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Household Economic Well-Being Advancement through
the Bio-Circular-Green (BCG) Economy Model

Poverty eradication and household economic well-being advancement for the local 'grassroots' population has been a national agenda prioritized by Thai governments across periods in tandem with the nation's social and economic development. The Thai government announced a policy to move Thailand out of the "middle-income trap", upgrading Thai people's quality of life while balancing economic, social and environment development, aiming to become a developed country by 2037. One of the 13 milestones of the 13th National Economic and Social Development Plan (2023 – 2027) is to reduce poverty across generations and ensure that all Thais receive adequate and proper social protection.

"The Bio-Circular-Green Economy" or "BCG Model" is a new economic development model promoted by the Thai government as a framework to revive the national economy post-COVID-19. The BCG model for sustainable growth capitalizes on the country's strengths in biodiversity and cultural richness, and employs technology and innovation to transform Thailand into a value-based and innovation-driven economy. The strategies for this transition to sustainability include enhancing natural resource efficiency through eco-friendly production and consumption, distributing wealth to all regions, and institutionalizing people's participation in sustainable local development. The model also aligns with at least five of the UN Sustainable Development Goals (SDGs) and aligns with the Sufficiency Economy Philosophy (SEP), the core principle of Thailand's social and economic development.

However, to translate the BCG Model into action for poverty eradication and grassroot economic development toward local community strength, capacity building of local human capital and small entrepreneurs in the agricultural sector is essential. Local farmers should be upskilled to become innovative, smart farmers and creative entrepreneurs who offer high-value products and services. Concurrently, small- and medium-sized enterprises (SMEs) should be empowered as local spear headers, generating jobs and incomes for grassroots groups and linking with regional, national and global markets. These actions should be implemented alongside the development of local infrastructure, such as online marketplaces, and include financial, legal, information, and technology & innovations support.

Thus, poverty eradication through the BCG model requires policy support from the government and participatory implementation from people, communities and civil societies to bring about concrete and tangible sustainable outcomes.

1. Definitions

1.1 Poverty in Thailand

Measuring poverty: Poverty can be measured in different ways. Generally, it is measured by income and living requirement levels, defined as absolute poverty when a person or household does not have the minimum amount of income needed to meet the minimum living requirements threshold, or the poverty line. "The poor" refers to those whose incomes are below the poverty line. In 2021, Thailand's poverty line was 2,803 baht/ person/month.[1] Another measurement is termed relative poverty, when the income level of a person or household is compared to the average or median income or consumption in a particular society. Relative poverty is shown as a percentage quantiles; for instance, Group 1: the poorest 20 percent of the total households who earn the lowest income; Group 2: 20 percent of the total households who earn a higher level of income; Group 3 are those 20 percent who earn a moderate income; Group 4 are those 20 percent who earn higher middle income; and Group 5 are those 20 percent who have the highest income. Relative poverty reveals the inequalities of income distribution.

Thailand's poverty is also measured using basic minimum needs (BMN) data, a qualitative indicator of the quality of life of Thai people that sets minimum living standards. A 1988 Thai survey of village households outside municipal areas by the Community Development Department of the Ministry of Interior shows five categories of BMNs, namely 1) Health, 2) Environment, 3) Education, 4) Employment and income, and 5) Values.

Another poverty measuring tool is the Sustainable Livelihoods Framework, which identifies "core potentials of people" in translating assets/capitals into a better livelihood, of which there are five types: (1) human capital, (2) social capital, (3) natural resource capital, (4) physical capital such as house and public utilities, and (5) financial capital.

1.2 Thai People Map and Analytics Platform (TPMAP)

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[1] A 2022 Analysis Report on Poverty and Inequality in Thailand, the Office of the National Economic and Social Development Council

1   The Thai People Map and Analytics Platform (TPMAP) is a data analytics tool aimed at

2 precision poverty alleviation. It was developed using the existing information management system

3 targeting the poor population to cover more diverse issues such as those relating to newborns,

4 education, senior citizens, and living standards. TPMAP can be used to identify poverty-related

5 problems of individuals in each community, province, and region more precisely and thereby be

6 used to formulate and implement more specific solutions for specific problems.

