Dialogues on Connectivity between Europe and Asia
The Next Gen EU-ASEAN Think Tank Dialogue

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FOREWORD

"Sustainable, Comprehensive and Rules-Based Connectivity will contribute to the enhanced prosperity, safety and resilience of people and societies in Europe and Asia."[1]

The COVID-19 pandemic was a vivid reminder of the inter-connectedness of our modern world. As the world moves forward from the pandemic and strives to build back better, the pandemic also serves to demonstrate that connectivity is not just an inescapable part of our daily lives, but is also essential for economic growth, prosperity and security. Not surprisingly, connectivity has become a high priority in both national and international policy agendas.

The European Union (EU) has long been a champion of connectivity, an approach that predates the pandemic. In 2018, the EU laid out its vision and strategy for connecting Europe and Asia, signalling early on its commitment to building partnerships and networks in Asia. The commitment to connectivity is reiterated in the EU's Global Gateway launched in 2021.

In December 2022, the EU and the Association of Southeast Asian Nations (ASEAN) commemorated 45 years of diplomatic relations. The ASEAN countries as a group are the EU's third largest trading partner outside Europe.[2] 10 million people travel between the two regions each year.[3] However, as engagement between the two regions deepens, the opportunities created by greater connectivity also present challenges.

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1 eeas.europa.eu. Connecting Europe and Asia: the EU Strategy. (https://www.eeas. europa.eu/sites/default/files/eu-asian_connectivity_factsheet_september_2019. pdf_final.pdf).

2 policy.trade.ec.europa.eu. Association of Southeast Asian Nations: EU trade relations with the Association of Southeast Asian Nations. Facts, figures and latest developments. (https://ec.europa.eu/trade/policy/countries-and-regions/regions/ asean/).

3 eeas.europa.eu. EU ASEAN Strategic Partnership. (https://www.eeas.europa.eu/ sites/default/files/fact-sheet-eu-asean-strategic-partnership.pdf).

While connectivity has become a buzzword in policy circles, what does it mean in practice? How can better connectivity be effectively implemented? How can the potential of connectivity be harnessed for maximum impact? How can greater connectivity be aligned with sustainability?

This book is therefore a timely resource for academics and policy practitioners alike to delve deeper into the issues of connectivity. This book is a collection of papers by young researchers from the EU and ASEAN that explores some of these questions.

This book is part of a three-volume set of research papers produced under the project "Think Next, Act Next – The Next Gen EU-ASEAN Think Tank Dialogue" (EANGAGE), which aims to encourage greater collaboration between the EU and ASEAN, inspire joint research and foster greater awareness of the EU's engagement in the ASEAN region. Co-funded by the European Union, the two-year project was launched in 2021. The Konrad-Adenauer-Stiftung with its Regional Programme Political Dialogue Asia is privileged to be one of the partners for this project, and focused on research in the area of connectivity. The two other partners for the project, the Asian Vision Institute, Cambodia and the Diplomatic Academy of Vietnam, were responsible for facilitating research in the areas of sustainable development and security respectively.

Although connectivity is often most closely associated with digital connectivity, the papers in this volume follow the EU's broader concept of connectivity to encompass the physical, institutional, human (or people-to-people) and digital dimensions.

The papers in this volume examine the current initiatives and progress in connectivity between the two regions. From a broad overview of the strategic partnership to more in-depth analysis, the papers cover a spectrum of relevant policy issues, ranging from smart cities, artificial intelligence, supply chains, trade, food security, vaccine diplomacy, digitalisation and technology to the challenges of environmental change. The papers highlight best practices and case studies, and offer concrete policy recommendations and practical solutions to further the connectivity agenda in both regions.

The book brings together the extensive experience, expertise and knowledge of young researchers across the EU and ASEAN. The young research fellows of the EANGAGE project worked together across different time zones and geographies and most of them also collaborated to write research in a non-native language. This is a true testament to the spirit of EU-ASEAN coop-

eration. The insights provided by these papers should contribute to a better understanding of EU-ASEAN cooperation. We hope that the book will be well-received and become the "go-to" guide on connectivity for researchers and policymakers in both Europe and Asia.

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01

EU-ASEAN Strategic Partnership

Stakeholder Expectations and Ways Forward

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Abstract

After more than two years of the strategic partnership between the European Union (EU) and the Association of Southeast Asian Nations (ASEAN), this paper takes a look back and a look ahead. It develops a set of recommendations aimed at further developing the two regions' partnership in the light of their shared commitments, but also their institutional differences.

The EU and ASEAN may be "natural partners" in the Indo-Pacific region due to their shared commitment to regional integration and a rules-based international order in a region that is increasingly shaped by great power competition. The EU stands out for its normative power approach in Southeast Asia by forging alliances to combat climate change, by providing continued support via development aid, by supporting ASEAN's higher education, and by fighting non-traditional threats to security such as piracy in the Strait of Malacca, distinguishing itself from other powers in the region. This is echoed by stakeholders' perceptions and surveys. ASEAN, on the other hand, is one of the most advanced regional integration projects outside of Europe, with distinct norms such as the "ASEAN Way" and a long-standing role in ensuring regional stability through intergovernmental dialogue, with growing trade and economic integration.

At the same time, there are fundamental institutional differences between the EU and ASEAN that can become obstacles to their partnership if not properly taken into account. These include the difference between transfer of sovereignty and strict intergovernmentalism, as well as the European Commission as an executive organ exercising its competences in many policy areas and the ASEAN Secretariat as a coordinating institution. Cooperation between the EU and ASEAN has great potential, especially in the realm of connectivity, and this can be fully leveraged through tailored tools and forms of engagement.

Suggested Tools and Forms of Engagement for the EU-ASEAN Strategic Partnership

1. Deepening mutual understanding

- **In-depth technical workshops** can help sort out long-standing differences of position between the EU and ASEAN, especially with highly loaded terms and overly complex issues, vis-à-vis resembling a form of taking each other's concerns seriously and listening to each other's demands. Again this boils down to the superior institutional capacity of the EU that cannot always be matched by counterparts.

- **Civil servant exchanges** enable EU and ASEAN officials to get hands-on experience of the other institution, increase mutual understanding and foster confidence-building; hence opening up new channels and direct lines of communication at the civil servant level and beyond.

- **Promoting ASEAN centrality** is rightly a cornerstone of the EU's engagement in the whole Indo-Pacific region. ASEAN has time and again reiterated the importance of ASEAN centrality and makes other residential powers in the region adhere to that; otherwise, an enhanced cooperation with ASEAN is virtually not possible. If the EU wants to help ASEAN become a stronger counterpart, it should always consider the impact of its own actions on ASEAN's unity and institutional capacity.

2. A new set of tools for the strategic partnership

- **Getting rid of misperceptions:** working out a common understanding of connectivity issues may be just what the EU and ASEAN need to agree on. Connectivity has become a "magical concept" and different actors evidently have different understandings of the promising term. In order for the EU to carry out its projects along the lines of ASEAN's Master Plan on ASEAN Connectivity (MPAC) 2025, a connectivity "envoy" could serve as facilitator. Other proposals include an EU-ASEAN Strategic Council.

3. From a strategic towards a resilient partnership

- **More understandable narratives** are bringing the EU-ASEAN relationship closer to civil society and the general populations. These will be key drivers for a sustained and fruitful relationship. We need to be reminded of the challenges we are facing together, likewise the benefits the relationship could bring to the fore.

- **Training translators and interpreters** for the two regions' main languages has positive spillover effects on all levels of the relationship, including policy, business and civil society.

INTRODUCTION

In late 2020, the Association of Southeast Nations (ASEAN) and the European Union (EU) decided to upgrade their ties to a strategic partnership, marking an important step in their interregional relationship. In the next few years, this expression of political will to move from a donor-recipient relationship towards more symmetrical ties needs to be expanded and clarified with concrete priorities and policies. Otherwise, the "strategic partnership" runs the risk of being stuck at the initial phase, not making it past ambitious and well-meaning statements.

Due to institutional differences, this will require a deep mutual understanding between the regions, great amounts of political will and support as well as creative problem-solving.

Hence the aim of this paper is to provide recommendations on how to further advance the strategic relationship between the EU and ASEAN, drawing on the voices and concerns of Southeast Asian and European stakeholders.

Our first section will set the scene and contextualise the recent strategic partnership in terms of the development of their relations until now. This will be done by tracing the development of the EU-ASEAN nexus, based on existing literature and primary documents (declarations, strategies, summit-level-meetings) that address the inter-regional partnership.

This paper is primarily based on in-depth interviews. The questions are mostly related to policy debates and developments on the ground under the umbrella of the strategic partnership. The analysis of the data involved conventional text-based methods as well as network-based approaches that visualise the EU-ASEAN policy space and actors' perceptions of it. In the end, it should become evident what's expected from the EU from ASEAN's viewpoint and vice versa; and also: illuminating the ways forward.

1. EU-ASEAN RELATIONS – FROM POLITICAL DIALOGUE TO STRATEGIC CO-OPERATION

The formal relationship between ASEAN and the EU dates back nearly 45 years[1], starting with the recognition of the EU as an ASEAN Dialogue Partner in 1977 and the signature of a Cooperation Agreement in 1980. What followed afterwards was, in the words of the German Federal Foreign Office, "an increasingly close cooperative partnership that has since developed, encompassing a wide range of issues including free trade, climate protection, connectivity, security policy cooperation and strengthening the rules-based order."[2] Others, in contrast, perceived it as a "non-linear, complicated relationship" (Interview 2).

Setting aside institutional differences, the two seem almost like natural partners, both subscribing to the aforementioned rules-based international order and both, evidently, committing to multilateralism and trade liberalism. For this reason, the EU has consistently been engaged in capacity-building measures that promote the institutional development of ASEAN, including the "Institutional Development Programme for the ASEAN Secretariat (IDPAS), the ASEAN Programme for Regional Integration Support (APRIS and APRIS II) and the current ASEAN Regional Integration Support from the EU (ARISE)".[3] Other notable steps in the relationship included the European Commission's Communications "A New Partnership with Southeast Asia" in 2003 and "The EU and ASEAN: a Partnership with Strategic Purpose" in 2015.[4]

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1. This occasion should be used to reflect on the EU-ASEAN relationship and to now finally address the partnership on a lighter note, according to senior EU diplomats.

2. German Federal Foreign Office. 2020: Strengthening EU-Asia relations: the EU and ASEAN are to enter into a Strategic Partnership. Retrieved from: (https://www.auswaertiges-amt.de/en/aussenpolitik/regionaleschwerpunkte/asien/eu-asean-meeting/2422094).

3. Mattheis, F. and Wunderlich, U. 2017. Regional Actorness and Interregional Relations: ASEAN, the EU and Mercosur. Journal of European Integration 39, no. 6 (19 September 2017): 727. (https://doi.org/10.1080/07036337.2017.1333503).

4. For a comprehensive overview of EU-ASEAN relationship please refer to ASEAN's or the EU's official pages. See for instance: (https://asean.org/european-union/, https://europa.eu/newsroom/content/eu-asean-relations-factsheet_de) or in particular (https://asean.org/wp-content/uploads/2021/09/Overview-ASEAN-EU-DR_as-of-Sep-2021.pdf).

Fast forward to December 2020: At the annual meeting of EU and ASEAN foreign ministers, the organisations decided to upgrade their relations to a Strategic Partnership. The new strategic dimension will prove to have far-reaching implications. First, ASEAN-EU relations were mainly characterised by dialogues and agreements for several decades, which are now comple-mented by summit-level meetings. In this regard, German Foreign Minister Heiko Maas remarked that the signing of the new partnership constituted "the European Union's firm interest in intensifying its relations with ASEAN and its member states in a comprehensive way. This means more exchange at all levels – from civil society to Heads of Government".[5]

In parallel, the European Parliament approved a resolution on connec-tivity and EU-Asia relations, advocating for "a regional EU-ASEAN free trade agreement".[6] In other words: breathing new life into the formerly suspended free trade agreement (FTA) negotiations between the two blocs.

While there is certainly great potential in this deepened relationship, European stakeholders may overestimate ASEAN's readiness to make ambi-tious commitments. One of our interlocutors at the external division at the ASEAN Secretariat stressed that ASEAN had already forged several strategic partnerships with other actors and, naturally so, everyone involved has de-veloped a different understanding of the term "strategic partners" and the subsequent implications. Against this background our interviewee fears that the EU enters this new phase with higher expectations (e.g., what constitutes high-level meetings) that cannot be met by its ASEAN counterparts, espe-cially given the limited resources of the ASEAN Secretariat. In this regard, ex-pectation management is instrumental, calling on the EU to express what it "perceives as natural and given under the Strategic Partnership Framework". Due to its strategic position and economic potential, ASEAN is being inten-sively courted by a variety of partners, including the US, China, Japan, and

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5. German Federal Foreign Office. 2020. Strengthening EU-Asia relations: the EU and ASEAN are to enter into a Strategic Partnership. Retrieved from: (https://www.auswaertiges-amt.de/en/aussenpolitik/regionaleschwerpunkte/asien/eu-asean-meeting/2422094).

6. European Parliament. 2021. European Parliament resolution of 21 January 2021 on connectivity and EU-Asia relations. Retrieved from:)https://www.europarl.europa.eu/doceo/document/TA-9-2021-0016_EN.html).

Korea. In this context, the EU may not always be the first choice for cooperation, despite the two regions' shared values.

The new partnership marks an ongoing transformation in the two regions' relationship and could serve as a base for policy implementation of the recently adopted EU's Indo-Pacific Strategy, the Global Gateway Initiative as well as ASEAN's own Outlook on the Indo-Pacific (AOIP). In part, the strategic partnership embodies ASEAN's wish to be seen as an equal partner, progressively moving away from the logic of donor and recipient that structures ASEAN's interactions with many of its external partners, as well as its will to shape its relationship with the EU. At the same time, various forms of assistance will likely continue to be welcomed and needed, especially regarding capacity building for the ASEAN Secretariat and technical support in tackling challenges like climate change and trade barriers. The partnership is not entirely without issues; notably, it remains to be seen if the strategic partnership also boosts the EU's capacity and desire to become involved in the regional architecture in Southeast Asia by becoming a member of the East Asia Summit or the ASEAN Defence Ministers Meeting Plus – both ASEAN-led fora. The EU's strong interest in these fora has been met with little success until now – it had to separate the issue from the strategic partnership during the course of difficult negotiations. A senior European diplomat has expressed little hope for the EU's ambitions, highlighting instead the complexities of the regional architecture and the difficulties of selectively admitting extraregional partners.

These differences notwithstanding, the strategic partnership has the added value of resolving "confusion between the national and regional level" as the EU-ASEAN relationship is now lifted to a "region-to-region level", as stated by a representative from the European Parliament. More precisely speaking, for European policymakers it has not always been clear how, when and through which channels their engagement with ASEAN member states should be ideally carried out without appearing to bypass ASEAN as a whole. The strategic partnership provides in rhetoric a "level playing field" (involving a new phase of partnership, no one-sided dependency, moving away from a pure donor-recipient relationship, no sentiment of inequality, points which were raised in our interviews). Seen in this way, it bears the logic of bringing the blocs closer together. The main communication and coordination is therefore to occur on a "region-to-region level".

Although some were quick to argue that the European Union may need ASEAN more than ASEAN needs the European Union,[7] potential gains are large on both sides, including trade opportunities and stronger political positions for both organisations. However, the frequent courting of ASEAN by numerous external actors, discussed above, has certainly boosted ASEAN's confidence, which resonates in negotiations reflecting a stronger bargaining position as witnessed by senior EU diplomats.

In order to now identify the practices and processes for a concrete and continuing advancement in the strategic relationship with ASEAN, the paper will incorporate the voices and concerns of Southeast Asian and European stakeholders, putting a special focus on emerging areas of cooperation.

ASEAN in the EU's Indo-Pacific Strategy

Co-operation with ASEAN is one of the central building blocks of the EU's newly formulated Indo-Pacific Strategy, the document that presents the EU's long-term vision for engagement with the region. ASEAN, "an increasingly important partner for the EU", is mentioned 31 times in the text, about twice as often as any other partner organisation or country. This should not be surprising given ASEAN's key position in the Indo-Pacific region as a facilitator for peace and stability and its important economic weight, which transformed the bloc into an essential partner for the European Union. Similarly the US Free and Open Indo-Pacific Strategy (FOIP) and the Chinese Belt and Road Initiative (BRI) both place utmost importance on ASEAN.[8] For a "Global Europe" to live up to its ambitions, ASEAN is a crucial partner.

Support for regional integration in other parts of the world and "cooperative regional orders" is part of the core principles of EU external action, as expressed in the EU's 2016 Global Strategy "Shared Vision – Common

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7. Allison-Reumann, L. and Murra, P. 2021. The ASEAN–EU Strategic Partnership's coherence challenge. Retrieved from: (https://www.eastasiaforum.org/2021/02/16/the-asean-eu-strategic-partnerships-coherence-challenge).

8. Stromseth, J. 2019. Don't Make Us Choose: Southeast Asia in the throes of US-China rivalry. The New Geopolitics Asia. Retrieved from: (https://www.brookings.edu/wp-content/uploads/2019/10/FP_20191009_dont_make_us_choose.pdf).

Action".[9] In this context, ASEAN is mentioned as a key partner in upholding the rules-based international order, but also in the areas of connectivity development, trade as well as security and "maritime multilateralism". The proposed Indo-Pacific strategy goes a step further in expressing the EU's support for the principle of "ASEAN centrality" in the region. By having included "ASEAN centrality", the EU sends a direct signal to ASEAN that it shares the same values as highlighted in ASEAN's Outlook on the Indo-Pacific. It is to be noted that "ASEAN centrality" is an ambiguous concept that carries multiple meanings.[10] Therefore, it will be useful to explore the ideas and expectations that both organisations attach to this concept in detail further below.

EU-ASEAN Engagement Across Policy Areas

The landscape of EU-ASEAN policy co-operation includes a broad range of programmes and instruments in a variety of policy areas. ASEAN is mentioned as an important partner in all priority areas in the EU's Indo-Pacific Strategy and in the EU's Global Gateway Initiative. Examples mentioned in the Indo-Pacific Strategy include further trade negotiations with ASEAN and individual member states, common efforts to tackle environmental issues, especially plastic pollution, the ASEAN Digital Masterplan 2025, data protection standards as well as connectivity and transport. Furthermore, the EU seeks to become more deeply involved in the region's security architecture as outlined in the 2018 EU Council's conclusion on enhanced EU security co-operation in and with Asia.[11]

The breadth of this engagement plan reflects the special relationship between the EU and ASEAN: Due to their shared commitment to multilateral-

9. Mogherini. F. 2016. Shared Vision, Common Action: A Stronger Europe: A Global Strategy for the European Union's Foreign and Security Policy. Luxembourg: Publications Office of the European Union.

10. Cf. Mueller L. Maximilian. ASEAN Centrality under Threat – the Cases of RCEP and Connectivity. Journal of Contemporary East Asia Studies 8, no. 2 (3 July 2019): 177–98. (https://doi.org/10.1080/24761028.2019.1691703).

11. European Council. Deepening EU security cooperation with Asian partners: Council adopts conclusions. Press release, 28 May 2018. Retrieved from: (https://www.consilium.europa.eu/en/press/press-releases/2018/05/28/deepening-eu-security-cooperation-with-asian-partners-council-adopts-conclusions/).

ism and regional co-operation, the two organisations seem like natural partners, an understanding which has been agreed upon by all of our interlocutors. At the same time, this comprehensive approach is also set to become a test for this relationship for several reasons. Firstly, it includes issues that have long been controversial between the two regions, including the role of labour rights and environmental standards in preferential trade agreements. Secondly, it places high demands on ASEAN as an institution and on its member states, in terms of administrative capacity, engagement and actorness, its "capacity to behave actively and deliberately in relation to other actors in the international system".[12] Therefore, a new path towards mutual benefits and mutual understanding must be found in the realm of the strategic partnership. Thirdly, the Russian invasion of Ukraine and its subsequent condemnation by most of the world has also put ASEAN member states' positions in the General Assembly in the spotlight. Laos and Vietnam abstained from the vote, while others (Cambodia, Singapore) co-sponsored the resolution, with the latter even adopting the existing sanctions against Russia. The initially anticipated divergence between ASEAN member states and the EU did not turn out to be true in this so-fundamental, basic question of international law versus a "might makes right" approach in international relations; otherwise, this could have been a blow to EU-ASEAN relations.

The EU in ASEAN's Plans

As ASEAN does not have a Common Foreign and Security Policy comparable to the EU's, there are no strategic documents regarding ASEAN's external relations. Between the EU and ASEAN we see predominantly joint-statements or summit conclusions, which makes ASEAN's interests and positions vis-à-vis the EU sometimes difficult to grasp. This implies that a range of documents mentioning the EU are adopted on a joint basis at high-level meetings, which makes it difficult to identify ASEAN's footprint within them. At best, reading between the lines may help to identify certain aspects ASEAN feels strongly about. Consequently, it is sometimes difficult for policymakers and

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12. Sjöstedt, Gunnar. 1977. The External Role of the European Community. Swedish Studies in International Relations 7. Westmead, Farnborough, Hampshire: Saxon House, p. 16.

observers to correctly anticipate and understand ASEAN's core interest and moreover its expectations towards the EU – particularly when these documents constitute the basis of analysis. At the end of the day, ASEAN's interests are an extension of its individual member states' sometimes conflicting domestic views. While an in-depth analysis of all ten member states' bilateral relations with the EU is beyond the scope of this paper, this perspective should illuminate the difficulty of forging an agreement at the ASEAN level taking into account the principle of unanimous voting.[13]

ASEAN's Indo-Pacific Outlook – A Pathway for Infrastructure Investments

At the time ASEAN published its Outlook on the Indo-Pacific (AOIP), it not only wanted to join the strategic discourse on the region, but also set its tone. The organisation tried to anchor major superpowers in ASEAN-led fora that emphasise openness and inclusiveness. By doing so, it not only sent out a reminder on who was in the "driver's seat" in the whole Indo-Pacific debate, but as our contact person in the ASEAN external division described it, it also managed to express some shared interests. "Nothing about us without us" was the core idea behind the AOIP. However, one might find this a little paradoxical given the late publication of the concept, at a time when other (more) active players had already started creating facts on the ground and in the South China Sea.

The AOIP outlines four areas of collaboration – maritime issues, connectivity, the UN Sustainable Development Goals, and broader areas of economic cooperation. In the realm of "connecting the connectivity", to which both the BRI and FOIP seek to contribute in a diametrically opposed fashion, ASEAN sets out a condition for existing and future connectivity initiatives in the Indo-Pacific region that should complement and support the existing Master Plan on ASEAN Connectivity (MPAC) 2025. Hence, it is vital to provide synergies with ASEAN's development agenda. It is no secret that ASEAN requires massive infrastructure investments to integrate and interconnect

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13. Putnam's two-level game, incorporating domestic interests in international politics, could be a helpful framework here. See Putnam, R. 1988. Diplomacy and Domestic Politics: The Logic of Two-Level Games. International Organization 3 (1988): 427-460.

among the Indian Ocean and the Pacific Ocean – and maybe more importantly to increase regional cohesion by overcoming the intra-ASEAN development divide. To give an indication of the level of investment required, the Asian Development Bank (ADB) has calculated the infrastructure needs for ASEAN from 2016 until 2030, which range from a minimum of $2.8 trillion (bottom line) to a maximum of $3.1 trillion.[14]

The AOIP also recalls environmental and ecological impacts that must be taken into account when it comes to infrastructure initiatives in the region. The focus on sustainability criteria that, for instance, several BRI-related projects in some ASEAN member states failed to comply with can therefore be understood either as a prerequisite for securing ASEAN's support, or to balance with donors' demands. The recently launched Green Team Europe in conjunction with the European Investment Bank aims to precisely tap into this niche, generating "added value" for the people in Southeast Asia – which is to be further expanded under the Global Gateway Strategy. Given the current gap in infrastructure investments in the region, the latter initiative is set to become especially relevant for the future of EU-ASEAN relations.

Nevertheless, it is not clear how ASEAN aims to achieve further steps of implementation within the AOIP discourse, given that the document does not give any guidance on how to navigate these challenges in the region.[15] Connectivity for ASEAN according to its own document means achieving a seamlessly and comprehensively connected and integrated region that will promote competitiveness, inclusiveness, and a greater sense of community. Needless to say, outside actors are required to step into the development gap to support ASEAN's quest as outlined in the MPAC 2025. For this reason, ASEAN appreciates external actors' ongoing commitment in delivering infrastructure, potentially outweighing geopolitical considerations.

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14. Asian Development Bank. 2017. Meeting Asia's Infrastructure Needs. A Special Report. Retrieved from: (https://www.adb.org/sites/default/files/publication/227496/special-report-infrastructure.pdf).

15. Saha, P. 2019. ASEAN's Indo-Pacific outlook: An analysis. ORF, 28 June 2019. Retrieved from: (https://www.orfonline.org/expert-speak/aseans-indo-pacific-outlook-an-analysis-52542/).

What the EU Sometimes Gets Wrong About ASEAN I: The ASEAN Way

ASEAN as a regional organisation is often referred to as the European Union's counterpart in Asia. Like the EU, ASEAN has been lauded for its important role in maintaining regional harmony among its member states.[16] Yet this should not distract from the fact that there are fundamental differences between the two blocs, with the non-existing transfer of sovereignty inside of ASEAN being the most notable one.[17] ASEAN is, rather, a loose, government-driven organisation, unlike the EU with its strong supranational elements, including executive, legislative and judicative organs whose decisions are binding and directly applicable. ASEAN only gained the status of a legal entity in 2007 once it adopted and member states ratified the ASEAN Charter.[18] From here onwards, ASEAN transformed into an international organisation with more scrutiny paid to its decision-making structures and its role in the Indo-Pacific in general. When approaching ASEAN, it is therefore essential to understand its very own "ASEAN Way" – the core norm of the institution.

Originally centred around six norms – "sovereign equality, non-interference, the non-resort to the threat or use of force, quiet diplomacy, the non-involvement of the Association in the resolution of bilateral disputes and mutual respect"[19] – the "ASEAN Way" has never been an official credo adopted by the Association. It was merely to describe ASEAN's uniqueness in handling internal and external affairs, including its partnerships with other nations or regional blocs. These principles determine the "institutional structure and modus operandi of ASEAN", which has remained intact until today. For that reason, informal diplomacy and the renunciation of public

16. Anwar, D. F. 2018. ASEAN Amidst the US-China Rivalry. In: Choi Shing Kwok, ASEAN Studies Centre at ISEAS-Yusof Ishak Institute. Assessing ASEAN-China Relations, 6 (1), pp. 6-7.

17. For a more thorough overview, contrasting the EU against ASEAN, compare ASEAN Studies Centre at ISEAS-Yusof Ishak Institute. 2016. ASEAN and the EU in Perspective. Brexit & Beyond. Retrieved from: (https://www.iseas.edu.sg/images/pdf/ASEANEUAUGISSUE.pdf).

18. ASEAN. 2007. The ASEAN Charter. Retrieved from: (https://asean.org/storage/images/archive/publications/ASEAN-Charter.pdf).

19. Haacke, J. 2003. ASEAN's Diplomatic and Security Culture. Origins, Development and Prospects. NY: Routledge.

criticism towards other member states are the cornerstones of intra-ASEAN relations.[20] The "ASEAN Way" and its underlying principles are also reflected in the organisation's decision-making structures, based on "consensus and consultation" in a strictly intergovernmental fashion. This idea stems from the Indonesian culture of "musyawarah" (consultation) as well as "mufakat" (consensus), eventually becoming embedded in the "DNA of ASEAN".[21]

ASEAN's decision-making modalities pose a major hurdle when implementing new rules or trying to ratify new agreements. For instance, the slow process in the implementation of EU initiatives in partnership with ASEAN or the development of the ASEAN economic community as well as the stalling processes in the Free Trade Agreement negotiations with the EU often led to a certain sense of frustration for EU officials, who are sometimes left in disbelief about the pace of implementation within ASEAN's apparatuses.[22]

At the same time, while its mode of decision-making may privilege slow change and the status quo, ASEAN has demonstrated that it is by no means a static organisation; indeed, it often is able to react dynamically to evolving situations and challenges. It is this adaptive process that has spurred further regional integration in the past, stretching the organisation's core norms and giving them a new interpretation. The Asian Financial Crisis that started in 1997 is a prime example of such an exogenous driver of integration. Due to weak coordination in economic and financial policy, but also their strong reliance on extra-regional sources of funding, a number of ASEAN countries became vulnerable to speculators' attacks; Thailand and Indonesia had to accept International Monetary Fund (IMF) support and the strict conditionalities that came with it. This crisis highlighted the shortcomings of the existing regional framework that hardly offered ways to govern the increasing interdependencies between ASEAN member states, leaving them divided in times of crisis and marginalising ASEAN as a collective actor. It therefore led ASEAN stakeholders to question the organisation's emphasis on informality and national sovereignty, opening the way towards deeper and more institutional-

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20. Portela, C. 2013. ASEAN: Integration, Internal Dynamics and External Relations. Research Collection School of Social Sciences. Paper 1683.

21. Mahbubani, K. 2021. ASEAN's quiet resilience. East Asia Forum, 8 December 2019. Retrieved from: (https://www.eastasiaforum.org/2019/12/08/aseans-quiet-resilience/).

22. Allison, L. 2015. The EU, ASEAN and Interregionalism: Regionalism Support and Norm Diffusion between the EU and ASEAN. Palgrave Macmillan.

ised integration.[23] While the new norm of "flexible engagement" proposed by then Thai Foreign Minister Surin Pitsuwan was never formally adopted, it shows nevertheless that the original "ASEAN Way" has been evolving towards a more proactive approach. The ASEAN Charter, adopted in 2007, is one of the results of this process, allowing ASEAN to flexibly incorporate new norms and ideas and notably drawing on the European Union as the most successful example of regional integration.[24] The far-reaching changes connected to the broadening and deepening of ASEAN integration are contrasted by a diplomatic culture that shows strong continuities with the first decades of the organisation's existence.[25] This paradoxical situation remains sometimes difficult to read and navigate for outside observers. ASEAN might well face comparable challenges in the 2020s; it remains to be seen if these become opportunities for further integration.

