



BUILDING BACK BETTER IN ASEAN COUNTRIES: OPPORTUNITIES TO ADVANCE A CIRCULAR ECONOMY

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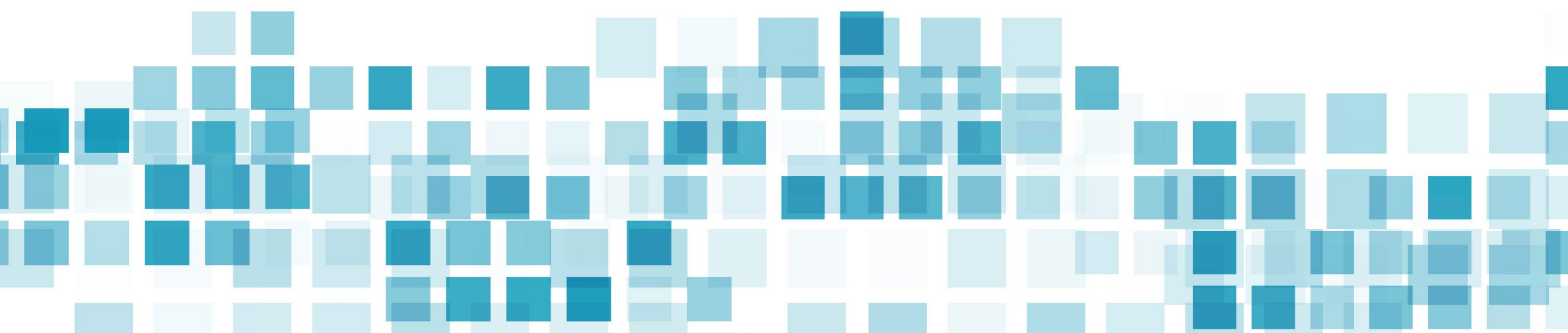


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1. INTRODUCTION AND OBJECTIVES



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1.1 THE COVID-19 CRISIS AND THE OPPORTUNITY TO BUILD BACK BETTER

The COVID-19 pandemic, which has left no country unaffected, is a severe setback for efforts to eradicate poverty and hunger, reduce inequality, and ensure that all human needs are met sustainably. Over 5 million people have lost their lives due to the virus and many more have had their lives and livelihoods disrupted.

In ASEAN, the pandemic has had a strong negative impact on employment and household incomes. According to the International Labour Organisation (ILO), the employment loss in the region is estimated to about 9.3 million for 2021, in addition to 10.6 million jobs lost in 2020.¹

Governments around the world have pledged to “build back better” from the pandemic, including by directing recovery spending and investments towards green sectors and technologies. This would accelerate the transition to sustainable low-carbon societies. The Asian Development Bank (ADB) identifies four reasons why governments should take a green approach to the recovery from the COVID-19 crisis.²

1. Safeguard the environment to reduce the risk of future pandemics.
2. Address the worsening impacts of climate change and biodiversity loss and their economic consequences.
3. Boost economies and create income opportunities for low-skilled workers through green stimulus policies.
- 4 Strengthen the region’s long-term economic competitiveness and prosperity.

However, despite their pledges and the strong rationale for spurring a green recovery, most governments seem to be prioritising quick economic bounce-back by channelling funds to carbon- and resource-intensive sectors and infrastructure projects. According to an UN-supported assessment, only 18 percent of governments’ recovery spending is considered green, mostly accounted for by a small group of high-income countries.³ So far, recovery spending has thus largely missed the opportunity to accelerate the shift to sustainable development.

Even so, the COVID-19 pandemic is still far from over – governments are currently spending unprecedented amounts of money to stimulate economic activities and most of the necessary building back remains to be done. It means that there are still opportunities to build back better through a green recovery. This paper looks at existing opportunities for countries in the ASEAN to build back better by promoting a circular economy transition as a way to build a more resilient and sustainable future.

1.2 CIRCULAR ECONOMY AS AN APPROACH TO RESILIENT DEVELOPMENT

In recent years, the circular economy concept has gained increasing attention in sustainable development discussions, also in ASEAN where it has gained traction at both the national and the regional level (see section 3 below). For high-income countries, a circular economy approach offers opportunities to shrink their outsized consumption footprints while maintaining households’ access to services and the wellbeing this enables. For low- and middle-income countries, it can be part of an alternative

development model that reduces the tensions between lifting people out of poverty and protecting the planet, thereby increasing the scope for meeting the sustainable development goals (SDGs).

The current dominant economic model is based on a ‘linear’ logic where resources are extracted, processed and manufactured into products that are used and discarded or burnt – often after short service life. Such a linear use of materials is highly wasteful and results in the overuse of natural resources and a high generation of waste. With several planetary boundaries already transgressed and with large numbers of people not being able to meet even basic needs, the inefficient linear economic model is not a viable option for further development.

The circular economy, in contrast, is a vision of a new economic model that saves natural resources, minimises waste generation, and keeps materials, products, and components ‘in the loop’ for as long as possible. A circular economy can also maximise the use-value of products by making them available to multiple users through product sharing and collaborative consumption.

The approach is commonly associated with the 3Rs – reduce, reuse, recycle, but also includes a wide range of other practices such as maintenance, repair, refurbishment, remanufacturing, and repurposing. The effective adoption of such circular practices often requires changes in product design so that products and their parts are made for remaining in use for a long time and to enable easy resource recovery when they can no longer be used. In some industries, alternative business models can be part of a circular economy, such as shifting from physical products to immaterial services.

Another key aspect of the circular economy is that the use of natural resources needs to be regenerative. Extraction of resources from biological systems, such as through agriculture, forestry, and fishing, should be done in ways that maintain or even enhance the long-term health and productivity of those systems. For agriculture, for example, this means that maintaining groundwater levels and improving the health of biologically active and diverse soil systems are key priorities.

As mentioned, the ASEAN Member States have started to recognise the importance of the circular economy approach and some of them have reflected circular economy objectives and practices in their socioeconomic development plans. However, in their efforts to revive economic activities that have been impacted by the pandemic, there is a risk that governments will further entrench linear business models and practices rather than facilitate the transition to a circular economy.

1.3 OBJECTIVES AND STRUCTURE

Against this background, the objective of this paper is twofold:

1. To identify areas where circular economy practices could help ASEAN countries achieve a more resilient and inclusive recovery from the COVID-19 pandemic.
2. To provide recommendations on how ASEAN governments, working with partners as appropriate, could promote the adoption of such practices amongst industry, business and civil society.