7   "The targeted poor" in Thailand, according to TPMAP's database, are the poor who are

8 in urgent need of help, based on both the Basic Minimum Needs (BMN) survey data of the

9 Community Development Department of the Ministry of Interior, and the State Welfare

10 Registration data by the Ministry of Finance (the Pracharat Welfare for Local Grassroots

11 Economy and Society Fund). The criteria for identifying the targeted poor is those who have

12 a quality of life lower than the Multidimensional Poverty Index (MPI) across five dimensions.

13 A poor person can fall into more than one dimension, as detailed in Figure 1.

Thai People Map and Analytics Platform (TPMAP)				
Poverty can be measured using the Multidimensional Poverty Index (MPI). A poor person can have problems in more than one of the following 5 dimensions:				
Health	Standard of Living	Education	Income	Access to State Services
*Newborns weigh more than 2,500 grams. *Households have safe, nutritious and decent food. *Households have proper medicines for first-aid relief. *People aged 6 and above exercise at least 30 minutes a day, 3 times a week.	*Households have a secure place to live in stable permanent housing. *Households have clean drinking water of at least 5 liters per person per day all year round. *Households have clean water for daily use of at least 45 liters per person per day all year round. *Households have tidy, clean and hygienic housing.	*Children aged 3-5 are looked after with preparation for schooling. *Children aged 6-14 have access to the 9-years of compulsory education. *Students completing M.3 Secondary School Level have access to further studies at the M.4 Highschool Level or equivalent. *People aged 15-59 are literate in the Thai language and basic mathematics.	*People aged 15-59 have jobs and incomes. *People aged 60 and older have jobs and incomes. *An average annual income of family members	*The elderly are taken care of by their family, community, the government and private sectors. *The disabled are taken care of by their family, community, the government and private sectors.

Figure 1 The Multidimensional Poverty Index

Source: The Thai People Map and Analytics Platform (TPMAP)

1.3 Household economic well-being advancement aims to improve income level and reduce expenses of households through analyses of financial data such as consumption spending, saving, investing, risk management and earnings. Managing household income, spending, assets and debts wisely leads to wealth accumulation, liquidity management, economic growth and sustainability.[2] Household economic data is vital to advancing household well-being as it illustrates the debt-to-asset ratio to be used in designing tools to boost incomes and lower expenditures.

1.4 Bio-Circular-Green Economy (BCG Model)[3]

The Bio-Circular-Green Economy or BCG Model is an economic development tool with a central focus on ensuring the balance of economic growth and natural resource sustainability. The BCG model encompasses the following three economic development concepts:

- The Bioeconomy involves efficient use of natural resources for advancing technology in diverse fields to enhance and develop innovations. Renewable resources are used as raw materials to reduce dependency on fossil fuels and to lessen greenhouse gas emissions.

- The Circular economy is where all resources in the production process can be reused or recycled in preparation for future resource deficiency amid economic growth and rising demands on products and services. A circular economy aims to close the loops to minimize loss in value of raw materials, components and products, to promote reuse and recycling, and to minimize waste while supporting proper waste management. In a circular economy, used products are recycled or upcycled, as opposed to in a traditional linear economy where products are made, used and disposed of.

- The Green economy prioritizes balanced growth of the economy, society and environment. A systematic approach is employed to utilize technology and

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[2] Settasat Karn Ngern Nai Krua Ruean Thai : Scan (Prueti) Kam Pan 5 Than Kormoon (online), Puey Ungphakorn Institute for Economic Research, https://www.pier.or.th/abridged/2017/13/ (as of October 4, 2022)

[3] BCG in Action: The New Sustainable Growth Engine, Ministry of Higher Education, Science, Research and Innovation, 2019.

digital platforms in the entire production process to manage and reduce workload and cost. and to optimize resource uses while minimizing environmental capital, waste, pollution, and greenhouse gas emissions. A green economy supports the country's transition to a low carbon society with equal wealth distribution and paves the path of the country to sustainability and high economic competitiveness in the global market.

The BCG Model has a people-centred approach, championing quality growth through internal strength, linking the country with the global community, and capitalizing on the country's strengths in biodiversity and cultural richness to enhance knowledge, technology and innovations to transform Thailand into a value-based and innovation-driven economy. It aims at more efficient, eco-friendly production and consumption of natural resources in parallel with pan-regional wealth distribution and local participation for sustainable administration and growth. The BCG Model also aligns with at least five of the UN Sustainable Development Goals (SDGs) and is in alignment with the Sufficiency Economy Philosophy (SEP), the key principle of Thailand's social and economic development.