The ASEAN Way is therefore by no means constrained to the above-mentioned values. Rather it is a fluid process that unfolds its own integration dynamics and can lead to enhanced domestic consolidation. Take for example the exclusion of Senior General Min Aung Hlaing from the 2021 ASEAN leaders' summit.[26] This was something unprecedented, recalling the principles of non-interference and renunciation of public criticism towards one another. In summary, the informal and ever-evolving ASEAN Way is difficult to grasp, especially when coming from the EU's supranational experience of legal integration, but acknowledging its existence is already a step in the right direction when engaging with ASEAN.

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23. Rüland, J. 2014. Constructing Regionalism Domestically: Local Actors and Foreign Policymaking in Newly Democratized Indonesia. Foreign Policy Analysis 10, no. 2 (2014): 189–90. (https://doi.org/10.1111/fpa.12002).

24. Jetschke, A. 2009. Institutionalizing ASEAN: Celebrating Europe through Network Governance. Cambridge Review of International Affairs 22, no. 3 (1 September 2009): 407–26. (https://doi.org/10.1080/09557570903107688).

25. Davies, M. 2016. A Community of Practice: Explaining Change and Continuity in ASEAN's Diplomatic Environment. The Pacific Review 29, no. 2 (14 March 2016): 211–33. (https://doi.org/10.1080/09512748.2015.1013495).

26. BBC. 2021. Myanmar army general Min Aung Hlaing excluded from leaders' summit. Retrieved from: (https://www.bbc.com/news/world-asia-58938489).

What the EU Sometimes Gets Wrong About ASEAN II: The ASEAN Secretariat

Exchanging views with both European and ASEAN officials working at the ASEAN Secretariat in Jakarta has illustrated another point the EU should consider in its official communication with ASEAN. First and foremost, the ASEAN Secretariat was never designed to resemble the EU Commission in its form and size and hence should also not be treated as such. ASEAN member states conceived the secretariat as the term implies: as a coordinator and convenor of events, unable to speak on behalf of all member states in official communication. The ASEAN Secretariat lacks capacity and a strong mandate due to the aforementioned absence of supranational transfer of power, which translates into the budgets individual member states are allocating to the organisation. Our interviewees mentioned that the secretariat was both "understaffed and underfinanced" and is therefore heavily reliant on external funds to finance its programmes and activities within ASEAN. It is roughly endowed with a budget of $50 million per year and employs about 1,000 employees. EU officials working closely with the secretariat have also experienced that contact persons on the ASEAN side change frequently.

Therefore, the first point of contact usually lies with the committee of the permanent representatives where the actual competencies are located and not with the ASEAN Secretariat. At the same time, engaging with the secretariat is nonetheless useful in order to navigate through the different responsibilities within ASEAN, as illustrated by three EU officials.

2. EU-ASEAN – WAYS FORWARD!

Since this paper aims to bring to the fore what ASEAN and EU policymakers, politicians, business representatives, chambers of commerce, non-governmental organisations (NGOs) and civil society organisations (CSOs) expect from each other, it is vital to consult them.[27]

(A) Processes and Dynamics

ASEAN Centrality revisited – Implications for EU engagement

The term "ASEAN centrality" has almost transformed into what we should call a "catch-all phrase" given its frequent use on any possible occasion by the Association as well as external actors such as the EU. Re-iterating its "centrality", however, has a deeper layer to the Association, heavily inspired by member states' colonial past and the geopolitical pull during the Cold War. Hence, repeatedly referring to their centrality is also a means of safeguarding and guaranteeing member states' roles in regional affairs. For this reason, in joint declarations between ASEAN and another party, the participating actors are expected to "respect", "encourage" or "support" "ASEAN centrality", which ASEAN in turn "appreciates". However, this wish for "centrality" in regional affairs needs to be treated with nuance, in the light of ASEAN's institutional capacity and political weight. Analysts and senior practitioners stress structural limitations such as fundamentally different ideologies, political systems and governance structures among ASEAN members as well as disunity on certain strategic issues.

Seen in this light, ASEAN's role in the region is more that of a hub than that of a leader, convening internal and external stakeholders for consultations and policy coordination. The regional level plays an important role, but most strategic decisions will be made in ASEAN members' capitals in the foreseeable future. This implies that the EU should take a strategic approach to bloc-to-bloc engagement. The EU has a strong interest in promot-

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27. For an overview of our interlocutors, please refer to Appendix I.

ing ASEAN's "centrality" in the region; this should take the form of considering ASEAN's interest in all of its actions while taking a flexible and pragmatic approach. While some issues such as climate change and connectivity are best addressed on this level, others like trade barriers remain controversial within ASEAN and are best discussed with the bloc's national governments.

So, there is a clear expectation ASEAN conveys to participating members during ASEAN-led fora. While ASEAN may have internal struggles and chronic problems in terms of its decision-making ability due to intra-ASEAN divisions,[28] they all seem to feel strongly about the concept of "centrality", which comes as a non-negotiable condition in summit conclusions involving outside actors.

The State of Southeast Asia – Survey findings from 2020 to 2022

"The State of Southeast Asia Survey Reports" by the ASEAN Studies Centre at the ISEAS-Yusof Ishak Institute can serve as a starting point to discuss regional perceptions.[29] These reports represent a vital source of information for EU officials in the region to measure and track their popularity, engagement and visibility in the region over time and especially its evolution before and after the signing of the strategic partnership. While this survey delivers a general overview to better understand the perceptions of Southeast Asians on regional affairs and, in particular, ASEAN's engagement with its dialogue partners, it is neither fully representative, nor a substitute for our in-depth interviews with policymakers that follow at a later stage of this paper. Nevertheless, the respondents coming from different categories such as research, business and finance, public sector, civil society, and the media have already voiced a clear expectation on how the EU can facilitate the inter-regional exchange and give a boost in upgrading bilateral ties. Notably, it

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28. The driving factors and consequences of this will be discussed in more detail below.

29. ASEAN Studies Centre, ISEAS Yusof Ishak Institute (2020-2022): The State of Southeast Asia. Retrieved from:

TheStateofSEASurveyReport_2020.pdf (think-asia.org),

The-State-of-SEA-2021-v2.pdf (iseas.edu.sg),

The-State-of-SEA-2022_FA_Digital_FINAL.pdf (iseas.edu.sg).

features the added value that these reports give us certain insights towards what ASEAN thinks of the EU.

The unfolding power competition between the US and China clearly puts ASEAN in the spotlight and sheds light on other actors outside the US-China rivalry. The concern that ASEAN is "becoming an arena for major power competition in which its member states may become proxies of major powers" has been overwhelmingly shared by the respondents throughout the years. In particular, confidence in the US has, since the Trump administration, deteriorated, which in turn offers/offered a vacuum for the EU to fill (even if not necessarily militarily), but US ratings have experienced a bounce-back ever since the Biden administration took charge. Hence, in response to the temporarily reduced US interest and commitment in the region, the respondents looked, as found in the 2020 report, to Japan (31.7 per cent) and the EU (20.5 per cent) as its preferred strategic partner. The share of respondents having confidence in the US as a strategic partner and provider of regional security, however, sharply increased from 34.9 per cent to 55.4 per cent in 2021. This positive view of the US may well be attributed to the anticipation that the Biden administration would elevate American engagement with the region (68.6 per cent) during his term in the years to follow.

The EU generally enjoys a favourable reputation amongst the respondents, coming out as the second most trusted partner globally in 2020 (38.7 per cent), outpacing both the US (30.3 per cent) and China (16.1 per cent), vis-à-vis expanding ASEAN's strategic options in hedging. Furthermore, the EU was ranked highest for "maintaining the rules based order and upholding international law" and second in "championing the global free trade agenda" in 2020. In a nutshell: the respondents share overwhelming confidence in the EU's ability to provide global leadership in a range of areas. The EU and Japan were again the clear front-runners for ASEAN's most favoured and trusted strategic partners in the hedging game against US-China rivalry in 2021. In 2022, both continue to be in the leading positions for ASEAN member states in hedging against the uncertainties of the US-China strategic rivalry: 40.2 per cent of respondents chose the EU, followed by Japan (29.2 per cent).

Many respondents continue to view the EU as a reliable champion on some of the aforementioned issues, especially in upholding the rule of law, global governance, and to a lesser extent free trade – an asset for global peace and security as the report argues. For their ability to champion international trade, the EU (22.2 per cent) is, according to the respondents, as capable as the US (22.5 per cent) and ASEAN (20.6 per cent). In 2022 ASEAN

has, however, placed their faith in the United States as a leader in global free trade (from 19.7 percent in 2021 to 30.1 per cent), putting it well ahead of the EU (14.1 per cent). Also, in 2022 the global leadership role of the EU (from 32.6 per cent to 16.6 per cent) has experienced a striking set-back. In a surprising change from the 2021's ranking order (EU, US, ASEAN in chrono- logical order) the United States (36.6 per cent) is now the respondents' top choice for global leadership.

Interesting in this regard is, however, the fact that a cohort of EU-sceptics is continuously (2020: 35.4 per cent, 2021: 38.7 per cent) cautious about as- cribing to the EU a more prominent security role as it seems to be "distracted with its internal affairs". While this seems to be a widespread perception, a potential explanation could lie in the different modus operandi of the EU compared to ASEAN. In any case, the EU is portrayed and perceived as a credible partner and a champion for the rules-based order, even if the rat- ings decreased in the last survey in 2022. The Biden administration taking office was accompanied by a recent wave of renewed faith in the global US leadership role, at the expense of expressed confidence towards the EU's capabilities by the respondents. Regardless, the EU remains a safe bet in the major power competition between the US and China and is vital for ASEAN's hedging options. Above all, there are several points of convergence between the EU's own agenda and the respondents' answers, e.g., to strengthen its politico-security footprint in the region, to underpin ASEAN centrality as well as to uphold the rules-based international order or to seek closer partner- ships with "like-minded" actors.

Stakeholder perceptions of the EU

The survey's results already give a clear indication of what is expected from the EU from an ASEAN viewpoint. Most of the above-mentioned points (e.g., upholding a rules-based order, ASEAN and the EU both subscribing to a set of common values) were also mentioned during our interview phase with EU and ASEAN officials at the ASEAN Secretariat. One senior EU diplomat went a step further, stressing that the EU is "keen to support ASEAN competencies and mandate as [the] EU can relate better [to ASEAN] than other partners". Generally, the EU's role in providing development assistance to Southeast Asia throughout the different phases of partnership were well received within ASEAN, making the EU a "welcomed" and "highly appreciated" partner (Interview 5). The EU stands out for its "soft-power approach" in Southeast

Asia by forging alliances to combat climate change, by providing continued support via development aid, by supporting ASEAN's higher education, and by fighting non-traditional threats to security such as piracy in the Strait of Malacca, hence distinguishing itself from other residential powers that come with a heavier military presence (Interview 2, Interview 3). The EU is perceived as a leader in global issues.

An interesting point was raised by one of our interlocutors, who mentioned that the EU's disengagement in the wake of the Asian Financial Crisis in 1997/98 still casts a shadow over the current relationship, leaving the impression on ASEAN stakeholders that the EU's engagement very much depends on ASEAN's contemporary wellbeing. This perception was, however, not shared by former Thai minister Kasit Piromya, who acknowledged the EU's shift in priorities, but felt that these were only due to internal problems and the EU's enlargement project at that time. In any case, these perceptions obviously exist alongside the imprint of the colonial past. Mr. Piromya, for instance, pointed out that anything "foreign" or "external", and likewise "outside pressure", is inherently subject to ASEAN resistance/scrutiny. Against this background one representative from the European Parliament emphasised that "the EU is never meant to be a template" for ASEAN. It is then in the nature of the two organisations to find suitable ways to strengthen their partnership that are agreeable to both.

ASEAN-EU: It's a two-way street

The following matrix shows the different outcomes, considering asymmetrical engagement (weak versus strong) as well as an ideal output (reaching gains vis-à-vis showing strong engagement from both sides). Clearly it is in ASEAN's and the EU's mutual and best interest to both commit to strong engagement over the next years since this could trigger more collaborations in other sectors and generally lead to confidence-building measures. Needless to say, one-sided engagement (either from the EU or ASEAN side) cannot unfold the full potential of the partnership, while weak engagement from both leaves the geo-economic playing field under the dominance of others.

EU/ASEAN	weak engagement	strong engagement
weak engagement	mutual loss – dominance of third-party actors, especially China – if nothing changes, everything will change	lost opportunity (e. g., due to the EU's internal challenges, populism, difficulty to restart engagement at a later point)
strong engagement	lost opportunity (weak actorness of ASEAN, the EU approaching other actors)	mutual gain – confidence building, extended collaborations, spillover effects

We are reminded that the significance of, and perhaps the presupposition associated with, strategic partnerships reaching "mutual gains" should not be overestimated; it should not be forgotten that strategic partnerships – similar to "connectivity" – run the risk of becoming inflationary, especially as one of the EU's preferred foreign policy tools. In a context marked by internal divisions, the EU recently tends to "operate [more] on the basis of ad hoc, flexible, issue-based partnerships".[30] Drawing on Nadkarni's elaborations, strategic partnerships provide "maximum diplomatic, political, and economic flexibility and minimum commitments from involved parties".[31] Hamilton goes a step further, calling strategic partnerships "handy" for diplomacy.[32] Others equate it to a "black box" that calls for further exploration and illumination based on a "comprehensive conceptual, theoretical and empirical investigation".[33] In the precise example of ASEAN and the EU, contentious issues could, for instance, arise over democracy, human rights and trade frictions since they were not even mentioned in the strategic partnership or, more recently, the war by Russia against Ukraine and ASEAN member states' individual responses. The suspension of Cambodia's trade privileges by the

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30. Renard, T. 2021. Conclusions: The Rise and Fall of an Idea. In: Laura C. Ferreira-Pereira and Michael Smith (ed.). 2021. The European Union's Strategic Partnerships Global Diplomacy in a Contested World. Palgrave Macmillan.

31. Nadkarni, V. 2010. Strategic Partnerships in Asia: Balancing Without Alliances. Abingdon: Routledge, p. 17.

32. Hamilton, D. 2014. The American Way of Partnership (ESPO Working Paper 6). Brussels: European Strategic Partnerships Observatory (Egmont Institute and FRIDE), p. 24.

33. Ferreira-Pereira, L. and Smith, M. 2021. Introducing the European Union's Strategic Partnerships: Global Diplomacy in a Contested World. Chapter 1. In: Laura C. Ferreira-Pereira and Michael Smith (eds.). 2021. The European Union's Strategic Partnerships Global Diplomacy in a Contested World. Palgrave Macmillan.

EU or the military coup in Myanmar could be such matters too.[34] The real test for the strategic partnership will then ultimately be the ability to reconcile bilateral engagement and multilateral cooperation.

Drawing on the EU's recent adoption of its Indo-Pacific Strategy, its Global Gateway and the former Global Europe Strategy in 2016 and its continued desire to become a "security actor in Asia", there is however little reason not to believe in a fostered EU engagement in the region. Let us now turn to salient options for shaping this partnership concretely.

(B) Policy Recommendations

The shortlisted recommendations listed below were based on our own reflections and were refined and narrowed down during the course of our research. If not stated otherwise, these were approved by our contact persons and could illustrate promising pathways for an intensified EU-ASEAN relationship in the realm of the strategic partnership.

(i) Deepening mutual understanding

Although the EU and ASEAN share a long history of cooperation, they still do not always see eye to eye when it comes to a range of practicalities in their relationship. These differences, some of which were outlined above, do not always reflect genuine differences of position; they can be effectively addressed by fostering knowledge of the other side's concerns in the bureaucratic apparatuses for instance.

In-depth technical workshops

The EU earned itself a reputation as a tough partner in negotiations (Brexit, Mercosur), addressing a wide range of questions and issues and pushing for deep liberalisation. This includes, most notably, foreign direct invest-

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34. Shada Islam, and Yeo Lay Hwee. 2020. It has taken time, but the new EU-ASEAN Strategic Partnership matters. European Policy Centre. Retrieved from: (https://www.epc.eu/en/Publications/It-has-taken-time-but-the-new-EU-ASEAN-Strategic-Partnership-matters~3a2e88).

ment and intellectual property. More often than not, issues relating to investment protection come to the fore. One of our interview partners, working for the Asia Pacific Economic Community, complained about a relatively apparent "top-down" mentality the EU displays in negotiations, neglecting the concerns and follow-up questions of Asian stakeholders. Instead, she recommends deploying a more "soft" approach in negotiations, exemplified in workshops where remaining questions, details and technicalities can be addressed. This idea was seconded by an interview partner from the ASEAN Secretariat. To some extent the EU's and ASEAN's priority lists reflect a clash of agendas: while for ASEAN continued economic growth and bridging the intra-ASEAN divide are of utmost importance, the EU focuses on sustainability criteria (Green New Deal) both internally and within its external policy, which endemically excludes deforestation and palm oil plantations in Malaysia and Indonesia most notably. Our interlocutor therefore estimates that "if it wasn't for the palm oil issue, the strategic partnership could have been signed earlier" and that this obstacle should "not cloud the way forward". The ongoing paralysis in the interregional FTA negotiations, due to the palm oil issue among others, must be a wake-up call for the EU to "think outside the box" and to "repackage issues" accordingly (Interview 2).

This again comes down to the fact that the EU and ASEAN work in different fashions. When EU and ASEAN stakeholders meet to discuss high-profile issues or the way forward, there must be time to listen to each other's concerns (e.g., the importance of palm oil for the local economies in Malaysia and Indonesia) and to elaborate on more complex issues (such as provisions on investment protection in free trade agreements and investor-state dispute settlement). Setting up informational workshops on the sidelines of a meeting would carry this logic; this approach has reportedly been successful for Australia and New Zealand. Notably, by fostering more engagement at the working level and under less time pressure, these formats would allow an increase in the two sides' understanding of the other's position and the space to explore mutually satisfactory policy options in depth.

Institutional exchanges

Despite being perceived as "natural partners", the EU and ASEAN differ fundamentally in their institutions and working mechanisms. For an improved understanding of the other organisation, institutional exchange at the level of civil servants may help to curb precisely these misunderstandings, enable

learning from each other, create synergies and so on. The EU institutions have long-standing experience with temporary staff and training on the job, notably through their successful traineeship programmes; it would be relatively easy to create a mobility programme for ASEAN civil servants on this basis.

The exchange is, however, not limited to the institutional sphere but could also be expanded to the academic sphere, contributing to the creation of deeper EU-ASEAN knowledge in both regions and to the training of the next generation of EU-ASEAN experts. The EU already supports ASEAN higher education through its SHARE programme; it would be logical to increase funding for EU-ASEAN mobility and to encourage enhanced partnerships between universities. Any efforts in this regard should be informed by the local academic context. In this regard, the role of think tanks in the Southeast Asian foreign policy community should translate into concrete opportunities for engagement.

Promoting ASEAN's centrality

As a regional organisation that shares many of the EU's values, ASEAN is not only a natural partner for the EU in the Indo-Pacific, but actually its best bet for regional influence. The EU should therefore treat ASEAN centrality as its own vital interest in the region. By having forged a strategic partnership with ASEAN first and not with any of its member states, the EU underlines its preference for a region-to-region agreement and establishes a direct point of contact with the bloc. The implications of this insight are likely to vary across policy areas. In the field of trade, ASEAN centrality remains elusive in the interregional relationship; after the failure of the EU-ASEAN Free Trade Agreement negotiations in the late 2000s, the EU successfully signed bilateral agreements with Vietnam and Singapore and currently is negotiating with Indonesia and Thailand, while negotiations with Malaysia and the Philippines are suspended. At the same time, these negotiations are based on the same mandate as the original negotiations for an interregional FTA. If they were successful with some countries and unsuccessful with others, this is also due to different capacities to meet European demands in ASEAN countries, both in terms of economic conditions and non-economic clauses such as labour rights and environmental protection. These differences inside of ASEAN can be expected to remain a challenge to interregional integration. In some situations, there will be a trade-off between striking comprehensive arrange-

ments and reaping more low-hanging fruits. Fully excluding agreements that do not cover the whole of ASEAN would expose any progress in the interregional relationship to unilateral pressure from any of the ten ASEAN member states. At the same time, this should not be seen as an easy way out of the often difficult processes between the two regions. If the EU wants to help ASEAN become a stronger counterpart, it should always consider the impact of its own actions on ASEAN's unity and institutional capacity.

(ii)   A new set of tools for the strategic partnership

We have seen that the current state of EU-ASEAN relations is strongly shaped by the respective regional institutions, each with their own complexities. Conversely, a deeper relationship between the two regions should also be facilitated by new tools that leverage their convergent interests and address differences in a mutually agreeable way.

Getting rid of misperceptions: Common understanding of connectivity issues and beyond

The two parties would be well-advised to work out a more concrete and common understanding of connectivity and to underscore it with concrete policy areas, such as in the realms of human connectivity, people-to-people connectivity or, foremost, institutional connectivity. The broadness of the concept bears the risk of entangling the parties in different (suboptimal) scenarios where, for instance, the EU may set expectations that can be difficult, not to say virtually impossible, to fulfil for their ASEAN counterpart. There is also reason to believe, taking into account the AOIP and other declarations, that "connectivity" indeed emerges as an umbrella term for ASEAN that reflects diplomatic compromise with dialogue partners, constituting a form of "symbolic politics" only. Alternatively, even if the two agree to stitch together a set of policies, there may be diverging understandings in the implementation phase according to the actual output, pace and impact. In any case, the above-mentioned scenarios are subject to changing political priorities (at the ASEAN and member states' levels), the influence of third parties or other external dynamics. To forestall such developments that could pose an obstacle in agreeing on a common understanding of connectivity, some form of initial and continued resilience in the bilateral relationship is essential. Resilience

and the way forward in the bilateral relationships critically depend on sustained EU and ASEAN engagement.

Since connectivity has become the central theme of the bilateral relationship, both sides may underscore their ambitions with a "connectivity" envoy at the EU and ASEAN, facilitating further agreements, monitoring the progress and bringing the two organisations even closer together. Currently, the two regions' common connectivity agenda is still strongly marked by the rhythm of summits and high-level meetings. The creation of a permanent structure could allow for more steady progress amid varying priorities in the institutions' day-to-day business. Another way to address the remaining points of contention is the adoption of progress reports at regular intervals, reflecting upon the partnership and providing regular policy recommendations, which would fall under the competencies of the special envoy. The partners must come together, define a set of policies, formulate goals and underpin these with an enhanced engagement. A progress report that is ratified by both parties can therefore serve as a reminder and ensures that the EU-ASEAN momentum remains high on the agenda.

During the course of an interview, one of our experts from the European Parliament also strongly advocated to set up a conference with various actors from different disciplines (business, diplomats, CSOs) for the purpose of exchanging new ideas in the EU-ASEAN relationship – this should ideally be inspired or convened by ASEAN. Currently, much of the engagement is restricted by short-term thinking, which limits the scope and timeline of common objectives. Instead, both parties must ask themselves: "Where do we want to be in 50 years with one another?" This overarching question can help them to think strategically in the long run and encourage brainstorming, as well as help to build confidence and increase the understanding of each other.

(iii) From a strategic towards a resilient partnership

We have seen that the relationship between the EU and ASEAN can be expected to move forward in the next few years, if not always in a linear manner. It is therefore useful to think about a distinct set of tools and instruments that are less dependent on the progress of specific dossiers at the interregional level: stronger narratives, more inclusive interregional fora and implementation-level resources like training for translators.

The ongoing success of the relationship between the EU and ASEAN will depend on public support in both regions, both within policy circles and broader segments of the population. The more ambitious integration plans become, the more urgent the need for a strong democratic mandate. Brexit has shown that public opinion can become a stumbling block for regional visions. It should therefore be a priority to create a positive and inclusive narrative around the EU-ASEAN relationship. Until now, it is poorly understood beyond certain circles of policymakers, academics and interest groups. Language is a big part of the problem: Technical and highly loaded terms such as "connectivity" or "ASEAN centrality" may serve their purpose in policy discussions, but they have a poor showing in politics; one can hardly imagine that most voters in the EU and ASEAN have a clear understanding of these concepts, let alone are convinced by them. Advocates of EU-ASEAN integration should therefore invest a considerable amount of time and energy to creating a more comprehensible narrative, explaining the concrete benefits of interregional engagement in plain terms. This does not mean that all of the sometimes highly complex issues can or should be brought to the grassroots level.

In this regard, there is more potential for strengthening exchanges in civil society. For example, Mr. Piromya suggested to focus on links and cooperation between farmers' associations, labour unions or elected local village or provincial councils. All are to some degree important in both the EU and ASEAN and, more importantly, part of everyone's life; hence some form of identification corresponds with these organisations. One practical way could be, for instance, to consider the implementation of more "twin cities". Expanding this thought, an official site for cooperation between EU and ASEAN stakeholders could be established, for example, a matching platform to link NGOs, research institutions and other interest groups. In this regard, current challenges like innovations in renewables (hydro, solar, wind) could be tackled together through joint research activities, which could be further promoted by opening some of the EU's research funds to EU-ASEAN cooperative projects. This mutual exchange could lead to knowledge-sharing and ultimately bring the people of the two regions closer together.

Lastly, next to these lofty goals, some attention should be paid to the concrete challenges and modalities of these joint projects on all levels. One of our interlocutors raised the language barrier as one key obstacle in her work on the ground: Even for some of the most widespread languages of the EU and ASEAN, there often are no translators who are qualified in the some-

times highly technical fields that come with interregional cooperation. In a world where English is the undisputed lingua franca, this issue is often over-looked, as many experts on both the European and ASEAN sides are much more comfortable expressing themselves in their native language. This is especially true when it comes to specialised terminologies, as is the case in law for instance. As "the language of Europe is translation",[35] this should resonate strongly within the EU. The EU institutions are home to what is arguably one of the most professional and skilled forces of interpreters worldwide, translating enormous quantities of text and speeches in all of the EU's official languages each year. At least some of this success could be replicated in the relationship between the EU and ASEAN, for instance, by creating dedicated fellowships for EU-ASEAN translators and by offering specific trainings which could be based on some of the EU Commission's existing resources, such as the SCICtrain project for interpreting students. By – quite literally – fostering mutual understanding, this would provide added value for all stakeholders, not only in the political and diplomatic realm, but also for civil society and the business community.

The points raised above may provide a helpful starting point on how this matter can be achieved without compromising too much of ASEAN's or the EU's core identity and without strictly copying the latter. These are by no means exhaustive and can be continuously expanded. The authors point out that it would also be extremely beneficial to include more well-known EU-ASEAN critics in think tanks and policy to have their voices heard too. As a matter of fact most of our contacts shared a firm conviction in a more pronounced EU-ASEAN collaboration, hence giving this study a certain bias. This could have been balanced with more negative reception on the strategic partnership to not only deliver an overall picture but to address EU-ASEAN sceptics' reservations of an enhanced cooperation.

As one of our interlocutors at the European Parliament has pointed out, "ASEAN must invent its own way", and the "EU is no template". If "we [the EU] want them [ASEAN] to be like us, then this is a recipe for failure".

Appendix I

Interview Partners – Overview

Interview Partner No.	Role/Occupation	Wish for Anonymity	Date	Attended
1	Civil Servant at the Asia Pacific Economic Community	Yes	17.11.2021	Connectivity Cluster
2	EU Official from the European Parliament	Yes – reference to role only	16.12.2021	MF, EH
3	Project Manager for an EU Project at the ASEAN Secretariat	Yes – reference to role only	17.12.2012	MF
4	Kasit Piromya, former foreign minister of Thailand	No	20.12.2021	MF, EH
5	ASEAN Official working at the External Division of the ASEAN Secretariat	yes – reference to role only	13.01.2021	MF, EH
6	Three EU Officials one senior EU Diplomat; one communication officer; one policy advisor	yes – reference to role only	25.01.2022	MF, EH
7	Resident Representative of German Political Foundation in SEA	yes – reference to role only	27.01.2022	MF, EH
8	Head of a multinational Bank in Singapore	yes –reference to role only	25.03.2022	MF, EH
9	Cambodia Delegation to Germany	yes – anonymous	21.06.2022	MF

02

Resilient Supply Chains in the Post-COVID Era

Opportunities and Challenges for the EU and ASEAN

Anastas Vangeli | Damian Wnukowski

Abstract

The paper addresses the question of how the European Union (EU) and the Association of Southeast Asian Nations (ASEAN) can work together to find synergies in building supply chain resilience. The EU and ASEAN are strongly embedded in the global economy, which has considerably contributed to their socio-economic development in recent decades. However, the challenges that worldwide production networks entail, especially in a time of COVID-19 crisis and increasing geopolitical tensions, have induced both the EU and ASEAN to re-evaluate their positions. The EU is interested in making the supply chains of European companies operating worldwide more efficient, sustainable, and resilient. Southeast Asian countries look to further integrate into the global economy and attract foreign direct investment (FDI). The EU and ASEAN are thus both stakeholders in the debates on the transformation of the global economy in the post-pandemic era, and can use this period of change to make their economic relations stronger and simultaneously contribute to making global supply chains less vulnerable to shocks.

The paper first analyses the challenges for supply chains in their current global setting, pointing out the main features of supply chain resilience. It then takes stock of the state of trade and investment relations between the EU and ASEAN as the basis for developing their production networks. The paper argues that the EU and ASEAN have the potential to enhance their cooperation in building stronger supply chains, especially in those sectors in which trade and investment relations are already firmly in place, though moving large parts of production networks to Southeast Asia from other locations, e.g., China, will be limited. This paper is organised as an overview of the ongoing debate, bridging perspectives from the policy, business, and scholarly communities. The findings are paired with recommendations for different stakeholders, both from the EU and ASEAN.

INTRODUCTION

The ongoing COVID-19 pandemic has amplified transformative processes and debates that have been visible in the global economy for several years. This includes issues such as the acceleration of digitalisation[1] or the rethinking of the role of the state in the economy.[2] Most importantly, however, COVID-19 has raised a set of questions regarding the future of globalisation, especially in terms of the movement of materials, components, and finished products across the planet. Transport and logistics have faced unprecedented challenges in the late 2010s and early 2020s, urging major actors in the world economy – from large multinational enterprises (MNEs), governments, and international organisations to the research community – to rethink how global economic flows and linkages are managed.