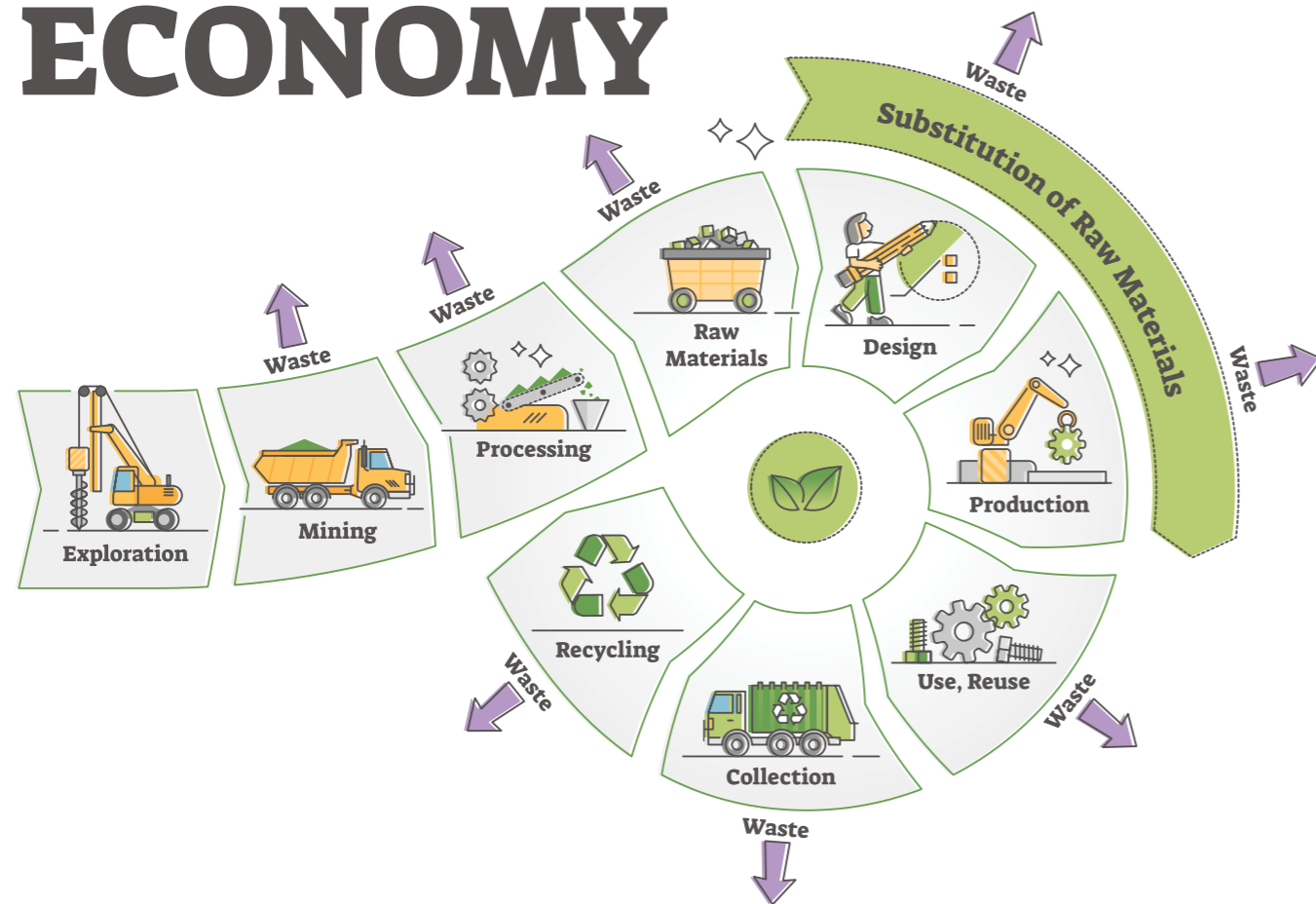
To meet these objectives, the paper does the following:

- Presents key findings and recommendations from the growing academic literature on circular economy, reflecting especially experiences from low- and middle-income countries,

- Assesses the current status of circular economy policies in ASEAN member states and at the ASEAN regional level,
- Summarises how the COVID-19 pandemic has affected the ASEAN countries with a focus on what sectors have suffered the worst impacts,
- Reviews existing plans and strategies for COVID-19 recovery in ASEAN and the member states.

Finally, based on these reviews, the paper suggests priority areas for incorporating circular economy practices in COVID-19 recovery processes and identifies opportunities for international partners to assist such efforts.

CIRCULAR ECONOMY



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2. A CIRCULAR ECONOMY TRANSITION: POLICY EXPERIENCES AND LESSONS LEARNT



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2.1 CIRCULAR ECONOMY AND ITS ROLE IN A SUSTAINABLE DEVELOPMENT

Numerous studies have shown that circular economy practices such as repair of electronic products, refurbishment of buildings, reduction of food waste, upcycling and recycling of plastic packaging, to name just a few, can generate multiple sustainability benefits, including employment/livelihood opportunities and reduced environmental impacts. Such practices can also provide new business opportunities, making the concept interesting to the private sector. Circular economy practices can create many synergies, and reduce trade-offs, between several SDGs and the associated targets.

Circular economy practices can be regarded as a “toolbox,” which can contribute to the achievement of several SDG targets. The strongest relationships exist between circular economy practices and the targets of SDG 6 (Clean Water and Sanitation), SDG 7 (Affordable and Clean Energy), SDG 8 (Decent Work and Economic Growth), SDG 12 (Sustainable Consumption and Production), and SDG 15 (Life on Land). If implemented in a socially inclusive manner, the circular economy will also contribute to poverty reduction, reducing inequalities and gender equality.⁴

A shift to a circular economy can also play a significant role in climate change mitigation (SDG 13), thereby helping countries meet their commitments under the Paris Agreement.⁵ During the latest climate conference COP26 in Glasgow, circular economy was highlighted by various stakeholders as key approach to address climate change. Several ASEAN countries have included circular economy provisions in their Nationally Determined Contributions (NDCs) and long-term climate strategies to address Greenhouse Gas (GHG) emissions from waste management. Examples are Indonesia’s Long-Term Strategy for Low Carbon and Climate Resilience 2050⁶ and Singapore’s Long-Term Low-Emissions Development Strategy.⁷

So far, however, progress on SDG 12 (which is most directly linked to circular economy) for the ASEAN region has been slow and impacted by the pandemic. According to UNESCAP for ASEAN: “*New data analysis on Goal 12 has enabled a clearer understanding of progress compared with only one year ago. Rather than regressing, the regional progress is now stagnant on responsible consumption and production. However, if business continues as usual the region should expect to miss every single measurable target under Goal 12. A course correction is required on the sustainable use of natural resources and monitoring the impacts of sustainable tourism. Countries must increase their capacity to generate renewable energy, increase the national recycling rate and reduce hazardous waste generation.*”⁸

2.2 APPLYING CIRCULAR ECONOMY TO THE DEVELOPMENT STRATEGIES OF LOW AND MIDDLE-INCOME COUNTRIES

The focus of attention around the circular economy has mainly been on developed countries, especially the European Union, and China, where circular economy strategies are most advanced. Less well explored is the role that developing countries in Southeast Asia can play in the transition to a circular economy. Analyses of the circular economy and the opportunities it presents tend to occur through a developed-country lens that ignores policy priorities specific to lower-income settings.

Despite this focus on industrialised economies, the circular economy is not a new concept or invention by industrialised countries. Circular economy solutions are widely practised across countries in the Global South, including the ASEAN region. Circular economy practices in developing countries can provide possible solutions to cross-cutting development issues of pollution and waste, employment, health,

urbanisation and green industrialisation around small and medium enterprises (SMEs) and informal sector recycling.⁹

In recent years, a compelling narrative of the circular economy as a strategy for delivering on developing-country policy priorities including human development, economic diversification, job creation, agricultural development and food security, or energy security, is beginning to emerge. Experiences in how governments in countries at different stages of economic development can stimulate a shift to circular economy are increasing and some general rules-of-thumb can be identified (BOX 1).

BOX 1: Experiences and lessons for circular economy policy, including from low- and middle-income countries.

- * Close **dialogue** with stakeholders is essential and governments have a key role in creating arenas where diverse actors can meet. Important elements are network building, awareness raising, joint envisioning, collaborative action, and learning.
- * Circular economy is **cross-cutting** in nature, spans conventional policy domains, and therefore requires good channels for communication and effective mechanisms for policy coordination among line ministries.
- * Many radical circular solutions are pioneered by start-up enterprises, meaning that a policy environment that supports **entrepreneurship** and new business models can help stimulate a circular transition.
- * Transitioning to a circular economy is not only about implementing new policies but also about **revising existing policies** that hinder circular practices.
- * The **informal sector** plays a key role in the already existing circular economy in many developing countries, especially in the collection and sorting of waste materials and recyclables. Engaging with informal actors is important to improve working conditions and livelihoods, and to achieve higher quality of recycled materials.
- * Stimulating new and more circular practices needs to go hand in hand with efforts to **discourage strongly linear products** and business practices.
- * There is no “best available practice” on how to effectively advance a circular economy although there is a growing body of experience to be inspired by and learn from. Promoting a circular economy transition requires willingness to **experiment** and to try new untested solutions, to be prepared for setbacks and failures, and to learn and make adjustments along the way.
- * **International collaboration** is important, especially with key trading partners. South-South collaboration can enable knowledge exchange and new trading opportunities for secondary materials.