2. Relevant Policies, Strategies and Plans

2.1 The Sustainable Development Goals (SDGs)

The Sustainable Development Goals (SDGs) were announced by the United Nations (UN) as an urgent call for action for all member countries between September 2015 and August 2030 for peace and prosperity on the planet. At its heart are the 17 SDGs and 169 targets, which can be grouped into 5 pillars (5Ps) : 1) People, to end poverty, hunger, and inequality in the society; 2) Planet, to protect the planet from degradation, conserve natural resources and take urgent actions on climate change for future generations; 3) Prosperity, to ensure that all human beings can enjoy prosperous lives and in harmony with nature; 4) Peace, to foster peaceful, just and inclusive societies; and 5) Partnership, to mobilize the sustainable development agenda through collaboration of all parties.

2.2 The 20-Year National Strategy (2017-2036)

The 20-Year National Strategy (2017-2036) aims to ensure that Thailand will become "a developed country with security, well-being for people, prosperous economic growth, a just society and natural resource sustainability".

This can be achieved by upgrading the capacity of people of all ages in diverse dimensions, creating equality and opportunities, promoting eco-friendly quality of life and ensuring that the government works effectively for the people and their interest. There are six key indicators in the National Strategy, which are: 1) Well-being of Thai people and society, 2) National competitiveness, economic growth, and income distribution, 3) Development of human capital, 4) Social equality and equity, 5) Sustainability of national biodiversity, environmental quality and natural resources, and 6) Government efficiency and better access to public services.

2.3 The 13th National Economic and Social Development Plan (2023 – 2027)

This 13th National Economic and Social Development Plan (2023-2027) aims to transform Thailand into a developed nation with a sustainable value-based economy with five main goals: 1) restructuring the production sector towards an innovation-based economy, 2) developing human resources for the digital world, 3) creating equal opportunities and a fair society, 4) redirecting production and consumption toward sustainability, and 5) building the nation's capacity in preparation for future global challenges and issues. There are 13 developmental milestones grouped into four dimensions as follows:

1) Targeted Production and Services

- Milestone 1: Thailand is a leading provider of high-value and processed agricultural products.

- Milestone 2: Thailand is a top tourist destination with a focus on quality and sustainability.

- Milestone 3: Thailand is one of the world's crucial electric-vehicle production bases.

- Milestone 4: Thailand is a high-value medical and healthcare hub.

- Milestone 5: Thailand is a key gateway to the region's trade, investment and strategic logistics.

- Milestone 6: Thailand is a smart electronics manufacturing base in the ASEAN region.

2) Economic and Social Opportunities and Equality

- Milestone 7: Thai SMEs have high potential and solid competitive advantages.

- Milestone 8: Thailand is a liveable, safe and smart city with sustainable growth.

- Milestone 9: Thailand's poverty across generations is on the decline and all Thais receive adequate and proper social protection.

3) Natural Resource and Environmental Sustainability

- Milestone 10: Thailand is a circular economy and low-carbon society.

- Milestone 11: Thailand can lower risks and impacts of natural disasters and climate change.

4) Drivers for National Transformation

- Milestone 12: Thais are highly capable, constantly seek knowledge, and are well-responsive to future development.

- Milestone 13: Thai government is modern, efficient and responsive to public needs.

3. Current Situation

3.1 Poverty in Thailand[4]

As of 2021, the poverty situation in Thailand has improved, with approximately 4.4 million poor people, 6.32 percent of the total population. There are 1.24 million poor households, 4.79 percent of total households.

สัดส่วนคนจน (ร้อยละ)   จำนวนคนจน (ล้านคน)   เส้นความยากจน (บาท/คน/เดือน)

1988 1990 1992 1994 1996 1998 2000 2002 2004 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022

Percentage of the poor   Number of the poor (million)   Poverty Line (baht/person/month)

Figure 2 The poverty line, and percentage and number of poor from 1988 to 2022

Source: 2021 Report of Thailand's poverty and inequality data analysis, the Office of the National Economics and Social Development Council.