In the process of outsourcing and offshoring their business activities, MNEs have separated different activities and while keeping an integrated framework, the activities are carried out autonomously and often in physical isolation from each other. Thus, different stages of production – from sourcing raw materials, actual creation of goods to sales and marketing – have over time moved to various countries according to their comparative advantages. The sets of dispersed companies' activities that are conducted in different locations, but jointly create added value came to be known as global value chains (GVCs).[3] MNEs, aiming to make the most out of this process, synergising their global efficiency, have developed complex networks of different entities around the world. These networks, which carry out different activities during the different stages of the product life cycle, came to

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1. Joseph Amankwah-Amoah et al. 2021. COVID-19 and Digitalization: The Great Acceleration. Journal of Business Research 136 (1 November 2021): 602–11. (https://doi.org/10.1016/j.jbusres.2021.08.011).

2. Matías Vernengo and Suranjana Nabar-Bhaduri. 2020. The Economic Consequences of COVID-19: The Great Shutdown and the Rethinking of Economic Policy. International Journal of Political Economy 49, no. 4 (23 November 2020): 265–77. (https://doi.org/10.1080/08911916.2020.1857589).

3. Michael E. Porter. 1998. Competitive Advantage: Creating and Sustaining Superior Performance, Illustrated edition. New York: Free Press; OECD. 2022. Global Value Chains (GVCs). Organization for Economic Cooperation and Development. 2022, (https://www.oecd.org/sti/ind/global-value-chains.htm). Accessed 19 August 2022.

be known as supply chains. More practically, a value chain can be defined as the "process in which a company adds value to its raw materials to produce products" while the supply chain "represents all the steps required to get the product to the customer."[4] The challenging task of managing supply chains – supply chain management (SCM) – became one of the core priorities of the work of multinationals.[5]

The current state as well as the future of supply chains is closely tied to forces that advance and set back international flows of goods, services, people, ideas, and know-how. Supply chains have been co-shaped by technological advancements in, in particular, transport, information and communications technology (ICT), and digitalisation of production. However, global trends have not shaped supply chains only in one direction. While the overall tendency of GVCs to provide benefits beyond companies' profits is well recognised,[6] there have also been concerns regarding the stability of functioning, and the risks associated with any kind of supply chain instability, which were visible with a rise of protectionism after the 2007-2009 financial crisis and with the recent "trade war" between the United States (US) and China.[7]

Importantly, there is also a rising tendency toward securitisation of trade by using production networks as a tool for gaining political benefits, compromising the idea of free trade and free markets. A subsequent trend of using

4. Evan Tarver. 2021. Value Chain vs. Supply Chain: What's the Difference? Investopedia. (https://www.investopedia.com/ask/answers/043015/what-difference-between-value-chain-and-supply-chain.asp).

5. John T. Mentzer et al. 2001. Defining Supply Chain Management. Journal of Business Logistics 22, no. 2 (2001): 1–25. (https://doi.org/10.1002/j.2158-1592.2001.tb00001.x); Soonhong Min, Zach G. Zacharia, and Carlo D. Smith. 2019. Defining Supply Chain Management: In the Past, Present, and Future. Journal of Business Logistics 40, no. 1 (2019): 44–55. (https://doi.org/10.1111/jbl.12201).

6. For example, by enabling wider involvement of developing countries into the global economy or by providing cheaper and diversified access to goods for consumers worldwide. See OECD. 2013. Interconnected Economies: Benefiting from Global Value Chains. (https://doi.org/10.1787/9789264189560-en).

7. Pablo D Fajgelbaum et al. 2020. The Return to Protectionism. The Quarterly Journal of Economics 135, no. 1 (1 February 2020): 1–55. (https://doi.org/10.1093/qje/qjz036); Sébastien Miroudot and Håkan Nordström. 2020. Made in the World? Global Value Chains in the Midst of Rising Protectionism. Review of Industrial Organization 57, no. 2 (1 September 2020): 195–222. (https://doi.org/10.1007/s11151-020-09781-z).

supply chains for political and security goals was also visible in the policies of, e.g., China, when it comes to such products as rare earth minerals[8] or restricting access to its market to put pressure on other countries, such as Australia.[9] More recently, Russia, before and after its invasion of Ukraine, has used its gas supplies to the EU as a major political and security lever.[10]

A major test of supply chains' operations came with the outbreak of the COVID-19 pandemic at the beginning of 2020.[11] In the first months of the crisis, there were shortages of crucial medical goods, such as personal protection equipment or ventilators, which are produced to a large extent in the People's Republic of China (PRC). As the PRC was the first country to go under lockdown while simultaneously experiencing a surge in domestic demands for medical goods, its production capacities were significantly reduced. The possibility of moving supplies out of Chinese ports was also diminished. Along with the subsequent worldwide expansion of the health crisis and skyrocketing demand for medical equipment around the world, significant bottlenecks on the supply side emerged. MNEs, especially those who have multiple operations spread across country borders, have been significantly affected by the COVID-19 pandemic.[12] These bottlenecks were further tightened with the regulatory shifts towards protectionism in a number

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8. June Teufel Dreyer. 2022. Rare Earths, Scarce Metals, and the Struggle for Supply Chain Security - Foreign Policy Research Institute. Analysis, Asia Program (Foreign Policy Research Institute). (https://www.fpri.org/article/2022/03/rare-earths-scarce-metals-and-the-struggle-for-supply-chain-security/).

9. Reuters. 2020. Timeline: Tension between China and Australia over Commodities Trade. Reuters, 27 November 2020, sec. Business News. (https://www.reuters.com/article/us-australia-trade-china-commodities-tim-idUSKBN287099).

10. Jonah Fisher. 2022. Europe Told to Prepare for Russia Turning off Gas. BBC News, 22 June 2022, sec. Science & Environment. (https://www.bbc.com/news/science-environment-61899509).

11. I. Nyoman Pujawan and Alpha Umaru Bah. 2022. Supply Chains under COVID-19 Disruptions: Literature Review and Research Agenda. Supply Chain Forum: An International Journal 23, no. 1 (2 January 2022): 81–95. (https://doi.org/10.1080/16258312.2021.1932568).

12. For example, workers were ill or in isolation, lockdowns affected working hours, border closures limited movement of resources, intermediary goods and final products. In particular, the prolonged Shanghai lockdown in Spring 2022 has had detrimental economic effects.

of countries around the world, as a number of governments had chosen to halt or limit the export of medical supplies.[13]

In 2021, along with a partial rebound from the pandemic, significant disruptions in supply chains emerged, regarding various components as well as final goods, such as semiconductors and chips that are indispensable in many industries, e.g., consumer electronics or automotive. The severe impact of COVID-19 has prompted MNEs to reconsider some of the core postulates of the risk analysis pertinent to their operations and the assumptions they had about the direction in which the globalised economy has been moving. The pandemic did not initiate the process of rethinking, but was rather the final and biggest blow in a series of shocks that supply chains have experienced since the global financial crisis of 2008-09 and the more recent US-China trade tensions, reinforcing the already existing need to come up with new ideas and solutions. Therefore, debates in the context of COVID-19 focused ever more on the possibilities for reshaping global supply chains in a way that can help boost their resilience.[14]

SUPPLY CHAIN RESILIENCE

A resilient supply chain is characterised by its capacity to resist or avoid the impact of various disruptions as well as by its ability to promptly recover if these negative events occur. To make supply chains more resilient, companies need an agile planning and operational capacity to deal with challenges on short notice.[15] Among actions that companies can take to become more resilient, one can point to diversification of production locations, enhanced transparency, holding more inventory or reducing product complexity so

that it requires a shorter and less cumbersome supply chain.[16] In general, a resilient supply chain is one where information about the movement of supplies and products is updated in real-time, transparent and available, and where various links in the chain can respond to changes on the ground rapidly and effectively. That is why SCM pays special attention to the usage of cutting-edge technologies, such as Artificial Intelligence (AI) or blockchain.[17] Moreover, stronger resilience is built by forecasting potential short-, medium- and long-term risks and reducing vulnerabilities connected with them. In this regard, the crucial issue is a regular assessment of the resilience of companies' supply chains, including access to raw materials, the condition of suppliers, or the socioeconomic situation as well as political risk assessment in countries where business partners are located.[18]

MNEs have been considering various strategies that would help them boost the resilience of their supply chains. Some of those have been based on innovating and improving their operations through finding technological solutions that help improve end-to-end transparency and the overall flow and analysis of information (big data processing), diversifying the suppliers of critical components, or developing ample financial, storage, and other flexibility that can help act quickly in case of crises.[19] As a last resort, companies have also considered the process of physically moving operations and therefore altering the supply chains.

Achieving and maintaining resilient supply chains is not only an imperative for individual companies, but also one of the prerequisites for ensuring

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16. Susan Lund et al. 2020. Risk, Resilience, and Rebalancing in Global Value Chains. Report (San Francisco: McKinsey Global Institute, 6 August 2020). (https://www.mckinsey.com/business-functions/operations/our-insights/risk-resilience-and-rebalancing-in-global-value-chains).

17. Sachin Modgil, Rohit Kumar Singh, and Claire Hannibal. 2021. Artificial Intelligence for Supply Chain Resilience: Learning from Covid-19. The International Journal of Logistics Management ahead-of-print, no. ahead-of-print (1 January 2021). (https://doi.org/10.1108/IJLM-02-2021-0094); Naoum Tsolakis et al. 2022. Artificial Intelligence and Blockchain Implementation in Supply Chains: A Pathway to Sustainability and Data Monetisation? Annals of Operations Research, 21 June 2022. (https://doi.org/10.1007/s10479-022-04785-2).

18. Julia Leong and Alan Huang. 2016. Enhancing Supply Chain Resilience. Snapshot. Singapore: PWC. (https://www.pwc.com/sg/en/industries/assets/enhancing-supply-chain-resilience.pdf).

19. Lund et al. Risk, Resilience, and Rebalancing in Global Value Chains.

the stable functioning of the global economy. Bottlenecks in deliveries or disruptions in production contribute significantly to rising costs, and, therefore, upward-spiralling inflation.[20] Moreover, disruptions in a supply chain on one side of the globe have immediate ripple effects thousands of kilometres away. Disruptions in one industry's supply chain may also have an effect on other industries. The consequences of supply chain disruptions also severely affect transportation and logistics capacities, i.e., clogged shipping and docking lanes. Thus, to some extent, the conflation of global economic crises that are currently taking place, hurting societies all over the world, are rooted in the destabilisation of global supply chains in the aftermath of the COVID-19 pandemic as well as in the previous major destabilising effects amplified by the results of Russia's invasion of Ukraine. Thus, while supply chain disruptions can affect national economies and are often thought to be a local problem, the interlinked nature of their operations, and the global scope of their cascading effects, make the consequences of these disruptions inherently global in nature. This also means that the pursuit of resilience is truly one of global importance, making everyone a stakeholder in it.

Much of the discussion on how to improve supply chain resilience focuses on the management side of the process, with advanced technological solutions to improve transparency, information flow, and the coordination of activities being real game changers. However, regulations, policies, and strategies play a defining role, especially at the current historical juncture. For example, governments could first and foremost identify, map, and analyse supply chains, distinguishing between the different industries' characteristics and importance for the national economy as well as security; work on improving hard and soft infrastructures that are fundamental for the functioning of supply chains; stimulate and safeguard innovations; support investment; and engage in knowledge-sharing with academia and business.[21]

20. Ana Maria Santacreu and Jesse LaBelle. 2022. Supply Chain Disruptions and Inflation During COVID-19. Economic Synopses 2022, no. 11 (2022). (https://doi.org/10.20955/es.2022.11); Julian di Giovanni et al. 2022. Global Supply Chain Pressures, International Trade, and Inflation. Cambridge, MA: National Bureau of Economic Research, July 2022. (https://doi.org/10.3386/w30240).

21. Eleftherios Iakovou and Chelsea C. White III. 2020. How to Build More Secure, Resilient, next-Gen U.S. Supply Chains. Brookings Techstream (blog), 3 December 2020. (https://www.brookings.edu/techstream/how-to-build-more-secure-resilient-next-gen-u-s-supply-chains/).

The Organisation for Economic Co-operation and Development (OECD) has developed a comprehensive toolkit for building more resilient supply chains, identifying policy priorities, and proposing several sets of policy tools available to governments and international institutions,[22] including:

- anticipatory risk management as an overarching task (e.g., anticipation of risks, definition of roles, "shock diagnosis");

- risk minimisation as a priority of domestic policy (e.g., through improving infrastructure, facilitating digitalisation, standardisation of procurement regulation, flexible and need-based regulatory approach);

- trust-building as a priority of a government's relations with the private sector (e.g., through fine-tuning business environments, initiation of public-private partnerships, jointly working on risk management, and improving the communication with and listening to the feedback from companies);

- resisting protectionism as a priority for a government's foreign economic policy (e.g., through reinforcing trust in the rules- and institutions-based trade system, honouring international agreements, facilitating trade and cooperating internationally on improving regulation).

In practice, however, it is important to balance supply chain resilience with efficiency.[23] To achieve such balance, MNEs have started to consider manifold options, embracing diversification and moving production activities, at least partially, away from areas where they have suffered the greatest disruption, and faced rising uncertainty. In this regard, an accumulation of production activity in Asia, especially China, has often become a crucial challenge for them. One of the most vocal propositions on rethinking how pro-

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22. OECD. 2021. Resilient Supply Chains. Organization for Economic Cooperation and Development. (https://www.oecd.org/trade/resilient-supply-chains/).

23. Gary Gereffi. 2021. Increasing Resilience of Medical Supply Chains during the COVID-19 Pandemic. Industrial Analytics Platform - United Nations Industrial Development Organization, June 2021. (https://iap.unido.org/articles/increasing-resilience-medical-supply-chains-during-covid-19-pandemic).

duction sites are spread globally (especially concerning strategic goods, e.g., medical or technological products) was to move them to countries of companies' origin or closer to final markets. Therefore, concepts such as "re-shoring" (moving production back to the home country or region), "near-shoring" (moving production to a region geographically closer to the headquarters or the main market), and "ally-shoring" or "friend-shoring" (moving production to like-minded states in political terms) have emerged as descriptors of relocating business activities to make supply chains more resilient.[24] There has been more interest in developing a "just-in-case" model (with some stocks of components used in emergency cases) instead of the traditional "just-in-time" principle that has guided supply chain operation in recent decades, which has been undermined by lockdowns and transport bottlenecks.[25] Moreover, automation of production and developing new technologies, including AI, will be put in the spotlight as an answer to the diminishing or unavailable labour force. As the above-mentioned trends entail serious difficulties, especially in terms of costs and organisational adjustments, their implementation is still relatively limited, but that can change in the coming years. In the meantime, many companies develop risk assessment instruments and focus on increasing the flexibility of supplies and sustainability of supply chains, including environmental issues and energy efficiency.

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24. Getting Stronger After COVID-19: Nearshoring Potential in the Western Balkans (Publication). (https://wiiw.ac.at/p-5814.html). Accessed 20 August 2022; European Parliament. 2021. Directorate General for External Policies of the Union. Post Covid-19 Value Chains: Options for Reshoring Production Back to Europe in a Globalised Economy. LU: Publications Office. (https://data.europa.eu/doi/10.2861/118324); Elaine Dezenski and Austin. 2021. Rebuilding America's Economy and Foreign Policy with "Ally-Shoring". Brookings (blog), 8 June 2021. (https://www.brookings.edu/blog/the-avenue/2021/06/08/rebuilding-americas-economy-and-foreign-policy-with-ally-shoring/); Christopher Condon, Heejin Kim, and Sam Kim. 2022. Treasury's Janet Yellen Touts "Friend-Shoring" as Fix for Global Supply Chains – Bloomberg. Bloomberg, 18 July 2022. (https://www.bloomberg.com/news/articles/2022-07-18/yellen-touts-friend-shoring-as-fix-for-global-supply-chains).

25. Brooke Masters and Andrew Edgecliffe-Johnson. 2021. Supply Chains: Companies Shift from "Just in Time" to "Just in Case". Financial Times, 20 December 2021.

ASEAN'S PROSPECTS AMID GLOBAL UNCERTAINTIES

Comprising the world's third most populous and seventh largest economy, with a total GDP of $2.6 trillion,[26] ASEAN countries combined have achieved rapid economic growth thanks to the ability to attract FDI, regional and cross-regional integration, pursuing developmentally oriented policies, and embracing innovation.[27] ASEAN countries have been considered some of the main beneficiaries of globalisation and the development of global supply chains in recent decades, and have featured prominently in debates on the course of globalisation in times of crisis.

The rise of ASEAN has been intrinsically linked to the rise of China. Their relationship has been simultaneously driven by multifaceted cooperation, as well as mutual competition in the quest to attract FDI. In the past decades, MNEs, including those headquartered in Europe, have chosen China as a primary destination to set up their production operations in Asia. However, the interest in China notwithstanding, MNEs have also been intrigued by the ASEAN economies and their potential, and have been important stake-holders in the processes of economic transformation and integration in Southeast Asia, as well as the untapped opportunities it offers, not least as a result of the ample room for further economic growth.

The changing economic landscape of China (rising labour and production costs, regulatory hurdles), and in particular the set of complications brought about by US-China trade tensions and China's "zero-COVID" policy during the pandemic, made companies think about changes in production networks to diversify them and increase their resilience. Southeast Asia became one of the key regions to be considered in the process. In the case of exports to the US in recent years, among ASEAN member states, the main beneficiaries

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26. B. Yeong. 2021. Looking at ASEAN's post pandemic future. Eastspring Investments, August 2021. (https://www.eastspring.com/insights/thought-leadership/looking-at-asean-s-post-pandemic-future).

27. Jo-ook Lee and Shaun Adam. 2022. ASEAN Is Poised for Post-Pandemic Inclusive Growth and Prosperity – Here's Why. World Economic Forum. (https://www.weforum.org/agenda/2022/01/asean-is-poised-for-post-pandemic-inclusive-growth-and-prosperity-heres-why/). Accessed 20 August 2022; The ASEAN Secretariat. 2021. ASEAN Development Outlook: Inclusive and Sustainable Development. Jakarta: The ASEAN Secretariat.

of shifting production from China were Vietnam (especially concerning apparel, electrical, and communications equipment), Malaysia, and Thailand.[28] One can point out their advantages, such as an export portfolio similar to China's, lower wages than in the PRC, and favourable investment climate.[29] Some companies that have moved their operations to Southeast Asia are Chinese entities that are looking for new markets and to avoid punitive US tariffs. In that sense, Southeast Asia has managed to attract investment from both sides.

In the face of global economic adversity, Southeast Asia is a factor of stability. According to (United Nations Conference on Trade and Development) UNCTAD, in 2019, FDI flows in the region were the highest ever and amounted to $156 billion.[30] However, due to the COVID-19 pandemic and deterioration of investors' sentiment worldwide, in 2020, FDI flows decreased by almost 28 per cent to a level of $122 billion. Nevertheless, along with some successes in managing the pandemic, Southeast Asia "resumed its role as an engine of growth for FDI in developing Asia and globally," with inflows totalling $175 billion in 2021 (44 per cent growth y/y).[31]

A key factor that has helped sustain ASEAN's attractiveness as one of the top FDI destinations, beside such issues as rapid economic growth (Asian Development Bank predicts 5.1 per cent GDP growth in Southeast Asia in

28. Michiel van der Veen and Ralph van Mechelen. 2020. Decoupling US-China Supply Chains: High Tech on the Move. Rabobank Research, 16 July 2020. (https://economics. rabobank.com/publications/2020/july/decoupling-us-china-supply-chains/). However, one has to take into account that part of the exports from these countries comes simply from relabeling of goods made in China. Moreover, to some extent, reshoring of production to the US played a role in a drop of manufacturing imports from China to the United States in 2019.

29. Raphie Hayat. 2019. Leaving China: Which Countries Might Benefit from a Relocation of Production? Rabobank Research, 8 August 2019. (https://economics.rabobank. com/publications/2019/august/leaving-china-countries-might-benefit-from-relocation-production/).

30. UNCTAD. 2020. World Investment Report 2020: International Production beyond the Pandemic. Geneva New York: United Nations, 38. (https://unctad.org/system/files/official-document/wir2020_en.pdf).

31. UNCTAD. 2020. World Investment Report 2022: International Tax Reforms and Sustainable Investment. Geneva New York: United Nations. (https://www.un-ilibrary.org/content/books/9789210015431).

2022[32]) or a rising middle class, is the process of regional economic integration. It has been underscored by the implementation of the ASEAN Economic Community (AEC) since 2015, which aims to streamline cooperation in terms of trade, investment, and capital flows. Regional economic integration progressed in 2020 as the intra-ASEAN share of FDI rose from 12 per cent to 17 per cent.[33]

Though AEC is still being developed, it has already earned some tangible results, such as the development of a Single Window procedure in intra-regional trade which reduces costs for companies. From 2018 to 2021 a dozen or so agreements or initiatives were adopted by ASEAN that have contributed positively to the region's investment environment, such as improvement of the ASEAN Comprehensive Investment Agreement, ASEAN Trade in Services Agreement or the ASEAN Trade in Goods Agreement e-form, which enable access to preferential tariff rates. Moreover, countries in the region have implemented FDI-related measures aimed at liberalisation and relaxation of investment conditions.[34] Additionally, the Non-Tariff Measures Cost-Effectiveness Toolkit was supported by ASEAN economic ministers on 9 September 2021, to enable companies to reap more benefits from facilitated procedures.

As a coordinated bloc of countries, ASEAN is now actively participating in the reshaping of global economic geographies by building linkages with countries and regions beyond its immediate vicinity. The most prominent regional agreement achieved was the signing of the Regional Comprehensive Economic Partnership (RCEP) in November 2020. The deal, which comprises 15 countries (including all 10 ASEAN member states, which initiated negotiations, as well as China, Japan, South Korea, Australia and New Zealand), entered into force in the beginning of 2022 as 10 partners (including 6 ASEAN members) ratified the agreement. The RCEP is the largest free trade area in the world – it accounts for around 30 per cent of global Gross Domestic Product (GDP) and population, as well as one-quarter of global trade in goods

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32. Asian Development Bank. 2022. Asian Development Outlook (ADO) 2022 Update (September 2022). Asian Development Bank, 21 September 2022. (https://www.adb.org/outlook).

33. The ASEAN Secretariat. 2021. ASEAN Investment Report 2020-2021: Investing in Industry 4.0. Jakarta: The ASEAN Secretariat.

34. ASEAN Investment Report 2020-2021. Op. cit.

and services.[35] It introduces common regulations in areas such as technical standards and rules of origin that will facilitate the flow of components, raw materials, and final goods, which can make supply chains in the region more efficient.[36]

Beside the RCEP, there is another significant economic deal – The Comprehensive and Progressive Trans-Pacific Partnership (CPTPP) agreement – signed in 2018 by 11 countries[37] including 4 ASEAN member states (Brunei, Malaysia, Singapore, and Vietnam) along with Australia, Canada, Japan, Chile, Mexico, New Zealand, and Peru. While the total GDP of the CPTPP's members is 13.5 per cent of global GDP, far less than the RCEP's,[38] the CPTPP's provisions are more comprehensive and ambitious than the RCEP's, including such issues as environment or labour rights. Moreover, China, Taiwan, South Korea, and the United Kingdom want to join the CPTPP. Therefore, its significance for economic relations in the region, including the reshaping of supply chains, will probably increase in the near future. However, according to the EU-ASEAN Business Council, more actions are needed in terms of harmonising standards within ASEAN, removing non-tariff barriers, and fostering more innovation and competition.[39] Moreover, the organisation is in the process of implementing the Master Plan on ASEAN Connectivity (MPAC) 2025, which stipulates five key areas: sustainable infrastructure, digital innovation, seamless logistics, regulatory excellence, and people mobility.[40] In January 2021, ASEAN also issued the "Digital Masterplan

35. Lee and Adam. ASEAN Is Poised for Post-Pandemic Inclusive Growth and Prosperity – Here's Why. Op. cit.

36. Damian Wnukowski. 2020. Signing of the RCEP, the World's Largest Free Trade Agreement. PISM Spotlight. Warsaw: The Polish Institute of International Affairs, 16 November 2020. (https://www.pism.pl/publications/Signing_of_the_RCEP__the_Worlds_Largest_Free_Trade_Agreement).

37. The agreement is a modified Trans-Pacific Partnership (TPP), after the US withdrew from it at the beginning of Donald Trump's presidency in 2017.

38. About CPTPP and RCEP. US-ASEAN Business Council. (https://www.usasean.org/regions/tpp/about). Accessed 20 August 2022.

39. Remarks by Donald Kanak, Chairman of the EU-ASEAN Business Council. Investing in ASEAN 2021-2022. Jakarta: The ASEAN Secretariat, 2021 (https://asean.org/wp-content/uploads/2021/09/invest-in-asean-2021-2022.pdf).

40. The ASEAN Secretariat. 2016. Master Plan on ASEAN Connectivity, 2025. Jakarta: The ASEAN Secretariat. (https://asean.org/wp-content/uploads/2016/09/Master-Plan-on-ASEAN-Connectivity-20251.pdf).

2025", which could be also one of the main areas of cooperation with the EU, which seeks more connectivity with partners in Asia, including digital ones.[41]

EU-ASEAN SUPPLY CHAINS: REALITIES AND CHALLENGES

In 2022, the EU and ASEAN celebrated the 45th anniversary of their official relations. Economic cooperation has been the backbone of their relations, and one of the pillars of the EU-ASEAN Strategic Partnership established in December 2020.[42] Furthermore, the Indo-Pacific region, in which ASEAN takes a central place, is perceived by the European Union as vital for its long-term economic development, including the construction of resilient value chains.[43]

ASEAN is the EU's third largest trading partner outside Europe, after the US and China, and concurrently, the EU is ASEAN's third biggest partner in trade behind China and the US. In 2021, the value of EU-ASEAN trade in goods amounted to €215.9 billion, which was €26.4 billion, or 14 per cent more than in 2020. The European Union imported products worth €136.2 billion (€15.8 billion or 13 per cent more than in 2020 and €10.7 billion or 8.5 per cent more than in 2019), while its exports to ASEAN were valued at €79.7 billion (€10.3 billion or 14.8 per cent more than in 2020, but €5.6 billion or 6.5 per cent less than in 2019). Moreover, bilateral trade in services was

41. The ASEAN Secretariat. 2021. ASEAN Digital Masterplan 2025. Jakarta: The ASEAN Secretariat. (https://asean.org/wp-content/uploads/2021/08/ASEAN-Digital-Masterplan-2025.pdf).

42. EU-ASEAN Strategic Partnership. Factsheet. Brussels: European Union External Action Service, 2020. (https://www.eeas.europa.eu/sites/default/files/fact-sheet-eu-asean-strategic-partnership.pdf).

43. High Representative of the Union for Foreign Affairs and Security Policy. 2021. Joint Communication to the European Parliament and to the Council. The EU Strategy for Cooperation in the Indo-Pacific. European Commission, 16 September 2021. (https://www.eeas.europa.eu/eeas/joint-communication-indo-pacific_en).

valued at €93.5 billion in 2019 (latest available data).[44] Among ASEAN member states, the main trading partners for the EU were Vietnam (€49.1 billion), Singapore (€42.9 billion) and Malaysia (€40.9 billion); importantly, the EU remains in deficit in terms of trade in goods with ASEAN.[45] The main products in a structure of bilateral trade are manufactured goods (82 per cent share in the EU's exports and 86 per cent in imports), especially machinery and vehicles as well as chemicals. These are sectors in which supply chain linkages between the EU and ASEAN can be relatively easily developed.

The EU member states are the largest investors in ASEAN – until 2019 (the latest available full data), their FDIs amounted to €313.6 billion. Moreover, in recent years FDIs from ASEAN countries in the EU have also grown and, in 2019, reached a value of €144 billion.[46] However, in 2020, the EU's FDI flows sharply decreased by 40 per cent and amounted to only $10 billion, of which $9.6 billion was invested in Singapore (the biggest recipient of investment among ASEAN's member states). European MNEs are present in many sectors in ASEAN, including automotive (e.g., Audi, BMW, Mercedes-Benz), wholesale and retail (e.g., H&M, Ikea, Lego, Segafredo Zanetti, Sozio), pharmaceuticals (e.g., Novo Nordisk Pharmatech from Denmark), chemicals (e.g., Holland Colours and Total Corbion from the Netherlands, Lenzig from Austria), digital (e.g., Nokia, Ericsson, Deutsche Telekom), or agriculture (e.g., Intersnack from Germany or Synergy Flavors from Ireland).[47]

Despite the turbulence caused by the COVID-19 pandemic, European companies still perceive ASEAN as an area of business opportunity. According to the "2020 Business Sentiment Survey", prepared by the EU-ASEAN Business Council, more than half of European businesses named ASEAN as

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44. European Commission. 2022. EU Trade Relations with Association of South East Asian Nations (ASEAN). European Commission. (https://policy.trade.ec.europa.eu/eu-trade-relationships-country-and-region/countries-and-regions/association-south-east-asian-nations-asean_en).

45. Eurostat. 2022. ASEAN-EU - International Trade in Goods Statistics. Eurostat. (https://ec.europa.eu/eurostat/statistics-explained/index.php?title=ASEAN-EU_-_international_trade_in_goods_statistics).

46. Damian Wnukowski. 2021. Prospects for the Development of the EU-ASEAN Strategic Partnership. PISM Policy Paper. Warsaw: The Polish Institute of International Affairs, 23 July 2021. (https://www.pism.pl/publications/prospects-for-the-development-of-the-eu-asean-strategic-partnership).

