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Reinforcing the Circle: Proposals for ASEAN's Circular Economy Framework

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ABSTRACT

The Framework for Circular Economy for the ASEAN Economic Community was released in October 2021, but elements of its conceptualisation and operationalisation remain indistinct. To understand how these shortcomings can be addressed and clarified, this paper assesses the principles and policies underpinning the circular economy strategies of three ASEAN member states - Indonesia, Vietnam and Singapore. They are selected because of their differing technical and institutional capacities. This paper also looks to the example of the European Union (EU) to understand how other regional groupings have approached the circular economy. With this understanding of how the three member states interpret the circular economy and the limits of their capacities, in conjunction with how the EU organised its policies to pursue circularity, the paper suggests that ASEAN create a monitoring framework, limited Extended Producer Responsibility (EPR) scheme and SME matchmaking platform to substantiate and support the grouping's approach towards circularity.

KEYWORDS: ASEAN, ASEAN Framework on the Circular Economy, Circular Economy, European Union, Sustainability, Waste Management

1. Introduction

The circular economy is a topic that has recently gained traction in the policy landscape of the Association of Southeast Asian Nations (ASEAN). With many ASEAN Member States (AMS) facing problems associated with pollution and climate change, the need for better waste management policies has grown. Moreover, the ravages of the COVID-19 pandemic have also emphasised the need for ASEAN to enhance the efficiency of its production model for both environmental and competitive reasons, in order to secure the region's place amid global value chains. As such, the launch of the Framework for Circular Economy for the ASEAN Economic Community in October 2021 was a welcome move by the grouping as it sought to chart a holistic path of economic development.

However, even as observers await ASEAN's action plan on the circular economy, there are concerns that bear addressing. Scholars have shown scepticism over the coherence of the concept, and it is unclear how to operationalise its basic thrust. The Framework does not explain how its strategic priorities and principles will lead to a new economic model for the region. In such a circumstance, in which many aspects of the circular economy's

conceptualisation and implementation remain nebulous, it would be challenging for ASEAN to convince its citizens and businesses of the seriousness of its efforts.

Nonetheless, as we argue in this paper, ASEAN can and should be proactive in demonstrating its seriousness on the circular economy. The grouping lacks the institutional and technical capacities to pursue ambitious recycling mandates at present. However, its member states face similar environmental challenges, and have embarked on national policies to encourage circular practices such as recycling, albeit to varying degrees of success. This paper argues that these common principles and legislative groundwork provide a strong foundation for AMS to pursue three deliverables that, modelled on the experiences of the European Union (EU), would support future policies in the circular economy: specifically, a monitoring framework, an Extended Producer Responsibility (EPR) scheme, and a scheme to support Small and Medium Enterprises (SMEs) in their sustainability efforts.

This paper will proceed as follows. It will commence with a brief discussion of the conceptual background of the circular economy, noting the areas of debate while highlighting generally accepted principles. It will then discuss the ASEAN Framework's features and its implications for the region's development, but also the areas that it leaves conceptually and operationally indistinct. This will be followed by case studies of Indonesia, Vietnam and Singapore – AMS that have different levels of technical and institutional capacities, but who all have policies pertaining to the implementation of the circular economy. By understanding their shared challenges and ideas, and how the EU embarked on in its own circular economy journey, it would be possible to identify key policies that provide a foundation for future circular efforts at the regional level. Mapping these policies (a monitoring framework, EPR scheme and SME support scheme) unto ASEAN's Framework would both substantiate its strategic priorities and establish an operational foundation for future policies. It would, in short, demonstrate to observers that the circular economy is more than a branding exercise.

2. Circular Economy as a Development Paradigm

There are several points which one may identify as the origin of the circular economy, A general conception of a model that could satisfy the dual imperatives of economic growth and environmental sustainability can be traced back to Brundtland Report (United Nations 1987) which popularised the term “sustainable development”, while others may trace the concept of a circular economy back to the writings on ecology in the 1960s (Boulding 1966). The concept of a circular economy itself was most first introduced by scholars Pearce and Turner (Pearce and Turner 1990) in their influential book *Economics of Natural Resources and the Environment*, which bounced off the idea of sustainable development introduced three years earlier by emphasising the role of environmental economics. Its idea of a circular economy locates its contribution to sustainability within industrial ecology.

While the concept of a circular economy has since been developed and caught with a “definitional quagmire” (Corvellec et al 2021), there have been earnest attempts to find a basic definition at its core (Kirchherr et al 2017). Briefly, it advocates the transition from a flat, linear economic model where materials are harvested, used, and then disposed of, to a circular one, where the materials have a prolonged life cycle. By reducing waste and reducing the need to

use more materials to produce products, resource efficiency and sustainability can be achieved. In practice, the circular economy can be installed through the society-wide implementation of by several “R’s”, the most famous three perhaps being “reduce, reuse, and recycle”. Some academics have broadened this to 9 different “R’s”¹ (see e.g. van Buren et al. 2016), each with different gradations or options in its circularity.

The circular economy therefore promises the decoupling of economic growth from the use of resources and its associated environmental impacts (Lazarevic and Valve, 2017), but without ignoring the importance of economic conditions. Instead, it has been touted to provide a win-win solution for both businesses looking to grow and increase their revenues, as well as those seeking to advance environmental action. A prominent advocate for the circular economy, the Ellen MacArthur Foundation (2020), has for example suggested that circular business models can not only have higher overall profits and manage risks, but also contribute to a sustainable transition. Indeed, alongside needs to better manage the waste flows, there is a clear focus on the economic conditions needed to support circular transitions on a societal level.

Yet, the circular economy has been viewed with scepticism and criticised from several angles, with scholars raising questions on a range of issues, *inter alia* its definitional coherence and environmental credentials (see Kovacic et al 2020; Corvellec et al 2021). Having spawned a healthy collection of literature, the circular economy is far from a settled subject in academic circles. Furthermore, the concept has made its way into policymaking circles, having been pushed by generally the corporate sector rather than established scholars. This is perhaps unsurprising, as Corvellec et al argue policymakers can leverage on the circular economy’s “deliberately vague, but principally uncontroversial” character as a strength, utilising “creative ambiguity” to push through a policy framework that can satisfy multiple interest groups with contradictory goals – though it still remains to be seen if it will truly satisfy any of them (Corvellec et al 2021, pp.2). This success of the circular economy initiatives will be contingent on a range of factors, including a shift to renewable energy (see Haas et al 2015), an examination of different conditions, and a careful implementation of policies.

3. ASEAN’s approach to the Circular Economy

Commentary on the confines and purchase of the circular economy continues, but this has not stopped ASEAN policymakers from incorporating the term into its policy landscape. The Framework for Circular Economy for the ASEAN Economic Community, launched in October 2021, was the most recent culmination of policy interest in the area for ASEAN. As shown in Table 1, the Framework’s goals include creating a resilient economy, enhancing resource efficiency and pursuing sustainable growth, incorporating elements of the 9Rs such as reusing, remanufacturing and recycling. Moreover, the contents of Table 1 also show how the Framework expands the definition of the circular economy to include areas such as trade facilitation and digital economic development. This merges two branches of thought behind the circular economy: altering the flow of materials in an economy through measures such as recycling, and fostering the economic conditions needed to support such changes.

¹ The 9Rs, in fact, refer to a set of 10 core principles that are associated with the circular economy. They are: refuse, rethink, reduce, reuse, repair, refurbish, remanufacture, repurpose, recycle and recover.

Table 1 – Main Features of the ASEAN Circular Economy Framework

Goals (3)	Resilient Economy Resource Efficiency Sustainable and Inclusive Growth
Guiding Principles (6)	<ol style="list-style-type: none"> 1. Promote ASEAN integration and develop regional value chains 2. Consider the broader impact on the economy and society 3. Recognise the unique circumstances of each ASEAN country 4. Encourage ASEAN-wide Coordination on knowledge/tech sharing 5. Evaluate financial and institutional feasibility before implementation 6. Function within the realities of international production lines
Strategic Priorities (5)	<ol style="list-style-type: none"> 1. Standard harmonisation and mutual recognition 2. Ensure trade openness and facilitation 3. Innovation, digitalisation and emerging technologies 4. Sustainable finance and innovative investments 5. Efficient use of energy and other resources
Enabling Factors (4)	<ol style="list-style-type: none"> 1. Policy framework and institutions 2. Enhanced awareness and competences across sectors 3. 4IR technologies 4. Partnership and collaboration

Source: ASEAN 2021

ASEAN’s broad policy approach towards the circular economy is ostensibly tailored to construct an umbrella term for its overall economic development. Indeed, the fourth and fifth strategic priorities of the Framework touch on the serious challenges of climate change and resource depletion. A recent report by Nanyang Technological University and the University of Glasgow warned that ASEAN as a region could lose over 35% of its GDP by 2050 as climate change threatens key sectors such as tourism and agriculture alongside health and labour productivity (Renaud et al 2021). A September 2020 briefing to the European Union Parliament pointed out that Southeast Asia lost one-sixth (376,000 km²) of its forests between 1990-2020, driven in large part by farming, mining and logging (Russel 2020, pp.2). Moreover, the grouping’s member states also need to chart a path towards economic recovery from the COVID-19 pandemic. In this regard, the circular economy’s emphasis on efficiency through the harnessing of technological advances could help ASEAN to gain a competitive edge against other regions in terms of production, reinforcing their position in global trade and supply chains. These needs are accounted for with the second and third strategic priorities in Table 1. Inherently, the Framework is not only aimed at providing a basis for ASEAN to address environmental and sustainability-related challenges, but to reposition their economic practices both to support this push for reforms and to benefit from it.