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[4] Report on Poverty and Inequality in Thailand B.E.2565, the Office of the National Economic and Social Development Council, B. E. 2565

The Southern region faces the most severe poverty with the highest percentage of poor (10.9 percent of the population) due to the insurgency in the three southernmost provinces (Pattani, Yala and Narathiwat), coupled with income dependency predominantly on tourism, where during 2020 and 2021 tourist populations declined. Meanwhile, **the Northeastern region has the highest number of poor populations** with the lowest income per person, partly due to large numbers of laborers working in the agriculture sector, which has low labour productivity. Provinces with lower labour productivity face larger poverty challenges. This reflects the importance of regional development in bringing down poverty. **The poorer households show a higher dependency ratio (the number of dependents aged below 15 and senior citizens to working-age members), and larger households have more poverty problems than smaller households**. It is also found that in the past most of the poor households belonged to the agriculture sector. However, these days, most of the poor households, 33.99 percent of all poor households, are those who do not contribute to the economy. This is partly due to demographic changes towards an aging society where the elderly cannot earn income and have no access to income security after retirement.

In terms of severity of poverty, it is found that in 2022, the number of **extremely poor persons** who are facing severe financial hardship is 1.36 million in total (1.95 percent of the Thai population). Meanwhile, the number of **slightly poor** is 3.05 million (4.37 percent) and the number of **the nearly poor** is 4.82 million (6.91 percent).

The main root cause of poverty in Thailand is problems in production infrastructure. A 2021 survey by the National Statistics Bureau about Thailand's workforce showed that the majority of agricultural workers are informal, have uncertain incomes and are thus dependent on state welfare and subsidies. **The number of low-income earners registered in the governmental "Welfare Card" scheme was 20 million people in 2022, a rise of 6.44 million people from 2021, or a hefty 48.69 percent increase.** [5] **Urgent actions are needed for Thailand to escape from poverty.**

3.2 Household Economy[6]

Thailand's overall household economy is highly vulnerable. In 2021, earning potential of Thai households decreased when compared to that of 2020, due to higher unemployment

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[5]   The   number   of   the   poor   in   Thailand   rose   to   20   million,   Thairath   Online   via   https://www.thairath.co.th/news/politic/2305492 (as of October 6, 2022)

[6] A 2021 nation-wide survey on household economic and social situations, the National Statistics Bureau, 2022.

rates,[7] lower economic activities when compared to the pre-COVID-19 economy, higher household debt, and decline in savings among the low-income families.

1) Households' Average Monthly Income and Expenses

According to the 2021 nation-wide survey on households' economic and social situations by the National Statistics Bureau, 66.8 percent of the monthly incomes of Thai households are from work (averaging 18,255 baht), comprised of 42.6 percent from wages and salary, 15.8 percent from net profit of self-owned businesses, and 8.5 percent from net profit from agricultural activities. **The average total monthly income of a Thai household is 27,352 baht.** This reflects a rise in household income, partly due to state welfare schemes through co-payment programs on digital application, coupons, and utility cost reduction. Moreover, state subsidies continue to increase. In 2021 the average state subsidy was 4,650 baht, rising by 982 baht from 2019, inclusive of other financial assistances i.e. income from life insurance and unemployment assistance. Support for COVID-19 relief also increased to 3,869 baht in 2021, by 539 baht from 2019.

On monthly expenses, a Thai household spent an average of 21,616 baht per month in 2021, a rise over the previous year. The majority of expenses were on consumption, (totaling 18,802 baht, 7,660 baht of which was on food, drink and tobacco), followed by housing and home appliances (4,632 baht), transportation (3,467 baht), and non-consumption expenses such as tax, insurance, lottery, and interest (2,814 baht). Furthermore, household expenses which families do not pay out-of-pocket themselves (state subsidies or company welfare schemes), are also on the rise.

2) Household debt in Thailand

A survey in 2021 shows that more than half of the households in Thailand are in debt. Average debt per household stands at 205,679 baht per year, of which the majority (155,166 baht) are for household consumption. This can be divided into 78,204 baht for daily consumption debts; 73,808 baht for house and land mortgage or rental fee; and 3,154 baht for education. The remaining 50,513 baht of debt is for other investments; 32,379 baht for agricultural investment, followed by 17,144 baht for other business investments and 990 baht for other debts such as guarantors' debt and penalty/compensation debt.