The following set of policy approaches can benefit circular business models and the uptake of circular practices by industry, the financial industry and society in general.¹⁰

National circular economy roadmaps and strategies: Many governments around the world have included circular economy elements in their national development plans, as well as their policy frameworks for environment and climate, including NDCs, submitted in accordance with the Paris Agreement on climate change. These strategies often include targets for the recycling and reuse of waste materials as well as plans for linking the circular economy and climate action, and plans to stimulate innovation and job creation through the shift to a circular economy. Circular economy roadmaps often include stakeholder processes to bring together important national players, including the finance sector. For example, Malaysia's Plastic Circular Economy Roadmap launched in 2020 is a multi-governance or inter ministry collaboration and micro level collaboration in implementing the circular economy as a new industrial paradigm.¹¹

Resource efficiency and recycling targets for industrial activity: Resource efficiency applies to a range of resources, including materials, water, energy, biodiversity and land. It refers to the sustainable use of these resources through reduced use, optimization of value generation and recycling to reduce material intensity – with the focus on producing the same level of output with fewer material inputs. Resource efficiency can be supported through adopting practices such as 'lean' manufacturing and product lifetime optimization, which in many industrial sectors are not being used at anywhere near their full potential.

Extended producer responsibility: EPR is a financial and/or operational instrument that aims to internalize costs related to end-of-life management, for example for electronic goods or packaging. Under this policy approach producers of goods are given a significant responsibility for the recovery, treatment or disposal of post-consumer products and waste. This approach shifts responsibility away from national, subnational or local authorities and reduces their related costs. The aim is to incentivize waste minimization at source, promote more environmentally conscious product design and support the management of waste by the public sector. If producers of goods take on increased responsibility for the recovery of materials or repair of products further along the value chain, then changes in production methods will favour materials and goods that are more easily recovered, remanufactured, repurposed, repaired and reused. These extended responsibilities can compromise the financial attractiveness and profitability of linear industries and level the playing field for circular businesses. Implementing EPR systems for e-waste in the ASEAN region based on models used in high-income countries have faced many challenges, indicating a need for an alternative phase-in approach whereby developing Asian countries are able to move gradually towards EPR systems.¹²

Eco-design standards and targets for products: Eco-design is an approach to products that considers environmental impacts across a product's entire life cycle. Eco-design can also facilitate easier repair and optimize remanufacturing processes, further saving resources. For new products, the design process needs to include principles such as designing for energy efficiency, reparability, recyclability, the minimization of packaging, and chemical safety. Product design policies – as they currently exist – need to be upgraded in order to enable a circular economy. Eco-design policies in ASEAN countries have mostly focused on energy efficiency but will need to take a wider material focus. More national public policies in ASEAN member states will be needed to set clear goals towards widespread adoption by industry.¹³

Fiscal policies and taxation regimes are considered key policy tools that can help create markets for circular business models, address social and environmental externalities and generate public funds to finance the transitions. The transformation of taxation systems on both international and national

levels is key to shifting to an inclusive circular economy. Tax regimes – in some cases, the absence of taxes – are a way for national governments to attract companies to establish operations in their country. In terms of the circular economy, countries can reap an economic advantage by structuring their tax incentives according to their national resource priorities. The alignment of tax incentives makes sense for countries lacking within their territory certain critical resources crucial for their economic development (for example, rare earths for battery components) or for solving awkward environmental issues related to waste streams, as in the case of plastics. Specific measures include cutting taxes on labour and long-term investment returns, as well as increasing the tax burden on primary resource extraction and polluting energy generation. For financial institutions, it is important to have clarity about the taxes to which their clients are subject, as this relates to the profitability of the companies that they finance. Taxation is part of any economic analysis and informs risk-adjusted returns, which in turn inform the decision to invest.

2.3 POLICY UPTAKE OF CIRCULAR ECONOMY IN A DEVELOPING REGION: THE CASE OF LATIN AMERICA AND THE CARIBBEAN

The circular economy has gained prominence in Latin America and the Caribbean (LAC) in recent years as an approach to sustainable development. Countries in the region have either implemented or are planning new circular economy policies, public initiatives and roadmaps. The COVID-19 pandemic has revealed significant shortcomings in the linear economy – the vulnerability of global value chains, the depletion of natural resources and the exacerbation of social inequalities. The circular economy offers an alternative framework for a more resilient and inclusive economic model in Latin American and Caribbean countries. The three major industrial areas that are a priority for the circular economy in LAC are the mining and extractives sector, waste management and recycling, and the bioeconomy. Circular economy practices in the mining sector are essential for reducing environmental impacts and social risks. They will also improve the sector's competitiveness as demand for primary metals and minerals falls due to urban mining and advances in product reuse, material recovery and recycling technologies. In the waste management and recycling sector, circular economy practices could reduce the amount of waste that is either landfilled or burned. Meanwhile, the bioeconomy offers major opportunities for sustainable food systems and agriculture in the region, which can help avoid trade-offs between economic, social and environmental objectives.¹⁴

The Economic Commission for Latin America and the Caribbean (ECLAC) proposes in a new position document¹⁵ a set of policies that responds to the gravity of the current crisis of COVID, while also aiming to overcome structural problems.

ECLAC proposes focusing attention on seven sectors that can be the drivers of the new development pattern given their strategic role in emissions, investment, competitiveness, employment and health, and it proposes policy lines to propel them forward. These sectors are linked and interconnected: (1) non-conventional renewable energy, (2) urban electromobility, (3) digitization, (4) the health-care manufacturing industry, (5) the bioeconomy, (6) the circular economy and (7) tourism.

In the Latin American context, the bioeconomy and circular economy are closely coupled, pursuing new ways of organizing value chains associated with biological resources, which involves generating circular economy flows from the use of biomass and organic waste (circular bioeconomy). It seeks to reduce dependence on fossil resources and promotes the intensive production and use of knowledge about biological resources, processes and principles for the sustainable supply of goods and services (agricultural bioenergy and bio inputs, food, fibres, biopharmaceuticals and biocosmetics, bioplastics

and other biomaterials for industry). It aims to minimize the production of waste, design new products and services and create sources of equitable economic and social growth.¹⁶

An example on policy level is Costa Rica's National Bioeconomy Strategy 2020–2030. It seeks to lay the foundations for the country to become a knowledge-based economy, with sustainable, high value-added production in all regions, fair and equitable use of biodiversity, circular use of biomass and biotechnological progress. The goal is to make the bioeconomy a pillar of economic transformation by promoting innovation, the creation of value, the diversification and sophistication of the economy, the application of circular bioeconomy principles and the decarbonization of production and consumption.¹⁷



3. CURRENT STATUS OF CIRCULAR ECONOMY POLICY IN ASEAN



ASEAN Member States (AMS) have for many years been developing and implementing policies related to circular economy, in many cases with assistance from international partners. Such initiatives have often been carried out under a different label, such as Integrated Solid Waste Management, Resource Efficiency, or the 3Rs. The starting point has often been solid waste management and the focus has tended to be on increased recycling, mainly as an approach to reduce the amount of waste destined for disposal. However, in recent years, more holistic policy concepts have gained ground, such as Sustainable Consumption and Production, Green Economy, and Green Growth. National action plans based on these concepts have often included elements of a circular economy approach.