However, considering the ongoing discussion about the circular economy, there are serious questions about the conceptual viability of ASEAN’s broad and inclusive policy approach, and hence the grouping’s long-term ability to chart a path forward. While the Framework paints a picture of how priorities ranging from sustainable finances to digital development will enhance ASEAN’s economic resilience and sustainable growth, it does so with broad strokes that omit key details. There is little indication of how the strategic priorities in the Framework will collectively support the pursuit of a circular economy, with the list of proposed initiatives reading more like a policy wish-list than a rigorously defined set of policies. Terms such as “environmentally sound technologies... that promote [the circular economy]” are left unexplored (ASEAN 2021, pp.8). Moreover, the Framework does not explain how its priorities will be synergised operationally with other ongoing ASEAN initiatives such as the Masterplan for ASEAN Connectivity 2025 (MPAC 2025) and the ASEAN Digital Masterplan 2025 (ADM 2025), even as its proposals intersect with the purviews of these other documents (ASEAN 2021, pp.9).

Such conceptual concerns would hold little relevance to businesses, which would be more interested in how government policies might affect their operations. Surveys suggest that Small and Medium Enterprises (SMEs), particularly in Singapore, are warming to the idea of incorporating sustainable practices in their business operations, but are hindered by a lack of knowledge about executing relevant initiatives as well as a lack of financial support (UOB 2022). While the Framework paints an alluring picture of a regional circular economy, a lack of specific business-support schemes leaves observers sceptical of its seriousness. One might even argue, albeit cynically, that the “circular economy” is a policy buzzword for ASEAN policymakers to drum up support for their developmental policies by proposing mutually beneficial, or “win-win” outcomes (Corvellec et al 2021, pp.6).

The nebulous definitions in the Framework, as well as unaddressed concerns from businesses, may muddy the waters of both policy debates and public conversations about the concept. Yet even as we wait for policy revelations under the upcoming action plan for the circular economy (ASEAN 2021, pp.4), it would be prudent to consider the kinds of deliverables that would best-position the region to develop its circular economy. Given ASEAN’s intergovernmental nature and predication on consensus-based policymaking, such deliverables should be based on policy work that is already ongoing in its member states, and avoid sensitive topics such as deforestation for the best chance of success. This may seem challenging at first, given the wide disparities in sustainability policies and practices among the grouping’s member states – nonetheless, common themes and policies suggest a cautious optimism for a regional approach.²

Differences in Technical and Institutional Capacities

Understanding the effectiveness of these policies requires observers to take a closer look at not just the policy landscape in these countries, but factors such as technical and institutional capacities as well. The respective technical and institutional capacities of most AMS are shown in Table 2, which follows the index scores from the World Economic Forum’s

² A curated list of waste management policies across ASEAN is available in Table 12 in the appendix.

Readiness for the Future of Production Report 2018. While Singapore ranks highly in terms of factors such as regulatory efficiency and orientation of its government towards change, over half of AMS rank below the 50th percentile in their overall scores in both areas. In particular, Vietnam is the lowest ranking AMS in technology and innovation, which measures issues such as expenditures in research and development and technology, and Indonesia is among the lowest-ranked in institutional frameworks, as well as the lowest in regulatory efficiency.

Table 2 – Tech and Institutional Framework Scores for AMS, FOP 2018 Report

Country	Tech/Innovation (Score, Rank / 100)		Cluster Development (Rank/100)	R&D / GDP (Rank/100)	Patent Application (Rank/100)	Investment in Tech (Rank/100)
	Score	Rank				
Singapore	7.36	6	9	17	13	12
Malaysia	5.85	23	12	30	36	11
Thailand	4.56	41	58	62	60	35
Philippines	4.02	59	54	89	68	54
Indonesia	4.00	61	24	96	83	30
Cambodia	3.28	83	43	92	88	47
Vietnam	3.09	90	59	84	73	50

Country	Institutional Framework (Score, Rank/ 100)		Regulatory Efficiency (Rank/100)	Incidence of Corruption (Rank/100)	Orientation of Govt ³ (Rank/100)	Rule of Law (Rank/100)
	Score	Rank				
Singapore	9.13	1	1	7	1	9
Malaysia	6.56	30	7	40	7	37
Thailand	5.01	51	59	72	45	55
Vietnam	4.99	53	65	78	43	51
Indonesia	4.59	64	94	66	23	75
Philippines	4.35	76	64	72	68	78
Cambodia	3.09	100	92	100	67	99

Source: World Economic Forum 2018

Given these rankings, Indonesia, Vietnam and Singapore provide interesting case studies for observers studying circular economy approaches in ASEAN. The three AMS share common environmental and sustainability challenges that influence their conceptualisation of the issue, including waste management and climate change, but their policy journey and implementation efforts would be hindered by their technical and institutional capacities. In

³ Orientation of government refers to the government's responsiveness to changes in the policy environment.

doing so, it would be possible to shed light on areas for improvement for all three AMS, and a path forward for ASEAN to embrace a regional circular economy approach.

4. Examining the Circular Economy in Indonesia, Vietnam and Singapore

This section explores the circular economy in its various forms in three AMS – Indonesia, Vietnam and Singapore. Indonesia’s understanding of the circular economy is predicated on its excessive production of waste, resource depletion and the effects of climate change. The country is one of the world’s biggest contributors of plastic waste, and the World Bank estimated that 4.9 million tons of plastic waste was mismanaged out of a total of 7.8 million tons that Indonesia produced in 2021 alone (World Bank Group and ADB 2021, pp.46). This not only has significant implications for the health of Indonesian citizens, but also threatens tourism revenues. Furthermore, Indonesia has struggled with resource depletion, with forest cover cleared to make way for agricultural purposes, and is ranked 38th of 181 countries facing climate risks due to flooding and extreme heat (World Bank Group and ADB 2021, pp.12). Seeking to embrace circular practices is thus a response to these challenges.

Figure 1 – Search Trends for “*ekonomi sirkular*” in Indonesia



Policy discourse on the circular economy in Indonesia, however, is complex, and there is no official definition of the topic despite some officials offering their own interpretations of it at official events. Google search engine trends suggest that “*ekonomi sirkular*” (circular economy in *Bahasa Indonesia*) only became popular in Indonesia around 2012, as seen in Figure 1. However, discussions about environmentally friendly and sustainable practices have a much longer history. Indonesia’s constitution, for instance, guarantees each citizen’s right to enjoy a “good and healthy” in Article 28H (1) (adopted after the fall of the Suharto government in 1998), and requires the state to utilise natural resources for the “optimal welfare of the people” (Fasa 2021, pp.344). Granted, the utility of these statements is questionable given that the exact meaning of “good and healthy” is not explicitly defined, and Butt and Murharjanti argue that this right has been underutilised in Indonesian courts (Butt and Murharjanti 2021, pp.34-36). Nonetheless, Indonesian policymakers have continued pursuing circularity based on their own

understandings of the term. Typically, these have revolved around five of the “9Rs” (reducing, reusing, recycling, recovering and revaluing), though the emphasis on each term varies from ministry to ministry (Rudiyanto 2021).

