survey, Mitr Phol is most admired by the younger generation to work with and he thinks that the management of the company is always trying to look for ways to give them more work opportunities. Therefore, the company has created an innovation center in Khon Kaen Province in the northeastern region of Thailand which has the most population of the young and well-educated to provide them with opportunities to develop the company.

Mr Prakitsri said that as a leading sugar producer, Mitr Phol has international linkages with Brazil, also a large sugarcane producer. We can make high-value products from sugar and adopt an approach that is more science-based, healthy-based and low carbon footprint-based, and will develop so many things with the government's support. Finally, he hopes that Mitr Phol can be one of the good examples for other agribusinesses involving crops like cassava, rice and palm oil.

## Room 2 Fashion & Lifestyle Products and Services

Moderator: Mr Pichapat Rattanakul Serireongrit, Thailand

Speaker 1: Ms Ricca Tezuchi, Product designer/Founder, Propeller Design/ALL, Japan

Ms Tezuchi spoke about how product design can contribute to a sustainable society by creating eco-friendly products to fit the ever-changing lifestyles. In her presentation, she highlighted examples of her co-operation with various companies to design everyday products that can help create a sustainable society.

For the past 20 years, Propeller Design has been designing many kinds of products such as home and household appliances e.g., wi-fi routers, and products made of cloth such as bags and camera straps. Over the years, the perspective of design has changed gradually. A good design can help reduce materials needed to make a product, make a product last longer, add functions, adapt to growth and reduce waste.

The first example is the makeup palette set developed in collaboration with the MUJI team, which consisted of eye shadow, lipstick, blush and foundation, all integrated into only one palette, parts of which can be replaced when a component runs out. By doing so, the amount of resin used for the cases can be minimized and drastically reduced, benefiting both customers and the company.

The second example is the toothbrush with a hole in the head which makes the bristles less dense so that they dry faster and reduce bacteria growth. Also, because the bristles are not placed at the center of the toothbrush's head, the tilt and spread of the bristles are reduced and this makes the toothbrush last by 1.5 to two times longer than other toothbrushes. Ms Tezuchi said that extending the life of a product by using unique designs is also an effective way to create a sustainable society.

The third example is the mouthwash cup that dries easily because it has a handle that serves both as a stand and a drainage. A gargling set, which normally needs 2 parts: a cup and a saucer, was reduced to a single piece, so less materials are needed and it is more environmentally friendly.

The fourth example is the adjustable hanger. Generally, baby products are made in smaller sizes and used for a limited time only. A hanger that can be extended as kids grow can be used longer.

The fifth example is the customizable binder note with detachable cover, binder, rings and papers. People can customize it to be both a schedule book or a notebook by adding more papers and use it for a longer time, which in the end will create less waste.

Another way to reduce waste is the system introduced by MUJI Health & Beauty store in Hiroshima, Japan, where customers can buy body soap, shampoo or body lotion by using their own bottles and pay only for the amount they need. This system not only reduces packaging but also inspires customers to try various new products, while at the same time reducing waste.

Propeller Design also works with local artisans in Laos. Each village has their own unique traditional manufacturing processes of scarves and handkerchiefs. By using the materials locally, we can support the local economy and preserve the Laotian culture of hand spinning, natural dyeing and hand weaving. This is one way to create a sustainable society.



Finally, Ms Tezuchi introduced a work in progress under the concept of “Less Water Less CO<sub>2</sub>”, which was a series of bags made by environmentally-friendly fabric called “e.dye”. Instead of the traditional method of washing and removing dye with water, this “e.dye” fabric is combined with polyester color inside the yarn. Therefore, water required for the production process is reduced by 85% and CO<sub>2</sub> emissions can be reduced by 12%.

Sustainability is an important element in the creation of products because it is an issue that needs to be addressed today. Since people are increasingly aware of the environmental impact via the use of social media, the attractiveness of products as perceived by customers will change. Product designers are required to design products that are both easy or convenient to use and also environmentally friendly.

It is important for the government to adopt policies that encourage and enable SMEs to use newly developed materials that have a low environmental impact at a reasonable price and with correct information on their characteristics. Such efforts will help SMEs make the right choices and lead them in the right direction toward a sustainable society.