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[7] The Q1 of 2021 survey on Employment, the National Statistics Bureau, 2021.

Of the total households in debt, the majority (91.6 percent) have lawful loans only. Meanwhile, 4.9 percent of the households have unlawful loans only and 3.5 percent have both lawful and unlawful loans. The average amount of lawful loans is 202,075 baht, 56 times higher than that of unlawful loans which sits at 3,604 baht.

3.3 Data of the Poor from the Thai People Map and Analytics Platform (TPMAP)

The data from the Thai People Map and Analytics Platform (TPMAP) is based on the Basic Minimum Needs (BMN) data of the Community Development Department and cross-checked with the State Welfare Card Registration data of the Ministry of Finance. In simpler terms, the "targeted poor" in the TPMAP are those who have registered for the state welfare cards, and are defined as those in urgent need of help based on both the Basic Minimum Needs (BMN) survey data of the Community Development Department and the State Welfare Registration data. According to the BMN data, as of 25 January 2022, there are 1,047,063 poor households out of the 12,817,903 households surveyed and there are 3,438,515 poor people and 1,025,782 targeted poor people, out of the 36,103,806 people surveyed.

3. Development of the Bio-Circular-Green Economy (BCG) Model

The BCG model benefits the country in terms of the economy, society and environment, encompassing the following four industries: agriculture and food; medical and wellness; bioenergy, biomaterial and biochemical; and tourism and creative economy.

1) Agriculture and Food[8]

Over 90 percent of agricultural land in Thailand is used for only six economic crops, namely rice, rubber, cassava, sugarcane, corn and palm oil, to be sold as commodities. Their prices vary in accordance with changing climate and global demands. Over 12 million Thai farmers are low-income earners. Increasing farmers' income through higher productivity would require more consumption of resources, resulting in natural resource and environmental degradation, which does not correspond well with the aging agricultural labour population. As part of the bioeconomy, the agricultural development model is very labour intensive with pricing competition, while

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[8] BCG in Action: The New Sustainable Growth Engine, Ministry of Higher Education, Science, Research and Innovation, 2019

the circular economy and green economy are still not very popular as reuse or recycling has not been widely practiced.

There is an opportunity for Thailand to add values and differentiate agricultural goods and products to upgrade farmers' self-dependence from a more-for-less approach to a less-for-more approach. The Internet of Things (IoTs) will be applied in farming processes to cut costs and increase productivity to maintain the security of biodiversity-based agricultural goods. This means that the country can have a wider variety of economic agricultural goods such as herbs, fruits, seeds, flowers, bamboos, insects and goats.

2) Medical and Wellness

In 2019, healthcare expenditure in Thailand was 3.9 percent of the total GDP, with an average expense of 9,191 baht per person[9], which is predicted to increase exponentially when Thailand enters into a full-fledged aging society. Each year, Thailand imports pharmaceutical and medical supplies worth over 100 billion baht, three-quarters of which is medicine. The country only has the capacity to manufacture generic drugs, with 90 percent of the key ingredients imported. The highest value medicines are painkillers or antipyretics (for fever reduction). At present, there are 176 Good Manufacturing Practice (GMP)-certified modern medicine manufacturing companies in Thailand[10], and only one is a biosimilars company. Therefore, Thailand needs to import biological products amounting to 20 billion baht. Moreover, the biopharmaceutical products that need to be imported are very costly, affecting people's access to them.

Thailand has quality healthcare workers and high-standard services, with a potential to become a top medical hub in Asia, attracting medical tourists who account for 70 percent of Thailand's international patients. According to the International Healthcare Research Center (IHRC), Thailand ranks 5th among the most popular heath tourism destinations in the world.[11]   Moreover, the country ranks first among the

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[9] The Global Health Expenditure Database (GHED), 2022, World Health Organization, https://apps.who.int/nha/database (as of October 5, 2022)

[10] Situation of modern medicine manufacturing standard certification, (as of August 19, 2022), Food and Drug Administration

[11] ' Rat-Ekachon Thai' Ching Share Talat Pheu Sukaphap Deun Na Yok Radab Turakit Health & Wellness (https://siamrath.co.th/n/373056 (as of October 5, 2022)

countries with the highest COVID-19 recovery index, according to a report by the Global COVID-19 Index. This highlights Thailand's strength in public health care.