47. ASEAN Investment Report 2020-2021. Op. cit.

the region of best economic opportunity for the next five years, and nearly 75 per cent reported that they planned to expand their trade and investment in Southeast Asia.[48] Business activity is supported by using Free Trade Agreements (FTAs) – currently, the EU has such deals with Singapore and Vietnam. Negotiations on similar agreements are ongoing with Indonesia, and in the longer term, there are prospects for deals with the Philippines, Malaysia and Thailand (they are currently on hold). The ultimate goal is to have a comprehensive EU-ASEAN FTA which would streamline supply chains' functioning, e.g., by standardising rules of origin. Negotiations on such a deal started in 2007, but they have been suspended since 2009 and there are no real prospects for pushing them further in the near future. More focus was put on bilateral agreements with particular ASEAN member states, which could pave the way for a region-to-region agreement in the future. In the meantime, in June 2021 both sides concluded the world's first bloc-to-bloc Air Transport Agreement. The EU-ASEAN Comprehensive Air Transport Agreement has now been signed and awaits ratification.

To support ASEAN's economic development, improve the business climate for investors, and enhance trade relations, the EU finances various regional projects, e.g., ASEAN Regional Integration Support from the EU (ARISE PLUS), COMPASS (Statistics and integration monitoring) and the ASEAN Project on the Protection of Intellectual Property Rights (ECAP III).[49] The EU also financially supports the "Smart Green Cities" initiative and the development of the "ASEAN Customs Transit System" as well as promoting cooperation with ASEAN on climate action. There are also some political as well as economic sticking points in bilateral relations, including the EU's policy on reducing the use in biofuels of palm oil, the production of which entails deforestation (Indonesia and Malaysia are its main producers), human rights violations (especially in Myanmar, but also in Cambodia, Thailand or Vietnam) and most ASEAN member states' mild positions towards Russia's invasion of Ukraine.[50]

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48. Remarks by Donald Kanak, Chairman of the EU-ASEAN Business Council. Op. cit.

49. EU Trade Relations with Association of South East Asian Nations (ASEAN). Op. cit.

50. D. Wnukowski. 2022. ASEAN Countries' Reactions to Russia's Invasion of Ukraine. PISM Spotlight. Warsaw: The Polish Institute of International Affairs, 3 November 2022. (https://www.pism.pl/publications/asean-countries-reactions-to-russias-invasion-of-ukraine).

Prospects of Relocating More Supply Chains to Southeast Asia

However, while companies are bold when it comes to discussing innovation and improving operations, they are much more conservative when it comes to discussing relocation. For outsiders, talks of relocation sound intriguing and can make policymakers excited, but MNEs remain cautious and adopt a hesitant, "until-proven-feasible approach", especially in capital-intensive and knowledge-intensive sectors.[51] In short, any relocation operation already means suffering significant costs in the short term, without guarantees of how the operation in a new setting will pan out.

Different industries face different challenges related to geography and the complexity of potential relocations. For some industries, access to resources, geology, or simply particular locations is paramount. For others, a link to a particular knowledge and innovation ecosystem is of key importance. For capital-intensive producers, relocation means moving extremely costly fixed investments. Nevertheless, some of them can be the subject of "re-shoring," as it may create added value in developed economies, increase their R&D expenditures, and create lucrative opportunities for specialists. It can also contribute to security in strategic sectors, such as communications technology or medicine. Labour-intensive industries are more likely to move to other developing countries. However, there are numerous stakeholders that need to be taken into consideration, including board members, partners, and investors. In the case of Asia, and in particular China, companies are mindful of long-term political relations that have been carefully built so they can operate in the country.

There are of course more granular factors to be considered in the case of potential supply chain relocations, e.g., from China to ASEAN. Southeast Asian countries in fact do offer some advantages for European MNEs, such as a large market (around 660 million people); a relatively accessible, young (median age is 30.2 years[52]) and affordable labour force; and the perks of regional integration, which have helped facilitate the movement of goods

51. Lund et al. Risk, Resilience, and Rebalancing in Global Value Chains. Op. cit.

52. Worldometer. 2022. Population of South-Eastern Asia (2022). Worldometer. (https://www.worldometers.info/world-population/south-eastern-asia-population/).

and services within the region. On the other hand, ASEAN is still a regional organisation of countries that aside from some similarities, exhibit notable differences in terms of regulatory frameworks and business cultures; and when compared to China lacks the most important factors that matter to MNEs: good infrastructure, multitude of specialised companies that create an effective network of suppliers, innovation ecosystem, and potential of the consumer market.

According to research conducted among EU companies active in China, integration projects such as the RCEP are going to partially modify supply chains in Asia.[53] As 38 per cent of respondents pointed out, some suppliers or customers had already relocated out of China. Thus, more Chinese companies can take advantage of the different business conditions within the RCEP and move parts of their production sites outside of China. However, most EU companies state that the RCEP will have no impact on them or that it is too early to say, while 23 per cent expect a positive impact. Among the latter two groups, 32 per cent expect that they will have to reshape supply chains to export more to RCEP countries from China, and 17 per cent anticipate the reverse tendency. One of the EU sectors in which companies are rethinking their regional strategy is the chemical industry.[54] That perception could be a result of anticipated streamlining in the functioning of production networks in the region and easier access to markets engaged in the RCEP, especially the Chinese one, which could lead to, e.g., lower costs and diversification of suppliers.

According to the survey, only 9 per cent of companies from the EU are considering moving existing or future investments out of China. Out of them, 19 per cent of firms plan to move an investment to ASEAN (second best result after overall Asia and the Pacific region with 27 per cent). Moreover, 15 per cent consider moving operations partially to Europe.[55] In the 2022 edition of the survey, the biggest obstacle for expanding European companies' operations in China was unpredictability, caused, e.g., by the "zero-COVID"

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53. European Business in China: Business Confidence Survey 2021. Beijing: European Union Chamber of Commerce in China, 2021. (https://www.europeanchamber.com.cn/en/publications-archive/917/Business_Confidence_Survey_2021).

54. European Business in China: Business Confidence Survey 2021. Op. cit.

55. European Business in China: Business Confidence Survey 2021. Op. cit.

policy and regulatory barriers. Nevertheless, it is worth mentioning that "eight times as many respondents reported plans to onshore supply chains into China as those looking to offshore."[56] These results show that China will remain a crucial consumer market and production base in the region and the lion's share of EU companies look for expanding their operations there. Therefore, future EU investments in ASEAN in pursuit of diversification would be new projects rather than companies moving production sites from China. Nevertheless, to reduce risks connected to the Chinese market, such as geopolitical tensions with the US or slower economic growth, some companies prefer to test a strategy of "China + 1" (i.e., keeping the bulk of operations in China, while also expanding in Southeast Asia, following a "just-in-case" SCM approach) to have an opportunity to export products via a third country (e.g., in ASEAN) and to some extent move them closer to the final markets in Europe. As a result of the RCEP, it would probably make sense for EU businesses to pursue a "China + ASEAN" strategy. Finally, MNEs have been also quite hesitant to join politically charged, securitised debates. While aware of the sensitive political backdrop against which the current stages of globalisation unfold, given their nature as multinational entities whose fate is interlinked with that of governments and societies all over the globe, they have been naturally predisposed against any programme that even remotely suggests some kind of protectionism or economic nationalism. The fact that much of the debate on supply chain resilience is loaded with political sentiment is off-putting for MNEs – they would rather stick to the discussion of the business side of things. While vying to attract investments, wariness has also accompanied ASEAN's attitude towards the changes in the global landscape – ASEAN would not want to take sides in any kind of conflict between China and the West.

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56. Russell Flannery. 2022. China's Unpredictability Is "Poisonous" For Its Business Environment, EU Chamber Says. Forbes, 20 June 2022, sec. Asia. (https://www.forbes.com/sites/russellflannery/2022/06/20/chinas-unpredictability-is-poisonous-for-its-business-environment-eu-chamber-says/).

CONCLUSIONS AND RECOMMENDATIONS: POSSIBILITIES FOR EU-ASEAN COOPERATION ON IMPROVING GLOBAL SUPPLY CHAIN RESILIENCE

While the policy community has been keen on hyping the idea of re-shoring and moving supply chains, MNEs view these with greater circumspection – especially in high value-added sectors (technology, etc.). MNEs consider the physical move of operations a costly measure that is only justified if the geo-political risks and business costs of not doing so are much higher and if the business environment would be too difficult and, in the long run, negatively affect their competitiveness. However, this does not mean that MNEs are not willing to step up investments into ASEAN. As argued above, part of the resilience-building and risk-proofing of supply chains is the diversification of suppliers, and this is where ASEAN countries have their chance. Furthermore, with the EU and ASEAN looking for long-term cooperation, there are a number of other areas where both sides can work together to foster more resilient supply chains.

New Investment in Southeast Asia

The limited relocation of European companies' operations to ASEAN poses the question of what industries would be most suitable for investment. In the short term, this process can mostly affect labour-intensive industries. Rather, because of ongoing regional integration and the drive for more diversification of production networks, new projects in ASEAN or enhancement of existing ones are more possible. Moreover, the usage of the "China + 1" strategy by EU companies can be more and more preferable to avert political as well as economic risks and simultaneously contribute to the reduction of economic interdependence between the European Union and China. It would make both EU production networks and final consumer goods more present in Southeast Asian markets, while at the same time avoiding driving a wedge between the EU, ASEAN, and China.

In that regard existing production networks may be extended, including machinery industry, chemicals or agriculture and food processing. In some countries, such as Malaysia or Singapore, more advanced projects can be carried out, such as launching R&D centres, and investing in robotics

or EV batteries. Investments will remain conditioned by the business environment and the presence (or lack thereof) of clusters of high value-added suppliers, (which in many ASEAN member states is still scarcely developed). Diversification will not only concern operations across borders, but also within them, e.g., on the company level, as well as having alternative local partners within one country, in case of emergency, which is yet another possible pathway for FDI.

The EU and ASEAN already have economic dialogues that help facilitate Business to Business (B2B) contact. Bodies such as the EU Chamber of Commerce also help in this, as do contacts between national business organisations. An important step would be to further facilitate trade and investment activities by implementing FTAs and concluding FDI protection deals (the agreements with Singapore and Vietnam should come into force in the near future), and negotiating new ones to diminish market barriers and limit the scope of unfair practices, such as industrial subsidies, as well as violations of human rights and degradation of the environment. Moreover, the EU's FTAs in the region can match the CPTPP's standards in some areas, such as rules of origin, which will make supply chains involving European companies operate more effectively.[57] As seaborne trade is also crucial, improving the security of maritime routes should be in the spotlight, e.g., by exchanging information on ships' traffic and developing infrastructure in ports.[58] The EU can make its position in the region stronger by concluding FTAs with ASEAN states (with the ultimate goal of the EU-ASEAN deal) and trying to become a part of the CPTPP, which corresponds with the EU's high standards for trade and investment. Likewise, ASEAN member states and companies can implement policies to further improve their business environment and attract EU businesses.

57. European Parliament. 2022. Texts Adopted - Indo-Pacific Strategy in the Area of Trade and Investment (2021/2200(INI)). 5 July 2022. (https://www.europarl.europa.eu/doceo/document/TA-9-2022-0276_EN.html).

58. Currently the EU is working on its maritime security strategy – public consultations are due to finish in September 2022.

Further Regional Integration within ASEAN

The crucial factor in attracting EU FDIs to ASEAN, and thus enhancing supply chains, is the continuation of reforms of the ASEAN market and integration processes that can lead to an effective recovery from the crisis caused by the COVID-19 pandemic. It concerns, among others, the implementation of the ASEAN Investment Facilitation Framework, the aim of which is to make the inflow of FDIs easier by improving the accessibility and transparency of investment measures and speeding up administrative procedures. Furthermore, trade facilitation in the region can be achieved by wider use of the ASEAN Authorised Economic Operator (AEO) and Mutual Recognition Arrangement (AAMRA).[59] Moreover, implementation of ASEAN's "Digital Masterplan 2025" would be helpful in streamlining supply chains' functioning.

Development of Suppliers' Clusters

Geographically concentrated companies that undertake complementary and interconnected specialised activities form a cluster. Once a cluster exists, the geographic areas where the clusters are located (be they macro-regions, countries, or subnational units) are assigned an additional value, as due to the close integration, the value of clustered suppliers is greater than the sum of their individual values. When expanding abroad, European companies are often looking for complete local industrial clusters and supply chains. For instance, one of China's trump-cards in its rise as an attractive destination has been the strong provincial- and city-level clusters, which made logistics, shipping, and administrative hurdles less cumbersome. The creation of clusters of suppliers can certainly increase ASEAN's competitiveness as well. Clusters can be encouraged both within individual countries and across neighbouring ASEAN member states by using some incentives provided by local or central authorities, concerning, e.g., taxes or access to a skilled workforce.

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59. ASEAN Looks Forward to Implement Framework to Facilitate Investment Inflow. Malaysian Dutch Business Council, 28 October 2021. (https://www.mdbc.com.my/asean-looks-forward-to-implement-framework-to-facilitate-investment-inflow/).

More Focus on R&D and Investment in Education

Knowledge and innovation are key in building supply chain resilience in the long term. Increasing ASEAN member states' potential in terms of research and development (R&D) as well as education (for example, following in the footsteps of Singapore, which is already one of the world leaders in both fields) would make them more attractive for high value-added investment. From the vantage point of European companies, knowledge and innovation is particularly significant for investments in strategic sectors, such as medical goods and equipment, renewable energy, or semiconductors. To achieve this, the EU and ASEAN could advance their cooperation in R&D, scientific cooperation, and academic exchange. Interactions between business and science should be encouraged. Limiting brain drain from Southeast Asia, and contributing to brain circulation (by stimulating highly skilled Southeast Asian nationals from overseas to come back and contribute) could also play a big role.

Development of Infrastructure

Having developed hard and soft infrastructure is the prerequisite for improving supply chain resilience. Southeast Asia has seen significant investment in this area in the past decades; however, there is still much room for improvement, for instance, in diminishing bottlenecks in the transport of goods, streamlining data transfer, and further stimulating e-commerce and digital business channels. ASEAN, in this sense, needs an expansion of 5G infrastructure (and preparation for 6G), improved train cargo linkages, and streamlined maritime transport through regional economic integration.

The EU has prioritised boosting connectivity in its overall strategy, including in its relations with other parts of the world. It has launched the "Global Gateway" initiative, while the largest European economies also participate in the US-led Partnership for Global Infrastructure Investment (PGII) under

the G7 umbrella.[60] Furthermore, even if the EU has a competitive posture vis-à-vis the Belt and Road Initiative (BRI), China's initiative is welcomed in some parts of ASEAN, while some European companies have been seeking ways of getting more involved in it. In this sense, the EU, while promoting rules-based and value-driven development of connective infrastructure, can also encourage multilateral cooperation in boosting ASEAN's infrastructure.

Enlargement in Scope of EU-ASEAN Programmes

Bilateral cooperation programmes can embrace issues inevitable to making supply chains more resilient, such as risk assessment activities or regular monitoring of impacts by changes in the global economy on supply chains spanning between Europe and Southeast Asia. These should be realised in cooperation with the business community, especially chambers of commerce or sectoral associations, and include training as well as an easier flow of know-how, which is especially important for small and medium enterprises (SMEs). Moreover, deeper and more comprehensive cooperation between MNEs and suppliers should be promoted, including sharing know-how and business opportunities, e.g., through product development or providing access to resources.[61]

Enhancing Political Dialogue

With the mainstreaming of concepts such as "ally-shoring" and "friend-shoring" of production to like-minded states,[62] political relations are indispensable when discussing the future of supply chains. Investing in countries that

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60. The White House. 2022. FACT SHEET: President Biden and G7 Leaders Formally Launch the Partnership for Global Infrastructure and Investment. The White House, 26 June 2022. (https://www.whitehouse.gov/briefing-room/statements-releases/2022/06/26/fact-sheet-president-biden-and-g7-leaders-formally-launch-the-partnership-for-global-infrastructure-and-investment/).

61. Panwar, Pinkse, and De Marchi. COVID-19 Will Transform, Not Break Global Value Chains. Op. cit.

62. Dezenski and Austin. Rebuilding America's Economy and Foreign Policy with "Ally-Shoring"; Condon, Kim, and Kim. Treasury's Janet Yellen Touts "Friend-Shoring" as Fix for Global Supply Chains - Bloomberg. Op. cit.

share similar values and visions of global affairs as the home-countries of particular companies decrease the possibility of retaliation and hurting of investors in case of political disputes or geopolitical conflicts. The EU-ASEAN political dialogue should be based on safeguarding shared values and devising a common approach to global challenges, especially climate change. However, this is an area where there are also substantial differences between the two, as is currently best exemplified by their diverging attitudes towards Russia's invasion of Ukraine. Thus, advancing not only business and policy exchanges but also dialogues on core political, strategic, and normative issues is key to improving EU-ASEAN cooperation on building resilient supply chains.

03

Enhancing Trade Connectivity Through an ASEAN-EU Single Window

Catherine Setiawan | Pingkan Audrine | Duc-Trong Truong | Dara Dan | Doina Postica

Abstract

The Association of Southeast Asian Nations (ASEAN) and the European Union (EU) both recognise the needs and importance of strengthening their economic relations. As mentioned in the EU-ASEAN Bluebook (2022), ASEAN and EU countries are respectively the third largest trading partner for each other, after China and the United States. To keep the momentum going, ASEAN and the EU need to place greater emphasis on their trade connectivity; one of the ways is through a single window. This research paper begins with a literature review exploring the utilisation of single windows in both ASEAN and the EU, in order to see their updates and challenges and to find solutions to effectively promote trading across borders between ASEAN and the EU. At the end, this paper will discuss the feasibility of an ASEAN-EU Single Window.

1. INTRODUCTION

This research paper aims to find solutions to effectively promote trading across borders between ASEAN and the EU, especially through a single window. This research paper consists of i) a literature review, exploring the utilisation of single windows, respectively in ASEAN and the EU; ii) research methodology; iii) discussion on whether an ASEAN-EU Single Window is feasible for implementation; and iv) recommendations on how to develop an ASEAN-EU Single Window.

The analysis in this research paper is carried out through a quantitative method using data from Europe and ASEAN statistics. In addition, this research paper uses qualitative research methods drawing upon primary data and secondary data:

- For primary data, this research paper undertakes interviews with diverse stakeholders from government, industry, civil society, and other related stakeholders in the respective countries.

- Secondary data include academic publications, policy documents, journals, and website articles from recognised sources.

We believe these would be the appropriate methodology for exploring the possible enhancement and feasibility of ASEAN-EU trade connectivity through an ASEAN-EU Single Window.

2. LITERATURE REVIEW

2.1. EU-ASEAN Trade

The Association of Southeast Asian Nations (ASEAN) and the European Union (EU) both recognise the need for and the importance of strengthening their economic relations. As mentioned in the EU-ASEAN Bluebook,[1] the

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1. EU and ASEAN. 2022. EU-ASEAN Strategic Partnership Bluebook 2022. (https://www.eeas.europa.eu/delegations/association-southeast-asian-nations-asean/eu-asean-bluebook-2022_en?s=47).

EU is working towards improving trade-related regulatory and policy frameworks, intellectual property rights, standards, customs and transport, and civil aviation, with the ultimate objective of accelerating regional economic integration and improving livelihoods in the ASEAN region. The EU-ASEAN Bluebook (2022) also noted that the trade intensity between the two regions is reflected in the fact that ASEAN and EU countries are respectively the third largest trading partner for each other, after China and the United States (US).

Figure 1. Imports and Exports between ASEAN economies and the EU-27 (2012-2021).
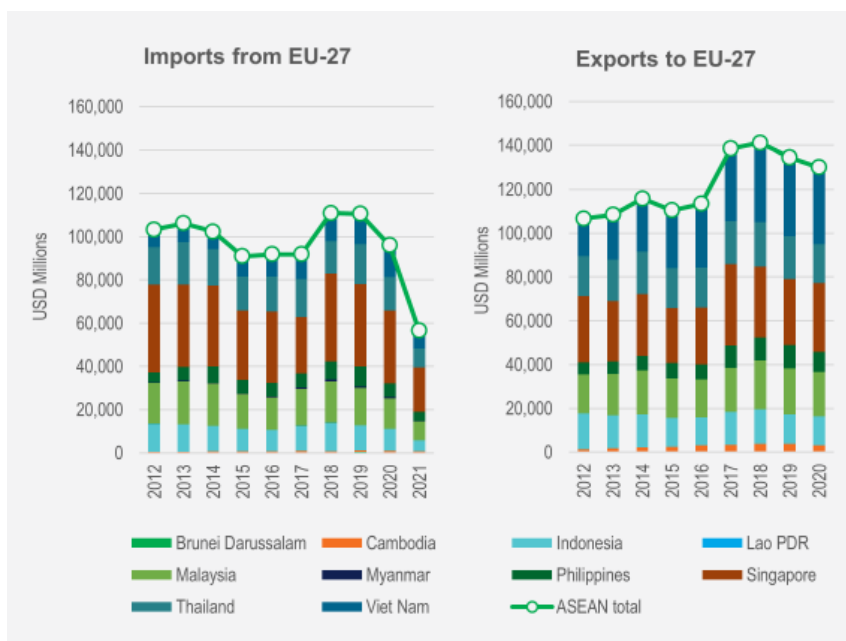
Source: Authors' own elaboration based on ASEANstats data (2021). Values are expressed in USD.

As shown in Figure 1 imports and exports between EU-27 and ASEAN countries have been overall stable over the last decade. The anomaly is 2021, when due to the disruptive effects of the COVID-19 pandemic to the global economy, exports and imports shrank significantly (-$55981.81 and -$39509.13 respectively), but these are likely to be temporary rather than

long-term effects. Information for specific goods that were being imported and exported can be seen in Appendix 1.

2.2.   Enhancing Trade Connectivity Through a Trade Facilitation Measure: Single Window

Connectivity in trade, as defined by the World Bank[2], *"encompasses physical facilities, services, and ways to facilitate the movement of goods and people within and across borders regardless of their relative position within a network, e.g., hub or feeder, central or remote."* It is critical for countries to enhance their trade connectivity via a trade facilitation measure.

There is no uniform definition of the term "trade facilitation," but this research paper uses the World Trade Organisation's[3] definition, which states: *"simplification and harmonisation of international trade procedures, including activities, practices, and formalities involved in collecting, presenting, communicating, and processing data required for the movement of goods in international trade"*. Trade facilitation is defined by four interdependent elements: (1) simplification and harmonisation of applicable rules and procedures; (2) modernisation of trade compliance systems, particularly the sharing of information and the lodging of declarations between business and government stakeholders; (3) administration and management of trade and customs procedures; and (4) the instability of trade and customs procedures.[4]

The trend toward increasingly automated and information technology-enabled border as well as the modernisation of trade compliance systems are becoming increasingly vital to many countries. This aspect assists in expediting the filing and processing of trade and customs declarations processed using current information technology. Among the several approaches aimed at modernising trade compliance systems, one proposal that frequently

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2. World Bank. 2022. Connectivity, Logistics and Trade Facilitation. (https://www.world bank.org/en/topic/trade-facilitation-and-logistics).

3. WTO. N.d. Trade Facilitation. (https://www.wto.org/english/tratop_e/tradfa_e/tradfa_introduction_e.htm).

4. Andrew Grainger. 2011. Trade facilitation: A conceptual review. Journal of World Trade, 45(1).

dominates the trade facilitation agenda,[5] and can be considered as the most important, is the Single Window (SW).[6]

The United Nations Centre for Trade Facilitation and Electronic Business (UN-CEFACT)[7] defines Single Window as *"a facility that allows parties involved in international trade and transport to lodge standardised information and documents with a single point to fulfil all import, export, and transit-related regulatory requirements."*

SW is a single-entry point that provides an integrated electronic gateway and enables exporters, importers, customs brokers, freight forwarders, shipping agents, and other stakeholders in the international trade chain to submit trade-related information and documents. SW simplifies and streamlines customs documentation, since each document should be submitted only once, and it can subsequently be shared and disbursed to all relevant institutions. This will make the process easier for traders when submitting all customs-related documentations.[8] In addition, SW has the potential to assist in the payment of duties, taxes, fees, and commercial invoices. It can also introduce other value-added services like e-training and e-marketing.

a. Benefits of Single Windows

As a trade facilitation mechanism, the SW has numerous benefits as follows:

i. Simplify trade-related process for efficiency and efficacy

SW streamlines the process for the trader, who must otherwise approach multiple different agencies to comply with national trade restrictions in

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5. WTO. 2017. Trade Facilitation Agreement. (https://www.wto.org/english/tratop_e/tradfa_e/tradfa_e.htm#II).

6. Joann Peterson. 2017. An Overview of Customs Reforms to Facilitate Trade. Journal of International Commerce and Economics. (https://www.usitc.gov/publications/332/journals/jice_customsreformstofacilitatetradepeterson_508_compliant.pdf).

7. UNCEFACT. 2005. Recommendation and Guidelines on establishing a Single Window to enhance the efficient exchange of information between trade and government Recommendation No. 33. (www.unece.org/cefact).

8. Katerina Tosevska-Trpcevska. 2014. Effects of implementation of single window and simplified customs procedures in the Republic of Macedonia.(https://www.researchgate.net/publication/272686467_Effects_of_implementation_of_single_window_and_simplified_customs_procedures_in_the_Republic_of_Macedonia).

most countries. Often, the trader is required to deliver the same information in many formats, sometimes on paper and sometimes electronically.[9] This results in administrative burden and financial cost to the trader. The implementation of SW can significantly simplify the trade-related process, especially in providing and exchanging documents to comply with regulatory requirements,[10] considering that the SW has the advantage of being adaptable to both digital and non-digital environments.[11] The SW enables governments to strengthen their ability to administer and enforce legal requirements across numerous government agencies using integrated processes, while also facilitating the speedy and efficient movement of legitimate trade across borders.[12] As a result, this system could increase the efficiency and efficacy of official controls, as well as lead to cost savings for both traders and governments because of more efficient resource allocation.[13]

ii. *Provide transparency for greater coordination, enhance risk management, and prevent corruption*

SW promotes electronic data interchange between customs authorities and other government agencies[14], as well as between customs administrations of trading partners.[15] This can result in a more effective integration of existing governmental systems and procedures, while also fostering a more open and facilitative approach to how governments function and engage with en-

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9. UNECE. 2019. Single Window Repository. (https://unece.org/trade/uncefact/SW-repository).

10. Weber, R. H. 2012. Legal Framework for the Single Window Concept in ASEAN: A Successful Movement towards Trade Facilitation in East Asian Countries. Asian Journal of Law and Economics, 2(4). (https://doi.org/10.1515/2154-4611.1060).

11. de Sá Porto, P., Canuto, O., and Morini, C. 2015. The Impacts of Trade Facilitation Measures on International Trade Flows. Working Paper Series, 7367.

12. Widdowson, D., Blegen, B., Short, G., Lewis, G., Garcia-Godos, E., and Kashubsky, M. 2019. Single window in the context of the WTO Trade Facilitation Agreement. World Customs Journal, 13(1).

13. UNECE. 2011. Recommendation 33. (https://tfig.unece.org/contents/recommendation-33.htm).

14. D. Ndonga. 2013. Managing the risk of corruption in customs through single window systems. World Customs Journal, 7(2).

15. J. Peterson. 2017. An Overview of Customs Reforms to Facilitate Trade. Journal of International Commerce and Economics.

terprises. Efficient systems with precise validation processes would also re-
sult in improved coordination and cooperation among government agencies
participating in trade-related operations. The benefits also include better
risk management, the enhancement of security and revenue yields through
increased trader compliance, the transparent interpretation and application
of rules, the more effective use of human and financial resources, and the
achievement of productivity and competitiveness gains.[16] Furthermore, the
deployment of a payment system within the SW could ensure the prompt
and accurate payment of required duties and other charges to governmental
authorities and organisations.[17] As a result, this can give up-to-date informa-
tion on tariff rates and other legal and procedural requirements, thereby
minimising inadvertent errors and enhancing trader compliance.

iii. Economic potential

Several studies have attempted to quantify the influence of the Single
Window on trade activity. De Sá Porto et al.[18] used a gravity model to exam-
ine the influence of trade facilitation policies on international trade flows
in 72 countries, including six ASEAN member states, Indonesia, Malaysia,
Philippines, Singapore, Thailand, and Vietnam, between 2011 and 2012. They
discovered that having a Single Window system improves countries' trade
performance. In addition, Martínez-Zarzoso and Chelala[19] used a structural
gravity model to quantify the impact of the Single Window on global trade
from 1995 to 2017. According to the model's estimates, the overall trade be-
tween two countries that already have SW grows by around 37 per cent, with
23 per cent attributed to exports and 14 per cent to imports. However, there
are a few preconditions that may affect the results. It shows that countries

16. UNECE. Recommendation 35, 2011. (https://tfig.unece.org/contents/
recommendation-35.htm).

17. UNECE. Recommendation 33, 2011. (https://tfig.unece.org/contents/
recommendation-33.htm).

18. de Sá Porto, P., Canuto, O., and Morini, C. 2015. The Impacts of Trade Facilitation
Measures on International Trade Flows. Working Paper Series, 7367.

19. Martínez-Zarzoso, I., and Chelala, S. 2020. The impact of single windows on trade.
World Economy, 43(10). (https://doi.org/10.1111/twec.12945).

that are geographically closer to each other and have similar languages will have greater trade growth boosted by SW.

b. Challenges for Single Window

The development of a National Single Window (NSW) requires significant resources, especially financial ones. UNCTAD[20] argues that SW is the most expensive trade facilitation measure to be implemented, with an average cost of approximately USD3 million. The higher the level of automation and the depth of business process integrations that a country wants to achieve, the higher the implementation cost. On top of that, the initial technological and human capital endowment matters as well. Therefore, it will be challenging for emerging and developing economies with limited financial, technological and technical expertise resources to build the SW. It is not just about high costs; SW construction can also be difficult to implement, especially considering the complicated technical issues, lengthy development time, and the involvement of numerous government agencies. Often, these countries would prioritise resources for other activities or other trade facilitation measures that are simpler to adopt rather than the SW.

2.3.   The ASEAN Single Window

2.3.1.   Development

The ASEAN Single Window (ASW) is a regional initiative that connects and integrates National Single Windows (NSW) in ASEAN countries. ASW aims to promote ASEAN economic integration by enabling the electronic exchange of trade-related documents across borders and to expedite cargo clearance among ASEAN member states (AMS). Furthermore, initiated by ASEAN, the ASW is integrating the NSW of each ASEAN member. NSW as the national procedure of AMS will each conduct its own data and information integration, and the information and data that are integrated by each NSW is gen-

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20. UNCTAD. 2014. The New Frontier of Competitiveness in Developing Countries - Implementing Trade Facilitation.

erally export-import data. Further information concerning the NSW of each AMS is listed in Table 1 below.