To reduce the environmental impact from the fashion industry, circular design is an important element. The designer’s role is to convey to the consumer the context of how the product is made, to guide existing products in the right direction and to strengthen the relationship between the consumer and the product so that the relationship will continue for a long time.

Other than design initiatives, there are several efforts in Japan to support the circular society for lifestyle products. In Japan, there is a traditional method of restoring broken ceramics called “Kintsugi”. In this technique, broken ceramics are joined together with natural lacquer and the joints are then decorated with gold or silver powder. The restored lines produce beautiful patterns and are so attractive that they seem to be worth more than the original. In the past, this was a specialized job, but today, workshops and other events are held in many places where people can learn the joy of restoration, and this has changed the way people think about things. People are now choosing things that are durable and beautiful even if they cost a little more because they will be used for a long time.

#### Speaker 2: Mr Kosin Virapornsawan, Managing Director, Plan Creations Co., Ltd., Thailand

Mr Virapornsawan initially gave the presentation on how Plan Toys adopted sustainability through their business practices. Plan Toys is a toy manufacturer located in Trang Province in the southern part of Thailand. The company has been in business for 40 years. Plan Toys is determined to create a more sustainable world by considering the environment, society, safety standards and children’s development. They work toward their mission of “Better Kids, Better World” and believe that better kids will create a better world through sustainable play.

In terms of production, their toys are ethically made in Trang from natural rubberwood from rubber trees that no longer produce latex, which means they have never cut down a tree. They also use water-based dyes and non-toxic materials in their products. Moreover, they maximize resource utilization by using sawdust leftovers to create a new material called “Planwood”. In terms of product designs, Plan Toys launched a campaign called “Mom-made Toy”, inviting 200 moms to work with toy designers and select the three best toy designs in three categories: cerebral palsy, visual impairment and autism. These toys are then donated to disabled kids and the best designs are also used to test the market.

Besides sustainable manufacturing, Plan Toys provides various additional services to promote the concept of “Circularity”. Since toys have a short product life cycle and toy-making consumes a lot of resources, the company launched various projects, particularly “Toy Rental and Play Cycle”, which were aimed at encouraging families to pass on their used toys. By doing so, it could help reduce carbon footprint. Plan Toys also encourages farmers who live nearby to sell their carbon credit while allowing the farmers to teach their employees how to grow rice, fruits or vegetables. As a result, the employees gain experience about sustainable ways of living and share their crops within the organization. In addition, the company uses leftovers from the factory and neighboring areas to create a play space called “Forest of Play”, where children learn from playing. A toy clinic has also been set up for specific kinds of reparation for broken toys.

During the panel discussion, Mr Virapornsawan mentioned that at first it was challenging to communicate about the green business model to customers since most of them were price-sensitive and some of their business partners, such as traditional toy shops, only accepted toys made from real wood. However, he tried to convey the company’s core values to customers and kept innovating products throughout the time. Thanks to his hard work and a rise in sustainability trends, Plan Toys is now widely recognized, especially among the younger generation. He also emphasized the importance of government support through education and the media to raise awareness within the consumer’s mind as well as providing financial support to businesses. Furthermore, he elaborated on the concept of “Sustainable World”, which is taking care of all stakeholders, such as staff and the community, and ensuring their happiness. For example, Plan Toys offers jobs to the local people and does CSR projects such as beach cleaning and forestation. Mr Virapornsawan also revealed that the level of sustainability awareness toward his brand keeps increasing by 20-30%, but the overall rate is still quite low. He therefore urged everyone to collaborate with one another to save the world for the future generations.

### Speaker 3: Ms Thamonwan Virodchaiyan, Co-founder, Moreloop Co., Ltd., Thailand

Ms Virodchaiyan started by telling the audience about Moreloop Co., Ltd. (Moreloop), the online platform she co-founded which curates dead stocks or leftover fabrics from garment and textile companies in Thailand. Ms Virodchaiyan’s background was rooted in her family’s OEM garment factory in Thailand. While working for her family business, she realized that there were a lot of leftover fabrics from garment production, which had become a pain point of the company. Then, she started creating an online shop on Instagram called “Because of Charlie” to sell the factory’s dead-stock fabrics. The sales volume via this channel was quite moderate, but still not enough to clear all leftovers. This made her consider opening a physical store to sell the leftovers. However, the idea was impossible for her since the operation would require her presence and time at the shop, as well as considerable investment. The solution to her pain point became a reality when she contacted her old friend, Mr Amorpol Huvanandana, who shared a passion to manage industrial waste and won a prize for creating a platform to manage waste. In 2018, they co-founded Moreloop with a vision to make circular economy a reality in business. Until now, Moreloop has been able to upcycle 40 tons of fabric, which helped reduce approximately 577,000kg of carbon emissions by removing the need to produce new virgin materials within the industry. The amount of reduced carbon emissions equals to 125 times of driving distance around the world. In 2021, they won five environmental-related awards, the most noticeable one was the “Seed Low Carbon Award” founded by the United Nations Environment Programme, the United Nations Development Programme and the International Union for Conservation of Nature.