As the influence of western medicine in Thailand grows, Thai traditional medicine is fading. One consequence of this is that medicines and healthcare equipment are imported at significant cost. To solve the problem of medical dependency on foreign countries and ensure equal accessibility to all medical products and services, the Bio-Circular-Green Economy (BCG) model utilizes traditional wisdoms of herbal medicines, accumulated healthcare knowledge and culture, and a preventative approach. Traditional healthcare wisdoms are to be upgraded add value and innovations to quality natural herbal medicines and cosmetic products. Focus also needs to be given to new high-value processed food products with fast-growing markets, including sweeteners, flavorings, bioactive substances, pure alcohol, dietary supplements, and functional foods and ingredients for all age groups. In addition, it is necessary to develop medical or health platforms spanning all life stages, evolving into healthcare services that use personal genomics and elevating the country as a medical research hub of Asia.

3) Bioenergy, Biomaterial and Biochemical

Energy is among the most important economic drivers for all nations. Thailand needs to provide sufficient energy resources to meet long-term national demands. In 2021, national final commercial energy consumption reduced by 0.4 percent, mainly due to restrictions on travel and increased working from home during COVID-19 lockdowns. However, the net import of primary commercial energy rose by 8 percent over 2020, mainly from the import of electricity from neighboring countries which increased by 13.2 percent.[12]   Thailand has a high capacity for renewable energy production thanks to its abundance of agricultural produce and industrial waste. The goal of the 2018-2037 Renewable and Alternative Energy Development Plan[13] is to increase the proportion of renewable energy to 30 percent of total energy consumption by 2037.

This increase is reliant on innovative technology development in energy production to transform diverse types of wastes, including household and industrial

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[12] The 2021 Annual Energy Report, the Energy Policy and Planning Office, 2022.

[13] The 2018-2037 renewable and alternative energy development plan, the Department of Alternative Energy Development and Efficiency, 2020.

wastes into renewable energy, i.e. Refuse Derived Fuel (RDF), biogas and solar energy. In addition to renewable energy production plants, the setting up of energy storage systems in communities is also needed to ensure energy security. As alternatives to petroleum-based products, biobased products are environmentally friendly and in high demand. Biochemical materials and wastes can be used as components in creating high-value chemicals and agricultural products such as bioplastics, biofibers, and biopharmaceuticals. The Alternative Energy Development Plan is expected to add more than 260 billion baht to the national GDP.

Renewable energy can reduce household expenses on non-renewable energy. Promotion of renewable energy consumption at the household level may include charcoal production with clean energy such as biofuels and biogas derived from animal manure and food waste. Moreover, the by-products from biogas kilns, which are organic fertilizers, can be further used to boost agricultural productivity. Solar-energy stoves can be used for household consumption of dried food and sales for extra income. Among other clean energy promotion options are solar power generation in remote areas, a solar water pump system for tower storage for community use, and energy plantation for biodiesel consumption. Farmers who embrace clean energy not only save money but can be proud to adopt the "Sufficiency Economy" philosophy developed by His Majesty the late King Bhumibol Adulyadej. Using clean energy means being part of the reduction of greenhouse gas emissions, the main cause of climate change. To achieve this goal, the people need to be well-informed of the benefits of renewable energy via public relations. For more effective clean energy management at local and household levels, people in communities need to reach mutual agreements on renewable energy use.

4) Tourism and Creative Economy

The richness of natural resources and diversity of Thailand's ecosystem attracts people from around the world. Prior to COVID-19, Thailand generated 3,000 billion baht in tourism revenue, of which 2,000 billion baht was from 40 million international tourists.[14] However, the revenue density was on certain areas/attractions, leading to problems in carrying capacity, and damage to natural resources and the environment with knock-on negative impacts on local traditions and ways of life. The COVID-19

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[14] "Karn Tong Tiew" pee 2022 Tang Paomai 1.1 Lan Lan Baht, https://www.bangkokbiznews.com/columnist/980987 (as of October 5, 2022)

pandemic had an adverse effect on Thailand's tourism, with tourism-related businesses losing income-earning opportunities, resulting in the country's GDP from tourism falling by 63.92 percent in 2020 from 2017.[15]

The BCG Model places emphasis on sustainable tourism development. Each community needs to build a strong identity, promoting a creative economy, highlighting cultural roots, local wisdom and identities and turning them into value-added products and services. This should be coupled with effective management in accommodating tourists, and reviving and protecting natural resources. Tourism should be linked with a creative economy, such as agritourism and low-carbon tourist attractions, which not only generates extra income for people in the communities but also drives growth in other sectors as an income-multiplying tool.