While earlier initiatives on sustainable resource management were often centred on ministries in charge of environmental protection, many of the more recent efforts have involved or even been driven by ministries with wider remits and larger budgets.

3.1 NATIONAL STRATEGIC PLANS AND EMERGING POLICY AREAS

In the last few years, several AMS have developed plans and roadmaps explicitly aimed to promote a circular economy. Some of these initiatives have a wide scope and cover several economic sectors, while others are focused on a specific sector or category of materials. Concerns over marine litter and plastic pollution, in particular, have accelerated the adoption of circular economy ideas across the ASEAN region.

Examples of countries with general circular economy plans include Cambodia, which has launched a National Circular Economy Strategy and Action Plan and established a related platform to engage the private sector¹⁸. Indonesia has taken a similarly broad approach and is in the process of developing a dedicated national roadmap to promote circular economy practices in selected economic sectors. In the case of Thailand, the circular economy concept is part of an initiative to nurture a Bio-Circular-Green Economy Model (BCG) as a new pillar of economic growth.¹⁹ A few countries, such as Laos PDR, have included the circular economy concept into their regular socio-economic development plans whereas Vietnam's 2020 Law on Environmental Protection identified circular economy as a vital policy tool. Some AMS have also incorporated elements of circular economy in their Nationally Determined Contributions (NDC) under the Paris Agreement on Climate Change.

Plastics and marine debris

Plans with a focus on plastics include Indonesia's National Action Plan from 2021 'Radically Reducing Plastic Pollution in Indonesia: A Multi-Stakeholder Action Plan', which lays out a roadmap to reducing the amount of plastic leakage into Indonesia's oceans by 70% by 2025, as well as achieving near-zero plastic pollution by 2040 through transitioning to a circular economy for plastics.²⁰ The Action Plan is accompanied by Indonesia's National Action Plan on Marine Debris Management,²¹ which consists of 5 strategies to combat marine debris: (1) National movement to increase awareness of stakeholders; (2) Waste management sourced from the land; (3) Prevention of waste in coastal and the sea; (4) Funding mechanism, institutional strengthening; and (5) Research and development.

Similarly, the Philippines have adopted the National Plan of Action for the Prevention, Reduction and Management of Marine Litter (NPOA-ML). The plan was developed to provide a blueprint for resource and waste management and to bring increased attention to marine litter issues. The overarching goal is to achieve "Zero waste to Philippine waters by 2040" to support the vision of "A Philippines free of marine litter through shared participation, responsibility, and accountability".²²

Some other AMS, such as Malaysia and Thailand, have adopted plans and strategies to tackle plastics issues, incorporating circular economy principles.

Industry 4.0

Beyond waste reduction and improving plastics recovery and recycling, the circular economy will be important for the future of manufacturing in ASEAN. The fourth wave of technological advancement in manufacturing, often referred to as Industry 4.0, has been linked to the development of the circular economy. Industry 4.0 refers to a set of diverse automation processes that are increasingly being adopted in the manufacturing sector, ranging from the Internet of Things (IoT) and 3D printing to artificial intelligence, cloud computing, and big data analysis. In the ASEAN context, Industry 4.0 is not only a key element for future competitiveness, but also key for future productivity growth in manufacturing – there is substantial room for increasing quality by combining Industry 4.0 and circular economy to reduce material intensity of manufacturing, waste reduction from industry, and improve industrial innovation.²³

Bioeconomy

There are new opportunities for integrating circular and bioeconomy in ASEAN which can help to make existing national bioeconomy strategies and related policies more sustainable. For example, Indonesia does not have a bioeconomy strategy, but development of the bioeconomy is promoted at a political level by the "National Energy Policy" and the "Grand Strategy of Agricultural Development 2015-2045", especially in two areas, bioenergy and agroindustry. In Indonesia, palm oil is one of the most important raw materials of the country's biobased economy offering an abundance of resources and economic opportunities, but with many trade-offs in terms of environmental and climate goals.

The circular economy in Thailand is named 'Bio-Circular-Green' (BCG) Economy and closely linked to the development of the bioeconomy. In 2019, Thailand's Ministry of Higher Education, Science, Research and Innovation (MHESI) unveiled a proposal entitled "BCG in Action: The New Sustainable Growth Engine" mapping out strategies to drive BCG agenda forward. The four target industries of the BCG include agriculture and food; bioenergy, biomaterial and biochemical; medical and wellness; and tourism and creative economy. These sectors currently have a combined economic value of 3.4 trillion THB (21% of GDP). BCG model has a potential to increase the economic value to 4.4 trillion THB (24% of GDP) by the mid-2020s.²⁴

During the pandemic in 2020, ASEAN and Thailand co-hosted a forum event in conjunction with the Global Bioeconomy Summit 2020. The forum aimed to showcase potential of ASEAN as a powerhouse of innovation and bio-based industries. ASEAN's latest developments and initiatives of innovation and bioeconomy initiatives were presented as the ASEAN Innovation Roadmap & Bioeconomy.²⁵ The expectation is that the bioeconomy, potentially coupled with circular principles of biomass use, will be a key driver for economic development and recovery post-COVID.

3.2 REGIONAL STRATEGIES AND INITIATIVES

In parallel with initiatives at the national level, ASEAN Member States are also developing joint strategies on circular economy.

In September 2021, the ASEAN Economic Community (AEC) Council Meeting adopted a Framework for Circular Economy for the ASEAN Economic Community²⁶ – another sign that the AMS recognise the

strategic significance of circular economy. Significantly, the development of this Framework has been initiated and led by the AEC, an indication that circular economy is not seen mainly as an environmental concept but as an approach to improve the region's socioeconomic development in general. The Framework is expected to help build more resilient and resource-efficient economies and to accelerate the region's transition to a low-carbon economy. It sets out five Strategic Priorities:

1. Standard Harmonisation and Mutual Recognition of Circular Products and Services;
2. Trade Openness and Trade Facilitation in Circular Goods and Services;
3. Enhanced Role of Innovation, Digitalisation, and Emerging/Green Technologies;
4. Competitive Sustainable Finance and Innovative ESG Investments; and
5. Efficient Use of Energy and Other Resources.

While the Framework is intended to guide ASEAN's mainstreaming of circular economy into the region's economic integration process over the long term, many of the initiatives outlined therein can be part of COVID-19 recovery efforts. The Framework mentions Fourth Industrial Revolution technologies (4IR) as key enablers for the realisation of circular business models.