Ms Virodchaiyan explained that Moreloop not only solved her family business' pain point, but also addressed the problem of dead stock fabrics for other garment factories. The platform implements the circular economy model of reducing and reusing materials while cutting out five early steps of fabric productions: farming, yarn spinning, weaving, bleaching and dyeing, thus attributing to the reduction of a large amount of carbon emissions. Through Moreloop, garment factories will only have two production processes left, namely producing and transporting. To get a better picture of the business, the platform acts as a middleman who matches factories with leftover fabrics to clients who search for fabrics. At the beginning, only five factories joined the platform and then the number continued to increase, until now there are more than 70 factories doing business on the platform. There are three different models that Moreloop uses to release fabrics to the customers. The first model is selling fabrics as raw material to customers such as fashion designers who buy the materials for their products. The second model is the upcycling service for corporate customers, for whom Moreloop produces merchandises such as corporate event t-shirts per customers' design and request. The third model is producing wearable merchandises using Moreloop's own design. Every item is produced with the amount of carbon emissions that have been reduced by not using any virgin material calculated. Although Moreloop is a small company, it aims to make an impact on the world. The company has the goal of reducing carbon footprint by 1,000,000kg of CO<sub>2</sub> within 2024. So far, the company has achieved 57.7% of this goal.

Sustainability is not just a way of thinking but it is Moreloop's core business. The company wants the consumer to visualize a perception of environment. In order to do so, Moreloop has to scale up its business as quickly as possible so that it can make a big impact. To answer the question whether climate change is an immediate issue, Ms Virodchaiyan said of course it is. She further explained that climate change has already affected us, if we can be part of the solution, we should do it now.

Ms Virodchiyan admitted that changing the government's policies would be difficult, but it was a must and only the government could do that. It is obvious that the government must support sustainability all the way. We have to recognize the need of sustainability as a long-term issue, not simply a trend. Trends are something that come and go, but sustainability issues like climate change will not go away. She proposed that the government should give vouchers to companies that support entrepreneurs, for example, if a company purchases a sustainability product, they can get a tax relief.

Garment factories have to order fabrics with some tolerances which subsequently become their dead stock. Moreloop curates the limited part of leftovers, some rolls of leftover might be just five yards, while other rolls could be 100 yards. The way to manage these differences is to put the creativity into product designs. In addition, companies need to have an effective communication with their customers. Because fabric quantities are limited, it has occurred many times that customer requirements cannot be met and adjustment must be made through communication.

Answering a question on the difference between recycling and upcycling, Ms Virodchiyan explained that for recycling, materials have to go through a certain process. For example, when PET bottles are transformed into fabric, they have to go through several processes and this causes CO<sub>2</sub> emissions. For upcycling, leftover materials are turned into other materials, but the components of these materials are not transformed. For example, Moreloop uses leftover materials to make other products. More importantly, there are two criteria for upcycling. First, carbon emissions from the second process must be less than the first process. Second, the value of the second-life product must be higher than that of the first one.

Moreloop has three groups of customers: the first group is fashion designers who purchase fabrics and transform them into products themselves, the second group is organizations and corporates that order Moreloop to produce products to their requirements and the third group is end-user customers who buy Moreloop's own design products.

#### Speaker 4: Ms Tran Hoang Phu Xuan, CEO, Fashion Link JSC, Viet Nam

Ms Xuan started by pointing out that Viet Nam had declared its commitment to reach net zero emissions by 2050 at COP26. This goal also applies to Faslink. As part of Viet Nam's fashion industry, Faslink makes "Going Green" its company strategy and also its responsibility for the future generations.