Vietnam has been one of ASEAN’s biggest economic success stories of the past decade, and emerged as one of the clear winners of manufacturing relocation activities that occurred during the U.S.-China trade war. However, this economic success has also fuelled environmental problems. Vietnam is the world’s fourth largest contributor to marine plastic pollution (IUCN 2019), with the volume of solid waste generated growing at a consistent 10% per annum (Jager and Munchau, 2020). 71% of the generated waste is sent to landfills, but these are quickly reaching capacity; Vietnam’s capital, Hanoi, was faced with a “waste crisis” in 2021 when the city’s two biggest landfills were closed for three days due to overcapacity. Moreover, resource depletion is another significant issue. Vietnam underwent an intensive process of deforestation in the 1990s that depleted over half the forest area that was present in the early 1900s, and over two-thirds of the remaining natural forest is considered to be of “poor” or “recovering” quality while low land forests have been almost completely depleted (ADB 2022, pp.9). Deforestation has in turn exacerbated water issues, with many irrigation schemes in the country operating at 60-70% capacity (ADB 2022, pp.18). Lastly, Vietnam faces climate change risks, with the most significant impact expected to be a 6-11% reduction in the maximum catch potential of ocean fisheries by 2050, and is ranked 43rd of 181 countries in this category (World Bank Group and ADB 2020, pp.17). Therefore, these push factors have encouraged Vietnam’s leaders to embrace a circular economy model.

Vietnam’s exploration of the circular economy is much more explicit than Indonesia. While implicit references to circular economy practices such as using technologies that minimise waste and promoting environmentally friendly packaging appeared in government documents in 1998 (Directive No.36/1998/CT-TW) and 2004 (Resolution No.41-NQ/TW), the circular economy concept was explicitly mentioned for the first time in a Politburo document in Resolution 55 on the National Strategy on Energy Development (2021-2030), where it was linked to the efficient use of energy and sustainable development. It was also defined in the Environmental Protection Law of 2020 as a model in which design, production, consumption and service activities are geared towards reducing resource extraction and emissions (“reduce” and “recycle”), prolonging the lifespan of products (“reuse”, “refurbish” and possibly “repurpose” and “repair”) and minimising the environmental impacts of production activities. Resolution 55 also linked the concept of the circular economy with sustainable growth. This definition has become the legal interpretation of the circular economy in Vietnamese policy circles, providing much-needed clarity in comparison to the vaguer understanding of the term in Indonesian policy documents.

Though Singapore’s approach to the circular economy is rooted in similar concerns about waste management, the island state is less concerned about resource depletion and more concerned about the effects of climate change and leveraging economic opportunities. Singapore faces lower climate change risks as compared to Indonesia and Vietnam, ranking at 167th out of 181 countries (BEH 2021, pp.54-57); nonetheless, as a low-lying territory that

imports most of its food, rising sea levels and food shortages could just as easily pose an existential crisis (MEWR Singapore, pp.6-8). Furthermore, a common feature of Singapore government messaging on the circular economy is the rapidly filling status of the country’s only landfill off Pulau Semakau; with Singapore citizens disposing roughly 8,669 tonnes of solid waste per day by 2018, the landfill is expected to reach its capacity by 2035 (Akenji et al 2020, pp.74). Meanwhile, the Singapore government has embedded its narrative on the circular economy on the need to pursue sustainable growth and economic opportunities amid climate change restraints. This is best described by the country’s Zero Waste Masterplan, released in 2019, whose goals have been described as building climate resilience, resource resilience and economic resilience (MEWR Singapore, pp.8-9). The document also articulates the government’s understanding of the circular economy as an approach, describing it as a method “where scarce resources are valued and kept in use for as long as possible” (correspondingly, “reduce”, “reuse”, “repair”, “refurbish”, “repurpose” and “recycle”).

Table 3 – Policy Challenges Underpinning the Circular Economy

Country	Waste Management	Resource Depletion	Climate Change Effects	Economic Opportunities / Sustainable Growth
Indonesia	Yes	Yes	Yes	Yes
Vietnam	Yes	Yes	Yes	Yes
Singapore	Yes	N/A	Yes	Yes

Table 4 – CE Principles Espoused by Indonesia, Vietnam and Singapore⁴

Country	Refuse	Rethink	Reduce	Reuse	Repair	Refurbish	Remanufacture	Repurpose	Recycle	Recover
ID			✓	✓				✓	✓	✓
VN			✓	✓	✓	✓		✓	✓	
SG			✓	✓	✓	✓		✓	✓	

Table 4 offers a comparison of the different circular economy principles espoused by Indonesia, Vietnam and Singapore, and shows that most of their principles overlap. Taken in conjunction with Table 3, which shows that the three AMS face almost identical environmental challenges, there is a strong foundation for a regional understanding for the circular economy.

Policy Developments in Indonesia, Vietnam and Singapore

Policy frameworks on the circular economy must build on the country’s respective understandings of the concept to achieve their desired goals. Though the exact policy process

⁴ The following table is based on the principles espoused via the terminology of official government documents, and does not necessarily reflect the practices of the private sector.

depends on the political system and procedures of the company in question, the basic components of a robust policy ecosystem for circularity are largely consistent. There should be a law that specifies key definitions and acts as a basis for future legislation; a series of financing policies to leverage private sector resources to boost a state’s technical capacity; and an overarching strategic document such as a masterplan or a government decree to provide strategic guidance and policy direction.

Indonesia

Indonesia’s approach to the circular economy is anchored on the Waste Management Law (No.18/2008), which provides specific definitions of waste categories and waste reduction, and stipulates that waste should be segregated at its source (Akenji et al 2020, pp.52-53). It is from this legal basis that subsequent masterplans, action plans and regulations were developed. Government Regulation (GR) No.81/2012, for example, provides details on the preferred management of waste (Akenji et al 2020, pp.52-53). Importantly, it gives a legal basis for an extended producer responsibility (EPR) scheme, which encourages manufacturers to create systems to collect and process goods to extract value from them (though Indonesia has yet to enact such a scheme). A series of other schemes at the sub-national level followed, including efforts to charge shoppers Rp200 (S\$0.019) for plastic bags in 2016 (Wikanto 2016). A curated list is shown in Table 5.

Table 5 – Indonesian Policies on the Circular Economy

Policy Outputs	Aims	Responsible Ministries
Assessment for Green Industry Standard (SIH) implementation	Encourage industry players to practice more sustainable production models	Ministry of Industry (MOI)
Company Performance Appraisal (PROPER)	Incentivise companies to adopt sustainable principles	Ministry of Environment and Forestry (MOEF)
Support circularity in the energy sector	Encourage businesses to embrace circular practices	Ministry of Energy and Mineral Resources (MEMR)
Sustainable public procurement	Ensure public procurement is based on sustainable principles	Multi-ministries

Source: Fasa 2021

However, a key challenge one can observe from Table 5 is that there is no single masterplan on the circular economy in Indonesia at present. Policies have been routinely released at national and sub-national levels, alternating between single-sector and multi-sector approaches, and sometimes duplicating the work done by earlier initiatives. This lack of coordination can be largely attributed to the decentralisation of government functions that occurred in Indonesia during the 2000s, with different ministries not only expected to handle

their own responsibilities and initiatives, but with local governments also expected to provide services such as waste management (Akenji et al 2020, pp.52-53). Indeed, a notable feature of the Indonesian waste management landscape is that there is no central agency tasked with monitoring or implementing circular economy policies, and inter-city and inter-municipal cooperation on waste management issues is rare. Consequently, there is often a lack of institutional and technical capacity to handle the collection and segregation of waste (United Nations 2020, pp.30), a factor exacerbated by a lack of private sector investors. A World Bank report described Indonesia's waste management sector as "strongly underfunded" at a rate of \$5-6 per capita/per annum, as compared to an international benchmark of \$15 per capita/per annum, and owing in large part to a lack of confidence from the private sector amid "unreasonably high risks" (World Bank Group 2018, pp.4).

Even so, recent years have yielded some promising developments in terms of coordination and measures to attract financing. In 2018, the Indonesian government launched a National Action Plan on Marine Debris (2017-2025) through the combined efforts of 13 government ministries, with the aim of reducing marine plastic debris by 70% from the 2017 baseline by the end of 2025 (Government of Indonesia 2018). A year later, a National Action Plan on Waste Management (*Jakstranas*) was launched in collaboration between MOEF and the UN Environment Programme to more specifically target plastic waste production (MOEF Indonesia 2019). Though it is still too early to assess the success of these plans, the prospect of greater coordination and policy direction from Jakarta would help Indonesia's circular economy ambitions take flight. Moreover, the Indonesian government has also taken steps to address financing issues by implementing a Green *Sukuk*⁵ project in 2021 to fund efforts to enhance climate change resilience, breaking ground as the first product to combine the principle of sharia financing and sustainability (MOF Indonesia 2021). A financing roadmap was also launched in November 2020, outlining a plan to attract US\$18 billion in investments between 2017 and 2040 to support overall sustainability (NPAP Indonesia 2020, pp.3). Though it remains a work in progress, Indonesia appears well positioned to better coordinate circular economy policies, and accelerate efforts to leverage financing to develop circular practices.