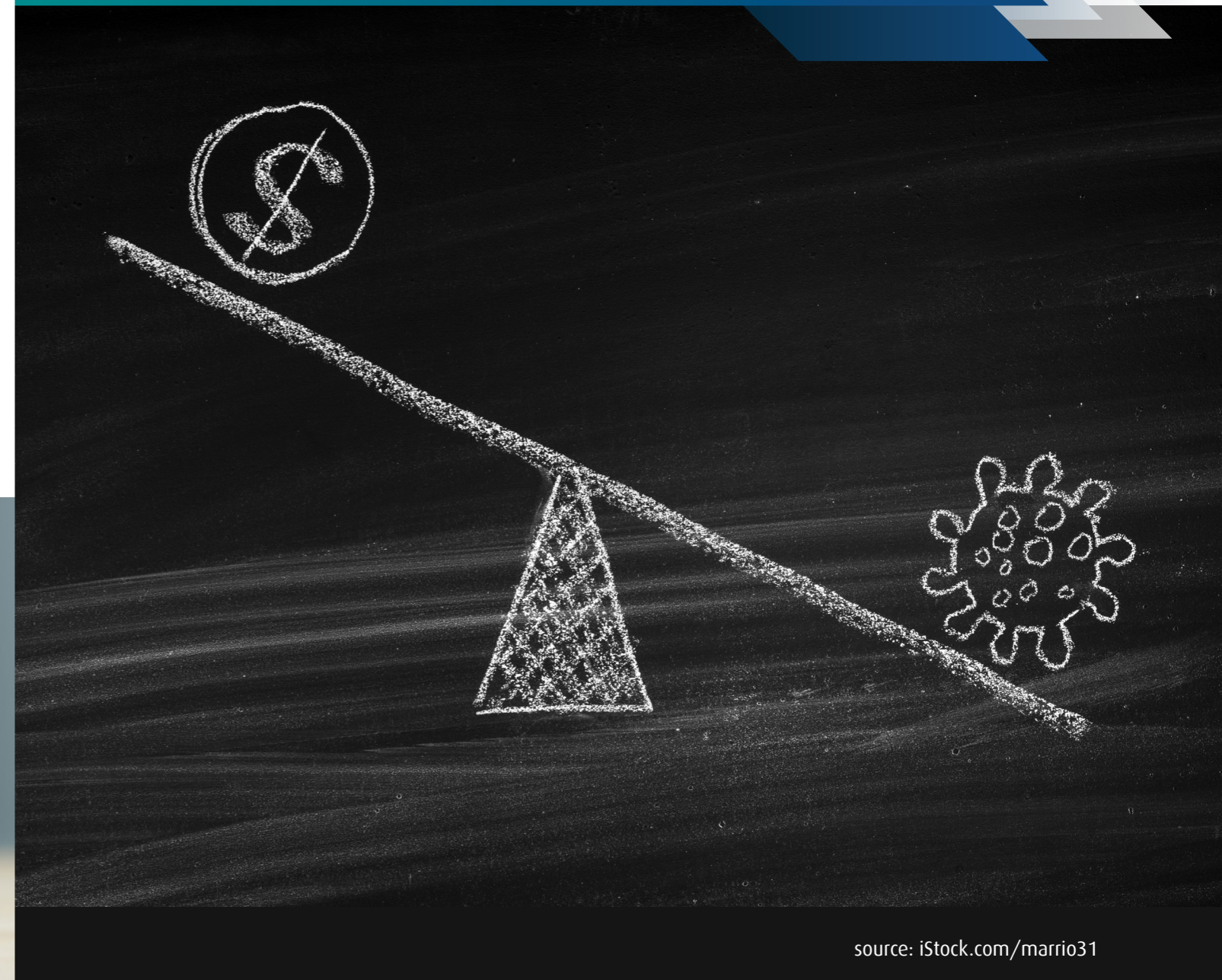
National plans and initiatives addressing plastics and marine debris are supported by the ASEAN Regional Action Plan on Combating Marine Debris 2021-2025, adopted in May 2021. This regional plan proposes an integrated approach based on circular economy solutions to address marine plastic pollution in the ASEAN region through 14 actions at three key stages of the value chain: (1) Reduce Inputs into the System, (2) Enhance Collection and Minimize Leakage, and (3) Create Value for Waste Reuse.²⁷

The Consolidated Strategy on the Fourth Industrial Revolution (4IR) for ASEAN, adopted in October 2021, recognises the role that 4IR technologies can have in addressing environmental issues such as climate change.²⁸ It refers to the Framework for Circular Economy for the ASEAN Economic Community but doesn't elaborate on the linkages between 4IR and circular economy.



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4. THE IMPACT OF THE COVID-19 PANDEMIC IN ASEAN



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The COVID-19 pandemic has had a serious impact on the ASEAN Member States. It has highlighted some weaknesses of the region's economies and their ability to support people's livelihoods and wellbeing, for example, related to food security. The health crisis has also accelerated changes in several economic sectors, creating new challenges and opportunities for a shift to circular economy. This section first overviews some of the major impacts of the pandemic in ASEAN, with implications for circular economy. It then describes in more detail how the crisis has affected agriculture and food systems, and how the adoption of circular practices could help overcome some of the challenges currently facing this sector. Next, it shows how the COVID-19 crisis has accelerated digitalisation and how this has contributed to a restructuring of international value chains. Finally, it discusses how public and private funding could be mobilised for a circular economy transition in ASEAN.

Agriculture and food

The pandemic has caused a drop in employment opportunities and hurt the livelihoods of many people, making it challenging to afford nutritious food.²⁹ The crisis has also revealed how vulnerable complex, multi-tiered food value chains often are. With a decreasing share of the population producing their food themselves, the food industry is essential for both health and economic well-being in the ASEAN region. Food value chains provide not only essential nutrition to ASEAN populations, but is also driving a large share of economic output and employment – it contributes around US\$500 billion of economic output in the region equivalent to about 17 percent of ASEAN's total GDP. The industry also accounts for approximately 113 million jobs in ASEAN.³⁰

In some countries, complex and inflexible food distribution chains couldn't quickly adapt to new demand patterns, resulting in both increased generation of food waste and rising food prices for consumers. During lockdowns when restaurants were closed, many food suppliers had difficulties establishing new distribution channels to serve supermarkets and households. As a result, large amounts of food products remained unsold and turned bad. At the same time, when households stopped visiting restaurants and prepared more meals at home the supply through supermarkets and other food markets was insufficient, resulting in shortages and increasing prices.

Industrial production and supply chains

The pandemic has disrupted supply chains not only for food but for a variety of industrial products and demonstrated the business risks of geographically spread-out production systems. Producers in the region have been struggling with the supply chain disruptions caused by COVID lockdowns and changing demand patterns. ASEAN countries have an important role as suppliers of parts and intermediate goods in regional supply chains. For example, production volumes in Thailand and Malaysia have been particularly impacted in 2021.³¹

In response to these risks, many companies are now reviewing the way their production systems are structured and exploring how to make them less vulnerable. As a result, a trend towards deglobalisation can be seen, where companies move production closer to their main markets and try to source materials and components more locally. This shift had started already before the pandemic struck, enabled by automation technologies that reduce the cost advantages of low-wage labour.³²

Waste and recycling

The pandemic has generated several new challenges for the waste sector. For example, the increasing use of personal protective equipment such as face masks, surgical gloves, and disposable gowns has led to growing volumes of waste. These items are typically designed for single-use and often contain

plastics mixed with other materials, making them hard to recycle. The risk of contamination further complicates the reuse or recycling of such items.

Another challenge is due to the increased use of food delivery services, which often rely on single-use plastic packaging. During lockdowns and to reduce the risk of getting infected, many households have used these services instead of eating out or shopping for groceries and cooking at home. In most cities in Southeast Asia, systems for collection and recycling of delivery food packaging don't exist and few companies offer reusable options. Such packages are commonly made of low-cost plastics, such as polystyrene, and therefore have low value for recyclers. In addition, used packages are often greasy and would need to be washed before recycling, making them even less attractive for recyclers.

Since few cities and communities in the region have well-established collection systems for recyclables, most of the existing recycling relies on informal waste collectors and dump scavengers. The pandemic and the related lockdowns have in many cases disrupted these activities, leaving increasing amounts of recyclables uncollected.

In 2020, a low oil price further hurt the recycling of plastics – recycled plastics became less competitive when the low cost of oil made virgin polymers cheaper. Recently, the price of oil has increased and the plastics recycling industry is recovering. However, the 2020 crisis has demonstrated the business risks this industry is facing and likely made potential investors cautious.

4.1 IMPACTS ON AGRICULTURE, FOOD PROVISIONING SYSTEMS, AND FOOD SECURITY

Over the past decade, agriculture's contribution to ASEAN economies, as well as the labour force engaged in agriculture have been declining. Before the onset of the COVID pandemic, ASEAN countries already faced challenges to their food production capacity due to climate change and related disaster events, declining arable land and freshwater resources, and the ever-present pests and diseases.