While many people in the fashion industry consider that sustainable business is difficult to make profits, Faslink believes that with sustainability, the business can be sustained and makes long-term profits.

Faslink started its business due to the following reasons:

- In 2008, Viet Nam's raw materials market retrogressed compared to other markets such as the EU, Japan and Chinese Taipei which were able to flourish constantly and sustainably.
- In 2012, not many people in Viet Nam's fashion industry were conscious of the fashion industry's negative impact on the environment compared to the EU.
- In 2015, Vietnamese consumers did not approach high-tech fiber applications because the industry still lacked information and the resources of qualified raw materials were limited.

The Vietnamese textile market has a huge potential with a USD 6.5 billion spending on clothes and footwear in the local market. Viet Nam is the second largest garment exporter in the world with a 2.8% share in the global market.

Ms Xuan talked about Faslink's sustainable business process, focusing on R&D, production technology and marketing communications. Also, its key product lines are green fabric and functional fabric.

Ms Xuan then gave an introduction on some of Faslink's green fabric lines. The first is the First Café Club line which includes Café Polo, Café Innerwear and Café Socks which are all made from coffee grounds with odor control, quick-dry, cooling touch and anti-UV features. Café fiber's strong odor control is an outstanding feature of the product. Another product is the lotus fiber which breaks through traditional technologies and combines with modern spinning technology, providing negative ions and collagen. Lotus fiber is an easy-care fabric that provides a soft touch and coolness, but its price is higher since it needs high technology to produce. The next product presented by Faslink is the eco shell fabric which comes with odor control, quick-dry, and also antibacterial features. Another green fabric is Mint x Cotton with natural coolness and antibacterial features from the mint fiber which is suitable for Viet Nam's weather conditions, while cotton contributes to the fabric surface's softness.

During the pandemic, the number of green fabric consumption has increased as people are becoming more concerned about their health and the environment.

Faslink now collaborates with many local Vietnamese brands and universities. The company has also launched G.LAB HUB which is a place for connecting and displaying

green and innovative fabrics.

The next step for Faslink is to continue developing strategic partnerships, creating and commercializing more applications for special yarn, moving to become a one-stop hub for supplying fashion solutions, promoting a sustainable and functional market beyond Viet Nam, and also committing to investing in research activities in universities and creative communities in Viet Nam.

Sustainability and green business model are becoming an important component of the company's strategic thinking. Faslink started a green business just to be different from competitors, however after learning that the fashion industry creates a huge impact on the environment and people's lives, the company continues to develop green products for the Vietnamese market.

On the question of the role of the government in supporting sustainable fashion in Viet Nam, Ms Xuan mentioned the Vietnamese government's grant of awards to encourage SMEs to apply the green business model to their business. Ms Xuan then said that in order to apply the BCG Economy Model efficiently, the government should play a role as a conductor providing special policies and long-term commitments for business. The Vietnamese fashion industry also needs considerable support in studies from both universities and laboratories to commercialize products to the market.

### Room 3 Health & Wellness & others Products and Services

Moderator: Mrs Natchanan Liengaroonwong, Thailand

Speaker 1: Mr Young Kyun Kim, Founder and CEO, Aromatica Co., Ltd., Republic of Korea

Mr Kim mentioned that his brand "AROMATICA" is a sustainable beauty and lifestyle brand founded in 2004. All products are formulated with vegan recipes without synthetic fragrance or toxic chemicals, and produced in manufacturing facilities certified by COSMOS. Particularly, the entire production process is monitored with strict compliance to reduce carbon emissions. Beauty brands produce a lot of waste and plastic packaging. AROMATICA is the first beauty company in Korea that focuses on sustainability and waste reduction.

Among the Organization for Economic Co-operation and Development (OECD) members, Korea is ranked second after Germany in the recycling category. However, only 22.7% of collective waste is actually recycled which is the lowest rate in OECD. Currently, Korea has added a bin for consumers to separate transparent polyethylene terephthalate (PET) for recycling because it is extremely difficult to sort out transparent PET from other types of plastic at the recycling sorting facility. Moreover, most of plastic waste is from cosmetic packaging and the recycling rate of cosmetic packaging is only 18.7% because the packages are small and made from multiple materials, colors and printed surfaces which are difficult to recycle. This is the reason why AROMATICA has implemented two major changes in its brand: reuse and recycle.