Table 1. Single Window update in ASEAN Countries.

No.	Countries (NSW)	Update
1.	Brunei Darussalam (BDNSW)	Brunei Darussalam NSW (BDNSW) is a single and synchronous processing of data and information to enable a single submission of data and information. This is a single decision-making point for customs release and clearance that shall be uniformly interpreted as a single point of decision for the release of cargoes by the customs based on decisions if required, taken by line ministries and agencies, and communicated in a timely manner to the customs.[21]
2.	Cambodia (CNSW)	Cambodia NSW (CNSW) is an enabling on-line service to facilitate faster and more transparent international trade procedures, reduce costs and provide consistency and certainty to the total process from the start of the regulatory requirements to the clearance of goods.[22]
3.	Indonesia (INSW)	Indonesia NSW (INSW) is facilitating single and synchronous processing of data and information and single decision-making to grant customs clearance and release of goods (cargo clearance).[23]
4.	Lao PDR (LSNW)	Lao PDR NSW (LSNW) is establishing the simplest way to process the import-export and transit formalities, updating the process through its website, which makes it more secure and easier to access, and enabling the tracking of the shipment process.[24]

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21. BDNSW. 2014. Definition for National Single Window. (https://bdnsw.mofe.gov.bn/Pages/AboutUs.aspx).

22. CNSW. 2021. A Blueprint for Cambodia National Single Window. (https://nsw.gov.kh/publications).

23. Administrator, INSW (Indonesia National Single Window). 2019. (https://indonesia.go.id/kategori/kepabeanan/672/insw-indonesia-national-single-window); Admin INSW, Peran INSW dalam Fasilitas Perdagangan ASEAN dan RRT. 2021. (https://www.insw.go.id/).

24. LSNW. 2011. Definition & Objectives. (https://www.laonsw.net/web/epermitsv2/definition-objectives).

No.	Countries (NSW)	Update
5.	Malaysia (TRADELINK)	Malaysia NSW, through its website called my TRADELINK, is gathering the trade community in all aspects to one or single connectivity access and transforming the old manual method to the new automatic method with the technology.[25]
6.	Myanmar (MNSW)	Myanmar NSW is manifested in its Certificates of Origin (COs), the main function of which is to collect the documents that are needed by traders with a great efficiency in costs and time.[26]
7.	Philippines (TradeNet)	Philippines NSW is called TradeNet, the automated licensing, permit, clearance, and certification system that is integrated into one platform and connected to the relevant government agencies. It helps traders to apply for trade permission easily and to receive the feedback in real-time.[27]
8.	Singapore (NTP)	Singapore NSW, called the Networked Trade Platform (NTP), presents a one-stop trade and logistics ecosystem which supports digitalisation in the trade sector both in Singapore and abroad.[28]
9.	Thailand (TNSW)	Thailand NSW (TNSW) is developed to integrate the human resource data for import, export and logistics, to develop the infrastructure and other instruments for national and international data linkage, to develop data integration for import, export, and logistics, to enhance the legal framework for enabling national and international data linkage, and to ensure that the international collaboration development will be in line with the national policy and international agreement.[29]

25. Malaysia NSW. 2012. Welcome to myTRADELINK, the one-stop point for exchanging trade documentation. (http://www.mytradelink.gov.my/aboutus).

26. Myanmar NSW. 2021. About CofO. (https://onlineco.myanmartradenet.com/).

27. Philippines NSW. 2021. Overview: What Is Tradenet. (http://info.tradenet.gov.ph/about-us/tradenet-overview/).

28. Singapore NSW. 2020. Introduction to NTP. (https://www.ntp.gov.sg/public/introduction-to-ntp---overview).

29. Thailand NSW. 2010. Thailand National Single Window Strategies. (https://www.thainsw.net/INSW/index.jsp?nswLang=E).

No.	Countries (NSW)	Update
10.	Vietnam (VNSW)	Vietnam NSW (VNSW) is an integrated system that allows parties who are involved in international trade to submit or send the standardised data and information to a single point. This will be used by the government agencies to process the data and information for taking a decision. At the end, the decisions are based on consistent and unified processes and will be issued and sent by the system based on the agreement. This will also provide information exchange between government agencies, including the customs, to enable the making of a final decision on clearance and the releasing of cargoes and conveyances based on decisions taken by line ministries and agencies which have been communicated in a timely manner to the customs.[30]

Source: National Single Window in ASEAN (2021).

For the last two decades,[31] paperless trade has been an integral part of ASEAN's trade facilitation initiatives. With the support of donor agencies, the ATIGA e-Form D has been exchanged since 2018, which marked the establishment of the ASEAN Single Window (ASW) and made ASEAN the first group of nations managing the exchange of electronic documents to facilitate the movement of goods across borders.

2.3.2. Potential and challenges

a. Potential of the ASW

The ASW enables ASEAN governments to strengthen their ability to administer and enforce legal requirements across numerous government agencies using integrated processes, while also facilitating the speedy and efficient movement of legitimate trade across borders. The ASEAN Trade Facilitation Document, in particular emphasised greater coordination. It could play an important role for a single gateway to be an integrated platform of partner-

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30. ASEAN Single Window. Vietnam General Information. (https://asw.asean.org/index. php/nsw/viet-nam/vietnam-general-information; https://vnsw.gov.vn/).

31. Interview with Mr. Cuong Ba Tran, ASEAN Secretariat. 21 January 2022.

ship between government officials, traders, transport and logistics operators, as well as customs officers in Southeast Asia.

b. Challenges

The development of NSWs within ASEAN is at different levels of maturity. According to the UN Global Survey on Digital and Sustainable Trade Facilitation in 2021[32], the NSWs of AMS can be divided into three groups. As we can see in Table 2, the full enforcement group includes Brunei, Indonesia, Malaysia, Singapore, and Thailand. The partial enforcement group includes Cambodia, Myanmar, the Philippines, and Vietnam. Meanwhile, Lao P.D.R has only just begun the planning of its NSW roll-out.

Table 2. NSW levels of maturity among ASEAN Member States.

ASEAN Member States	2015	2021
Brunei Darussalam	Planning stage	**Fully implemented**
Cambodia	Not implemented	Partially implemented
Indonesia	Fully implemented	**Fully implemented**
Lao P.D.R.	Not implemented	Planning stage
Malaysia	Fully implemented	**Fully implemented**
Myanmar	Not implemented	Partially implemented
Philippines	Partially implemented	Partially implemented
Singapore	Fully implemented	**Fully implemented**
Thailand	Fully implemented	**Fully implemented**
Viet Nam	Planning stage	Partially implemented

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32. Digital and Sustainable Trade Facilitation: Global Report. 2021. ESCAP. (https://unescap.org/kp/2022/untf-survey-2021-global?ref=untfsurvey.org).

Progress tracker

Not Implemented	Planning Stage	Partially Implemented	Fully Implemented
This stage may still include initiatives or efforts towards implementation of the measure.	A measure is considered to be at the pilot stage of implementation if, in addition to meeting the general attributes of partial implementation, it is available only to a very small portion of the intended stakeholder group (or at a certain location), and/or is being implemented on a trial basis.	A measure is considered to be partially implemented if at least one of the following is true: (1) the trade facilitation measure is in partial - but not in full compliance with commonly - accepted international standards, recommendations and conventions; (2) the country is still in the process of rolling out the implementation of the measure; (3) the measure is being used but on an unsustainable, short-term or ad-hoc basis; (4) the measue is implemented in some but not all targeted locations.	The trade facilitation measure implemented is in full compliance with commonly-accepted international standards, recommendations and conventions.

Source: UN Global Survey on Digital and Sustainable Trade Facilitation, 2021.

The different levels of maturity make the regional connection of NSWs complicated. There are several reasons as to why the NSWs within ASEAN are at distinct levels of maturity:

i. ASEAN member states are at different levels of economic development

As mentioned previously, SW is the most expensive trade facilitation measure to be implemented with an average cost of approximately USD3 million.[33] In addition, the costs of implementing SW are dependent on the level of automation and the depth of business process integrations that a country wants to achieve. In this respect, Figure 2 and Table 3 below show that ASEAN member states are at different levels of economic development, through looking at AMS' gross domestic products (GDPs).

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33. UNCTAD. 2014. The New Frontier of Competitiveness in Developing Countries - Implementing Trade Facilitation.

Figure 2. Year-to-year percentage change of GDP (2000-2020).
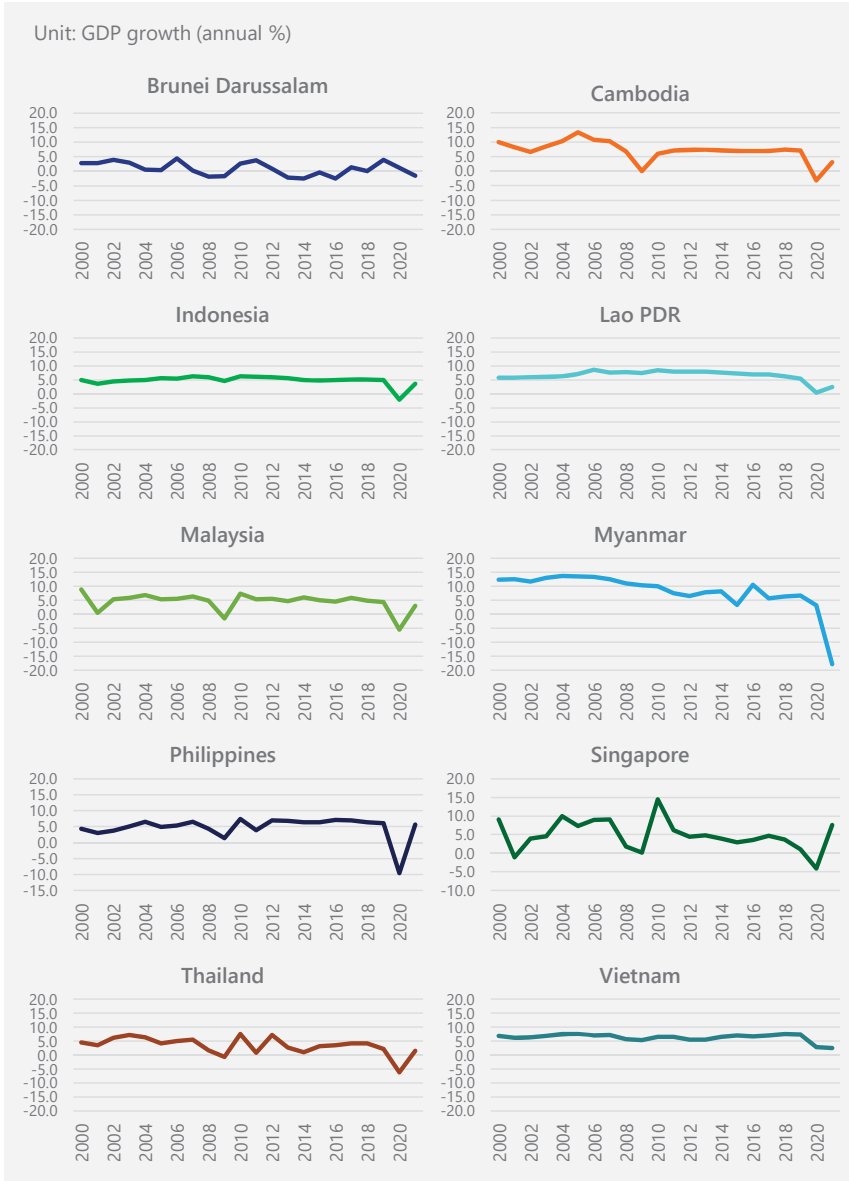
Source: World Bank (2023), World Development Indicators.

Table 3. ASEAN GDPs (in USD Million).

Country	2015	2016	2017	2018	2019	2020
Brunei Darussalam	12.931	11.399	12.128	13.568	13.47	12.016
Cambodia	18.083	20.043	22.189	24.444	26.728	25.953
Indonesia	860.741	932.066	1,015.49	1,042.71	1,120.04	1,059.64
Lao P.D.R.	14.363	15.905	17.056	18.133	18.807	19.078
Malaysia	301.355	301.255	319.109	358.713	364.684	338.276
Myanmar	62.655	60.09	61.267	66.699	68.802	81.257
Philippines	306.446	318.627	328.481	346.842	376.795	362.243
Thailand	401.142	413.497	456.523	506.403	544.152	501.888
Vietnam	236.84	252.149	277.074	304.016	329.537	340.821

Source: ASEANstats data (2021).

ii. Technological infrastructure disparities

The disparities in the development of technological infrastructure between NSWs within ASEAN and in ASEAN member states make the regional connection of NSWs become more complicated. While Lao PDR's NSW is just beginning the building of its technical infrastructure, Singapore's NSW has advanced to a point where it is one of the most sophisticated NSW in the world.[34] It should be noted that the level of technical infrastructure varies significantly even within each of these groups. Bridging this gap will thus be a significant challenge in promoting ASW's greater connectivity.

iii. ASEAN member states have their own customs regimes and laws governing issues in their respective NSWs

The ASW also faces challenges with full implementation at both regional and national levels, considering that each of the member states have different technical regulations, standards, and conformity assessment procedures that create obstacles to trade. Despite making substantial progress on utilising electronic exchange of border trade-related documents among member

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34. Singapore Customs Magazine. 2018. Digitalise, Connect, Grow: Networked Trade Platform Officially Launched. (https://www.customs.gov.sg/news-and-media/publications/2018-10-01-Issue51.pdf).

states, there are some other documents the ASW is yet to cover, including ASEAN Customs Declaration Document/ACDD (so far only among five AMS)[35], e-Phyto certificate, and others.

Also, different regulatory agencies within Southeast Asia often produce and utilise the same information in different formats and forms. This especially happens for most NSW systems created by ASEAN government entities. These differences make automatic information exchange between authorities difficult. While two distinct systems may be able to communicate data electronically, the receiving system is unable to semantically interpret or map the received data in such a way that the data may be used by that system.

iv. The limited participation and awareness of the private sector in NSW and ASW implementation

For a single window to operate successfully, all stakeholders are required to share, integrate, and exchange information. To achieve that, the private sector plays a critical role in the operational model,[36] especially in collaborating with the government to develop and implement paperless clearance across AMS. Unfortunately, promoting private sector participation remains a major challenge.[37] Many stakeholders in the private sector are not familiar with the single window, and only 30 per cent understood the concept and benefits of the SW.[38]

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35. The ASEAN Secretariat. 2022. The Philippines starts the Live Exchange of the ASEAN Customs Declaration Document (ACDD). ASEAN Single Window Portal. (https://asw.asean. org/index.php/news/item/the-philippines-starts-the-live-exchange-of-the-asean-customs-declaration-document-acdd).

36. Ibid.

37. Information from interview with Dr. Sithanonxay Suvannaphakdy from the Institute of Southeast Asian Studies (ISEAS). 15 December 2021.

38. ASW Potential Impact Survey. 2012.

2.4.   The EU Single Window

2.4.1.   Development

The 2008 e-Customs Decision was the first piece of EU legislation that mandated the Commission and the member states to establish a SW framework for service.[39] It was then followed by the Venice Declaration 2014, proposing a progressive action plan to implement and regulate these services at the EU level with a pilot system known as the *EU Customs Single Window Certificates Exchange*. This allowed the automated verification of sanitary and Phyto-sanitary (SPS) certificates, initially involving the exchange of certificates between five EU member states participating on a voluntary basis. The project was expanded in 2017 and 2018 with more certificates exchanged and nine EU countries participating.

The Customs Union has been facilitating trade in goods worth more than EUR 3.5 trillion annually. However, the EU's external borders' formalities often consumed a lot of time as they involved many different authorities with different policies that complicated the business process. The EU Commission then signed the 2020-2025 Action Plan, aiming to address the challenges faced by EU member states' customs to take the Customs Union to the next level. The goal is to achieve a modern, interconnected and fully paperless customs environment by 2025, covering the implementation of the Union Customs Code.[40] As it needs more robust risk management tools, the European Commission proposed a new initiative called "EU Single Window Environment for Customs in 2020", with the intention of creating a Single Window for the entirety of the bloc.[41]

This initiative is also consistent with the World Trade Organisation (WTO) Trade Facilitation Agreement. The objective of the EU Single Window integrated environment (EU-SW) is to streamline and fully digitalise the fulfilment of regulatory formalities for economic operators involved in the in-

39. The EU Single Window Environment for Customs. N.d. An official EU Website. (https://ec.europa.eu/taxation_customs/eu-single-window-environment-customs_en).

40. Taxation and Custom Union. An official website of the European Union. (https://ec.europa.eu/taxation_customs/customs-4/union-customs-code_en).

41. Ibid.

ternational trade of goods.[42] The EU-SW has two major components: i) the EU Customs Single Window Certificates Exchange (EU CSW-CERTEX) to link member states' customs systems to the EU systems; and ii) Databases managing non-customs requirements such as TRACES.[43] Table 4 below gives an overview of Customs Single Window development across the 27 Member States of the European Union.

Table 4. Single Window update in EU Countries.

No.	Countries	Update
1.	Austria	The Customs Single Window scheme has been running and is known as e-zoll. The Austrian Customs Single Window facility is managed by both the customs administration and involved regulatory agencies, such as the Ministry of Trade, Ministry of Agriculture, and the Agency for Agricultural Products.[44]
2.	Belgium	The study phase has been carried out for a Customs Single Window. The Single Window scheme has not been formalised yet. The majority of certificates requested by economic operators are currently paper based.
3.	Bulgaria	The customs administration manages the Single Window facility and the Bulgarian Food Safety Agency is appointed as the regulatory agency. The customs provides a Single Access Point to all its electronic services.
4.	Croatia	Not available.
5.	Cyprus	Not available.
6.	Czech	The customs administration is the leading authority for the Customs Single Window scheme, although its role has not yet been formalised through national regulation. Economic operators submit the required information to the issuing authority. Data harmonisation is carried out for cross-border regulatory agencies participating in the Customs Single Window.

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42. Wahl, T. 2020. Commission: Single Window for Modernisation of EU Customs Union. (https://eucrim.eu/news/commission-single-window-modernisation-eu-customs-union/).

43. The EU Single Window Environment for Customs. N.d.

44. Federal Ministry Republic of Austria. (https://www.bmf.gv.at/en/topics/customs.html).

No.	Countries	Update
7.	Denmark	Not available.
8.	Estonia	The Customs Single Window is not yet operational. No central database will be created either in the near future. Each authority runs its own database that will be connected to the customs system. Estonia expressed interest in joining the EU CSW-CERTEX project starting from Release 1.4.0 of the EU CSW-CVED project.
9.	Finland	Not available.
10.	France	The Customs Single Window scheme has been operational since December 2015 and is also known as the "Guichet Unique National" initiative. The customs administration is the leader of the Customs Single Window facility. Its role is formalised by national legislation. All authorities issuing permits and certificates required for imports and exports are progressively to be involved in the Customs Single Window mechanism. The current scope includes CITES, AGREX, seed import declaration and the radionuclide export and import certificates.
11.	Germany	The customs information system (ATLAS system) mirrors the national Customs Single Window. There are bi-directional interfaces for export licenses through which certificates are received by customs from the competent authorities. In case of single-export licenses and maximum-value-export licenses, quantity management is carried out by the customs clearance system.

There are single-directional interfaces for AGREX and AGRIM through which certificates and license datasets are received by customs from the competent authorities. No quantity management is implemented in the customs clearance system for AGREX and AGRIM.

For the plan of joining the EU CSW, certificates exchange was discussed in January 2017 with various business/technical experts. |
| 12. | Greece | Currently, the Customs Single Window project is undergoing the inception phase. The customs is the leading authority in the Customs Single Window initiative but the relationship with the regulatory agencies is established through the National Committee on Trade Facilitation, whose role is legally formalised. |
| 13. | Hungary | Not available. |

No.	Countries	Update
14.	Ireland	The National Customs Single Window is run and managed by both the customs administration and other regulatory bodies involved. In 2014, Irish customs implemented an Electronic Manifest System (EMS). All manifest data (for both air and sea) is received in the EMS. Data from the EMS is shared with the Department of Transport, Tourism and Sport and the Department of Agriculture and Health. Plans are in place to share the data with other government agencies. The customs have an in-house arrivals system which stores information on the arrival of all flights and ships to Ireland.
15.	Italy	The customs administration is the leading authority, formalised by national legislation. The role of the competent authorities involved in the national Customs Single Window is formalised by Presidential Decree no. 242/2010. The organisational setup for Customs Single Window activities includes a central monitoring and control committee, a subcommittee for interoperability between customs administration and other government agencies, a technical working group and several procedural working groups for each agency.
16.	Latvia	The EU CSW-CVED has been in production since 20 September 2015. Economic operators submit the required information to the issuing authority.
17.	Lithuania	The customs implemented a project in 2015 for the implementation of the Customs Single Window system with partners, such as the State Food and Veterinary Service, the Department of Cultural Heritage under the Ministry of Culture, the National Paying Agency under the Ministry of Agriculture, and the State Enterprise Centre of Registers. The Customs Department under the Ministry of Finance has been nominated as a lead authority to implement the Customs Single Window.
18.	Luxembourg	Currently, the national Customs Single Window, called the "Single Window for Logistics/SWL" project, is undergoing the inception phase. The Customs Single Window for Logistics is not yet operational. The Customs Single Window initiative is coordinated by the Ministry of the Economy in close collaboration with all engaged governmental services, particularly the Luxembourg Customs' Administration. A multiannual project portfolio has been implemented since September 2015 (2015-2020).

No.	Countries	Update
19.	Malta	No Customs Single Window facility is yet in place. There are plans to join the EU CSW-CERTEX project in the future. The Customs Single Window facility will be managed by the customs authorities in collaboration with various involved stakeholders. All certificates are paper-based. Export licenses will soon be issued electronically by the Commerce Department.
20.	Netherlands	The Maritime Single Window (MSW) is being enhanced to include all modes of transport into the Single Window for Trade and Transport (SWTT). An EU CSW-CVED-like Single Window has been established where information from phytosanitary certificates is combined with declarations for free circulation. The Customs Single Window Phyto is managed by the Phytosanitary authority. The customs is the lead authority and its role is formalised in the Logistics Policy of the Netherlands Government, in a multi-departmental steering group and other national agreements.
21.	Poland	Currently, the national Customs Single Window project is in the elaboration phase. The relevant documentation (functional specifications, etc.) is being finalised. The AGRIM-AGREX pilot project has been developed. The deadline for implementation depends on the progress of deployment of the new IT environment of the National Revenue Administration. No legal amendments have been implemented with regard to the national Customs Single Window.
22.	Portugal	Initial steps have been toward the process of developing and implementing a national Customs Single Window, which is anticipated to be run by the customs administration. The automatic exchange of information between customs declaration and other certificates started with AGREX. The electronic AGREX license allows the cross check and exchange of data between the SLE - External Licensing Service and customs export declaration (STADA – EXPORT). This connection includes quantity management.
23.	Romania	Not available.
24.	Slovakia	Not available.
25.	Slovenia	Not available.

No.	Countries	Update
26.	Spain	There is a fully operational system for exchanging certificate data. A one-stop shop to coordinate physical controls on goods is currently completing the pilot phase.
		A common repository is available to all parties involved in the required documentation. Two national regulations were modified, and seven agreements were signed to implement the Customs Single Window facility. The customs administration is the lead authority for the national Customs Single Window.
27.	Sweden	The Customs Single Window scheme is fully operational and is managed by the customs administration. Legal/regulatory amendments were applied to existing legislation.
		Economic operators submit the declarations to the customs, which passes through from the Customs Single Window facility to the competent authority. The customs receives licenses from the competent authority via EDI. Veterinary checks are performed separately. Confidentiality and data protection are ensured by applying strong authentication measures.

Source: European Commission Impact Assessment Report, 2020[45].

2.4.2. Potential and challenges

a. Potential of EU-SW

The development of the EU-SW Environment for Customs has expected benefits that rest on two pillars of digital administration, especially to support automated verification.[46] First, Government-to-Government (G2G) digital cooperation between the customs and partner competent authorities is required by the customs for non-customs formalities to get a good clearance. In addition, Business-to-Government (B2G) digital cooperation focuses on numerous ways of streamlining clearance processes for traders when dealing with certain EU non-customs regulatory requirements. In the end, this will promote more efficiency and will simplify the trading across the region.

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45. European Impact Assessment Report. 2020. (https://taxation-customs.ec.europa.eu/system/files/2020-10/201028_single_window_impact.pdf).

46. The EU Single Window Environment for Customs. N.d.

b. Challenges of EU-SW

The EU-SW also comes with challenges in the implementation process. There are eight countries that have not yet started the national preparation for the Customs Single Window, while the other nineteen countries are already implementing their national jurisdictions, although each of them focuses on different categories of goods and economic sectors. The Netherlands, for instance, is focusing on a maritime single window, whereas countries like Bulgaria and Austria are focusing on the agricultural sector. As the level of digitalisation of the public authorities varies within Member States, there are various levels of maturity of the system also at the national level. Hence, if the future trajectory is to have a regional system, the EU will need to develop an adequate level of digital infrastructure, comprehensive data interoperability and an adequate regulatory framework in the region that will support the national level development of each member state. All stakeholders need to also agree on a governance framework and an integrated set of processes that can be used to clear goods.[47]

3. DISCUSSION

3.1. ASEAN Single Window (ASW): What's Next?

ASEAN needs to continue its progress in implementing the ASW. Also, with the help of donor partners' assistance, ASEAN could become the first group of nations exchanging electronic documents to facilitate the movement of goods across borders. This year, ASEAN will continue by adding the ASEAN Customs Declaration Document (ACDD) to live operation, following the first five countries that started adding the document back in 2021. In addition, the e-Phyto certificate is also expected to be exchanged between Indonesia, Malaysia, and Thailand in 2022, while the e-Animal Health certificate exchange is under consultation for a near-term implementation. Beyond the

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47. European Commission. N.d. EU Single Window for Customs: Questions and Answer. An Official EU Website. (https://ec.europa.eu/commission/presscorner/detail/en/qanda_20_1969).

region, ASEAN has also been discussing with Dialogue Partners (DPs), including the EU, to explore the possibility of exchanging trade-related documents such as the e-Certificate of Origin.

3.2. Does the EU Need a Regional Single Window?

Every minute, more than 600 customs declarations are processed around the EU by more than 70,000 customs officials working in the different member states. They not only collect customs duties and value-added tax (VAT) but are also in charge of ensuring that the products entering the EU Single Market are safe and secure, and comply with food, health and environmental and other standards and rules.[48] Besides enforcing customs legislation, the EU also enforces more than 60 pieces of non-customs EU legislation at its borders. The clearance process requires economic operators to complete non-customs formalities separately and in some cases on paper.[49] Such a condition is attributable to the involvement of a high number of authorities and the multiplicity of EU Member States' respective procedures and information technology (IT) systems. Hence, to harmonise the process, the creation of the EU-SW becomes important.

The Commission's proposal for the EU-SW Environment also reflects its awareness of the rapid transformation of global trade towards new systems like a digital platform. It is the first step towards an ambitious common goal for the EU Member States that would go beyond trade facilitation and increase the efficiency of goods clearance, to promote better digital cooperation. The Commission also already conveyed its commitment to providing both technical and financial support to member states.

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48. EU Commission. 2020. EU Single Window for Customs: Questions and Answers. (https://ec.europa.eu/commission/presscorner/detail/en/qanda_20_1969).

49. EU Commission Staff Working Document. 2020. 2nd Biennial Report on Progress in Developing the EU Customs Union and its Governance. (https://ec.europa.eu/taxation_customs/system/files/2020-10/2nd-biennial-report-progress-developing-eu-customs-union_en.pdf).

3.3. ASEAN-EU Single Window Feasibility

It does not seem feasible for an ASEAN-EU Single Window to happen anytime soon, considering the challenges that ASEAN is facing nationally and regionally, as well as the fact that the development of the EU single window is still ongoing. However, this research paper believes in the idea and possibility of enhancing ASEAN-EU trade connectivity through having single windows, especially considering that both regions do have similar commitments to improving trade connectivity and do have some agenda to further connect their own regional single window to other development partners'. Therefore, we hope this initiative will happen in the long run.

4. RECOMMENDATIONS

In developing an ASEAN-EU Single Window, there will be some matters that need to be considered. As discussed so far, there are several national and regional challenges that could slow down or render inefficient the implementation of a regional SW. Policymakers will have to provide effective answers to achieve this common goal. Although some challenges are common to both regions, and best practices could be exchanged, the two blocs also have big differences. Thus, it is important to separate the considerations for future interventions.

For ASEAN, the region needs to address the different levels of economic development and **harmonise its technical regulations,** especially in completing the harmonisation of standards, mutual recognition, and technical regulations in three prioritised product groupings, increasing transparency, and strengthening evaluation to reduce trade-distorting non-tariff measures across AMS. Member states must adhere to international development standards and recommendations that have been developed over the last two decades by intergovernmental agencies and international organisations such as the UNECE, UNCTAD, World Customs Organisation, International Maritime Organisation, International Civil Aviation Organisation, and International Criminal Court. The application of these international standards and available tools will help to ensure that the systems developed to implement the SW are more likely to be compatible with similar developments in each country, and that it may be capable of facilitating information

exchange between such SW facilities over time.[50] Once AMS completes that process, ASEAN can then streamline the cross-border trade procedure, followed by data harmonisation in areas such as but not limited to the different risk criteria on commodities and different compliance levels for traders. Finally, **the private sector's involvement in all phases of the NSWs' and ASW's development is critical,** not only to ensure that the single window captures all necessary aspects of trade processes during the design phase, but also to foster a sense of collaboration and ownership among traders, which can significantly ease system implementation and the inevitable issues that will arise once the system goes live.