The COVID-19 pandemic has impacted lives and disrupted livelihoods in the ASEAN region, and this remains an important concern given recurring waves of infections as economies reopen. The impact of COVID-19 on food security is due to impacts on food production, the supply chain from "farm to table," food affordability and nutrition among consumers, particularly the poor.³³

Food security is one area where the COVID-19 crisis is having a strong negative impact in Southeast Asia. Loss of jobs and declining incomes have made it difficult for many people to afford sufficient amounts of food and to maintain a healthy diet. These difficulties have been felt most strongly among low-income households, especially those with livelihoods in the informal sector, which employs over 70% of the region's workforce.

The pandemic, and the movement restrictions introduced to slow down the spread of the virus, have also disrupted food production systems and supply chains. Reduced food supply led to increasing prices, making it even more challenging for poor households to meet their need for nutrition. Already before the pandemic, low-income households in Southeast Asia spent a high share of their available income on food and therefore had small margins to deal with price hikes.

Circular solutions to food waste reduction and resource recovery

A circular economy approach to food systems in ASEAN would help address a range of related issues such as near-capacity landfill sites, food insecurity, and environmental degradation from food production. Transitioning food systems in ASEAN countries to a circular economy would help to increase resilience in agricultural production, reduce food losses and post-consumer waste while making communities more sustainable and decreasing the climate impact.³⁴

Re-designing food systems based on the principles of circular economy can help address the food waste challenge in the ASEAN region by making food value chains shorter and more resource-efficient. Currently, it is estimated that almost one-third of all food produced globally is lost or wasted, failing to contribute to food security and nutrition. Table 1 shows the amounts of food waste generated each year at the household level in the ASEAN countries (plus Timor-Leste).³⁵

Table 1: Household food waste estimates per country, per capita and total (countries in alphabetical order)

Country	Household food waste estimate (kg/capita/year)	Household food waste estimate (tonnes/year)
Brunei	80	34,742
Cambodia	86	1,423,397
Indonesia	77	20,938,252
Lao PDR	86	618,994
Malaysia	91	2,921,577
Myanmar	86	4,666,125
Philippines	86	9,334,477
Singapore	80	465,385
Thailand	79	5,478,532
Timor-Leste	86	11643
Vietnam	76	7,346,717

As a result of the high generation of food-related waste, in most ASEAN countries, a large fraction of municipal solid waste is organic. In Malaysia for instance, studies show that organic waste contributes about 45 percent of the total municipal solid waste (MSW) generated.³⁶ Circular solutions to this challenge, such as biogas and biofertilizer production from organic fraction municipal solid waste, have great potential. To enable such practices, governments will however need to revise existing policies that often inhibit circular business models for organic waste unnecessarily (such as free landfill collection or some unnecessary restrictions on the treatment of food waste). Creating loops for the food system instead of disposing of food waste can decrease the strain on agricultural resources and the environment.³⁷

Finding circular solutions to food waste can also unlock new business opportunities. In Singapore for example, food waste management start-ups are applying artificial intelligence solutions to help hotels and restaurants reduce their food waste by up to 40 percent. In Thailand, an anti-food waste start-up has launched a smartphone application to connect eco-conscious Bangkok residents with bakeries, cafes, supermarkets and restaurants. These businesses fill up their unsold inventory in “surprise boxes,” which customers can purchase at discounted prices ranging from 50 percent to 80 percent off and get them delivered to their homes.³⁸

Circular practices in food systems, regenerative agriculture and bio-waste valorization

These opportunities refer to business models that are involved in regenerative agricultural practices, including the use of agricultural or domestic waste to produce compost or animal feed. The agricultural sector, at the first stages of the food supply chain, can play a vital role in this process through the adoption of regenerative methods of farming and the use of organic fertilizers generated from food waste, manure, or human waste.

An example of this type of business model is found in Thailand, where public and private organizations have launched the Regenerative Coconuts Agriculture Project (ReCAP) to transform coconut farming practices through regenerative agricultural techniques that improve soil health.³⁹ Specific circular practices valorizing agricultural waste include revaluing manure, spent grain and wood chips to produce compost, potting soil and other derivatives. Coconut husks, food waste from hospitality businesses and urban organic waste can produce biogas and heat generation.

Agroecology and circular economy

According to the FAO, aligning circular economy with agroecological approaches and with the solidarity economy can reconnect food producers and consumers.⁴⁰ These combined approaches prioritize local markets and strengthen local economic development by creating virtuous cycles. This responds to the issues associated with long and complex food value-chains mentioned above, including their vulnerability to disruptions and their high generation of food waste.

Agroecological approaches promote fair solutions based on local needs, resources and capacities, creating more equitable and sustainable markets. Strengthening shorter food system loops can increase the incomes of food producers while maintaining a fair price for consumers. These include new innovative markets, alongside more traditional territorial markets, where most smallholders market their products. Participatory guarantee schemes (PGS), local producer’s markets, denomination of origin labelling, community-supported agriculture and e-commerce schemes can all help link local producers and consumers.

An example is the PGS in the Philippines, established in 2020 to support organic agriculture in the country. The PGS are locally focused quality assurance systems of organic products certification which small farmers can afford, and which provides access to healthy and safe farm products. As an alternative to third-party certification, the new PGS plays a vital role in rural development and farmer empowerment and engagement throughout the whole process of verification, decision making, and marketing.⁴¹

Other examples of circular opportunities in the agricultural sector are related to the (re)use of resources in agriculture that have the potential to enhance the sector. An example from Viet Nam is a project that worked with over 15,000 small-scale farmers, including women and ethnic minorities, to strengthen their capacities to cope with changing climate conditions. Through the project, farmers learned how to more efficiently use natural resources (especially water) and were able to adapt to increasing water salinity by introducing the intercropping of rice, fruits, and vegetables and rotational systems for rice and shrimp. The project also supported farmers’ efforts to improve their soil fertility management practices.⁴²

4.2 CONSEQUENCES FOR DIGITALISATION AND RESTRUCTURING OF INTERNATIONAL VALUE CHAINS

The COVID pandemic has seen an acceleration of digitalisation across the world, in supply chains, society at large, including the ASEAN region. Automation and Industry 4.0 trends in manufacturing have also been accelerated.

There have been efforts to expand economic opportunity across ASEAN countries, and minimize the negative impact of the COVID-19 crisis, by equipping underserved communities with critical ICT skills to leverage the digital economy, and raise awareness of this opportunity among senior ASEAN stakeholders.⁴³

Even before the Covid pandemic crisis, skills shortages and high youth unemployment were a concern in many ASEAN countries. In their analysis of Indonesia's COVID recovery, the OECD has recommended stepping up vocational education and adult training, with an emphasis on digital skills.⁴⁴ Digital skills are also key to accelerating Industry 4.0 development in manufacturing.

ASEAN Member States' governments recognise the importance of keeping up with this recent wave of digitalisation. To do so requires major investments not only in technology and infrastructure, such as high-speed broadband connections but also in human capacity and skills. Particular needs include increasing the ability of rural micro-entrepreneurs and MSME owners to grow their businesses by utilizing ICT tools and online markets and improving the ability of unemployed and underemployed individuals to participate in the digital economy.

4.3 IMPACTS ON PUBLIC AND PRIVATE FINANCE FOR CIRCULAR INITIATIVES

Key to financing circular economy solutions in the COVID recovery will be to improve the policy environment and measures to foster alternative and non-traditional financing through increasing the availability of diversified sources of private financing.

Particularly for small- and medium-scaled companies and entrepreneurs, access to finance remains limited. Small and medium-sized enterprises and ventures are expected to be disruptors of the linear model and drivers of the circular economy. Most commercial financiers are unlikely to support these projects and SMEs because they are too small and do not have enough track record of borrowing. Innovative finance models are needed for projects and companies trying to establish and scale-up circular models.