Vietnam

In comparison to Indonesia, Vietnam has adopted an incremental series of resolutions and laws to address environmental issues, providing both policy direction and a firm foundation on which to build their circular economy approach. A selection of these are listed in Table 6, and show how, under Vietnam's novel policy ecosystem, this progression of documents functioned.⁶ At the party level, the Politburo adopted Resolution 41 in 2004 on environmental

⁵ A *sukuk* is an Islamic finance certificate that is used in place of a normal bond. As interest is not permissible under Islamic law, *sukuk* issuers tend to purchase an asset using the proceeds from the sale of the certificate, and offer the investors direct partial ownership in the asset.

⁶ In Vietnam's political system, the State regulates society under the leadership of the Communist Party of Vietnam. In practice, the Party sets out guidelines on certain issues (resolutions), which the State follows when passing laws. The main organs of the State include the National Assembly (the legislature), the Government (the executive) and the People's Courts and the People's Procuracies (the judiciary). Further, once a law is ratified, a decree will be adopted to guide its implementation, while a circular will be adopted to clarify certain articles in the decree if the need arises.

protection during industrial activities, explicitly singling out the need for practices such as environmentally friendly packaging and recycling and providing a broad mandate for environmental policy. This guidance was built upon at the National Assembly level with the introduction of the Environmental Protection Law (EPL) in 2005, which provided a legal instrument to regulate corporate responsibilities for waste management. Furthermore, the government clarified the implementation of the law through numerous decrees, and provided strategic direction and leadership by creating numerous action plans on waste management, including the National Action Plan on Sustainable Production and Consumption (2020-2030) in 2016, and the National Strategy on Solid Waste Management in 2009.

In terms of ministries, the Ministry of National Resources and Environment would have prime responsibility for overseeing and coordinating circular economy policies. Other ministries would be involved with the work as well, including the Ministry of Planning and Investment (to engage businesses and exchange knowledge on best practices) and the Ministry of Industry and Trade (to coordinate implementation plans with local industries and oversee changes to trade policies).

Table 6 – Recent Circular Economy Policies in Vietnam

Type	Document Name / Year	Description
Party Res	Res No.41/2004	On measures to protect the environmental during industrial activities
Strategy	National Strategy of Integrated Solid Waste Management / 2009	Aims to minimise the usage of non-biodegradable plastic bags etc. Approved by Decision No.2149/QD-TTg
Law	Env Protection/2014	Outlines corporate responsibilities for waste management
Decree	Dec No.19/2015/ND-CP	Clarifies some articles in the 2014 Env Protection Law, e.g. Offers incentives (e.g. subsidies and tax exemptions/reductions) for environmental protection related business activities
Decree	Dec No.38/2015/ND-CP	On waste management and sorting of waste for recycling
Law	Env Protection/2020	Consists of 16 Chapters and 171 Articles, one of which (Article 142) enshrines the circular economy concept in law
Strategy	AP on Marine Plastic Debris Management/2020	Aims to reduce marine plastic waste by 50% by 2025 and by 75% by 2030. Regulated by Decision No.1746/QD-TTg in 2019
Decree	Dec No.08/2022/ND-CP	On implementing EPR under the revised EPL

The culmination of this journey was the imposition of a mandatory EPR scheme under Vietnam’s revised EPL in 2020, which took effect on 1 January 2022 and imposes fines on companies that fail to create systems to support the recycling of their products. Specific locales such as Ho Chi Minh city have also established regulations for consumers, threatening

households that fail to sort waste at source with fines of between VND15-20 million (US\$656.74 – 875.66) (Akenji et al 2020, pp.86-88).

However, a key shortcoming of Vietnam's policy ecosystem has been its inability to leverage financial capital. Though the Vietnam Green Growth Strategy (2011-2020) called for capital markets to play a key role to achieve the country's sustainability goals, and the state has laid out strategies for the development of green bond markets since 2014, corporate financing for circular economy projects has been lacking. According to the State Bank of Vietnam, there were 67 institutions funding green projects in the first quarter of 2021, accounting for only 3.6% of total outstanding loans, and up a mere 0.46% compared to 2020 (VCCI 2022). Between 2016 and 2020, while neighbours such as Malaysia and the Philippines signed 15 and 14 green bond issuances respectively, Vietnam only signed five deals (Climate Bonds 2020, pp.5).

The reasons for this lack of activity are linked to concerns about risk and profitability. Vietnam lacks a supportive legal framework to address risk issues pertaining to waste management and other sustainability issues (Climate Bonds 2020, pp.5). There is no institutional monitoring system for waste in Vietnam (UNESCAP 2021, pp.113), making it difficult for officials and observers alike to assess the progress of their circular economy goals even if incentive and disincentive structures exist. Furthermore, Vietnam's waste management sector is largely focused on low-quality plastics, presenting limited business prospects to would-be investors (Akenji et al 2020, pp.86-88). Consequently, Vietnam relies on informal actors and small-scale material recovery facilities for waste management, limiting the sector's growth potential via economies of scale (UNESCAP 2021, pp.113).

A further challenge concerns the scattered nature of Vietnam's circular economy policy landscape. In contrast to Indonesia, which lacks coordination from the top, Vietnam's government tends to issue decrees to clarify or resolve outstanding issues from previous policy documents. While this encourages an active policymaking process, it also causes confusion for businesses trying to navigate a constantly shifting policy landscape, dissuading some from joining broader circular economy groups and initiatives (Lan Anh 2021). A survey by the United Nations Environment Programme (UNEP) and Food Industry Asia (FIA) found that over 76% of Vietnamese food and beverage businesses which responded to the survey chose to address plastic waste internally despite their limited capacity, and were not part of external groups and initiatives (UNEP and FIA 2020). The 2020 Law on Environmental Protection was intended to address these areas of confusion by consolidating Vietnam's circular economy policies under a single document. Yet even that document was not exhaustive, omitting clear regulations on areas such as e-waste (Lan Anh 2021).

Nonetheless, even as Vietnam's government continues the Sisyphean task of updating their circular economy policies, it appears to be taking steps to better leverage capital markets. The introduction of a Securities Law in November 2019 and Decree No.153/2020/ND-CP on the issuance of corporate bonds in December 2020 is expected to address risk concerns (Climate Bonds Initiative 2021, pp.23). As the green bond market in Vietnam gains momentum, additional efforts should be taken to support the waste management sector; for example, Vietnam could partner with neighbouring countries and dialogue partners to launch pilot

projects, and generate investor interest by demonstrating the viability and potential of the local waste management sector.

Singapore

Singapore, by comparison, has an extensive ecosystem of policies to support the development of the circular economy. Policies such as the Environmental Public Health Act (1987), the Prevention of Pollution of the Sea Act (1990) and the National Environment Agency Act (2002) not only created a firm legislative stance against littering, but also began including terminology and building structures to encourage reusing, reducing and recycling. The 1987 Act, for example, said that occupiers of a workplace may be required to recycle or treat industrial waste at their own expense before sending it for disposal (Government of Singapore 1987, Article 28). More specifically, the National Environment Agency (NEA) was empowered to prescribe and implement regulatory policies on recycling, as well as oversee training requirements for matters on waste recycling and other matters of environmental health (Government of Singapore 2002, Article 12). Indeed, the circular economy is a largely centralised concept in Singapore's (already centralised) policy landscape, with the Ministry of Sustainability and Environment (MSE) working with the NEA and related agencies to address circularity issues (Carriere et al 2020, pp.12). This centralisation was further strengthened by the Zero Waste Masterplan in 2019 and the Resource Sustainability Act (which came into partial effect in January 2020 and includes an EPR).⁷ The Masterplan specified three priority waste streams (food waste, e-waste and packaging waste) and aims to reduce waste sent to Semakau Landfill by 30% by 2030 (MEWR Singapore, pp.88-89).⁸ Indeed, Singapore has generally provided clear strategic direction and foresight in its policies. This reflects its high scores in the FOP index in Table 2 in terms of regulatory efficiency and responsiveness.