Firstly, AROMATICA provides refill and reuse service for existing containers. In March 2020, AROMATICA opened Korea's first refill station where consumers can bring empty used containers to be refilled. Currently, two refill stations have been opened: one in metropolitan Seoul and another in the outer city of Hana. In 2021, there were customers who came to zero waste stores to do refill which led to 24,000 containers being reduced. Secondly, through spreading a culture of recycling, AROMATICA has researched and implemented all products to guarantee the recyclability of all product

parts by changing the materials of dispenser pumps which were not recyclable because they were made from different materials, to 100% recycled polypropylene (PP), changing the bottle's color to be transparent and using easily removable labels. As mentioned earlier, the recyclability of transparent PET bottles is 100% which led to a reduction in carbon emissions by 50%.

AROMATICA also runs a campaign called "Join the Circle" to raise consumer awareness of recycling transparent PET in Korea by explaining the process of recycling transparent PET, collaborating with customers to collect their used transparent PET bottles and having them picked up by our electric trucks to be threaded into flakes. The flakes are then melted into plaid pallets. Finally, these pallets are used to make PET bottles. There are two projects under this campaign. The first is a project done with local communities to collect zero-waste points in exchange of recycled PET products. Another is partnering with the largest logistic company in Korea, CJ Logistics, to collect transparent PET bottles from five-star hotels to be recycled. From these two projects, 3,000,000 bottles have been saved from being newly produced and have reduced 138 tons of carbon emissions.

Furthermore, Mr Kim additionally gave recommendations to the Korean government, non-green business and the young generation. The government has to mandate strict regulations, for example, issuing the recycling policy and requiring manufacturers to produce packaging with one material, PP plastics, which can be easily recycled. He pointed out that sustainable brands are not a marketing tactic; it is about making actual changes in the society. He gave some advice for non-green businesses to have more responsibility for sustainable development for the future and be more active. Similarly, we need to communicate with the young generation because they have a strong identity on sustainability and also a desire to have a better future and save the planet.

## Speaker 2: Mr Shinji Yamasaki, Founder and CEO, RE:TERRA Pte. Ltd., Singapore

Mr Yamasaki spoke about his skincare brand "RE:EARTH" which is an abbreviation of "Re-encounter Earth". Mr Yamasaki started RE:EARTH in 2017 together with two partners in Singapore. Additionally, he is the President and Managing Director of Turmeron International and the owner of Turmeron Joint, a natural supplement for joint health. While differing in applications and purposes, the products from both brands have the common use of Shiro-Uron, also known as the Japanese white turmeric.

Japanese white turmeric and Japanese spring turmeric are local produce of the Kyushu region in Japan and are recognized for their health boosting properties. Farming initiatives of these plants are supported by the regional government. RE:EARTH provides equitable pay for farmers and ensure sustainable farming to preserve the land. The brand cooperates with local farmers, the regional government, local educational institutions and brand partners in a sustainable way through a multi-pronged approach for ingredients, recycling and CSR.

Mr Yamasaki mentioned that RE:EARTH was concerned about exclusive ingredients by using agricultural waste. The company implements recycling by enabling plastic circularity and implements CSR through RE:EARTH rice farm. For almost 20 years, the brand has been in partnership with Kindai University to do research on the products and in the process of obtaining the International Sustainability and Carbon Certification (ISCC) Plus standards (partnership with Environmental Solution Asia). RE:EARTH also supports income and the livelihood of farmers in Kyushu and Tottori Prefecture, Japan. The company's goal is to ensure that all initiatives are taken to improve, heal or protect the environment which brings us closer to a healthier ecosystem.

In terms of recycling packaging, the consumer's common habit is to dispose of empty skincare packaging rather than recycling them. RE:EARTH's Sustainability Program encourages people to bring in their empty skincare packaging to be fully recycled by dropping off empty plastic bottles at RE:ERTH's recycling locations, then these packaging will be taken to RE:EARTH's partner to be converted to virgin-quality recycled plastics and non-fossil derived fuel. Since the program's launch, RE:EARTH has collected more than 8,000 plastic skincare bottles.