When it comes to financing circularity projects in manufacturing enabled by Industry 4.0 solutions, risks and return profiles are very different from conventional projects. This is because Industry 4.0 is creating new products and services, and their markets are not confirmed and therefore considered risky. Conventional financial due diligence is unlikely to evaluate the long-term benefits and potentials of these projects properly.⁴⁵ In the SDG context, countries have been using an increasingly diverse set of instruments such as blended finance, impact investing, public-private partnerships (PPP) and bond issuances. These instruments can help mobilize additional private resources.

An example of financing circular economy through public-private blended finance is the United Nations Development Programme (UNDP) partnership with the Indonesian finance ministry to support a sovereign green sukuk (bond), which raised US\$2.75 billion from three annual issuances. This sukuk

demonstrates the vital potential to leverage Islamic finance partnerships for green investments: such partnerships could potentially also be a vehicle for financing the circular economy.

Innovative blended finance models offer opportunities to combine circular principles, such as zero waste or zero emissions, with Islamic finance principles such as zero interest and zero foreclosures. Blended financial contracts could provide incentives to mobilizing funding for impactful SMEs, saving costs as well as generating revenue for self-sustainability. In the contract design, the private sector provides capital and philanthropic stakeholders pay for the costs of funds, while the public sector facilitates and backs the initiatives. Since the blended nature of these contracts provides a social subsidy to fund the cost element of the financing, the proposed structure can create a win-win result for the stakeholders involved.

Blended Islamic finance models could attract additional resources towards enhancing development impact in areas of low-cost housing or solar energy, while the funding structure will reduce risk perception. Furthermore, Islamic social finance tools – Zakat (mandatory almsgiving), Sadakah (charitable giving) and Waqf (endowments) – are aligned with the spirit of the SDGs.



5. GREEN AND CIRCULAR ECONOMY ELEMENTS IN EXISTING RECOVERY STRATEGIES



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ASEAN Member States have already made initial plans for their post-COVID-19 recovery, both individually and jointly at the regional level. However, there remains much need and opportunity to apply levers for long-term economic development such as national budgeting, regulatory frameworks, and investments to prioritise the opportunities that a green and circular recovery offers.⁴⁶

This section reviews some of the most comprehensive of the existing plans and identifies elements of green or circular development that could be replicated by other countries in ASEAN or other regions. It also identifies planned activities that do not have an explicit focus on circular economy but that provide opportunities to promote circular economy practices, such as capacity strengthening programmes for MSMEs.

5.1 NATIONAL RECOVERY PLANS AND INITIATIVES

The Singapore Green Plan 2030⁴⁷ was launched to enhance sustainable practices across industries. It includes a S\$60 million (approx. US\$44 million) budget allocation for the Agri-Food Cluster Transformation Fund, which has the aim of meeting 30 percent of the city's nutritional needs locally by 2030. Furthermore, S\$30 million is allocated for accelerating the adoption of electric vehicles. Singapore has also issued S\$19 billion of green bonds.

The Malaysian government introduced a stimulus package to encourage energy efficiency and renewable energy transition, including improving LED street lighting and 1.4 gigawatts worth of tender contracts for solar power and transmission lines, which it estimates will attract US\$1 billion in private investment and create 25,000 jobs.⁴⁸

Indonesia's plan targets community adaptation and resilience. With assistance from the Asian Development Bank (ADB) it will utilise a US\$500 million loan to enhance the Disaster Resilience Improvement programme⁴⁹ aimed at reforming the country's risk management and health emergency programmes. The country's recovery plans also include support for MSMEs and strengthened incentives for businesses.⁵⁰ While these measures currently don't aim to promote circular solutions and other green practices, there are opportunities for doing so.

The government of the Philippines, through the Duterte administration's 4-Pillar Socioeconomic Strategy Against Covid-19,⁵¹ rolled out support for food-security and fishery programmes for enhancing the most vulnerable sectors and small businesses against future health and climate crises. These are measures where the promotion of circular practices, such as regenerative agriculture, could be included.

5.2 REGIONAL LEVEL – ASEAN COMPREHENSIVE RECOVERY FRAMEWORK

The ASEAN Member States are working together on how to recover from COVID-19 and the 37th ASEAN Summit in November 2020 adopted the ASEAN Comprehensive Recovery Framework. The Framework identifies actions related to how countries can re-open economic activities, recover from the crisis, and build greater resilience for the future (referred to as the 3Rs model). Since the ASEAN Comprehensive Recovery Framework is a high-level statement indicating shared key priorities of the ASEAN Member States, it is relevant to explore how a transition to circular economy could be mainstreamed into these activities. The main text of the Framework provides many openings for including circular economy in the region's collaborative initiatives, especially in the following four areas.

Market integration and rules harmonisation

The Framework stresses the need for efforts to increase intra-ASEAN trade and investment, including through the elimination of technical barriers to trade (non-tariff barriers). Specific activities mentioned include the development of toolkits, the establishment of an independent advisory panel/rapporteur(s), and the possible development of an ASEAN investment facilitation framework. The continued market integration in the region, underpinned by the adoption of harmonised rules and standards, provides opportunities to ensure that agreed rules favour more sustainable, circular and low-carbon activities.

Capacity to handle cross-cutting issues

The Framework notices that the ASEAN recognized early on the importance of a whole-of-ASEAN-community approach to deal with the pandemic and established the ASEAN Coordinating Council Working Group on Public Health Emergencies (ACCWG-PHE). This body has representation from all three Community Pillars of ASEAN and provides support to the ASEAN Coordinating Council (ACC) in coordinating ASEAN response efforts. The experience of working with a mechanism that cuts across the three pillars of ASEAN could be valuable when considering how to advance a circular economy transition in a way that engages ASEAN Secretariat staff and government officials from multiple policy domains.

A sustainable development path

The Framework concludes that the COVID-19 pandemic highlights the need to give higher priority to resilience and sustainability. It states that ASEAN shall step up efforts to promote sustainability and socially responsible policy-making, in line with the UN 2030 Agenda for Sustainable Development, at national and regional levels. It also says that these considerations need to go beyond “the past primary doctrine of efficiency,” promoting sustainable use and management of natural resources and supporting the region’s transition to circular economy. This strengthened emphasis on sustainability, including the recognition that more efficient use of resources is by itself insufficient for achieving that objective, and an explicit mentioning of the region’s transition to circular economy indicates a high-level recognition of the need to intensify cooperative actions on circular economy policies and practices.

Human resources and skills development

The Framework highlights the importance of human resources development for the future of ASEAN Member Countries and calls for more systematic integration of “21st century skills and competencies” into technical and vocational education and training, as well as higher education curricula. It also notes the role of MSMEs in ASEAN economies and calls for enhancing entrepreneurship and skills development of this sector. A circular economy where products are designed for long use-life, regularly maintained, refurbished, reused, repurposed or remanufactured, and where materials are recycled with high quality will be labour-intensive and requires a range of new skill-sets that are currently in short supply. This includes not only manual skills and technical know-how but also managerial knowledge and skills related to strategic materials management, green entrepreneurship, and the operation of circular business models. For ASEAN to step up a shift to a circular economy, it needs to recognise this need and invest in developing the needed human resources.

The ASEAN Comprehensive Recovery Framework also includes an annex, which lists several more specific initiatives. Some of these initiatives have great potential to incorporate circular economy promotion and help advance a circular economy transition, including the ones shown in Table 2.