In comparison to its neighbours, Singapore also has ample technical and financial capacity to support its circular economy policies. Though Singapore saw a sevenfold increase to its solid waste generation from 1970-2018 to 8,669 tonnes per day (Akenji et al 2020, pp.74), it has relied on waste-to-energy (WTE) incineration plants to reduce waste volumes and conserve landfill space. Singapore is also in the midst of building a S\$1.5 billion (US\$1.1 billion) Integrated Waste Management Facility (IWWMF) in Tuas, due to be completed over two phases in 2024 and 2027. Once complete, the IWWMF would be capable of incinerating 5,800 tonnes of waste per day in its WTE facility, and is also expected to supplement this capacity with material recovery facilities and food waste treatment (Akenji et al 2020, pp.75). Moreover, Singapore's circular economy policies are supported by a burgeoning green finance ecosystem. The island state had the biggest green bond market in ASEAN by late 2020, with the cumulative value of certified climate bonds, social bonds and green loans totalling US\$11.9 billion

⁷ In Singapore, a bill becomes law and is known as an Act of Parliament ("Act") when it receives presidential assent. The key features of the Resource Sustainability Act that came into force in January 2020 included the establishment of an EPR framework and penalties for providing false or misleading information, with sections on packaging and e-waste coming into force in July 2020 and July 2021 respectively. Other sections, such as one on the mandatory segregation of food waste, have yet to enter into force (Allen & Gledhill 2020).

⁸ Singapore's Environment Ministry changed its name from the Ministry of the Environment and Water Resources (MEWR) to the Ministry of Sustainability and Environment (MSE) in 2020.

(Climate Bonds Initiatives 2021, pp.2). In fact, the net proceeds from each green bond issuance would be allocated to finance or refinance green projects in areas such as sustainable waste management (NEA 2021b). Compared to Indonesia and Vietnam, Singapore not only has the requisite policy framework to begin transitioning towards a circular economy, but the necessary technical capacity and financing support to do so as well.

Singapore’s main challenge, however, is encouraging the participation of its public in efforts to transition towards a circular economy. The island state has launched numerous recycling campaigns in recent years, including the Recycle Right campaign in 2014, which placed a recycling bin at the bottom of every public apartment block to encourage Singaporeans to voluntarily recycle their waste. It has also included recycling targets in its Zero Waste Masterplan, aiming to achieve a 70% overall recycling rate, an 81% non-domestic rate and a 30% domestic rate by 2030 (MEWR Singapore, pp.88-89). Yet this target is still out of reach; in fact, as seen in Table 7, Singapore’s recycling rates have fallen across the board from 2017-2020, with the domestic recycling rate in particular plummeting from 21% in 2017 to 13% in 2020 (MSE 2021, pp.4).

Table 7 – Recycling Rate Goals and Data in Singapore, 2017-2021

	Goal (2030) (%)	Recycling Rates (%)				
		2017	2018	2019	2020	2021
Overall Recycling Rate	70	N/A	61	59	52	55
Non-Domestic Recycling Rate	81	76	75	73	68	70
Domestic Recycling Rate	30	21	22	17	13	13

Source: MSE 2021

This trend is not necessarily because Singaporeans do not care about the environment. A 2019 Ipsos report reported that 55% of Singaporeans deemed climate change as the top environmental issue for policy attention, and 78% recognised their behaviour as having an impact on the environment, especially concerning the use and disposal of plastics (IPSOS 2019). Rather, two concerns come to mind. First, disruptions during the pandemic led to lower construction activity and export demands for recyclables, lowering overall recycling rates in 2020 (Begum 2022). Second, there appears to be a lack of awareness of how to recycle. A survey by MSE reported that 50% of respondents stated that they recycled plastic drink bottles, while 39% said they recycled food containers (NEA 2019). The fact that plastic recycling in Singapore hit a low of 4% in 2020 (MSE 2021, pp.4) despite these sentiments suggests that Singaporeans lack knowledge of recycling procedures, particularly the need to remove food waste from recyclables before disposing of them (Tong 2021). It was estimated in 2022 that 40% of the contents deposited into blue recycling bins cannot be recycled due to contamination (NEA 2022).

Singapore policymakers have recognised this need for better information about recycling, and have launched public awareness campaigns such as the Recycle Right 2022 campaign to educate Singaporeans. Singapore’s recycling rate even increased slightly from 52% in 2020 to 55% in 2022. However, these efforts will likely take time, and may not reach their intended audiences before Singapore’s recycling targets come due in 2030.

Summing Up

These case studies of Indonesia, Vietnam and Singapore show the problems that each AMS faces in trying to implement circular economy policies. All three AMS share similar or compatible understandings of the circular economy, though they each face different implementation challenges. Indonesia suffers from a lack of policy coordination and technical capacity, while Vietnam’s lack of technical capacity is exacerbated by a lack of a supportive financial ecosystem. Singapore is arguably at a more advanced stage of implementation as compared to the former two, but also faces problems in trying to increase its recycling rates.

In particular, one area where the three AMS overlap is an EPR framework. While Indonesia has yet to implement an EPR mechanism, Vietnam and Singapore are in the process of implementing EPR schemes to target waste streams such as packaging and e-waste.⁹ The two AMS adopted mixed systems of governance for their EPR schemes, requiring producers and importers to pay fees to external bodies (namely Vietnam’s Environmental Protection Fund and Singapore’s designated recycler, ALBA) for waste management services while also making them responsible for ensuring sufficient collection points. However, such schemes are in their infancy and are limited by AMS’ technical capacity to process waste. Moreover, even though EPR schemes typically mandate compliance from producers through the threat of fines, low regulatory capacities may still limit businesses participation. Even as efforts to educate consumers through a combination of pricing mechanisms (i.e. inducing noncompliant producers to raise their prices through fines) or scattered recycling campaigns continue, there is a clear need for a more engaging approach to ensure the buy-in of both parties.

Coordinating a regional approach amid the disparate circumstances and capacities of each AMS will be challenging, but not impossible. As will be discussed in the next section, ASEAN can draw on lessons from the experiences of the European Union to supplement its own circular economy journey. Though the two groupings are very different in terms of capacities and structure, the EU’s experimentation with a regional EPR, circular economy monitoring frameworks and support for small and medium enterprises (SMEs) could provide a conceptual framework for ASEAN to consider and address its own needs, particularly concerning the ability to ensure buy-in from both consumers and producers. It could also help ASEAN to put the strategic priorities of its Framework into context, and create a more operationalised plan to pursue them going forward.

⁹ A more detailed description of EPR frameworks in Vietnam and Singapore is included in the appendix.

5. Lessons from the European Union – EPR, SME Support and Monitoring

As AMS seek to address their circular economy policy needs, there will be a need to address an incremental series of needs. An EPR is a key step towards proving the viability of circular economy policies in the region. However, the successful implementation of an EPR depends on a suitable monitoring framework, and should be accompanied and followed by programmes to support the sustainability efforts of SMEs.

Circular Economy Policies in the European Union

The EU provides important lessons in this regard. The grouping defines a circular economy as a way to “maintain the value of products, materials and resources for as long as possible by returning them into the product cycle at the end of their use while minimising the generation of waste”, moving beyond the basics of “reducing, reusing and recycling” to include “refurbishing and repurposing” as well (Eurostat 2022). Its reasons for promoting the circular economy are similar to those of ASEAN, encompassing the need to manage its waste output, resource consumption and the effects of climate change (Expertise France and GIZ 2018, pp.12-13), though the EU also seeks to reinforce its identity as a global leader in sustainable development (Lenschow and Sprungk 2010) and spur economic growth. An overview of the EU’s policy timeline is included in Table 8, incrementally increasing in complexity from the initial directives to the circular economy action plan of 2020, the EU’s most ambitious roadmap to date that outlines a more legislated (as opposed to voluntary) approach to circular practices.

Table 8 – Timeline of EU Policies on the Circular Economy

Year	Policy Type ¹⁰	Policy Title
1994	Directive	EU Directive 1994/62/EC on Packaging and Packaging Waste
1999	Directive	EU Directive 1999/31/EC on the Landfill of Waste
2008	Directive	EU Waste Framework Direction 2008/98/EC (WFD)
2011	Roadmap	Roadmap to a Resource Efficient Europe
2012	Directive	EU Directive 2012/19/EU on Waste Electrical and Electronic Equipment
	Manifesto	Manifesto for a Resource Efficient Europe
2014	Roadmap	Roadmap for the Circular Economy

¹⁰ In the EU, a “directive” is a binding legislative act that, while setting out goals for member states, leaves implementation to states’ discretion. These form the legal framework of subsequent legislation. A “roadmap” is an early step in the law-making process that sets out new ideas for regional initiatives, or proposes reviews of ongoing initiatives. A “manifesto” is a public declaration of policy aims, while a “strategy” expands on this to connect policy aims to a series of means. An “action plan” goes further yet to offer a series of concrete proposals that lays out specific priorities and objectives, and the steps that need to be taken to achieve these.