RE:EARTH aims to complete the certification of the ISCC Plus standards by the end of this year. This certification is a globally recognized sustainability framework which will ensure that RE:EARTH's waste plastic oil is certified as a sustainable raw product that can be used to produce virgin-quality recycled plastics, thereby enabling plastic circularity in the industry. Through RE:EARTH's recycling method, waste plastics are chemically recycled to separate out "NewOil", a raw material which can then be used to make virgin-quality recycled plastics and non-fossil derived fuel. The benefits of this process are landfill diversion, enhanced plastic circularity, and increased supply of sustainable fuels.

The first step of RE:EARTH's CSR began in 2021. RE:EARTH has supported small and independent rice farmers in Japan by providing income stability and improving farmers' livelihood. Through this project, the company has been able to contribute 400kg of reduction in carbon dioxide emissions.

Sustainability and eco-consciousness are components of the brand; they are the brand's ethos, identity and philosophy. The preference of consumers for a company or a brand to be environmentally friendly or to have some eco-minded philosophies is becoming increasingly important. However, it is still only at the stage of "nice to have" and not a critically determining factor in consumers' purchasing behavior.

Overall, the government should take actions to help implement policies, to motivate, to facilitate and to stimulate the private sector to be sustainable or to apply the BCG Economy Model efficiently in the next normal era by incentivizing businesses for their sustainability or environmental efforts, instead of penalizing, and support them to continue these activities.

Mr Yamasaki concluded that RE:EARTH would continue researching on new ingredients, sustainability opportunities and carbon footprint reduction, and would re-look at elements such as agricultural waste which can have other "untouched treasures". In RE:EARTH's case, it all started from the agricultural waste of turmeric leaves. There could be many more effective ingredients out there that are present in something that we are simply discarding.

**Speaker 3: Mr Anak Navaraj, Director, Patom Organic Living Co., Ltd., Thailand**

Mr Navaraj briefly gave a presentation on the history of his family business, Suan Sampran, then introduced Sookjai Foundation and Patom Organic Living Co., Ltd. respectively.

Mr Navaraj's grandparents established Suan Sampran in 1962. The property is one of the most popular tourist destinations near Bangkok. The whole area is about 60 acres and equipped with hotel facilities, accommodation, Thai houses, restaurants, meeting facilities and event spaces.

In 2010, the third-generation business owner who was interested in the organic and wellness trend founded Sookjai Foundation using the concepts of “Living Locally” and “Going Back to Basics” to create new attractions and activities to attract tourists to Suan Sampran. Sookjai Foundation aims to nurture the development of organic agriculture by creating a community for the local farmers living around Suan Sampran, gathering them together and sharing knowledge and raw materials with them. In order to drive the growth of organic farming gradually, the foundation established Sookjai Academy to encourage knowledge sharing among farmers who join the program and created Sookjai Market, the weekend farmers’ market that allow participants to sell their products in Suan Sampran. In addition, the foundation creates an online platform allowing farmers to connect directly to their consumers without intermediaries. At the beginning, the foundation started with three to four groups of participants and the number now has grown to 15 groups. Since 2012, the whole area of Suan Sampran has been accredited the International Organic Standard by International Federation of Organic Agriculture Movements (IFOAM) accreditation.

Besides the family business’ ultimate goal of expanding the organic society, Patom Organic Living Co., Ltd. (Patom) was established in 2015. The company aims to produce organic products from raw materials supplied by local farmers who join Sookjai Foundation. Patom has its own GMP-certified farm and factory. The company also has branches of coffee shops in both Bangkok and Nakhon Pathom.

Patom emphasizes tractability throughout its value chain and along its production process, starting from upstream, midstream and downstream activities.

In the upstream process, all raw materials used in the factory must be traceable and supplied by farmers who work with the company. Currently, there are about 150 farmers from Nakhon Pathom, Prachuap Khiri Khan and Kanchanaburi Province working as suppliers of Patom. Moreover, the company has its own waste management system to handle waste from the farm and turn them into natural pesticide and fertilizer.

In the midstream process, all products are produced by the company’s GMP-certified factory. The company produces a wide range of daily use products such as shampoo and shower gel which can be 100%, 80%, 50% or 30% organic with the aim of offering quality organic goods at affordable prices to customers in Thailand. Importantly, all company products are labelled with a QR code that can show their production process to customers.