For the EU, the creation of the EU-SW requires commitment from many authorities, especially those working at the EU borders. Furthermore, successful implementation requires not only collaboration among member states to harmonise existing legislations and administrative operations, but also requires convergence towards similar levels of IT system development (e.g., software integration, cybersecurity, and data protection compliance requirements) and IT solutions. Hence, the EU Member States will need to invest in national structural reforms and take action to foster digitalisation. Furthermore, all stakeholders need to harmonise data and improve processes for cooperating with the authorities in partner countries.
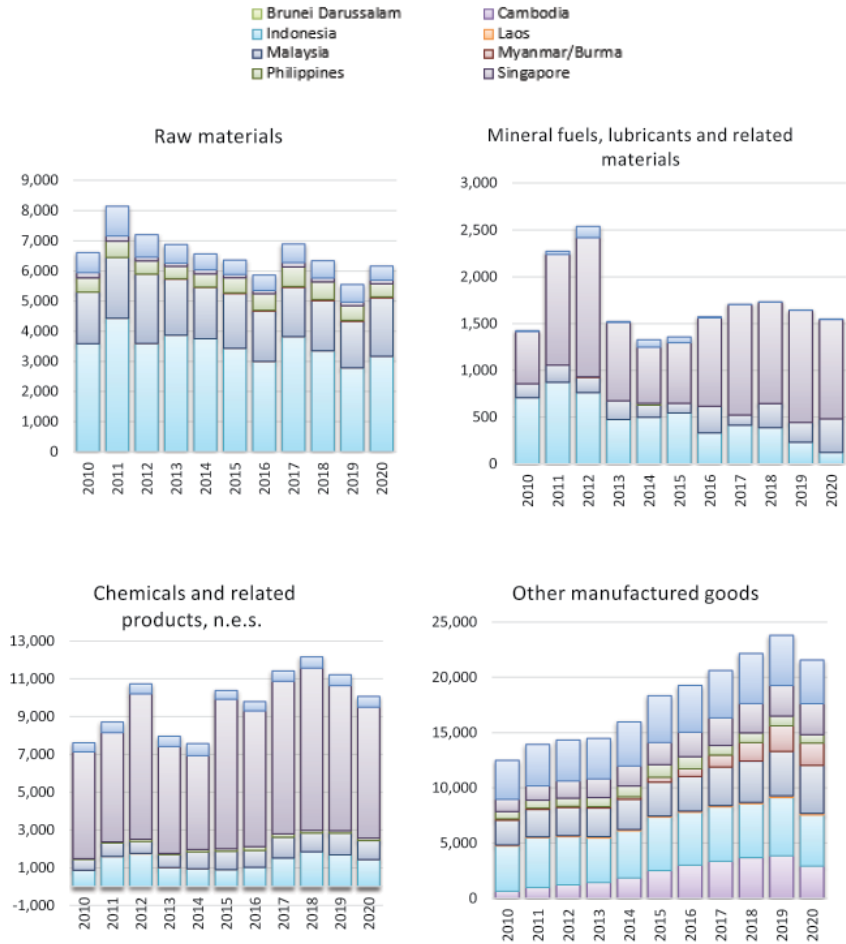
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50. Bal, Abhinayan Basu, Trisha Rajput, and Parviz Alizada. 2017. International single window environment: Prospects and challenges. No. 744. ADBI Working Paper. p. 1.

Appendix 1

Imports from ASEAN economies to the EU-27 by NACE[51] economic activity.

Imports to EU-27 by partner and NACE

- Brunei Darussalam
- Indonesia
- Malaysia
- Philippines
- Cambodia
- Laos
- Myanmar/Burma
- Singapore

Raw materials

Mineral fuels, lubricants and related materials

Chemicals and related products, n.e.s.

Other manufactured goods

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51. NACE (Nomenclature des Activités Économiques dans la Communauté Européenne) is a four-digit code of industry standard classification of economic activities in the European Community.

Machinery and transport equipment

Commodities and transactions not classified elsewhere in the SITC
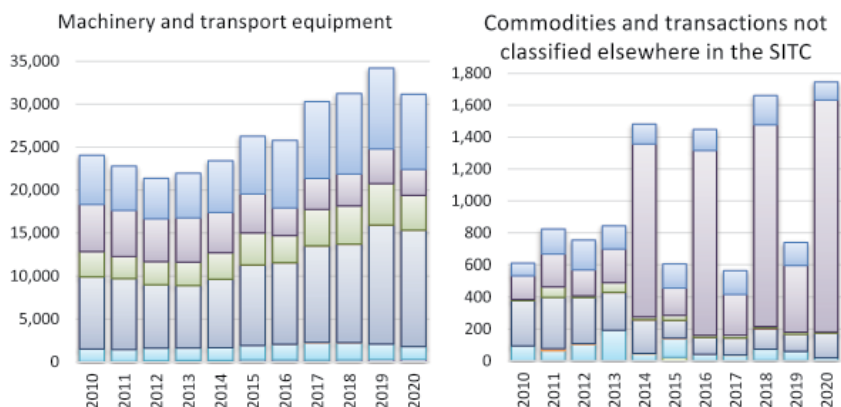
Source: Authors' own elaboration based on Eurostat data. Values are in USD.

Trade between the ASEAN and EU-27 economies is particularly high for machinery and transport equipment, raw materials, and other manufacturing goods:

- The highest share of machinery and transport goods to EU-27 comes from Malaysia and Thailand.

- The main exporters of raw materials are Indonesia and Malaysia.

- The share of other manufactured goods from Cambodia to the EU-27 has increased since 2010.

- Exports from Thailand, Singapore, Malaysia and Indonesia remained quite stable.

Interestingly, the COVID-19 pandemic in 2020 did not significantly affect imports from ASEAN countries, with the disruptive effects being evident from the 2021 statistics only.

04

Environmental Issues in the Mekong River Region

A Mitigation Model Based on Information and Communications Technology

Riccardo Corrado | Audrey Liwan | Upalat Korwatanasakul

Abstract

The Mekong River Basin region is highly dependent economically on the Mekong River through several activities. These activities, in many cases unregulated and uncontrolled, have been causing environmental damage to the river, affecting its flow, chemical composition, and biosystem. In addition, one of the major issues that have sharply arisen in recent years is the increasing number of dams deployed for energy production, severely disrupting the water flow downstream and causing droughts and flooding in the lower river path areas. Education and financial-related interventions represent traditional ways to tackle these issues affecting the Mekong River. But there are other opportunities available. Specifically, Information and Communications Technology (ICT) can present themselves as real changemakers. Yet, a multi-dimensional application of ICT to tackle environmental issues related to the Mekong River can foster change, but only if a common approach and framework are agreed upon and followed by all the involved actors. To answer this, this paper presents a three-pillar model of approaches leveraging ICT affordances. This mitigation model is based on three pillars: behavioural approach, smart approach, and alternative energy approach. The proposed model should represent a starting point in the stakeholders' discussion for creating a shared roadmap.

INTRODUCTION

The Mekong River originates from the Tibet Plateau and passes through six countries: China, Laos, Myanmar, Thailand, Cambodia, and Vietnam[1]. The river and its tributaries represent an important world contributor in terms of aquatic biodiversity and production. The Mekong River Basin (MRB) is generally divided into two sub-basins, namely the Upper Mekong Basin (UMB), which is known as the Lancang River in China, and the Lower Mekong Basin (LMB), which flows through five countries[2].

Over the past decades, the Greater Mekong Subregion (GMS) has experienced significant environmental impacts caused by many environmental factors, but mainly driven by the increasing construction of hydropower dams along the river[3], causing a serious threat to the ecosystem, in addition to the already existent issues related to climate change[4]. The development and implementation of technology-driven solutions revolving around the usage of Information and Communications Technology (ICT) have shown themselves to be a critical asset for addressing climate change and environmental issues and thus represent a powerful tool in the race toward the Sustainable Development Goals (SDGs)[5]. Artificial Intelligence (AI), and the Internet of Things (IoT), enabled by the increasing connectivity in the region, have already shown themselves to be robust solutions used by ASEAN member states (AMS) for fighting ocean pollution, monitoring and controlling waste management, and improving urban planning[6].

But if the usage of ICT may represent a changemaker, the solution cannot be defined by technology itself but rather by its implementation for support-

1. Li et al. 2017. Observed Changes in Flow Regimes in the Mekong River Basin.

2. Li et al. 2017.

3. Corrado, Liwan, and Korwatanasakul. 2022. Information & Communications Technology Solutions for Environmental Issues in the Greater Mekong Subregion.

4. Korwatanasakul and Durongkaveroj. 2021. Water Politics in the Greater Mekong Subregion: Implications and Challenges on Thailand's Border Trade and Inbound Labour Immigration.

5. Corrado, Liwan, and Korwatanasakul. 2022. Information & Communications Technology Solutions for Environmental Issues in the Greater Mekong Subregion.

6. Corrado, Liwan, and Korwatanasakul. 2022.

ing a mitigation strategy. In this paper, we offer a framework based on three pillars to highlight how technology can represent a common fundamental factor in fostering change in the GMS, fighting the environmental impacts on the Mekong River and their effects on the MRB, and thus representing a valuable tool to support the race toward the SDGs for the AMS.

ISSUES IN THE MEKONG RIVER BASIN

Over the last few decades, the MRB has been subject to changes caused by climate change[7] and developmental plans, specifically changes mainly driven by the construction of a large number of hydropower dams[8]. The history of dam development in the MRB dates to 1965 in northeastern Thailand when the Nam Pung Dam was built in Sakon Nakhorn Province, followed by the development of the upper Chi River Sub-basin in Khon Kaen Province with its official inauguration the following year[9]. The MRB hydropower dam development saw a dramatic increase in 2010, particularly in Laos, China, and Cambodia, with Laos itself hosting 61 hydropower dams by the first half of 2019[10]. The exponential dam development has introduced several issues such as induced relocation of entire villages to higher ground with non-suitable resettlement for those displaced, loss of agricultural and forest lands and lands for grazing, deforestation[11], adverse effects on farming[12], and negative

7. Korwatanasakul and Durongkaveroj. 2021. Water Politics in the Greater Mekong Subregion: Implications and Challenges on Thailand's Border Trade and Inbound Labour Immigration.

8. Soukhaphon, Baird, and Hogan. 2021. The Impacts of Hydropower Dams in the Mekong River Basin: A Review.

9. Soukhaphon, Baird, and Hogan. 2021.

10. Soukhaphon, Baird, and Hogan. 2021.

11. Soukhaphon, Baird, and Hogan. 2021.

12. Nguyen et al. 2019. Farmer Adoptability for Livelihood Transformations in the Mekong Delta.

impacts on agriculture and rice production[13]. Additionally, dams and their adjacent reservoirs affect the flow regime of the river.

This process of controlling water flow has caused many issues with record droughts. One example is represented by the drought of July 2019 in Thailand, when the government had to mobilise its military to respond to a drought emergency in its northeast provinces[14]. The same issues were also faced by Cambodia and Vietnam. Cambodian fishing communities alongside the Tonle Sap Lake reported a dramatic reduction of up to 90 per cent of the fishery product, with some highly populated portions of Vietnam's Mekong Delta having lost complete access to fresh water[15]. In addition, unregulated water management[16] with control and release of the Mekong River water in the UMB has caused severe issues for the LMB, with Thailand and Cambodia suffering the most from it[17]. Regarding this, the communities in Chiang Rai Province in the northern part of Thailand have several times voiced their complaints over sudden and unexpected rises in the levels of the Mekong River, particularly during the dry season, causing severe damage to riverside farms, livestock and farming equipment stored on the riverside[18]. Thailand and, similarly, Cambodia, are subject to these issues, with these sudden unnatural flows of water contributing to changes in the Tonle Sap Lake, "where both the extreme high waters of the monsoons and the low waters of the dry season are needed to produce the lake's annual expansion and contraction that generates a fish catch of more than 500,000 tons for Cambodia"[19].

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13. Kontgis et al. 2019. Climate Change Impacts on Rice Productivity in the Mekong River Delta; Triet et al. Future Projections of Flood Dynamics in the Vietnamese Mekong Delta.

14. Eyler, Kwan, and Weatherby. 2020. How China Turned Off the Tap on the Mekong River.

15. Eyler, Kwan, and Weatherby. 2020.

16. Whitehead et al. 2019. Water Quality Modelling of the Mekong River Basin.

17. Li et al. 2017. Observed Changes in Flow Regimes in the Mekong River Basin; Sabo et al. 2017. Designing River Flows to Improve Food Security Futures in the Lower Mekong Basin; Winemiller et al. 2016. Balancing Hydropower and Biodiversity in the Amazon, Congo, and Mekong.

18. Eyler, Kwan, and Weatherby. 2020. How China Turned Off the Tap on the Mekong River.

19. Eyler, Kwan, and Weatherby. 2020.

Another vital issue to consider is the unregulated mining of sediment extraction[20]. It is essential to highlight how the sediment load of the LMB plays a crucial role in the socioeconomic sustainability of the Mekong River basin[21]. Dams disrupt the downstream transport of sediment, having the most significant influence on land-ocean sediment fluxes[22]. Unregulated sediment mining can impact the bank height and induce instability, "threatening key infrastructure and communities located on the banks of the river", while unregulated and aggressive sediment extraction has the potential to impact flood risk and environmental resilience in the lower region of the extraction sites[23].

Furthermore, another extremely serious concern regarding the Mekong river is water pollution due to different sources of pollution[24]. For instance, the usage of antibiotics[25] and agriculture-related use of pesticides have hazardous contaminating effects on the Mekong River waters. Specifically, monitoring research findings demonstrated "a critical situation of a likelihood of chronic exposure of populations and ecosystem to these pesticides, especially in rural areas where the number of households having access to clean water is limited"[26], with the water of the river being affected by pollution from different sources. In summary, it can be said that high population density and rapid economic development represent significant factors in the

20. Kondolf et al. 2018. Changing Sediment Budget of the Mekong; Nie et al. Rapid Incision of the Mekong River in the Middle Miocene Linked to Monsoonal Precipitation.

21. Hackney et al. 2020. River Bank Instability from Unsustainable Sand Mining in the Lower Mekong River.

22. Fan, He, and Wang. 2015. Environmental Consequences of Damming the Mainstream Lancang-Mekong River.

23. Hackney et al. 2020. River Bank Instability from Unsustainable Sand Mining in the Lower Mekong River.

24. Merola et al. 2015. Arsenic Exposure to Drinking Water in the Mekong Delta; Stuckey et al. 2016. Arsenic Release Metabolically Limited to Permanently Water-Saturated Soil in Mekong Delta; Tran et al. 2020. Hydrogeochemical Characteristics of a Multi-Layered Coastal Aquifer System in the Mekong Delta, Vietnam; Zhang et al. 2019. Health Risk Assessment of Heavy Metals in Cyprinus Carpio (Cyprinidae) from the Upper Mekong River.

25. Andrieu et al. 2015. Ecological Risk Assessment of the Antibiotic Enrofloxacin Applied to Pangasius Catfish Farms in the Mekong Delta, Vietnam.

26. Chau et al. 2015. Pesticide Pollution of Multiple Drinking Water Sources in the Mekong Delta, Vietnam.

loading of anthropogenic pollutants in the river's water, affecting the overall water function and the health of the entire Mekong River ecosystem[27].

Thus, considering that the MRB region has a strong socioeconomic dependence on the Mekong River[28], it is essential to tackle the effects of the multiple human activities that have affected and still affect its flow, chemical composition, and overall status. As aforementioned, ICT can play a pivotal role in supporting the region's sustainable development, representing a changemaker in the passive and active approaches toward environmental-related issues affecting the river. Yet, technology alone is not enough, and the involved stakeholders should work synchronously following a common framework of actions. Accounting for the importance of this, in the rest of this manuscript, we offer a three-pillar model to formally drive the implementation of technology-driven solutions in a mitigation strategy, aiming to prevent, mitigate, or fight against the numerous issues currently affecting the river, and thus supporting the race toward the achievement of the United Nations (UN) SDGs in the MRB region.

METHODOLOGY

This paper represents a review of the current situation in the MRB region in terms of environmental issues, mainly related to dam constructions, in addition to other challenges caused by water pollution and uncontrolled sediment extraction. The paper presents a three-pillar model to address and mitigate these issues to guide a mitigation strategy leveraging ICT affordances. The paper first outlines an overview of the current ecosystem in terms of environmental issues in the MRB region. Then, a three-pillar model is presented, accounting for the affordances that ICT can offer to address these issues. Finally, the conclusions form the final part of the manuscript. The model, which aims to be a simple tool to guide the adoption of mitigation strategies by policymakers and decision makers, is based on theories

27. Sow et al. 2019. An Assessment of Heavy Metals Toxicity in Asian Clam, Corbicula Fluminea, from Mekong River, Pa Sak River, and Lopburi River, Thailand.

28. Wang et al. 2021. Understanding the Impacts of Climate Change and Socio-Economic Development through Food-Energy-Water Nexus.

and applications in other contexts. The relevance of the literature chosen is based on purpose, reliability, and effectiveness. Reports, journal articles, national policies, and national news from reliable sources were included in this manuscript.

MITIGATION STRATEGY: A THREE-PILLAR MODEL

The Mekong River represents a fundamental element of sustainment for many people in the MRB region[29]. Yet, it is suffering from many human-induced issues, not limited to, but mainly categorisable to, dam-related projects, sediment extraction, and water pollution. As mentioned earlier, information technology (IT) can be a changemaker toward more sustainable usage of the Mekong River but left by itself, it simply represents a tool. This chapter offers a framework of action based on three specific pillars for driving regional change. The three pillars are defined by the following approaches: the behavioural approach, the smart approach, and the alternative energy approach. This model should represent the basis of discussion for the creation of a roadmap for all the involved stakeholders in the MRB in the race toward the achievement of more sustainable usage of the river, and thus fostering the achievement of the SDGs, while leveraging on IT-driven solutions in alignment with the directions outlined in the ASEAN Digital Masterplan 2025[30].

29. Corrado, Liwan, and Korwatanasakul. 2022. Information & Communications Technology Solutions for Environmental Issues in the Greater Mekong Subregion.

30. The ASEAN Secretariat. ASEAN Digital Masterplan 2025.

Figure 1. Three-Pillar Model.
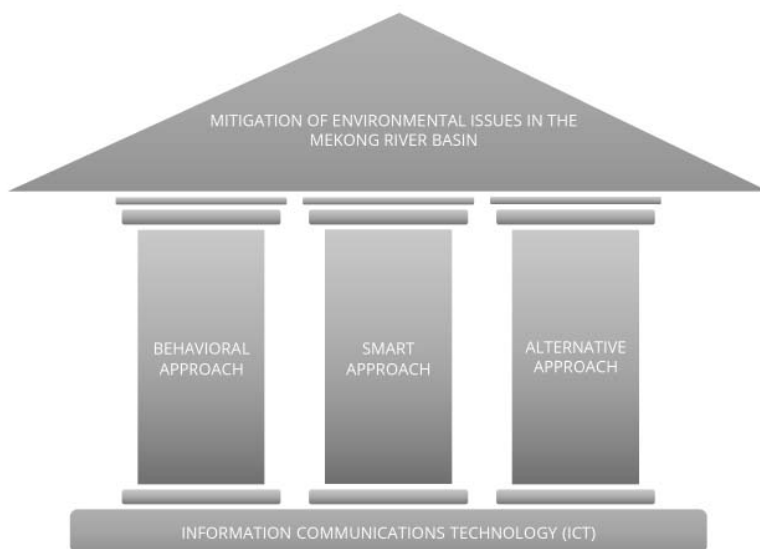
Mitigation Strategy: Behavioural Approach

The theory of change is "a purposeful model of how an initiative, such as a policy, a strategy, a programme, a project or an intervention contributes through a chain of early and intermediate outcomes to the intended result"[31]. This is essential to account for, considering that human behaviour is commonly accepted as one of the significant contributors to environmental issues. The question of how to modify identities and social norms represents a fundamental and central pillar of many theories of change[32]. Considering the broad field of theories of change, there is emerging "an increasing consensus for a need to incorporate individuals within a group learning situation based around the use of feedback loops"[33]. In addition to the simple loop approach, double loop learning has also been proposed, where an individual initially

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31. Rad and Rad. 2021. Theory of Change in Digital Behavior Change Interventions (Dbcis) And Community-Based Change Initiatives – A General Framework.

32. Inman et al. 2018. An Exploration of Individual, Social and Material Factors Influencing Water Pollution Mitigation Behaviours within the Farming Community.

33. Inman et al. 2018.

engages in a "first loop" of learning before later passing to a second phase (or loop), where review and scrutinisation of the first phase take place[34]. Specifically, while during the first loop, learning occurs, in the second loop, an individual generates a "completely new way of thinking"[35]. Following this approach, new outlooks, behaviours, identities, and norms are "embedded within the group undertaking the learning process"[36].

Accounting for these theoretical underpinnings, ICT has shown itself to be capable of supporting behavioural change[37]. Specifically, within the theory of change, a specific area of study focuses on digital interventions to change behaviours in individuals or communities through digital tools. Regarding this, digital behaviour change interventions (DBCIs) and community-based change initiatives represent complex designable systems[38] to guide strategic thinking and action[39]. The usage of DBCI is not new, and several cases present in the literature describe its use in different spheres of intervention, like health and health promotion[40], engagement[41], food choice[42], environmen-

34. Inman et al. 2018.

35. Inman et al. 2018.

36. Inman et al. 2018.

37. Rad and Rad. 2021. Theory of Change in Digital Behavior Change Interventions (Dbcis) And Community-Based Change Initiatives – A General Framework.

38. Rad and Rad. 2021.

39. Rad and Rad. 2021.

40. Keller et al. 2022. Digital Behavior Change Interventions for the Prevention and Management of Type 2 Diabetes; Martín-Martín et al. 2021. Behavior Change Techniques and the Effects Associated With Digital Behavior Change Interventions in Sedentary Behavior in the Clinical Population; Perski et al. 2019. Assessing the Psychometric Properties of the Digital Behavior Change Intervention Engagement Scale in Users of an App for Reducing Alcohol Consumption; Perski et al. 2020. A Self-Report Measure of Engagement with Digital Behavior Change Interventions (DBCIs); Stellefson et al. 2020. Evolving Role of Social Media in Health Promotion.

41. Perski et al. 2020. A Self-Report Measure of Engagement with Digital Behavior Change Interventions (DBCIs).

42. Lazzarini, Visschers, and Siegrist. 2018. How to Improve Consumers' Environmental Sustainability Judgements of Foods; Simeone and Scarpato. 2020. Sustainable Consumption.

tal awareness[43], and marketing[44]. Additionally, Farrow et al.[45] reviewed the literature on the impacts of various social norm interventions on pro-environmental behaviours. They pointed out how "these interventions are effective at inducing significant behavioural changes, and that descriptive norms seem to demonstrate particularly consistent effects".

Thus, considering the power of ICT in supporting behavioural changes aiming to foster more environmental-friendly practices at the community level, leveraging on DBCIs for tackling environmental issues should be an essential pillar in the mitigation strategy model to promote sustainable development in the MRB, addressing the behavioural sphere through inducing a behavioural change in the local communities[46].

Mitigation Strategy: Smart Approach

The second pillar of the proposed model for mitigating the Mekong River-related issues focuses on technology, specifically transforming ecosystems into their smart versions. Regarding this, technologies are disrupting many spheres of our lives, representing a possible viable and effective solution to explore and adopt in the MRB region. More specifically, within the technological sphere, stress is placed on ICT and ICT-driven solutions that are currently available and have already proven effective in other contexts[47].

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43. Díaz-Pont et al. 2020. Environmental Communication in the Intertwining of the Local and the Digital; Liwan et al. 2020. Willingness to Pay for Environmental Goods in East Malaysia; Narula et al. 2018. Environmental Awareness and the Role of Social Media; Simeone and Scarpato. 2020. Sustainable Consumption; Tuitjer and Dirksmeier. 2021. Social Media and Perceived Climate Change Efficacy.

44. Alalwan et al. 2017. Social Media in Marketing; Domenico et al. 2021. Fake News, Social Media and Marketing; Jin, Muqaddam, and Ryu. 2019. Instafamous and Social Media Influencer Marketing.

45. Farrow, Grolleau, and Ibanez. 2017. Social Norms and Pro-Environmental Behavior.

46. Farrow, Grolleau, and Ibanez. 2017.

47. Corrado. 2021. ICTs and AI-Driven Solutions for Disaster Management; Corrado, Liwan, and Korwatanasakul. 2022. Information & Communications Technology Solutions for Environmental Issues in the Greater Mekong Subregion; Dwevedi, Krishna, and Kumar. 2018. Environment and Big Data; Janitra. Implementation of Smart City for Building Disaster Resilience in West Java Province; Toma et al. 2019. IoT Solution for Smart Cities' Pollution Monitoring and the Security Challenges.

In the recent past, the world has experienced a digitisation process on a global scale. This ICT-led process is data-driven and has been supported by the digitisation wave that has invested the world as a whole. This process is not new, but it has been exponentially growing in the last fifteen years, due to the increased capacity of calculations, interconnections, and storage of computers, to the point of introducing the word *Zettabyte*[48]. This digitisation process enables another process: the transformation of cities into their smart versions: smart cities[49]. Smart cities are intended as a network of many devices capable of effectively and efficiently creating a network of data-exchanging nodes. Usually, we consider smart cities, assuming that the covered area is an urban area, and thus, the term *smart city*. But the affordance of technologies is not tied to cities or urban areas. Still, it can be implemented in any region if a specific infrastructure allowing efficient communication is present or is deployed. Within the concept of smart cities, or smart environments, we can identify four components: data and technology, physical environment, society, and governance[50].

With the first component, we refer to the idea of technologies and their affordances, together with the ability to manage a huge amount of data to understand a scenario better or even predict what will happen shortly[51]. The second component refers to the physical infrastructures that support smart cities/environments[52]. For example, smart cities rely on effective 4G or even 5G coverage and an effective optical fibre backbone for connecting every point of the considered geographical area, a fundamental element for having a well-connected region capable of offering fast and efficient exchange of data, the essential fuel for ICT-driven solutions. Furthermore, in the last few years, the path toward enhanced connectivity in remote areas has been paved by low Earth orbit (LEO) satellite constellations such as Starlink, OneWeb, Telesat, and the Kuiper project, raising higher expectations on what telecommunication infrastructures can offer in an IoT ecosystem. The

48. Bonderud. 2019. Zipping Past the Zettabyte Era.

49. Janitra. 2020. Implementation of Smart City for Building Disaster Resilience in West Java Province.

50. Janitra. 2020.

51. Janitra. 2020.

52. Corrado. 2021. ICTs and AI-Driven Solutions for Disaster Management;

third aspect relies on society, which refers to the creation of a knowledge-able society capable of knowing how to interact and control, and even develop technological solutions capable of offering an almost endless array of new possibilities[53]. Finally, the last element refers to governance, considered a vector of components including policies and regulations, urban and rural areas management, and public services[54].

The creation of smart regions relies on a wide matrix of different sensors capable of measuring a wide heterogeneity of variables, which are interconnected with a central system and can be used for an enormous array of technology-driven solutions. This idea is currently being investigated in many areas of applied technology to environmental protection. For instance, Jamil et al.[55] discussed the possibility of using public transportation to collect data regarding air pollution in cities so that a monitoring process could be available for pollution control and planning timely actions. A similar approach was discussed by Dwevedi et al.[56] for the Indian context and by Toma et al. (2019). They introduced the idea of using pollution data collected by sensors placed on traffic lights to redirect traffic or close specific streets to continuously address and tackle the hazardous pollution levels in particular city areas. Garzon et al.[57] introduced a context-aware air pollution monitoring and alert service capable of proactively notifying citizens via mobile devices about air quality. Similar approaches have also been followed for monitoring water pollution in different ecosystems[58], relying on IoT solutions.

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53. Janitra. 2020. Implementation of Smart City for Building Disaster Resilience in West Java Province.

54. Corrado and Hill. 2021. Strategy and Barriers to Overcome for Cambodian E-Government: A Discussion Paper; Corrado and Tungjan. 2019. How Digital Tech Can Help Fix Cambodia's Broken Education and Healthcare Systems; Janitra. 2020. Implementation of Smart City for Building Disaster Resilience in West Java Province.

55. Jamil et al. 2015. Smart Environment Monitoring System by Employing Wireless Sensor Networks on Vehicles for Pollution Free Smart Cities.

56. Dwevedi et al. 2018. Environment and Big Data: Role in Smart Cities of India.

57. Garzon et al. 2018. Urban Air Pollution Alert Service for Smart Cities.

58. Agarwal et al. 2018. Design and Development of Air and Water Pollution Quality Monitoring Using IoT and Quadcopter; Moparthi, Mukesh, and Sagar. 2018. Water Quality Monitoring System Using IOT; Shafi et al. 2018. Surface Water Pollution Detection Using Internet of Things.

But pollution is not the only issue that can be tackled with the usage of ICT. Flood management can rely on a wide array of sensors connected and capable of providing a central system the chance to analyse and use the obtained data for various purposes[59]. In this regard, Arepalli et al.[60] proposed a spatial disaster management framework focusing on the issue of flood management, relying on IoT, in addition to the proposed solution by Rothkrantz[61], for the city of Prague, which is at serious risk of flooding due to the Moldau River. Further monitoring solutions based on a network of sensors for river monitoring were also offered for the city of Dublin[62]. In general, data collected by sensors can allow the identification of abnormal patterns in the data, thus allowing the estimation of the probability of extreme phenomena happening, similar to the solutions already adopted in Japan by the Japan Meteorological Agency, in Europe within the Urban-Flood project, and also in Canada.

But, if the solutions offered by ICT are numerous, with a wide variety of applications that can directly interest the MRB region, from the perspective of smart regions, standardisation is a fundamental step to take for dealing with heterogeneity issues among the interaction of cross-domain related stakeholders[63]. As aforementioned, the concept of smart cities, and in general, smart regions, for supporting water flow management, river bed sediments monitoring and regulations, and pollution control rests on several factors, including the involvement of sensors deployment, the centralisation of data, the use of standardisation of data formats, and a well-structured collaboration between different bodies and domains capable of working in a synchronised way toward responding promptly and effectively to critical situations[64]. This represents a massive wave of sensors deployment allowing

59. Melo, Silva, and Macedo. 2016. Flood Monitoring in Smart Cities Based on Fuzzy Logic about Urban Open Data.

60. Arepalli et al. 2019. A Spatial Disaster Management Framework for Smart Cities—A Case Study of Amaravati City—Flood Management.