2015	Action Plan	Action Plan for the Circular Economy
2018	Package (Strategy, framework and directive)	Circular Economy Package. Includes: <ul style="list-style-type: none"> - Strategy for Plastics in a Circular Economy - Monitoring Framework for the Circular Economy - EU Directive on Reducing the Impact of Plastics (2019)
2020	Action Plan	Circular Economy Action Plan <ol style="list-style-type: none"> 1) Creating a products policy framework 2) Prioritising amongst sectors such as electronics and Packaging 3) Reducing waste 4) Creating a secondary market for raw materials 5) Exploring domestic waste processing instead of shipping it overseas 6) Making circularity work for people

Sources: European Commission, Expertise France and Giz 2018

One notable policy instrument that the EU has experimented with to considerable effect is a regional EPR. EPR first appeared in the early 1990s in a handful of EU member states, but has since expanded to encompass the entire grouping (EXPRA 2016, pp.1). Grounded in EU directives such as 2012/19/EU on Waste Electrical and Electronic Equipment and elaborated under the revision of the 2008 WFD in 2018, there are many different variations of EPR instruments, including “product take-back requirements” via collection targets for specific products; “economic and market-based instruments” to provide financial incentives for producers such as deposit refund systems; “regulation and performance standards” with mandatory recycling rates; and “information-based instruments” that raise public awareness through labelling and information campaigns (Pouikli 2020, pp.495-496). These arrangements can be seen as more advanced than the current mechanisms in AMS, which do not focus as strongly on incentives for producers or information campaigns.

The mixed EU approach to EPR governance, by comparison, is similar to that of Vietnam and Singapore. Producers either shoulder full responsibility for waste management, pay a third party to manage it for them or adopt a combination of the two (Pouikli 2020, pp.499). It is estimated that producers pay around €3.1 billion worth of annual fees to support EPR schemes across Europe. Nonetheless, an important point is that entrusting more responsibilities on producers has not only encouraged producers to design their products and packaging to be easier to recycle, but also driven up recycling rates (Expertise France and GIZ 2018, pp.48-49). Indeed, the recycling rate of packaging waste in Europe increased from 47.8% in 1998 to 64.8% in 2020 (Eurostat 2022).

Another noteworthy instrument is the monitoring framework that the EU adopted in 2018 as part of a package of circular economy policies. With 10 main indicators split across four categories (as seen in Table 9), the monitoring framework measure different aspects of the circular economy performance for member states and the EU as a whole. For example, indicators in the first category of production and consumption indicate how self-sufficient the

state is, while the second category of waste management tracks the progress in recycling waste in different industries. This not only allows for periodic assessments of a country’s performance vis-à-vis circular economy efforts such as an EPR scheme, but also facilitates necessary adjustments to be made to elements such as the prioritisation of waste streams.

Table 9 – The EU Monitoring Framework on the Circular Economy

Categories	Monitoring Areas
Production and Consumption	<ol style="list-style-type: none"> 1. EU self-sufficiency from raw materials 2. Generation of municipal waste per capita 3. Generation of waste (excluding major mineral waste) per GDP unit 4. Generation of food waste
Waste Management	<ol style="list-style-type: none"> 5. Recycling rate of municipal waste 6. Recycling rate for specific streams (excluding major mineral waste) <ol style="list-style-type: none"> a. Includes e-waste, biowaste and construction waste
Secondary Raw Materials	<ol style="list-style-type: none"> 7. Contribution of recycled materials to raw materials demand 8. Trade in recyclable raw materials
Competitiveness and Innovation	<ol style="list-style-type: none"> 9. Private investment, job and gross value added to circular economy sectors 10. Number of patents related to recycling (to show innovation)

Source: Eurostat 2022.

In addition, the EU has implemented a wide-ranging series of policies to assist SMEs with strengthening their capabilities to embrace circular economy practices. Much like ASEAN, SMEs represent a significant proportion (99%) of businesses in the region by number, and account for 66% of total private sector employment (Eurostat 2022). While European SMEs face fines and other legal pressures to adhere to sustainability rules (European Commission 2022), they also receive ample support from EU initiatives to make their operations more sustainable. On one hand, this includes training and advisory services through platforms such as the European Resource Efficiency Knowledge Centre. Under the 2018 Circular Economy Package, professionals from private sector consultancies such as KPMG also worked with EU organisations to support SMEs with technical advice, and reached over 800,000 SMEs in the process by 2019 (European Commission 2020). Financial institutions such as the European Investment Bank (EIB) have also offered financial support to SMEs seeking circularity; for example, EIB signed an agreement with De Lage Landen (DLL), a global vendor finance company in the Netherlands, to create a €100 million credit facility for Dutch and Belgian companies (EIB 2018). The Enterprise Europe Network (EEN) also offers tailored suggestions for SMEs to build international development strategies, and has helped them to connect to new business partners in places such as Japan (Enterprise Europe Network 2022).

This is not to say that the EU is a paragon of circular economy practices. The progress of its member states in adopting CE practices varies widely, with Western European economies such as Germany and Belgium leading the charge while those from Central and Eastern Europe lag behind; this phenomenon is known as a “two-speed Europe” (Mazur-Wierzbicka 2021, pp.9). The performance of the monitoring framework has been questioned, with some observers criticising it as lacking specificity and favouring waste generation and recycling processes at the expense of prolonging the life cycle of products (Pacurariu et al 2021, pp.13). The EU has had trouble hitting its own recycling targets, with the growth of the recycling rate for packaging waste largely stagnating after 2011 and even declining in the case of cobalt (Eurostat 2022). Moreover, the EU has its own implementation challenges to compensate for, such as structural limits that make individual waste management a shared competence (EXPRA 2016, pp.5).¹¹

All the same, the relative success of this grouping’s policies in improving its recycling rate holds useful lessons for ASEAN. The monitoring framework, rolled out recently in 2018, could be repurposed as a mechanism to support policies such as an EPR. The incorporation of SMEs also acknowledges the important role they play in the European economy, and emphasises the importance of sustainable growth in the EU’s circular economy vision.

6. Proposals for ASEAN

Learning from the EU’s example, our proposals for ASEAN can be separated by timeframe, ranging from the short to medium term. These will be predicated on the general lack of technical capacity that afflicts AMS (with the exception of Singapore), as well as other structural considerations. Most notably, ASEAN, unlike the EU, cannot compel its member states to adopt a policy course, and all decisions must be taken via consensus. These considerations call for a regional circular economy approach that builds on existing foundations, moderates its scope to remain within ASEAN’s abilities and leverages relationships with external actors to supplement ASEAN’s limited capacities.

Short Term: Create a Limited Regional Monitoring Framework

Given the importance of a viable monitoring framework to assess performance and adjust policy parameters accordingly in the EU, an initial goal for ASEAN would be the establishment of an equivalent monitoring framework. The grouping could engage partners such as the EU on such an endeavour via the ASCN, or via ongoing dialogue platforms. ASEAN and the EU, for instance, regularly meet via the Enhanced EU-ASEAN Dialogue Instrument (E-READI), with a specific channel to discuss issues related to the Environment and Climate Change. In fact, the EU has already noted ASEAN’s interest in the circular economy, and has welcomed the opportunity to help design policies to accelerate a circular economy transition in the region (European Commission 2020b). This would fall under the Framework’s strategic priority of harmonising circular products and guidelines (Priority #1).

¹¹ In the EU, there are areas where the grouping must share legislative room with individual member states. This is known as the system of “competences”. Environmental issues are a shared competence, meaning either the EU or a member state may act, but member states may be prevented from acting once the EU has passed a law.

Granted, the subsequent framework will not be a perfect replica of the EU's. The EU's monitoring framework included both soft and hard goals in prioritised industries, with the European Commission referring five member states (Romania, Bulgaria, Croatia, Greece and Slovakia) to the Court of Justice of the European Union in 2021 for failing to comply with the EU's WFD and Landfill Directive (European Commission 2021). Such avenues are not available to ASEAN, and any monitoring framework for the region must be based on creating norms of behaviour rather than imposing penalties. As such, rather than creating a wide-ranging framework that AMS would frequently run afoul of, it may be more beneficial to focus on a limited framework that can assess the performance of specific waste streams.

Indonesia and Vietnam would benefit from the creation of a monitoring framework by giving them a reliable tool to assess future circular economy initiatives. Monitoring, after all, will likely be the most challenging aspect of the scheme, as it requires not only the establishment of a robust EPR portal to document the status of stakeholders all along the production chain, but also coordination with the relevant authorities to verify recycling rates. As mentioned in Section 3, given Indonesia and Vietnam's rankings on the institutional framework component of the 2018 Future of Production Report by the World Economic Forum (64th and 53rd out of 100 respectively), the AMS would likely struggle to implement the scheme without external help. Singapore, alongside other institutionally and technologically advanced dialogue partners, could help its neighbours in this regard by providing training opportunities via the Singapore Cooperation Programme, which offers courses and workshops in digital government and other technical and administrative areas.