4. Significance of Issues

Thanks to an abundance of bio- and cultural diversity, Thailand has a competitive advantage in lifting people's quality of life toward equality through the BCG Model. This model is essentially "people-centric", with highlights 1) growth based on common fair shares rather than vested interests of certain groups; 2) growth based on "people power", not "Laissez-faire capitalism"; and 3) growth based on emprowering people in all parties, in state and private sectors and young generations for an improved quality of life. To eliminate poverty and improve the grassroots household economy, a balanced development must also embrace the 'sufficiency economy' principles, targeting 1) Economic prosperity, 2) People's well-being, 3) Human value and capacity, and 4) Environment conservation. The global paradigm needs to be shifted from "modernization" to "sustainability" for equal opportunities in a shared society. Through the BCG model, Thailand moves towards the SDGs by blending the sufficiency economy philosophy with science, technology and innovations.[16]

Taking into consideration the power of communities, Thailand has a good chance of distributing wealth through the area-based BCG development model. In addition to the existing Eastern Economic Corridor, the government has created economic corridors in all regions, such as the Northern Economic Corridor (NEC) via the "Lanna 4.0" project, the Northeastern Economic Corridor (NEEC) via the "Isan 4.0" project, and the Southern Economic Corridor (SEC)

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[15] The Master Plan 5 of the National Strategy, the Office of the National Economic and Social Development Council's website, http://nscr.nesdc.go.th/wp-content/uploads/2022/03/11_NS-05_070365.pdf (as of October 5, 2022)

[16] Karn Sang Kwam Kem Kang Jak Pai Nai Duai Model Sattakit BCG Cheng Puen Ti, Suwit Maysinsee, 2021.

1   via the "Damkwan 4.0" project. This is a great chance for people in various regions to take

2   part in driving their own local economy.

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4   **Table 1 Examples of the area-based BCG model by region**.

Region	Area-based BCG Development Model
Lanna 4.0 in the North	1.1 Promoting high-value economic plants instead of corn for animal feed. 1.2 Promoting organic farming and reducing chemical/pesticide use. 1.3 Creating value from trash, incomes from circular economy, and developing the economy from the whole value chain of important native plants by promoting farmers, smart farming, basic food processing for human and animal food, as well as advanced food processing for dietary supplements and food ingredients. 1.4 Promoting stories of 'Creative Lanna' and translating the concepts into creative spaces, products and services to generate extra income and reduce economic inequality for local people.
Isan 4.0 in the Northeast	2.1 Developing a prevention and solution system to eliminate Liver fluke disease (fascioliasis), with puts over 10 million Thai people at risk, in the next 8-10 years. 2.2 Ensuring water security in the region via effective management of small water resources for higher productivity in agriculture. 2.3 Promoting value chains of new economic animals such as Isan Wagyu cows and insects. 2.4 Linking local history, culture and beliefs of people along the Mekong River and neighbouring countries with tourism and related industries to generate extra income for local people.
Tawan Ook 4.0 in the East	3.1 Supporting economic development of fruits of the East across the value chain, i.e. food processing, animal feed production, and extracting high-value components for cosmetic products. 3.2 Promoting and advancing local tourism across the value chain, including ecotourism, cultural tourism, and 'humanmade attractions' tourism.
Damkwan 4.0 in the South	4.1 Boosting the economy of the south by promoting the food and high-value products through research and innovations across the value chain of the ocean resources including supporting ecotourism, precision aquaculture, food/supplements/ingredient processing, and extracting organic compounds from waste.