61. Rothkrantz. 2016. Flood Control of the Smart City Prague.

62. Guibene et al. 2017. Evaluation of LPWAN Technologies for Smart Cities.

63. Nurwatik and Hong. 2019. A Framework.

64. Nurwatik and Hong. 2019.

the mapping and connection of entire regions, something an individual body cannot achieve.

Considering the heterogeneity of the data to measure and the importance of standards to follow for the implementation of the sensors, it can be said that the creation of an effective ICT infrastructure, the foundation of a smart approach, represents a complex project which can be carried out only with the adoption of a common framework capable of offering standard guidelines. These guidelines would offer the capability to highlight the right path to obtain data stored and accessed in a federated way, thus usable cross-agencies across nations.

Mitigation Strategy: Alternative Energy Approach

The last important pillar to consider for a mitigation strategy focuses on alternative energy and renewable sources. The increased fossil fuel usage worldwide in the past several decades is the primary cause of greenhouse gas (GHG) emissions, heavily impacting climate change. China, the United States, the European Union, and India are the largest CO2 emitters in the world[65]. The diversification of energy supply "through investments in renewable energy, coupled with improvements in energy efficiency, offers a viable option to expand the energy system and simultaneously realise substantial socioeconomic and environmental benefits"[66]. In addition to reducing GHG emissions, renewable energy systems can be set up in small units and is therefore suitable for community management and ownership since, unlike nuclear and fossil fuels plants, they do not belong to big companies, governments, or state-owned enterprises[67]. On the other hand, the high initial cost and the more intermittent supply nature[68], compared to traditional fossil en-

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65. Chandel et al. 2016. Overview of the Initiatives in Renewable Energy Sector under the National Action Plan on Climate Change in India.

66. Nagpal and Hawila. 2018. Renewable Energy Market Analysis: Southeast Asia.

67. Oyedepo. 2012. Energy and Sustainable Development in Nigeria.

68. al Irsyad, Halog, and Nepal. 2019. Renewable Energy Projections for Climate Change Mitigation; Elum and Momodu. 2017. Climate Change Mitigation and Renewable Energy for Sustainable Development in Nigeria.

ergy, result in the renewable energy industry requiring lots of funds to be invested in research and development, which may represent an initial barrier.

Considering the opportunities offered by renewable energy sources, it is essential to explore the different feasible solutions for adopting effective alternative renewable energy sources, including hydropower, bioenergy, thermal, geothermal, wind, photochemical, photoelectric, tidal, wave, and solar energy[69]. The latter one, namely solar energy, is currently the most promising renewable energy source for meeting emission reduction targets in the electricity sector[70]. In the specific, Photovoltaics (PV) has lately become the "dominant technology to tap the solar potential for electricity generation", and this is proven by how solar energy has become the technology with the highest growth rate among renewable energy technologies[71]. Additionally, regarding PV, Creutzig et al.[72] estimated that by 2050, "PV could optimally generate 67–130 EJ of electricity and thus be the dominant electricity supply technology with a share of 30–50% in electricity generation even as the energy system will become more electricity intensive than today's".

In general, independently from the typology of the source, it can be said that energy-related technological innovation is "an important way to achieve energy conservation and emission reduction"[73]. Considering the opportunities offered by renewable energy sources is a fundamental step since, currently, the energy sector is the largest source of GHG emissions, with the estimated total amount of energy-related emission forecasted to increase by about 16 per cent by 2040[74]. Regarding this, only accounting for Southeast Asia, regional energy consumption nearly doubled between 1995 and 2015,

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69. Elum and Momodu. 2017. Climate Change Mitigation and Renewable Energy for Sustainable Development in Nigeria.

70. al Irsyad, Halog, and Nepal. 2019. Renewable Energy Projections for Climate Change Mitigation.

71. Creutzig et al. 2017. The Underestimated Potential of Solar Energy to Mitigate Climate Change.

72. Creutzig et al. 2017.

73. Lin and Zhu. 2019. The Role of Renewable Energy Technological Innovation on Climate Change: Empirical Evidence from China.

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with an average annual growth of 3.4 per cent[75]. Fossil fuels, driven by mainly oil and natural gas, "account for more than half of the region's energy supply", with crude oil and its derivatives being "predominantly used in the transport sector, where fuel demand has grown rapidly"[76].

To shift away from this heavy dependency on fossil fuels, all ten ASEAN members have already set national renewable energy targets and agreed to aim for the goal of 23 per cent usage of "renewables in their total primary energy supply (including large-scale hydropower but excluding traditional biomass) by 2025"[77], with Indonesia, Malaysia, the Philippines, Thailand, and Vietnam being "comparatively more advanced in the region in terms of policy maturity and comprehensiveness"[78]. Some examples of green energy solutions in the region are represented by the Thai developer Green Earth Power, which in 2014 signed an agreement with the Myanmar government to develop a 220 MW solar project[79], and in Vietnam, the Danish manufacturer Vestas Wind Systems that together with the indigenous firm Phu Cuong Group have signed a memorandum of understanding for the construction of a 170 MW wind farm[80].

But shifting from traditional energy sources to renewable ones in the whole region is not easy, particularly in a highly non-homogenous ecosystem like ASEAN[81]. Nevertheless, renewable energies represent a fundamental pillar for the model due to the importance of shifting from non-renewable to renewable sources of energy, a goal set at the international stage, as well as at the ASEAN one, while accounting for the current intraregional economic disparity[82], and for the non-homogeneity of human development, an essential component necessary to support and maintain the infrastructure behind alternative sources of energy. In fact, following the UNDP taxono-

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my[83], Singapore, Malaysia, and Brunei Darussalam were classified as countries of "Very High Human Development"; Thailand, Vietnam, Indonesia, and the Philippines as "High Human Development" countries; and Cambodia, Myanmar, and the Lao PDR as countries of "Medium Human Development". Accounting for this diversity within ASEAN, the creation of regional policies emerges as an essential aspect for addressing economic growth, education and training, research and development, and in general, the broader national investments[84] with a focus on green energy production.

CONCLUSIONS

The Mekong River represents a vital element for the economic sustainment and prosperity of the MRB region. Unfortunately, due to human-driven activities related to fishery activities, agriculture, industrial processes, and energy production, the river has experienced a severe environmental downturn. In this paper, we proposed a model based on three pillars, namely the behavioural approach, the smart approach, and the alternative energy approach, to adopt for environmental issues mitigation in the MRB region. An overall framework of action, with clear goals and guidelines, should be agreed upon by the involved countries, enabling the adoption of ICT-driven solutions to be a changemaker in the process of implementation, action, monitoring, and evaluation of several environmental issues currently affecting the MRB region. In this paper, we highlighted how ICT can play a vital role in fostering sustainable development in the region if only all the countries part of the MRB region, united by the dependence on the Mekong River, define a roadmap that may be initiated from the proposed model.

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The EU's Role in Nurturing Knowledge and Connectivity in ASEAN's Food Security Ecosystem

Darryl Tan | Mirjam Le | Luzile Satur

Abstract

The Association of Southeast Asian Nations (ASEAN) has been actively focusing on the dimensions of food availability and accessibility when addressing the issue of food security in the region. However, there is still room for improvement in increasing the level of collaboration in coordinating research and development (R&D) on the issue of food security. This presents an opportunity for the European Union (EU) to leverage on its own experiences and foster close ties with ASEAN. This policy brief proposes establishing the ASEAN Centre for Agricultural Research and Development (ACARD) along with expanding agri-food regional thematic networks with the help of the EU to address the long-term food security issues that ASEAN might face in the future.

INTRODUCTION

The Association of Southeast Asian Nations (ASEAN) is a regional grouping with a total population of over 662 million people[1]. With a total arable land area of approximately 70 million ha[2], ASEAN is a major producer and supplier of important agri-food items. Across the key markets[3] of Indonesia, Thailand, Vietnam and the Philippines alone, the agri-food sector contributes US$717.5 billion worth in gross deposit product (GDP) and employs over 126 million people.

Despite a booming agri-food export industry, ASEAN's food security landscape remains vulnerable. The region is dependent on food imports, especially for specific crops such as wheat, soybean and maize[4]. Recent shocks in the food supply chain, such as those caused by the COVID-19 pandemic and the Ukraine war, have caused ASEAN member states to focus their efforts on minimising supply chain disruptions.

However, there remain gaps in ASEAN's food security landscape in addressing challenges related to research and development (R&D) activities[5]. In the long term, agri-food R&D activities will be crucial to preparing the region for future disruptions, particularly those caused by climate change and natural calamities such as volcanic eruptions.

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4. Teng, Paul. 2022. Global Food Insecurity – Food Import: Reducing ASEAN's Dependency. RSIS Publications. (https://www.rsis.edu.sg/rsis-publication/nts/global-food-insecurity-food-import-reducing-aseans-dependency/).

5. Desker, Barry, Caballero-Anthony, Mely, and Teng, Paul. 2013. Thought/Issues Paper on ASEAN Food Security: Towards a more Comprehensive Framework. ERIA Discussion Paper Series. (https://www.eria.org/ERIA-DP-2013-20.pdf).

THREATS TO FOOD SECURITY IN SOUTHEAST ASIA

Food security is often identified along four main dimensions[6] – availability, accessibility, utilisation and stability. In recent years, ASEAN has prioritised the dimensions of food availability and accessibility in addressing the challenge of food security. This is evidenced by the ASEAN Strategic Plan of Action on Food Security in the ASEAN Region 2021-2025, which highlights the importance of the production, processing, and trade of food[7] in ensuring food security.

ASEAN's focus on food availability and accessibility is driven by changing demographics and the nature of the agri-food industry in the region. In 2000, approximately 38 per cent of the collective population of ASEAN member states were living in cities. That figure shot up to 50 per cent[8] in 2020. Increasing urbanisation has caused a proportionate decline in the labour force[9] for the agricultural sector, forcing governments to turn to migrant workers[10] to make up for the shortfall.

6. Food Aid Organization. 2008. An Introduction to the Basic Concepts of Food Security. (https://www.fao.org/3/al936e/al936e00.pdf).

7. ASEAN Ministers on Agriculture and Forestry. 2020. ASEAN Integrated Food Security (AIFS) Framework and Strategic Plan of Action on Food Security in the ASEAN Region (SPA-FS) 2021-2025. (https://asean.org/wp-content/uploads/2020/11/42-AIFS-Framework-SPAFS-Final-13-July-2020.pdf).

8. The ASEAN Secretariat. 2022. ASEAN Food and Nutrition Security Report 2021 Volume 1. (https://asean.org/wp-content/uploads/2022/04/Digital_ASEAN_FNSR_Volume-1_21-4-2022_FINAL.pdf).

9. Teng, Paul P.S., Caballero-Anthony, Mely, and Montesclaros, Jose Ma. Luis. 2021. Chapter Four - ASEAN responses to COVID-19 for assuring food security. Advances in Food Security and Sustainability. Volume 6, 2021, pp. 83-118. (https://www.sciencedirect.com/science/article/pii/S245226352100001X).

10. Cogan, Mark S. and Scott, Paul D. 2022. Addressing the Southeast Asian Food Security Vulnerabilities Exposed by COVID-19. The Diplomat. (https://thediplomat.com/2022/02/addressing-the-southeast-asian-food-security-vulnerabilities-exposed-by-covid-19/).

Furthermore, ASEAN's agri-food industry is dominated[11] by smallholder farmers, who are estimated to number around 100 million. Farm sizes are growing smaller[12] over time as a result of population growth and inheritance-based fragmentation.

ASEAN's vulnerability to supply chain disruptions became obvious during the COVID-19 pandemic. Like most governments across the world, ASEAN member state governments closed their borders to minimise the spread of the disease. COVID-induced cross-border movement restrictions had an adverse impact on the flow of migrant workers[13] in the agricultural sector and also resulted in logistics concerns[14] in the food supply chain over warehousing, port congestion, and increased freight costs.

The war in Ukraine[15] has further escalated food supply chain issues. Russia and Ukraine collectively contribute 24 per cent of the world's wheat exports, and Russia is also the top exporter of fertiliser. The destruction of crops and military activities in the Black Sea limited agricultural outputs and disrupted trade routes. The twin crises have contributed to soaring prices for food across the world, and ASEAN has not been spared.

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11. Mikolajczyk, Szymon, Mikulcak, Frieda, Thompson, Ashley, and Long, Imogen. 2021. Unlocking smallholder finance for sustainable agriculture in Southeast Asia. Climate Focus and WWF. (https://climatefocus.com/publications/unlocking-smallholder-finance-sustainable-agriculture-southeast-asia/)

12. Desker, Barry, Caballero-Anthony, Mely, and Teng, Paul. 2013. Thought/Issues Paper on ASEAN Food Security: Towards a more Comprehensive Framework. ERIA Discussion Paper Series. (https://www.eria.org/ERIA-DP-2013-20.pdf).

13. Wahab, Andika. 2020. The outbreak of Covid-19 in Malaysia: Pushing migrant workers at the margin. Social Sciences & Humanities Open. Volume 2, Issue 1, 2020, 100073. (https://doi.org/10.1016/j.ssaho.2020.100073).

14. Cogan, Mark S. and Scott, Paul D. 2022. Addressing the Southeast Asian Food Security Vulnerabilities Exposed by COVID-19. The Diplomat. (https://thediplomat.com/2022/02/addressing-the-southeast-asian-food-security-vulnerabilities-exposed-by-covid-19/).

15. Montesclaros, Jose Ma. Luis P., and Caballero-Anthony, Mely. 2022. Ukraine War and Food Security: How Should ASEAN Respond? RSIS Publications. (https://www.rsis.edu.sg/rsis-publication/nts/ukraine-war-and-food-security-how-should-asean-respond/).

In the long term, climate change will play a critical role in affecting food production. Climate change is already[16] causing higher and more variable temperatures, changes in precipitation patterns, and increased occurrences of extreme weather events leading to the destruction of crops and agricultural land. Many deltas in the region, which are the main food-producing areas in Southeast Asia, have been affected by increased salinisation in rivers and lakes due to rising sea levels. Climate change also affects fish stocks[17] and drives up the price of nutritious food.

Food insecurity can result in food nationalism, which in turn exacerbates food insecurity in the region. In March 2020, the Vietnamese government announced[18] that it would not sign any new rice export contracts until it confirmed that it had sufficient domestic rice supplies to cope with the COVID-19 pandemic. While the freeze on rice exports was short-lived, it raised the spectre of other countries possibly following suit. In June 2022, the Malaysian government similarly banned[19] the export of chickens for four months to deal with a domestic chicken shortage. The ban was since lifted in October 2022.

Food insecurity also has consequences for the domestic politics of ASEAN member state governments. The Philippines has faced a prolonged agricultural crisis[20] caused in part by its heavy reliance on rice imports and supply disruptions in agricultural feed. The crisis was deemed severe enough that

16. Teng, Paul, Caballero-Anthony, Mely, Tian, Goh, and Lassa, Jonatan A. 2015. Impact of Climate Change on Food Production: Options for Importing Countries. RSIS Publications. (https://www.rsis.edu.sg/rsis-publication/nts/impact-of-climate-change-on-food-production-options-for-importing-countries/).

17. Chiengkul, Prapimphan. 2022. Hunger, Malnutrition and Climate Change: Challenges Facing Southeast Asia. Fulcrum. (https://fulcrum.sg/hunger-malnutrition-and-climate-change-challenges-facing-southeast-asia/).

18. Vu, Khanh. 2020. UPDATE 2-Vietnam halts new rice export contracts as it reviews stocks. Reuters. (https://www.reuters.com/article/health-coronavirus-vietnam-rice-idAFL4N2BI2MT).

19. Rodzi, Nadirah H. 2022. Selected farms in Malaysia can resume exporting chicken from October. The Straits Times. (https://www.straitstimes.com/asia/se-asia/selected-farms-in-malaysia-can-resume-exporting-chicken-from-october-minister).

20. Ramos, Marjaleen. 2019. Piñol tells 'real story' behind 2018 rice crisis. Manila Bulletin. (https://mb.com.ph/2019/07/16/pinol-tells-real-story-behind-2018-rice-crisis/).

the new head of state, President Ferdinand "Bongbong" Romualdez Marcos Jr., took over the leadership of the Department of Agriculture in June 2022[21].

The existing short-term threats to food security in Southeast Asia, such as the impact of the COVID-19 pandemic and the Ukraine war, must be mitigated. However, long-term climate change and urbanisation will pose greater threats which are more difficult for governments to resolve individually. Consequently, food security is an issue which will require cooperation on a regional level to resolve.

ASEAN FOOD SECURITY PROGRAMMES AND POLICIES

ASEAN's first foray into addressing food security was with the 1979 Agreement on ASEAN Food Security Reserve[22]. Since then, there have been several regional initiatives to safeguard food security.

One key ASEAN initiative is the ASEAN Food Security Information System (AFSIS)[23], which was spearheaded by Thailand in 2002 with financial support from Japan. The overall objective of the project, which is still ongoing, is to strengthen food security in the region through the systematic collection, analysis and dissemination of food security-related information.

Another key initiative is the ASEAN Integrated Food Security (AIFS) Framework[24], which was implemented in 2009 to ensure long-term food security and nutrition in the ASEAN region. Since 2009, three five-year Strategic

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21. Nguyen, Trinh. 2022. Why the Philippines Is So Vulnerable to Food Inflation. Carnegie Endowment for International Peace. (https://carnegieendowment.org/2022/07/13/why-philippines-is-so-vulnerable-to-food-inflation-pub-87467).

22. ASEAN. 1976. Agreement on the ASEAN Food Security Reserve. (https://agreement.asean.org/media/download/20140422150508.pdf).

23. ASEAN Food Security Information System. 2022. ASEAN Agricultural Commodity Outlook. No. 28. June 2022. (http://www.aptfsis.org/uploads/normal/ACO%20Report%201/ACO%2028/ACO%20No.28.pdf).

24. ASEAN Ministers on Agriculture and Forestry. 2020. ASEAN Integrated Food Security (AIFS) Framework and Strategic Plan of Action on Food Security in the ASEAN Region (SPA-FS) 2021-2025. (https://asean.org/wp-content/uploads/2020/11/42-AIFS-Framework-SPAFS-Final-13-July-2020.pdf).

Plans of Action on Food Security (SPA-FS) have been implemented under the AIFS Framework. Each strategic plan is designed to create a favourable environment for ASEAN member states to integrate, operate and cooperate in various aspects related to food production, processing and trade.

The AIFS Framework was also central to the creation of the ASEAN Plus Three Emergency Rice Reserve (APTERR)[25] in 2012. The APTERR provides rapid responses in overcoming rice supply shortages in emergencies occurring in any of the signatory countries.

EUROPEAN UNION'S POLICIES AND PROGRAMMES ON FOOD SECURITY IN SOUTHEAST ASIA

The EU has had enduring success in ensuring food security for its region, being largely self-sufficient[26] for key agricultural and animal products. While much of the EU's success is attributed to the Common Agricultural Policy, which is difficult to be replicated in a grouping like ASEAN, the EU is still committed to supporting food security on a global scale[27] as part of its global cooperation goals.

Many of the EU's policies and programmes with its partners operate on a long-term approach to address the impact of climate change and encourage innovation. One such initiative is the partnership between the EU, ASEAN and the International Fund for Agricultural Development (IFAD) in 2015 to establish the ASEAN Farmers' Organisations Support Programme (AFOSP). The €16 million programme aimed to improve the income and food security of

25. ASEAN. 2015. ASEAN Food Security: Ensuring the Supply of Rice in the Region. (https://www.asean.org/wp-content/uploads/images/2015/October/outreach-document/Edited%20APTERR-2.pdf).

26. European Parliamentary Research Service. 2022. Future Shocks 2022: Safeguarding EU and global food security. (https://epthinktank.eu/2022/05/20/future-shocks-2022-safeguarding-eu-and-global-food-security/).

27. European Commission. 2022. EU actions to enhance global food security. (https://ec.europa.eu/info/strategy/priorities-2019-2024/stronger-europe-world/eu-actions-enhance-global-food-security_en#strengthening-global-food-securit).

10 million[28] small-scale farmers and rural producers in the region. It also assisted local and regional farmers' organisations to influence agriculture and food security policies more effectively on the national, regional and global levels[29].

In 2021, the EU launched a Green Team Europe Initiative[30] in partnership with ASEAN. The initiative, which is backed by a €30 million grant, focuses on supporting economies and creating decent employment opportunities while also addressing climate change, tackling pollution, and protecting biodiversity.

ASEAN-EU RESEARCH-BASED PARTNERSHIPS AS A SUSTAINABLE SOLUTION FOR REGIONAL FOOD SECURITY

At present, agri-food R&D efforts at an ASEAN level are largely confined to knowledge exchanges and sharing of best practices among member states. However, there is a growing trend in the region to step up coordination of member states' research and policy efforts in focus areas. For example, ASEAN will launch the ASEAN Centre for Public Health Emergencies and Emerging Diseases (ACPHEED) in November 2022[31]. The ACPHEED will serve as a surveillance centre to detect diseases across the region which could potentially turn into pandemics and coordinate member states' responses to manage the spread of these diseases.

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28. International Fund for Agricultural Development (IFAD). 2015. EU, IFAD and ASEAN launch 16 million euro programme to support smallholder farmers. (https://www.ifad.org/en/web/latest/-/news/eu-ifad-and-asean-launch-16-million-euro-programme-to-support-smallholder-farmers).

29. EU Mission to ASEAN. 2020. Blue Book 2020. (www.asiapacificfarmersforum.net/wp-content/uploads/2020/05/EU-ASEAN-Blue-Book-2020.pdf*).*

30. European Commission. 2021. European Union launches a Green Team Europe Initiative in partnership with South East Asia. (https://ec.europa.eu/commission/presscorner/detail/en/IP_21_6111).

31. Phoonphongphiphat, Apornrath. 2022. ASEAN opens secretariat for medical emergencies in Thailand. Asia Nikkei. (https://asia.nikkei.com/Politics/ASEAN-opens-secretariat-for-medical-emergencies-in-Thailand).

A similar initiative should be implemented to conduct and coordinate R&D efforts in agri-food products in the region. Such an initiative presents an avenue for greater EU-ASEAN collaboration, as ASEAN could draw on the EU's decades of experience in implementing similar programmes in the European region. The EU would be able to offer knowledge transfer, sharing of best practices and financial support for this initiative. The envisioned initiative would be divided into two proposals:

- ## The Establishment of a Regional Agri-Food Research and Development Centre

    The first proposal is to establish a regional centre, the ASEAN Centre for Agricultural Research and Development (ACARD), to conduct and coordinate R&D in agri-food products.

    The ACARD will be run by a secretariat, which will draw expertise from the existing ASEAN Technical Working Group on Agricultural Research and Development and the ASEAN Sectoral Working Group on Agriculture Training and Extension. In addition, the EU's Joint Research Centre (JRC) for Sustainable Resources could hold regular collaborations with the ACARD to facilitate knowledge exchanges.

    The objectives of the ACARD will be twofold – first, the centre will serve to connect, coordinate, and communicate the status of R&D efforts in the regional agri-food sector with relevant organisations. This includes working closely with the ASEAN Food Security Reserve Board (AFSRB) and AFSIS, along with academic institutions and private organisations which focus on agri-food research.

    As a repository of knowledge on R&D efforts in the regional agri-food sector, the ACARD will be able to facilitate inter-sectoral coordination. The ACARD will also be able to manage the allocation of resources in the region more efficiently by detecting potential duplication in research across different institutions, as well as identifying gaps in research which need to be addressed.

    The second objective of the ACARD will be to act as a hub for strengthening the agri-food R&D capacity of researchers in the region. The ACARD would be able to train researchers in the region on agri-food

technology and conduct ASEAN-funded research on its own. The focus on agri-food innovations should be on improving the yield and biodiversity of crops, as well as increasing crop resistance towards disease. Another focus area is increasing the resilience of crops towards the effects of climate change, including tolerance against extreme weather events such as droughts and flooding.

Through the ACARD, ASEAN member states would be able to pool their resources into larger research projects and disseminate the innovations developed through these projects more equitably. Innovation should be readily accessible to smallholder farmers, who remain the dominant producers of agri-food across the region.

• **The Expansion of Regional Thematic Networks**

The second proposal is to expand thematic networks across ASEAN which involve key stakeholders in the agri-food industry, including farmers, policymakers, members of the academia and private agricultural companies. Currently, the ASEAN Climate Resilience Network (ASEAN-CRN) is one such network which has been in operation in the region since 2013[32]. The ASEAN-CRN gathers existing knowledge and best practices from member states. The network then publishes its research, aimed at policymakers, with the objective of strengthening the region's agriculture sector's resistance to the effects of climate change.

More thematic networks should be created to focus on different areas, such as crop types and soil, water and waste management. ASEAN agri-food thematic networks should also take a leaf from the European Innovation Partnership for Agricultural productivity and

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32. FAO. Regional CSA Alliances and platforms: Information sheet – The ASEAN Climate Resilience Network (ASEAN-CRN). (https://www.fao.org/3/bl863e/bl863e.pdf).

Sustainability (EIP-AGRI) thematic network model[33] and focus on directly benefiting end users such as farmers.

By synthesising best practices into understandable formats for key stakeholders, ASEAN agri-food thematic networks would be of great value to smallholder farmers, who generally have limited access to innovative and sustainable farming techniques. Thematic networks present an opportunity to incorporate more technology and innovative techniques into farmer practices, and make the agri-food industry more attractive[34] to local youth to work in.

CONCLUSION

A gap in coordinating food security research efforts within the ASEAN region presents the EU a unique opportunity to establish greater connectivity with ASEAN. The EU can leverage on its rich experience in addressing food security by sharing its technology and exchanging knowledge with ASEAN. Perhaps most importantly, ASEAN would welcome any financial support to establish the infrastructure necessary for continued R&D and farmer education in the region. Both regions only stand to gain from a more resilient food security landscape in ASEAN.

33. Burssens, Sylvia, Palczynski, Laura, and Rasmussen, Ilse. 2021. Sustainability of thematic networks for agricultural and forestry innovation: recommendations from the EURAKNOS project. (https://euraknos.fra1.digitaloceanspaces.com/production/deliverables/EURAKNOS-Policy-Brief.pdf).

34. Asia-Pacific Farmers Forum. 2017. ASEAN Young Farmers' Declaration. (https://asiapacificfarmersforum.net/asean-young-farmers-declaration/).

Connectivity and Vaccine Diplomacy in Southeast Asia During the COVID-19 Pandemic

Darryl Tan | Mirjam Le | Luzile Satur | Muhammad Riza Nurdin

Abstract

In early 2020, the COVID-19 pandemic caused countries across the world to intentionally cut off physical connectivity at the society and state levels to curb the spread of the disease. The Association of Southeast Asian Nations (ASEAN) region was not spared in this breakdown of physical connectivity. However, challenges arose among ASEAN member states in terms of rolling out national vaccination programmes, which were a key component of restoring physical connectivity. Challenges came in the form of localised factors, such as vaccine hesitancy and logistical hurdles, as well as external factors, such as the global inequity of vaccine distribution. This paper analyses the case studies of four ASEAN member states – Indonesia, Malaysia, the Philippines and Vietnam – to understand the localised factors which influenced the respective national vaccination programmes. The paper also analyses the impact of vaccine diplomacy by the European Union (EU) and China on these four countries.

1. INTRODUCTION

By early 2022, most Association of Southeast Asian Nations (ASEAN) member states had reopened their borders to international travellers and relaxed social distancing measures in a bid to restore economic activity and boost tourism receipts. Satisfactory vaccination rates across the region had given governments the confidence to relax COVID-19 restrictions in their respective countries. After all, vaccines demonstrably prevent severe cases of COVID-19 and alleviate the burden on healthcare systems.

However, it took close to a year for countries such as Indonesia, Laos and the Philippines to make significant gains in catching up with their neighbours' vaccination rates. National strategies to address the pandemic have varied, and there is still no congruent and comprehensive regional response even after almost three years into the COVID-19 pandemic. While regional actors like the European Union (EU) were able to move beyond nationalistic approaches, most regions – including ASEAN – failed to develop a clear cooperative strategy at the regional level as global flows of goods and people slowed down, including supply chains, tourism, and travel.

The pandemic continues to pose a major challenge to global connectivity. From a public health perspective, it is evident that high vaccination rates are a necessity to end the pandemic and re-establish connectivity between countries. However, there are various hindrances which make achieving this goal difficult, including supply chain disruptions, restricted access to vaccines, limited vaccine production capacities and high costs of running vaccination campaigns.

In this paper, we will use the case studies of four ASEAN member states – Indonesia, Malaysia, the Philippines, and Vietnam – to answer the following research questions:

1. What localised, regional and global factors influence the implementation of national vaccine strategies in Southeast Asia?

2. How do countries in Southeast Asia balance localised factors against regional and global factors when implementing their respective national vaccine strategies?

These research questions are highly relevant as pandemics are expected to become more common in the future. By identifying the factors influenc-

ing national vaccine approaches in Southeast Asia, policymakers are better equipped to prepare, facilitate and implement vaccine regimes as a central tool for future global pandemic responses.

To this end, this paper analyses secondary data, national regulations, and newspaper articles to characterise the vaccination campaigns in the four identified ASEAN member states of Indonesia, Malaysia, the Philippines, and Vietnam. The information recorded includes the respective member states' access to vaccines, the implementation of the vaccine regimes, and other critical responses. The secondary data recorded spans from the beginning of pandemic-related actions in March 2020 until the end of October 2021.

The paper further analyses the approaches from China and the EU in providing vaccines for the ASEAN region. The two global powers were chosen because they both have competing security and economic interests in the region. Therefore, their respective strategies would have an influence on their bilateral relations with ASEAN member states and possibly have an impact on how the governments of the respective member states organised their own vaccination programmes.

2. LITERATURE REVIEW

2.1. Physical Connectivity and the COVID-19 Pandemic

In its most basic conceptualisation, connectivity is the person-to-person interaction which creates communities and cooperation at all levels of society and state. For this paper, we focus on the physical dimensions of connectivity. In this understanding, physical connectivity involves the use of modern technologies, means of communication, and transport to facilitate the flows of people, goods, and ideas.