Medium Term: Implement a Pilot Regional EPR Scheme

In the medium term, a second goal for ASEAN would be the creation of a regional, albeit limited, EPR scheme as a proof-of-concept for the circular economy. Not only are understandings of the circular economy across the region generally compatible with one another, but many states possess the legal foundations for an EPR. Indonesia, Vietnam and Singapore all have legislative provisions that support an EPR; though the details of implementation vary, official plans and statements signal a clear degree of interest. EPR is part of Singapore's Zero Waste Masterplan, and Vietnam's Ministry of Natural Resources and Environment even stated that the circular economy cannot take place without an EPR framework (Van 2021). This would fall under ASEAN's strategic priority on promoting the efficient use of energy and other resources in the region (Priority #5).

Specifically, ASEAN could learn from the EU in providing incentives for producers and launching better public campaigns to inform consumers. Fee refund systems, for example, could be used to alleviate the burden of transitioning towards circular practices for businesses that meet certain thresholds of collection targets. In the longer term, this may also incentivise businesses to make their products easier to recycle, as was observed in the EU (Expertise France and GIZ 2018, pp.48-49). Moreover, governments should either directly organise or delegate specific companies to organise more coordinated information campaigns about recycling. These should not only convey the importance of recycling, but also instructions on how to recycling etiquette to limit disposal due to contamination.

The broader problem is how to implement an EPR that remains within ASEAN's limited institutional and technical capacities. This can be addressed by through two adjustments to the scope of the initiative. First, the EPR should focus on specific waste streams, building on the work done in establishing a monitoring framework in the short term. Second, the scheme can also be condensed by restricting its usage to designated pilot cities, perhaps as part of the ongoing ASEAN Smart Cities Network (ASCN). This initiative was launched in 2018 as a collaborative platform to unify efforts to create harness technologies to address the problems related to urbanisation, and currently extends to 26 member cities within the 10 AMS. Promoting circular economy practices dovetails neatly with the initiative's goal of smart and sustainable urban development. Furthermore, the ASCN has attracted support from dialogue partners such as the U.S., Australia, Japan, EU and China in the form of trust funds, city-to-city partnerships and the exchange of best practices (Martinus 2020, pp.3-4), offering AMS ample opportunities to engage external parties to finance or seek advice on EPR policies while gaining valuable experience in implementing an EPR.

Indonesia and Vietnam would benefit from this effort by overcoming the limitations of their respective institutional and technical capacities to embark on or further the implementation of an EPR. If attempted unilaterally, the two AMS would face administrative challenges in areas such as trying to allocate responsibilities to different stakeholders in the EPR chain, or preventing producers from free-riding by failing to pay their fees for the collection and recycling of their products (OECD 2014, pp.10-11). Thus, seeking help from dialogue partners would help to bridge this capacity gap. Singapore, meanwhile, would benefit from an exchange of best practices with its dialogue partners, who may also have advice on how to adjust the scheme to boost the republic's flagging recycling rates.

Medium Term: Create an Information Exchange and Matchmaking Platform for SMEs

A third goal for ASEAN would be to create a regional scheme to support efforts by its SMEs to adopt circular economy practices. As mentioned, the business landscapes of both ASEAN and the EU are dominated by SMEs, which also employ a significant number of their citizens. Unlike the EU enterprises, however, SMEs in ASEAN cannot be subjected to the same kind of legal pressures based on a regional policy as they would in Europe (although national laws would still apply). Efforts should instead be focused on convincing SMEs that it is possible to pursue economic growth and sustainable practices in tandem, and providing SMEs with the resources to embark on such transitions (OECD and ASEAN 2021, pp.9). This goal would encompass the strategic priorities of facilitating trade by supporting businesses involved in the supply chain (Priority #2), enhancing the role of innovation and emerging technologies (Priority #3) and promoting sustainable finance and innovative investments (Priority #4).

Some of the necessary efforts in this area are already ongoing. The creation of financial instruments such as blended financial tools and sustainable bonds would help to increase the range of financial support available to SMEs. Efforts in this area are already well-positioned to flourish following the launch of the ASEAN Taxonomy for Sustainable Finance in November 2021, which aims to provide more consistency and credibility for this sector. At the national level, governments should continue to organise workshops and programmes to spread best

practices and systems such as ISO 14001 (OECD and ASEAN 2021, pp.25-26). Given the technical and institutional limits of regional governments, foreign firms and consultancies should be involved in this auditing process to bridge capacity gaps and impart best practices.

Where ASEAN could focus more effort is in the area of providing technical advice and supportive services to SMEs. In this regard, ASEAN could emulate the Enterprise Europe Network’s efforts to create a matchmaking platform to connect local SMEs with foreign counterparts at different parts of the supply chain. Such efforts could proceed through the respective chambers of commerce that are active throughout the region, or be conducted by an organisation specifically created for this purpose. Infrastructure Asia, an information exchange platform that shares best practices on infrastructure development in the region, is an example of how a platform for circular economy development could look like in practice. All three AMS covered in this paper would benefit from the creation of such programmes and platforms, as the burden for informing and supporting SMEs would be distributed across the region rather than being left as the sole responsibility of their country’s government.

7. Summing Up

Table 10 – Strategic Priorities Addressed by Section 4 Proposals, Descending Order

Priority	Strategic Priorities Under the Framework	Proposal
1	Standard harmonisation and mutual recognition	Limited Monitoring Framework
2	Efficient use of energy and other resources	Pilot Regional EPR
3	Ensure trade openness and facilitation	Creation of an Information Exchange and Matchmaking Platform for SMEs
4	Innovation, digitalisation and emerging technologies	
5	Sustainable finance and innovative investments	

It was discussed in Section 2 that the lack of a clear and uncontested definition of the circular economy complicates the message of the ASEAN Framework, not least because there is no operationalised plan for how the different strategic priorities would collectively and incrementally contribute towards the development of the circular economy. Section 3 delved into the national journeys and current policy landscape of Indonesia, Vietnam and Singapore to show that while the three AMS were at different stages of implementation concerning the circular economy, they had common environmental and policy challenges to overcome. Section 4 then aimed to merge these two trains of thought by outlining short-to-medium term proposals that would leverage existing AMS capacities to build policies at the ASEAN level. These proposals aimed to incorporate lessons from the EU’s circular economy journey, and also create a proposed timeline for how the Framework’s strategic priorities should be organised and prioritised, as seen in Table 10.

ASEAN's foremost priority should be to harmonise and mutually recognise circular economy standards across the region through a limited monitoring framework. Implemented in conjunction with advice and support from external partners, this would lay the foundation to properly assess ongoing initiatives and support future efforts. This should be followed by inculcating best practices concerning the use of energy and other resources through a pilot regional EPR, which would be restricted to designated cities to accommodate ASEAN's capacity limitations. Armed with this knowledge and experience, it would then be easier for AMS to create an information exchange and matchmaking platform to support the transition of SMEs, ensuring the promotion of the final three strategic priorities.

Looking further afield, it would benefit ASEAN to expand these initial efforts in the long term as the region's technical and institutional capacities increase. The limited monitoring framework should be expanded to include all waste streams in later years, while the EPR should likewise be expanded beyond the designated pilot cities. More importantly, however, ASEAN policymakers should articulate how they intend to have their different sectoral masterplans and other strategy documents (i.e. the ASEAN Digital Masterplan 2025) synergise and spur the region's development. This would necessarily involve the creation of joint working groups to merge the capacities of different sectors, an undertaking that may take years, if not decades. However, if ASEAN wants to make good on the Framework's call to reposition its economic practices to embrace the circular economy, it should start preparing for this confluence.