Region	Area-based BCG Development Model
	4.2 Setting up platforms for a sustainable community ecosystem based on knowledge, research and innovations to narrow inequalities by generating extra income and improving the well-being of people in the region. 4.3 Upgrading tourist attractions in the lower southern provinces by showcasing the 'new era' of the South, its unique cultural and religious pluralism, with an aim to increase income by at least 30 percent the annual income of people in the South or no less than 100,000 baht per household per year.

However, local implementation challenges include building trust between the local people and the implementing organizations. Other key strategies in eradicating poverty in the regions are:

- **Prioritizing local people's participation in policy planning and integrated implementation among local organizations.**   It is necessary for people and relevant organizations to take part in designing policies, targets and indexes to bring about changes and achieve the desired targets in the ways that suit demands, potentials and identities of local communities. The government plays a role in supporting and facilitating the participation process, including relaxing restrictions, limitations or laws in order to move forward the policy for concrete results. Relevant state organizations and departments at all levels also need to act in accordance with their functions and allocated budgets for continued implementation of poverty eradication.

- **Poor people database analysis:** Due to the very diverse groupings of the poor, some households may be missed in the data collecting process, or the database may be incomplete. The scope of households is also not clear as a household may mean many houses in the same house registration though the members may not reside there. It is therefore necessary to verify data and conduct triangulation, including in-depth interviews, and participatory observation by fieldwork teams to identify the true target groups and to empower them to address specific local problems.

- **Household readiness and potential.** It is found that different households have different potentials. Causes of poverty and risky behaviours also vary; for instance, some households have drug and alcohol use and smoking problems, which contribute to poverty and lead to untimely death. This also results in increased national medical costs, and loss of national human resources.   Specific support, therefore, needs to be provided

to suit specific groups. For example, occupation skills training should be provided for some families who do not have any resources so they can find extra income.

- **Communication to raise awareness and participation** among government organizations at the policy and local implementing levels such as local administrative organizations and district health boards, as well as local people. It is found that interpersonal communication among leaders, community and households is not very effective and may lead to misinformation. Creating a participatory process to provide people with the platform opportunity to understand one another and co-design targets and activities can build pride and lead to shared learning and sustainable outcomes. People participation prioritizes and empowers "humans" and therefore, it is necessary to know their potentials and interests to make sure that the right people are given suitable roles.

- **Accessing and sharing natural resources equally** with a focus on people participation. Because different areas have unequal amounts of natural resources, it is necessary to effectively share natural resources, such as land, water resources, equipment, tools, and knowledge to achieve mutual benefits and build collaboration.

- **Creating synergy among key actors** is important to success. Key actors include:
- Households/communities
- Academia, who build relationships with local gatekeepers
- Thought leaders or change agents, who can motivate local people to participate, including village heads and enterprise leaders
- Local government leaders such as governors and mayors, who usually face budgeting problems and for whom it is therefore necessary to build trust and do fieldwork with locals to translate policy into action.
- Private and business sectors in local areas
- Youth and younger generations

- **Promoting value chains and market force** to ensure employment and incomes that correspond to the market demands in diverse channels including online markets. Linking value chains with major businesses, department stores, university and state markets can help boost community economy sustainably. New business investments and agreements in local communities are also beneficial.

- **Supporting knowledge** through reskilling and upskilling household members to become knowledge workers with multiple skills under their belts. This requires the

collaboration of educational institutions in 1) promoting skills which best suit local demands and 2) using local spaces as social labs to produce research that can solve community problems, increase incomes and improve quality of life.

However, there are challenges at the structural level, i.e., **distributing the dynamics of the domestic economy to regional and local economies, investing in local infrastructure, upgrading the capacity of local enterprises, supporting good governance of the market system, and strengthening consumers' purchasing power**.

The recommendations for **"Poverty eradication and household economic well-being advancement through the BCG Model"** will be focused on solving income-earning ability through collaboration of all parties involved, including the government and private sectors, alliances, networks as well as individuals in society for effective management of household economic advancement.   However, given the complexity and breadth of the poverty eradication issue, the working team has chosen key "leverage points" to be used for formulation of public policies to be considered as solutions of this 15th National Health Assembly.

5. Recommendations for the National Health Assembly's consideration

The National Health Assembly was asked to consider the draft of the NHA 15/Resolution 1 on Household Economic Well-being Advancement by the Bio-Circular-Green Model to achieve sustainable growth.