In the downstream process, all company products are sold at its shops through both B2B and B2C channels. However, B2C sales have declined during the Covid-19 pandemic. The company has changed its business plan and started to produce organic OEM products for business partners who have the same goals in sustainable business development. In Suan Sampran’s area, the company set up an event space called “Village” for tourists who want to learn about organic farming and products, with workshop activities for school excursions, family trips or other group of tourists. Patom will donate 3% of annual sales to Sookjai Foundation to support the community and local organic farmers.

Regarding the BCG Economy Model, Mr Navaraj mentioned that his company has started developing its business towards sustainability gradually in the past 12 years. Current business activities consist of the three key principles of the BCG model, which are bioeconomy, circular economy and green economy, throughout the whole value chain of the company. However, in his opinion the application of the BCG Economy Model might not be suitable for small companies. Therefore, some small companies who are interested in applying the BCG model might start with the Sufficiency Economy philosophy because both of them are similar.



In conclusion, Mr Navaraj placed emphasis on the beliefs that he applied to manage his business. Those beliefs are trust, sustainability, good partners, circular economy engagement, consistency, transparency and traceability. Trust is one of the most important concepts that a company can apply to achieve traceability throughout its company value chain and to gain partners. Besides, the company aims to achieve sustainable growth with the use of green solutions and waste management. Sustainability is another important belief driving Patom's business operations. The company collaborates with partners from various industries who have the same goal in sustainable business development through sharing experiences and learning best practices. Circular approach can be achieved either through donation or knowledge sharing to the local community. Last but not least, consistency and transparency must work together to ensure traceability from upstream to downstream process of business operations.

#### Speaker 4: Dr Weerachat Kittirattanapaiboon, CEO, Biodegradable Packaging for Environment Public Co., Ltd., Thailand

Dr Kittirattanapaiboon explained that humanity is now facing unprecedented and unceasing environmental and pollution problems. The burning of agricultural wastes from various operations is giving rise to inevitable complications such as PM2.5 and the incineration of non-biodegradable wastes such as foam and plastics is causing more air pollution. These are hazardous to health.

The new normal lifestyle has led to the usage of many single-use food containers which become waste that is almost impossible to decompose naturally, as plastics need 450 years to degrade while Styrofoam takes more than 1,000 years. These are naturally non-decomposable materials which significantly impact the environment. They gave rise to microplastics which contaminate the soil, the river and the ocean before they ultimately return to the food chain, eventually affecting human health and wellbeing.

Today, the awareness of health and the environment is increasing as people pay more attention to the food and drinks that they consume every day. Even though these meals might be clean and safe but if they are kept in contaminated containers containing chemicals like styrene, these toxins may accumulate in human body as carcinogens which could lead to cancer.

One of the solutions to these problems is innovation that utilizes agricultural waste to produce natural plant pulp containers by applying the BCG Economy Model in recycling from nature to nature. This approach will help generate more income back to farmers.

As a medical doctor, Dr Kittirattanapaiboon is determined to create genuinely innovative packaging that becomes the solution for people's health, the environment, and the world. Gracz is the pioneer and the only company in Thailand that invented the innovative production process, combined with the non-plastic waterproofing coating technology. The products are safe and heat resistant for up to 200 degrees Celsius. Moreover, they can decompose into fertilizer within 45 days and are 100% environmentally friendly. Thus, the food packed in Gracz containers is safe and free from carcinogens.

Asked to explain the differences between the terms "degradable", "biodegradable" and "compostable", Dr Kittirattanapaiboon clarified that degradable was used to describe anything that can be broken down either biologically or chemically, while biodegradable was used to denote a product that can be broken down by bacteria and organisms. On the other hand, compostable refers to a product that can be broken down into natural elements and can be used by plants.

For another question on the differences between plastic, bioplastic and laminated plastic, he explained that laminated plastic was a plastic made of superposed layers of paper, wood or fabric bonded or impregnated with resin and compressed under heat. It easily becomes microplastic and affects the human health. Bioplastic or PLA is a plastic material produced from renewable biomass sources such as corn starch. However, it is now known that PLA cannot compost in normal conditions as this can only be done under a temperature higher than 60 degrees Celsius. Therefore, this became a new issue that needs to be solved.