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Appendix

Table 11 – Select Strategies and Laws on the Circular Economy in ASEAN

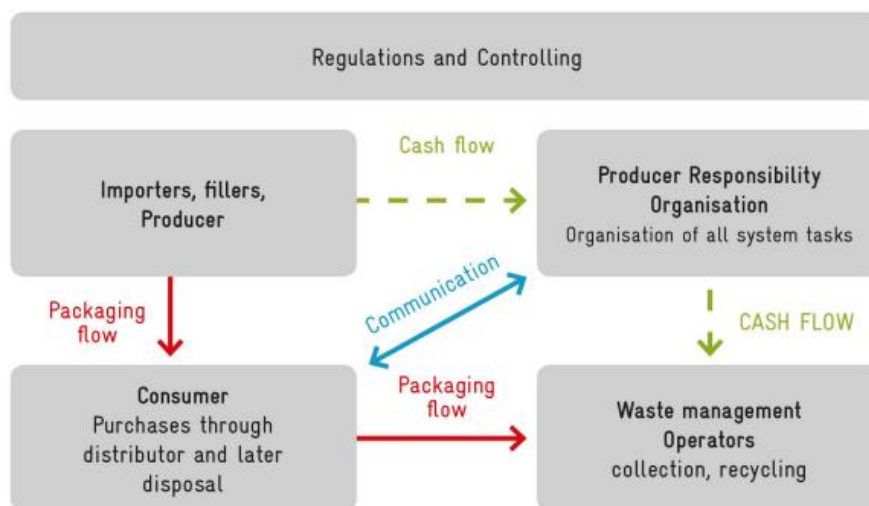
Country	National Strategies (Ongoing)	Waste Management Laws
Brunei Darussalam	- Recycling as part of the country's economic blueprint	- Environmental protection and management order (2016)
Cambodia	- Strategy for waste management - National waste strategy and action plan (pending)	- Law on environmental protection and natural resource management (1996) - Sub-decrees on solid waste (1999) and plastic waste (2017)
Indonesia	- Action plan on marine debris - Action Plan on Waste Management	- Waste management law (2008)
Lao PDR	- Green growth strategy	- Environmental protection law (2012)
Malaysia	- Masterplan for waste minimisation - Roadmap on single-use plastics	- Solid waste management and public cleansing act (2007)
Myanmar	- National waste strategy and masterplan (pending)	- National environment policy (2019)
Philippines	- Solid waste management strategy	- Ecological solid waste management act (2001)
Singapore	- Zero waste masterplan	- Environmental public health act (1987) - Resource sustainability act (2019)
Thailand	- Masterplan on solid waste management - Plastic waste management plan - Zero waste action plan	- Public sanitary and order act (2017)
Vietnam	- National Strategy for the Integrated Management of Solid Waste up to 2025, with a view to 2050, regulated by Decision No. 491/QĐ-TTg in 2018	- Law on environmental protection (2020)

Source: Akenji et al 2020

EPR Schemes in Vietnam and Singapore

As mentioned in the main text, Extended Producer Responsibility (EPR) is defined as an “environmental policy approach in which a producer’s responsibility for a product is extended to the waste stage of that product’s life cycle” (Expertise France and GIZ 2018b, pp.4). EPR schemes are common features among AMS, and typically share common principles. One such principle is a redistribution of responsibilities for waste management – producers pay a Producer Responsibility Organisation (PRO) to conduct or engage external operators to manage the waste of a certain community, subject to the supervision of public authorities. The layout of a typical EPR scheme is shown in Figure 2, with the responsibility of waste management being compartmentalised into issues such as collection, record-keeping and processing and distributed between producers, PROs and consumers.

Figure 2 – General Layout of an EPR Scheme



Source: Expertise France and GIZ 2018b, pp.19

Beneath the surface, however, EPR schemes vary in terms of prioritisation of waste streams and relative governance burdens. Under purely financial arrangements, producers are tasked with paying public authorities for waste management, while they would be burdened with responsibility for all waste management activities under fully organisational arrangements (Expertise France and GIZ 2018b, pp.22). Moreover, such schemes tend to rely on pricing mechanisms or public education campaigns on recycling to change the behaviour of consumers (Nguyen 2021, pp.19). As such, it is important to find the right balance of responsibilities for ASEAN’s context.

Vietnam’s EPR – Packaging, Mixed Arrangements

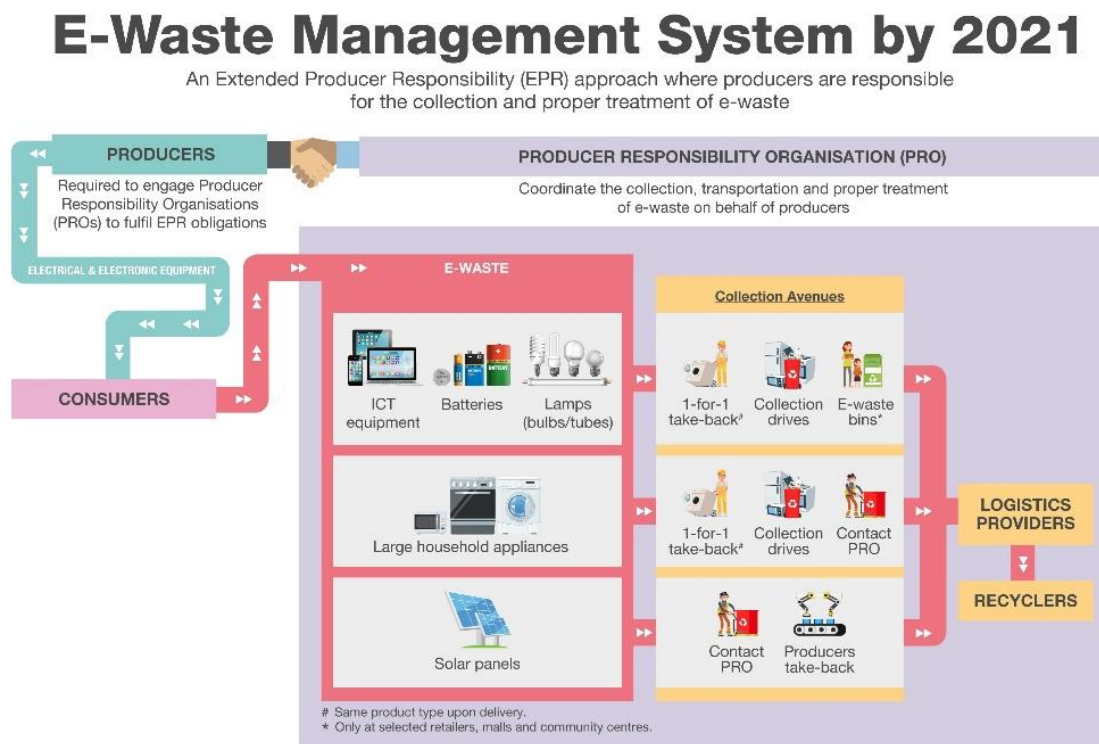
In Vietnam, the EPR will be incrementally applied to producers and importers of products ranging from packaging, batteries, oils and tires in 2024, to ICT equipment and other e-waste in 2025 and to vehicles by 2027. Furthermore, producers with a total annual turnover

of VND 30 billion (US\$1.3 million) and importers with a total import value of at least VND 20 billion (US\$1 million) will also be required to meet package-specific recycling requirements.

These producers and importers are given numerous options for recycling under Vietnamese law. They may (i) independently recycle their product packaging if they hold a specific environmental license; (ii) authorise a PRO to carry out recycling on their behalf; or (iii) contribute to the Vietnam Environmental Protection Fund, based on mandatory recycling rates for different product types, for an industry-appointed or state-appointed PRO to handle waste management (Baker McKenzie 2021). All producers and importers under these obligations would be required to register and submit an annual report on their activities before 31 March. The exception to this is if they hire a third party to recycle on their behalf (option ii), in which case said PRO is responsible for submitting the report (Baker McKenzie 2021).

Singapore’s EPR – e-Waste, Mixed Arrangements

Figure 3 – Layout of Singapore’s EPR Scheme



Source: NEA 2018

In Singapore, the EPR instituted under the Resource Sustainability Act came into effect for e-waste in 2021, and will expand to include plastic packaging in 2025. Producers and importers of relevant products (i.e. ICT equipment and large appliances) are directed to register with the island state’s National Environment Agency (NEA), submit records on the weight and number of regulated products supplied in Singapore, and support the collection of unwanted

non-consumer products (NEA 2021). This process is illustrated in Figure 3. Collection targets for e-waste vary between types, with a ratio of 60% of put-to-market (PTM) by weight for large appliances such as refrigerators and 20% for lamps. Retailers of regulated consumer products are also covered under the EPR, and are expected to provide a one-for-one take-back service of a product (in exchange for a new product of the same class or type) for disposal. They are also expected to provide in-store collection of e-waste from consumers (NEA 2021).

To process these regulated products, producers are required to be a member of a licensed Producer Responsibility Scheme (PRS) and contribute to the financing of the PRS if they exceed a certain threshold of regulated products. The operator of the PRS (currently ALBA Group plc & Co for a five-year term) is tasked with regulating consumer e-waste across Singapore on behalf of the producers by coordinating the collection, transportation and proper treatment of e-waste. Furthermore, ALBA is expected to develop programmes to encourage the public to recycle e-waste, provide more e-waste collection venues and set up a data management system to track the amount of e-waste collected for treatment (NEA 2021).