Table 2. Selected initiatives included in the ASEAN Comprehensive Recovery Framework and related opportunities to promote a shift to circular economy

Initiative	Circular economy opportunity
Implement the ASEAN Guidelines on Promoting Responsible Investment in Food, Agriculture and Forestry; and Promoting high-value industries, sustainability, and productivity in agriculture.	Make sure that circular agricultural practices are properly integrated into the implementation. For example, circular nutrients management, techniques for improved soil health, waste minimisation, and productive use of unavoidable waste and by-products.
Human capital development in rural areas.	Make sure that human capacity development for rural development includes sustainable agriculture techniques, including circular economy practices such as nutrient circulation, sustainable soil management, and energy recovery from waste biomass.
Building green infrastructure and addressing basic infrastructure gaps.	Review all urban infrastructure initiatives from a circular economy perspective and make sure that circular city practices are fully integrated in these activities. This includes for example systems for high-quality processing of organic waste (if possible for animal feed, biogas generation and/or biofertilizer), circular building and construction (enabling repurposing, component reuse, and easy material recycling).
Roadmap and Action Plan on Smart Manufacturing (as part of adoption of digital technologies in ASEAN businesses).	Include circular production practices as part of smart manufacturing, for example waste minimisation through more effective use of materials.
Digital upskilling of MSMEs.	This could include awareness-raising on circular economy business models with examples of how digital tools can facilitate circular practices.
An ASEAN SME Recovery Facility as a multi-contributor and co-financing platform.	Make sure that the facility has competence in the field of circular economy and can advise SMEs on the benefits and practical implementation of circular economy practices.
Promoting sustainable financing.	Make sure that all ASEAN initiatives promoting sustainable financing recognise the role of circular business models and practices in a sustainability transition. Inspiration for how this can be done can be taken from the work of the UNEP Finance Initiative on Financing Circularity and the EU Taxonomy for sustainable activities.

6. OPPORTUNITIES TO INCORPORATE CIRCULAR ECONOMY IN COVID-19 RECOVERY PROCESSES



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Already before the pandemic, the Economic Research Institute for ASEAN and East Asia (ERIA) stated that the “flawed linear model is no longer fit for ASEAN, which has also become the fastest-growing region in term of resource consumption.”⁵² The pandemic impact has shown that a strategic shift for many sectors in ASEAN economies is required. Some aspects of this necessary shift have been discussed in this paper. In this final section, we provide suggestions on how ASEAN could emerge stronger post-pandemic, by utilising and promoting circular economy practices through the economic recovery process.

6.1 A FAIR AND INCLUSIVE CIRCULAR ECONOMY TRANSITION

The pandemic has deepened the issues of poverty and widened the gap between the poor and the wealthy.⁵³ This growing inequality threatens social cohesion and hampers the region’s ability to realise its development vision. Reflecting this reality, it is necessary to base recovery and job creation efforts on the principles of just transition and inclusiveness.

A relevant regional framework is the “Declaration on Promoting Green Jobs for Equity and Inclusive Growth of ASEAN Community,” which was adopted in 2018.⁵⁴ Given the pandemic recovery needs and the official acknowledgement of the importance of a “just transition” to a clean energy system in the official Glasgow Climate Pact⁵⁵ from November 2021, a renewed ASEAN approach to just transitions is needed. During the 26th ASEAN Labour Ministers Meeting held in October 2021, the Union Network International Asia and Pacific Regional Office (UNI-Apro) Regional Secretary Rajendra Acharya made a strong case for strengthened occupational health and safety protections as well as for a just transition in the wake of the pandemic.⁵⁶

6.2 FOOD SYSTEMS AND THE BIOECONOMY: STRATEGIC SECTORS FOR A SHIFT TO CIRCULAR ECONOMY

Integrating circularity principles into local, national and regional bioeconomy development will be key to avoid potential trade-offs between different development objectives. Developing new economic sectors based on bio-resources holds great potential, but risks related to biodiversity protection, protection of rural livelihoods and food security need to be fully recognised and carefully managed.⁵⁷ A sustainable and circular bioeconomy will be important to build food systems resilience.

A regional ASEAN approach to bioeconomy governance will be important to connect local and national initiatives, and serve the function as a meso-level mechanism that connects the local level to the wider international level. A regional ASEAN approach would facilitate engagement on key principles for sustainable and circular bioeconomy between international stakeholders such as the Food and Agriculture Organization (FAO) Bioeconomy Programme and the ASEAN Ministers on Agriculture and Forestry (AMAF) vision of food security, climate resilience and green recovery.

6.3 LEVERAGING FINANCING FOR A CIRCULAR ECONOMY TRANSITION IN THE CONTEXT OF COVID-19 RECOVERY

Leveraging private capital for circular economy investments through publicly funded economic stimulus packages will be important. To this end, establishing green financial policy guidelines at the regional level are required to shift the wider financial sector.

The ASEAN Capital Markets Forum (ACMF) can be a strong driving force for circular finance initiatives for recovery. Pre-pandemic, the ACMF developed the ASEAN Green Bonds Standards in 2018 to facilitate ASEAN capital markets in tapping green finance to support sustainable regional growth and meet investor interest for green investments.⁵⁸ The most recent initiative is the ASEAN Taxonomy for sustainable finance published in November 2021, which includes the transition to a circular economy as one of the key four environmental objectives.⁵⁹ Shifting investments towards circularity will have significant

effects on manufacturing practices based on recycling and reuse, operational activities utilising recycled and recyclable materials, and sorting and reusing secondary materials.

Furthermore, ASEAN countries should review their development finance assessment processes related to the SDGs and identify new opportunities to finance circular economy solutions to make progress towards the SDGs. The development finance assessment and integrated financing solutions process have been designed to help governments identify areas for strengthening their management of all resources for the SDGs.⁶⁰ A development finance assessment post-pandemic can offer a 'big picture' perspective on circular economy and SDGs, and it can aggregate and assess analysis across all types of finance and the existing policy and institutional structures in ASEAN countries.

6.4 OPPORTUNITIES FOR PARTNERS AND DEVELOPMENT AGENCIES TO SUPPORT THE REGIONS' TRANSITION TO CIRCULAR ECONOMY

In the post-pandemic recovery context, international development agencies can support ASEAN in several ways. One natural starting point for such assistance is the already existing recovery plans where, as discussed in this paper, there are ample opportunities to include elements of circular economy promotion. This can also include supporting the development of new national strategies and roadmaps for circular economy across a range of sectors including waste, food systems and bioeconomy, environmental industry, smart manufacturing and eco-industrial parks, as well as digitalisation for circular systems.

One focus area for the circular economy in ASEAN, in addition to the areas already discussed above, can be plastics and waste with goals and policy instruments for each area of the waste hierarchy, including support for dedicated plastics action plans to prevent pollution and help reduce the production of problematic, non-essential and non-recyclable plastics. Here, development cooperation should prioritise technical assistance to ASEAN countries to develop and implement legal and fiscal measures to ban or reduce unnecessary, problematic, and non-recyclable plastic. Furthermore, implementing locally appropriate extended producer responsibility (EPR) schemes to ensure businesses benefiting from single-use plastic contribute to its proper management.

Multilateral platforms and partnerships on circular economy, such as Global Alliance on Resource Efficiency and Circular Economy (GACERE), should be used to leverage private investment for circular economy solutions in the ASEAN. GACERE can facilitate policy exchange, but also enable collaboration between producers and consumers across priority value chains such as electronics, textiles and garments, plastics packaging, batteries, and food and agriculture. Supporting suppliers and SMEs in the ASEAN in these value chains will be crucial to achieving more circular outcomes.

Improved knowledge management is another area where assistance can help accelerate a circular economy transition. An ASEAN Circular Economy Stakeholder Platform, inspired by a similar initiative in Europe, is currently under development. This new regional facility, with effective support, could be an important mechanism for sharing experiences, identifying gaps and weaknesses to be addressed and launching new regional initiatives.

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