## Way Forward

Participants have recommended the following:

1. The BCG Economy Model should be brought to the attention of the public more widely. All stakeholders i.e. government agencies, the private sector especially MSMEs, educational institutions, etc. should be well informed and encouraged to apply the model in practice.
2. The BCG Economy Model should be actively promoted through the APEC fora and APEC projects or possibly be one of the APEC agenda in order to increase engagement and make MSMEs aware of the importance of sustainability in doing business. Hence, financial support from APEC to fund such projects will be beneficial.
3. The BCG Economy Model may be followed by having the draft of policy recommendation to initiate the roadmap and strategy of its model, but in non-binding mode.
4. In this APEC BCG Symposium, some discussions were linked to science and technology. Consequently, it should be linked to APEC's Policy Partnership on Science, Technology and Innovation (PPSTI) as well.
5. There should be more case studies from a greater variety of industry sectors in the future Symposium.
6. While the Symposium is a good starting point for awareness raising and discussions on the BCG Economy Model, there should be more specific projects in the future to really engage entrepreneurs in the implementation stage, for example, interactive workshops providing simulation for participants to experience the application of the BCG Economy Model in practice, and best practice sharing session focused on the success and opportunity of the BCG Economy Model implementation in the private sector, particularly MSMEs.
7. Consider collective actions by fora for future planning but economies may start individual action by promoting the BCG Economy Model or strengthening its current policy and implementation that support sustainability and circularity based on its level of awareness and outreach.
8. It is crucial to assess and link the outcome of all relevant APEC projects aimed at promoting the BCG Economy Model to help improve future projects.
9. APEC economy members should have action plans relevant to the project outcome and collaborate closely. The action plans may be collective action plans by fora or individual action plans by economy.
10. The most sustainable way to move forward is the key alliances with organizations beyond APEC that can support innovative and sustainable initiatives. It will be ideal to have the support of APEC to achieve greater articulation with economies outside APEC.

## Annex I: Participant Feedback

Participant feedbacks on the APEC BCG Symposium 2022 are as follows.

The number of participants by economy/organization and by participation types

Economy/Organization	On-site	Online
<b>APEC member economies</b>		
Australia	2	-
Brunei Darussalam	4	2
Chile	6	-
People's Republic of China	1	3
Hong Kong, China	3	5
Indonesia	3	1
Japan	4	6
Republic of Korea	2	1
Malaysia	11	-
New Zealand	1	-
Papua New Guinea	3	-
Peru	3	-
The Republic of The Philippines	9	9
The Russian Federation	-	2
Singapore	6	-
Chinese Taipei	3	8
Thailand	241	146
United States	2	4
Viet Nam	20	1
<b>Non-Member Participants (NMP)</b>		
Brazil	1	1
Cambodia	1	-
Myanmar	-	1
Nepal	-	1
Pakistan	-	1
Spain	1	-
Sri Lanka	-	1
<b>Others</b>		
APEC Secretariat	10	-
The Pacific Economic Cooperation Council (PECC)	1	-
<b>Total</b>	<b>338</b>	<b>193</b>

## Annex II: Survey Results

Generally, the APEC BCG Symposium received overwhelming support with 100% of participants agree on the relevance of this project and rated the project at 100% to achieving its intended objective. Refer to Tables 1 and 2 below for more information regarding the survey results.

Table 1

	Strongly Agree	Agree	Disagree
<b>Overall Satisfaction</b>			
The objectives of the training were clearly defined.	87.4%	12.3%	0.3%
The project achieved its intended objectives.	79.2%	20.8%	-
The agenda items and topics covered were relevant.	82.0%	20.0%	-
The content was well organized and easy to follow.	86.1%	13.9%	-
Gender issues were sufficiently accounted for and covered.	77.6%	19.9%	2.5%
The experts or moderators were well prepared and knowledgeable about the topic.	89.6%	10.4%	-
The materials distributed were useful.	78.2%	19.6%	2.2%
The time allotted for the training was sufficient.	79.5%	19.9%	0.6%

Table 2

	very	mostly	somewhat	a little	not much
How relevant was this project to you and your economy?	29.0%	59.3%	10.7%	1.0%	-
In your view what were the Symposium's results/ achievements?	25.9%	65.0%	8.8%	0.3%	-
Rate your level of knowledge of and skills in the topic <u>prior</u> to participating in the event:	16.1%	41.6%	31.9%	8.8%	1.6%
Rate your level of knowledge of and skills in the topic <u>after</u> participating in the event:	33.4%	61.8%	4.4%	0.3%	-