Physical connectivity is essential at the local and national levels where modern societies are organised around personal and professional networks and exchanges. Physical connectivity also has economic relevance as global supply chains are deeply rooted in available transport, communication, and energy infrastructure networks.

The ASEAN community is aware of the link between geopolitics and connectivity. While the ASEAN community defines connectivity according

to three dimensions – physical connectivity, institutional connectivity, and people-to-people connectivity – the focus of ASEAN's connectivity efforts is on improving physical connectivity.

ASEAN's focus on physical connectivity is evidenced by the discussion between ASEAN and the Asian Development Bank (ADB) on the improvement of cross-border infrastructures as a reaction to the global financial crisis of 2007/2008[1]. Since then, there have been several connectivity initiatives in the region, beginning with the Master Plan on ASEAN Connectivity adopted in 2010 (MPAC 2010). The MPAC 2010 acknowledged the need to address persistent issues due to the lack of connectedness, including unequal development across regions and member states[2]. The MPAC 2010 has since been succeeded by the Master Plan on ASEAN Connectivity 2025.

However, the COVID-19 pandemic brought the existing limitations on physical connectivity into focus. In the early days of the pandemic, physical connectivity was limited and controlled by governments across the world as national borders were closed with the aim of protecting the respective local populations and economic activities. In particular, many ASEAN member states were reminded of their previous experiences with the SARS virus in 2003 and the MERS virus in 2014[3] and took the threat of COVID-19 seriously from the beginning.

While logical on an intuitive level, the landscape of dis-connectivity was at the same time counterproductive. Countries were too focused on controlling the disease within their respective borders that they failed to coordinate with other countries in addressing key issues such as developing guidelines for cross-border travel and managing the flow of migrant workers. Global co-

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1. Plagemann, Johannes, Datta, Sreeradha and Chu, Sinan. 2021. The paradox of competing connectivity strategies in Asia. Third World Quarterly, 42:10, 2265-2281. (https://www.tandfonline.com/doi/full/10.1080/01436597.2021.1941846).

2. Godehardt, Nadine and Postel-Vinay, Karoline. 2020. Connectivity and Geopolitics: Beware the "New Wine in Old Bottles" Approach. SWP Comment. (https://www.swp-berlin.org/publications/products/comments/2020C35_Connectivity.pdf).

3. Le, Mirjam and Nicolaisen, Franziska Susana. 2022. State-Society Relations as Cooperative Partnership and the COVID-19 Response in Vietnam. Public Health in Asia during the COVID-19 Pandemic, Amsterdam University Press (AUP). (https://www.researchgate.net/publication/358495439_1_State-Society_Relations_as_Cooperative_Partnership_and_the_COVID-19_Response_in_Vietnam).

operation and connectivity were slowly re-established to some degree after the initial shock reaction.

The World Health Organisation (WHO) made initial attempts to re-establish connectivity, but its efforts were undermined by the withdrawal of the US from the organisation in May 2020 over claims of China's disproportionate influence over the WHO's decision-making process[4]. There was more success in re-establishing connectivity at a regional level. In particular, the EU pushed for a broader, regionally coordinated response strategy, particularly with regard to vaccines[5].

However, a similar success was not seen in Southeast Asia. Border closures in the region were maintained well into 2021, partially due to a severe outbreak of the Delta variant of the COVID-19 virus. ASEAN also played a minimal role in coordinating the national pandemic responses of its respective member states, as member states individually pursued strategies of managing the outbreak.

2.2. Vaccines and Vaccine Diplomacy

Vaccination was increasingly seen as the best response to the pandemic and the fastest way to re-establish physical connectivity. The development and large-scale manufacturing of vaccines was made a high priority in 2020.

The success of vaccine development depended to a large degree on the financial means available to the country, research facility or company. It is not a surprise that the major vaccines used at the global level were developed in China (Sinopharm), Europe (BioNTech and AstraZeneca) and the US (Moderna). While other countries, such as Russia, the United Arab Emirates and Cuba, also developed their own vaccines, the development and distribution of vaccines overall mirrored the global distribution of wealth.

4. Velásquez, Germán. 2022. The World Health Organization Reforms in the Time of COVID-19. Vaccines, Medicines and COVID-19. SpringerBriefs in Public Health. Springer, Cham. (https://doi.org/10.1007/978-3-030-89125-1_6).

5. Kliem, Frederick. 2021. ASEAN and the EU amidst COVID-19: overcoming the self-fulfilling prophecy of realism. Asia Europe Journal, 19: 371–389. (https://link.springer.com/article/10.1007/s10308-021-00604-8).

In this context, the concept of "vaccine diplomacy" entered the international political stage in 2020. The term "vaccine diplomacy" was initially used to envision a peaceful "diplomatic race" for the development of a vaccine. This included diplomatic measures to ensure access to the best practice in the development of potential vaccines, to enhance bilateral and multilateral cooperation between countries in conducting joint research and development, and to ensure the signing of a contract for the purchase of the vaccine at the shortest term[6].

From this perspective, vaccine diplomacy translated to a just distribution of vaccines for the global good. This was the goal supported by international organisations like the WHO. However, to reach this goal, these organisations depended on the support from as many countries as possible to provide the technologies, materials, expertise, and vaccines to distribute fairly. The establishment of the COVID-19 Vaccines Global Access facility, abbreviated as COVAX, was oriented toward this aim[7].

The use of vaccine diplomacy evolved in 2021 as countries realised the potency of vaccines being used as a negotiating tool due to the pressing need for vaccine supplies at a global scale. "Vaccine diplomacy" grew to mean the use of vaccines as a means to enhance a country's soft power, including economic interests[8]. Vaccine nationalism, with a "me first" approach, and neoliberal market protections for pharmaceutical patents limited access to new technologies, production, and distribution for lower-income countries[9].

Rather than ensuring equitable access to vaccines, vaccines were beginning to be sold, shared, and distributed based on bilateral relations and to secure future economic and political gains. COVAX became only one of many

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6. Abduazimov, Muzaffar. 2021. Inside Diplomacy during the pandemic: Change in the Means and Ways of Practice. Indonesian Quarterly, Vol 49(1), No. 1, pp. 50-66. (https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3854295).

7. Peter J Hotez, Peter J. and Narayan, K. M. Venkat. 2021. Restoring Vaccine Diplomacy. JAMA. 2021; 325(23):2337–2338. (https://jamanetwork.com/journals/jama/fullarticle/2780640).

8. Jennings, Michael. 2021. Vaccine diplomacy: how some countries are using COVID to enhance their soft power. The Conversation. (https://theconversation.com/vaccine-diplomacy-how-some-countries-are-using-covid-to-enhance-their-soft-power-155697).

9. Peter J Hotez, Peter J. and Narayan, K. M. Venkat. 2021. Restoring Vaccine Diplomacy. JAMA. 2021; 325(23):2337–2338. (https://jamanetwork.com/journals/jama/fullarticle/2780640).

bilateral and multilateral channels for vaccine distribution. The emergence of alternative exchange networks, as opposed to a broad distribution network of the vaccines, undermined public trust and global equality.

The fracturing of vaccine networks across the world extended to ASEAN, where member states individually pursued strategies of vaccine self-sufficiency. Furthermore, ASEAN as an organisation did not have the capacity to coordinate a regional response in time. This is despite ASEAN's previous successes with dealing with region-wide epidemics, such as the establishment of the Highly Pathogenic Avian Influenza Task Force to deal with the outbreak of avian influenza in the mid-2000s[10]. ASEAN's lack of capacity is in part due to the member states being preoccupied with the negative impact of the virus on their respective economies.

Vaccinations and vaccine diplomacy can be situated in the framework of physical connectivity. First, vaccines are seen by most healthcare workers and medical experts as means to enable the resumption of economic activities and the reopening of international borders. Thus, vaccines are seen as means of restoring physical connectivity. Second, the production and procurement as well as the global and national distribution of vaccines are based on networks of physical connectivity.

However, as established earlier, physical connectivity is affected by the impact of power relations. Consequently, it was unsurprising that vaccines slowly became a politicised tool and a mirror of existing global inequality. The process of marginalisation of vaccine access is a result of global and local actors playing gatekeepers for vaccines. Unequal access to vaccines, at both the national and international levels, continues to create and reinforce dependencies, thus perpetuating forms of social injustice.

As major powers, the EU and China engaged in vaccine diplomacy efforts of their own. In September 2020, the EU announced that it was participating in the COVAX facility. However, the EU's participation in the COVAX facility was fraught with delays due to bureaucratic hurdles and nationalism within

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10. Kashyap, Shubhankar and Bhattacharya, Anushka. 2021. ASEAN's divided response to COVID-19. East Asia Forum. (https://www.eastasiaforum.org/2021/11/12/aseans-divided-response-to-covid-19/).

member states[11]. There was also a huge disparity between the number of doses promised and the number of actual doses delivered – as of November 2021, the EU had only delivered less than a third of the 300 million doses it had pledged to the COVAX facility[12].

Still, the majority of vaccine donations by the EU and its member states are through the COVAX facility. 300 million out of the 350 million vaccine doses that the EU pledged in 2021 were made through the COVAX facility[13], making the COVAX facility an integral part of the EU's vaccine diplomacy efforts. Collectively, the EU was also the second largest global donor of vaccines after the US in 2021[14].

On the other hand, China led global vaccination efforts – especially in Southeast Asia – by being the first to supply vaccines in large quantities. The Southeast Asian region is essential to China not only because of its proximity and historical relations[15] but also because the region accounts for roughly a quarter of China's global sales[16].

The rapid deployment of China's vaccine diplomacy stood in contrast to the "me first" policies of the United States and the European Union[17]. China's vaccine diplomacy was closely tied to its economic interests, as evidenced by the launch of the "Health Silk Road", which was an offshoot of the Belt

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11. Deters, Henning and Zardo, Federica. 2022. The European Commission in Covid-19 vaccine cooperation: leadership vs coronationalism? Journal of European Public Policy. (https://www.tandfonline.com/doi/full/10.1080/13501763.2022.2064900).

12. Birchard, Rosie. 2021. EU countries slammed for slow vaccine sharing. DW. (https://www.dw.com/en/campaigners-slam-eu-countries-for-slow-vaccine-sharing-as-variant-sparks-panic/a-59946267).

13. European Commission. 2021. Statement by President von der Leyen on vaccine sharing. (https://ec.europa.eu/commission/presscorner/detail/en/STATEMENT_21_6651).

14. Puyvallée, Antoine de Bengy and Storeng, Katerini Tagmatarchi. 2022. COVAX, vaccine donations and the politics of global vaccine inequity. Global Health. 2022; 18: 26. (https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8897760/).

15. Schaffar, Wolfram. 2018. The Social Base of New Authoritarianism in Southeast Asia: Class Struggle and the Imperial Mode of Living. Austrian Journal of South-East Asian Studies 11 (1): 141–48. (https://aseas.univie.ac.at/index.php/aseas/article/view/2687).

16. Marques, Clara Ferreira. 2021. Vaccine Diplomacy Isn't Working. It's Time For a New Approach. Bloomberg. (https://www.bloomberg.com/opinion/articles/2021-09-02/vaccine-diplomacy-isn-t-working-it-s-time-for-a-new-approach).

17. Zhao, Suisheng. 2021. Why China's vaccine diplomacy is winning. East Asia Forum. (https://www.eastasiaforum.org/2021/04/29/why-chinas-vaccine-diplomacy-is-winning/).

and Road Initiative (BRI). The Health Silk Road rolled out the state-produced Sinovac and Sinopharm vaccines to the members of the BRI with the aim of "enhanced preferential access to jabs alongside investments in infrastructure and connectivity projects"[18].

Although the efficiency of Chinese vaccines was often questioned[19], China's well-timed vaccine diplomacy offered an alternative to many regions, including Southeast Asia, who were facing vaccine scarcity driven by the Western countries[20]. China also partly supported the demand for the loosening of vaccine patents. The perpetuation of China's soft power spurred greater competition for vaccine diplomacy, especially from the EU, as the EU recognises China as a competitor on the international stage[21].

3. OVERVIEW OF NATIONAL VACCINE STRATEGIES ACROSS SOUTHEAST ASIA

3.1. Indonesia

3.1.1. Indonesia's initial pandemic response and subsequent vaccination strategy

Unlike most of its ASEAN neighbours, the Indonesian government's initial response to the COVID-19 threat was fraught with denial and late interven-

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18. Ibid.

19. Marques, Clara Ferreira. 2021. Vaccine Diplomacy Isn't Working. It's Time For a New Approach. Bloomberg. (https://www.bloomberg.com/opinion/articles/2021-09-02/vaccine-diplomacy-isn-t-working-it-s-time-for-a-new-approach).

20. Liu, Liangtao, Huang, Yongli, and Jin, Jiyong. 2022. China's Vaccine Diplomacy and Its Implications for Global Health Governance. Healthcare (Basel). 2022 Jul 10; 10(7):1276. (https://pubmed.ncbi.nlm.nih.gov/35885803/).

21. Manfredi-Sánchez, Juan Luis. 2022. Vaccine (public) diplomacy: legitimacy narratives in the pandemic age. Place Branding and Public Diplomacy. (https://doi.org/10.1057/s41254-022-00258-2).

tion[22]. Strict lockdown measures were slow to be implemented due to the fear of damaging the national economy.

When vaccines eventually arrived, the Indonesian government faced logistical challenges in deploying vaccines efficiently due to the country's archipelagic geography, dispersed populations and fragmented healthcare infrastructure.

Another main challenge was public acceptance of the vaccine. When surveyed, 74 per cent of the public were aware of the government's vaccination programme, but only 65 per cent of them were willing to be vaccinated. Factors contributing to vaccine hesitancy were its safety, effectiveness, lack of trust, and religious concern[23].

As a country with a predominantly Muslim population, concerns over the inclusion of pork products in the vaccine's content fuelled the debate on the *halal* (permissible) status of the vaccine[24]. The Chinese vaccines Sinovac and Zivifax were certified as *halal* by the Indonesian Clerics Council (MUI), while the rest of the vaccines were not certified as *halal* but permitted by the MUI due to emergency reasons.

3.1.2. Regional and global support for vaccine access in Indonesia

As Indonesia took a denialist approach in the early days of the pandemic, its support for ASEAN to play a larger role in managing the pandemic on a regional level was muted. Indonesia was dependent on vaccines from external sources. The first vaccine to be used in Indonesia was the China-produced Sinovac. According to the Indonesian government, the preference of Sinovac as the first vaccine to be used in Indonesia was because of its approval by the

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22. Jaffrey, Sana. 2020. Coronavirus Blunders in Indonesia Turn Crisis Into Catastrophe. Carnegie Endowment for International Peace. (https://carnegieendowment.org/2020/04/29/coronavirus-blunders-in-indonesia-turn-crisis-into-catastrophe-pub-81684).

23. The Ministry of Health Indonesia, National Immunization Technical Advisory Group (NITAG), UNICEF, and WHO. 2020. COVID-19 Vaccine Acceptance Survey in Indonesia. (https://www.unicef.org/indonesia/media/7631/file/COVID-19%20Vaccine%20Acceptance%20Survey%20in%20Indonesia.pdf).

24. Najmah, Graham Davies, Sharyn, and Kusnan. 2021. What is behind vaccine hesitancy in Indonesia? New Mandala. (https://www.newmandala.org/whats-behind-covid-19-vaccine-hesitancy-in-indonesia/)

WHO, affordability, early passing of the third phase of clinical trial, efficacy, single dose, and easy distribution system[25].

Indonesia procured Sinovac doses both in its raw form and as ready-to-use. Raw materials were purchased in bulk and eventually produced to be ready-to-use by the state-owned pharmaceutical company Bio Farma. As of June 2021, Indonesia ordered 125 million Sinovac doses, accounting for more than half of the collective orders for Chinese vaccines from Southeast Asian countries[26].

At the same time, Indonesia carefully diversified its vaccine sources to avoid overreliance on China. A major consideration for Indonesia in avoiding overreliance on China was due to the ongoing tensions in the South China Sea[27]. The COVAX facility offered Indonesia an avenue to diversify its vaccine procurements, with the COVAX facility allocating close to 14 million vaccine doses for Indonesia alone. Many EU members have supported Indonesia through the COVAX facility. As of November 2021, Indonesia received 680,400 vaccine doses from the Netherlands, 796,800 doses from Italy, and close to 4 million doses from France.

3.1.3. Assessment of Indonesia's national vaccine approach

The Indonesian government struggled to achieve its vaccination rollout targets due to its initial denial of the severity of the COVID-19 pandemic, which led to a late intervention. Limited availability of the vaccines, time constraints, logistical problems and low public acceptance further challenged the rollout of the vaccination programme in Indonesia.

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25. Nugraheny, Dian Erika. 2020. 6 Alasan Pemerintah Mengapa Beli Vaksin Covid-19 dari Sinovac China. KOMPAS.Com. (https://nasional.kompas.com/read/2020/12/08/12480491/6-alasan-pemerintah-mengapa-beli-vaksin-covid-19-dari-sinovac-china?page=all).

26. Zaini, Khairulanwar. 2021. China's Vaccine Diplomacy in Southeast Asia – A Mixed Record. ISEAS Perspective. (https://www.iseas.edu.sg/articles-commentaries/iseas-perspective/2021-86-chinas-vaccine-diplomacy-in-southeast-asia-a-mixed-record-by-khairulanwar-zaini/).

27. Yeremia, Ardhitya Eduard and Raditio, Klaus Heinrich. 2021. Indonesia-China Vaccine Cooperation and South China Sea. ISEAS Perspective. (https://www.iseas.edu.sg/wp-content/uploads/2021/03/ISEAS_Perspective_2021_55.pdf).

Fortunately for Indonesia, its strategic importance in the region attracted the interests of major powers to donate vaccines. Indonesia's acceptance of vaccine donations from various major powers was in line with its "free and active" foreign policy, which meant that Indonesia is neutral while actively maintaining a balance between the powerful countries. In the context of the COVID-19 pandemic, this also translated to "health diplomacy", which meant that Indonesia's foreign policy should be oriented to ensure adequate access to vaccines for all Indonesian citizens[28].

3.2. Malaysia

3.2.1. Malaysia's initial pandemic response and subsequent vaccination strategy

The Malaysian government implemented a successful lockdown in the early days of the COVID-19 pandemic. The initial success in keeping infection rates low soon gave way to a sharp spike in cases following a state election in the state of Sabah in October 2020. Poor enforcement of social distancing measures and quarantine orders during the state election was responsible[29] for a second wave of COVID-19 across the country. Public sentiment[30] towards the perceived failings of the government's pandemic management was a crucial factor in speeding up the vaccination procurement process.

The Malaysian government understood that further lockdowns would not be a sustainable solution given its high positivity rates and inadequate

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28. Djalal, Dino Patti, Subagyo, Agas, and Delanova, Mariane Olivia. 2021. Health Diplomacy as an Instrument of Indonesian Foreign Policy in the Era of the COVID-19 Pandemic. Journal of Global Strategic Studies, Vol. 01 No. 02, December 2021. (https://ejournal.fisip.unjani.ac.id/index.php/JGSS/article/view/849/294).

29. Jue Tao, Lim et al. 2021. Estimating direct and spill-over impacts of political elections on COVID-19 transmission using synthetic control methods. PLOS Computational Biology 17(5): e1008959. (https://doi.org/10.1371/journal.pcbi.1008959).

30. Latiff, Rozanna. 2020. Malaysian leaders draw flak after post-election virus jump. Reuters. (https://www.reuters.com/article/healthcoronavirus-malaysia-idUSL4N2GT0US).

contract tracing[31]. Malaysia signed up for COVAX in November 2020, two months after Brunei and Singapore did the same.

Malaysia has had a National Immunisation Programme in place since the 1950s[32]. The success of the long-running programme was a factor for the confident public sentiment that vaccination was a viable strategy to combat the spread of COVID-19.

3.2.2. Regional and global support for vaccine access in Malaysia

Due to Malaysia's upper-middle income status and the urgency of requiring vaccines, the bulk of vaccines in Malaysia were obtained through directly negotiated deals with pharmaceutical companies. Only a small portion of vaccine supplies were received through donations from other countries, including 500,000 Sinovac doses from China[33].

Despite signing on to the COVAX facility early on, Malaysia did not receive its promised doses until mid-2021. Malaysia's coordinating minister for vaccines, Khairy Jamaluddin, expressed his disappointment publicly. In a forum in June 2021, Khairy labelled the COVAX programme an "abysmal failure" for allowing rich countries to corner the vaccine market while failing to supply shots to developing countries[34].

3.2.3. Assessment of Malaysia's national vaccine approach

Malaysia's speedy rollout of the national vaccine programme was driven by concerns of political legitimacy. As the Malaysian economy took a hit due to

31. Wei Aun, Yap. 2021. Malaysia's rapid vaccination can't outrun its COVID-19 failures. East Asia Forum. (https://www.eastasiaforum.org/2021/09/24/malaysias-rapid-vaccination-cant-outrun-its-covid-19-failures/).

32. Institute for Public Health. 2016. National Health and Morbidity Survey 2016. Ministry of Health Malaysia.

33. Batumalai, Kanmani. 2021. Malaysia Only Received 34% Of Covid-19 Vaccines Ordered To Date. CodeBlue. (https://codeblue.galencentre.org/2021/08/18/malaysia-only-received-34-of-covid-19-vaccines-ordered-to-date/).

34. CodeBlue. 2021. COVAX An 'Abysmal Failure', Khairy Tells World Bank. (https://codeblue.galencentre.org/2021/06/23/covax-an-abysmal-failure-khairy-tells-world-bank/).

the dis-connectivity of economic activities on the local and national levels, the Malaysian government was anxious to deliver an exit strategy from the pandemic to gain public support.

Unlike most of its Southeast Asian neighbours, Malaysia did not rely heavily on gestures of vaccine diplomacy from other countries. This was due to Malaysia's relatively advanced economy, which allowed Malaysia to negotiate bilateral deals directly with pharmaceutical companies. As such, vaccine donations did not have a large impact on improving bilateral ties. However, Malaysia did call for advanced countries such as Japan[35] to work with ASEAN in establishing a regional vaccine production centre.

3.3. The Philippines

3.3.1. The Philippines' initial pandemic response and subsequent vaccination strategy

The president of the Philippines, Rodrigo Duterte, responded swiftly in the initial stages of the pandemic. The Philippines was the first Southeast Asian country to impose stringent lockdowns, particularly in the capital city of Manila[36]. However, these decisions were made without much consideration of the economic impact. Notwithstanding the early measures, the Philippines had to deal with high death and infection rates.

The Philippines faced problems with the insufficient supply of vaccines and general inefficiency of vaccines, particularly those sourced from China. In addition, the short shelf life of vaccines hindered the distribution to the hinterlands and provinces outside the capital.

Vaccine hesitancy was another important factor in the slow rollout of vaccines. Public confidence in vaccination programmes was eroded following the 2017 controversy over the Dengvaxia vaccine. The Dengvaxia vaccine,

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35. Bernama. 2021. Malaysia proposes Asean, Japan explore vaccine production in the region. New Straits Times. (https://www.nst.com.my/news/nation/2021/10/740124/malaysia-proposes-asean-japan-explore-vaccine-production-region).

36. Aspinwall, Nick. 2020. Coronavirus Lockdown Launches Manila Into Pandemonium. Foreign Policy. (https://foreignpolicy.com/2020/03/14/duterte-quarantine-philippines-coronavirus-lockdown-launches-manila-into-pandemonium/).

which was supposed to prevent dengue fever, was revealed to increase the chances of previously uninfected people developing a more severe case of dengue fever[37].

The dual problems of logistics and vaccine hesitancy resulted in a delayed rollout of vaccines. As of November 2021, over 40 million vaccine doses of the 108 million received by the Philippines were not distributed or utilised due to logistical bottlenecks and vaccine hesitancy[38].

The authoritarian rule of President Duterte aggravated resistance against the vaccination process[39]. Duterte's response to vaccine hesitancy was to order house arrests[40] and imprisonment[41] for those who reject vaccination. Further requirements by the Inter-Agency Task Force for the Management of Emerging Infectious Diseases (IATF-EID) to mandate the vaccination of private and public employees led to high-profile public disagreements by the mayor of Manila[42] and a senator[43]. Both public officials cited that mandatory vaccination was unfair and called for the continuation of voluntary vaccination.

37. Reyes, Ma. Sophia Graciela L., Dee, Edward Christopher, and Ho, Beverly Lorraine. 2021. Vaccination in the Philippines: Experiences from history and lessons for the future. Human Vaccines & Immunotherapeutics, 17(6), 1873–1876. (https://doi.org/10.1080/21645 515.2020.1841541).

38. Calonzo, Andreo. 2021. 40 Million Covid Shots Remain Unused in Philippines Over "Logistical Bottlenecks." Bloomberg. (https://www.bloomberg.com/news/articles/2021-11-03/millions-of-covid-shots-unused-in-philippines-on-logistics-woes).

39. Regino, Alec. 2020. Duterte's strongman politics exacerbates the Philippines' COVID-19 crisis. East Asia Forum. (https://www.eastasiaforum.org/2020/10/16/dutertes-strongman-politics-exacerbates-the-philippines-covid-19-crisis/).

40. Guiterrez, Jason. 2021. Duterte says vaccine refusers in the Philippines should be detained at home. The New York Times. (https://www.nytimes.com/2021/07/29/world/duterte-philippines-covid-vaccine.html).

41. Reuters. 2021. Philippines president Duterte: "You choose, Covid vaccine or I will have you jailed.". The Guardian. (https://www.theguardian.com/world/2021/jun/22/philippines-president-duterte-you-choose-covid-vaccine-or-i-will-have-you-jailed).

42. Lalu, Gabriel Pabico. 2021. Isko Moreno not in favor of mandatory vaccination vs COVID-19. Inquirer News. (https://newsinfo.inquirer.net/1523013/isko-moreno-not-in-favor-of-mandatory-vaccination-vs-covid-19).

43. Ismael, Javier Joe. 2021. Recall of mandatory jab order pressed. The Manila Times. (https://www.manilatimes.net/2021/12/04/news/national/recall-of-mandatory-jab-order-pressed/1824682).

3.3.2. Impact of vaccine diplomacy in the Philippines

The Philippines became the second ASEAN country after Cambodia to receive vaccines through the COVAX Facility[44], receiving its first 487,200 doses through the facility in March 2021[45]. However, China was the biggest donor of vaccine doses to the Philippines. As of September 2021, more than half of the Philippines' vaccine doses came from China[46]. 34.5 million doses of Sinovac-CoronaVac were secured through bilateral agreements, while another 2 million additional doses of Sinovac-CoronaVac and Sinopharm came from bilateral donations.

The dominance of the Chinese vaccines in the Philippines can be explained through the new-found alliance of the Philippines' President Rodrigo Duterte with Chinese President Xi Jinping. The two countries strengthened their bilateral economic relations through China's BRI and the "Build, Build, Build" programme of the Philippines. Through the BRI, China has engaged in various infrastructure projects and commercial agreements with the Philippines.

For this reason, China bolstered the renewed bilateral relations by being the first to donate and sell government-procured vaccines to the Philippines. In addition, it was also the first country to offer test kits and medical experts to the Philippines[47]. China's successful vaccine diplomacy paved the way for the "Health Silk Road"[48] which runs in parallel to the BRI.

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44. European Union. 2021. Cambodia becomes the first country in ASEAN to receive COVID19 vaccines through the COVAX scheme. (https://eeas.europa.eu/headquarters/headquarters-homepage/94125/cambodia-becomes-first-country-asean-receive-covid19-vaccines-through-covax-scheme_en).

45. Casilao, Joahna Lei. 2021. 487,200 AstraZeneca doses arrive in the Philippines. GMA News. (https://www.gmanetwork.com/news/topstories/nation/778368/over-487-000-astrazeneca-doses-arrive-in-the-philippines/story/).

46. Gonzales, Cathrine. 2021. More than half of COVID-19 vaccines in PH are made by Sinovac, says DOH. Inquirer.Net. (https://newsinfo.inquirer.net/1494662/more-than-half-of-covid-19-vaccines-in-ph-are-made-by-sinovac-says-doh).

47. Pitlo III, Lucio Blanco. 2021. Chinese Vaccine Diplomacy in The Philippines and Its Impacts. ISEAS Perspective. (https://www.iseas.edu.sg/articles-commentaries/iseas-perspective/2021-145-chinese-vaccine-diplomacy-in-the-philippines-and-its-impacts-by-lucio-blanco-pitlo-iii/).

48. Zhao, Suisheng. 2021. Why China's vaccine diplomacy is winning. East Asia Forum. (https://www.eastasiaforum.org/2021/04/29/why-chinas-vaccine-diplomacy-is-winning/).

Despite questions being raised over the quality and efficiency of Chinese vaccines, the quantity of COVAX vaccines sent to the Philippines remained much less than vaccines from China. As of September 2021, the Philippines only received 16.9 million vaccine doses from the COVAX facility[49].

3.3.3. Assessment of the Philippines' national vaccine approach

Two major considerations stand out in the national approach of the Philippines to the vaccination campaign. Firstly, the statements by the authoritarian President Duterte together with the stringent policies enacted by IATF-EID impeded public support and worsened persistent vaccine hesitancy. Secondly, the facilitation, transportation, and distribution of the vaccines faced logistical difficulties in the far-flung provinces.

Following the dire need for vaccine supplies, the Philippines relied heavily on China for vaccines. Over 34 million vaccine doses were sourced from China, more than double the 16.9 million vaccine doses received from the COVAX facility. The turn to China for vaccines coincided with warming bilateral ties between the Philippines and China, and further strengthened those ties.

3.4. Vietnam

3.4.1. Vietnam's initial pandemic response and subsequent vaccine strategy

Vietnam's initial zero-COVID strategy proved very successful during the year 2020 with only small-scale and locally contained outbreaks. As a result, vaccination campaigns were not perceived as a priority by the government and the population at large[50].

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49. The ASEAN. 2021. COVID-19 Vaccine Tracker: Where are ASEAN's vaccines coming from? (https://asean.org/wp-content/uploads/2021/10/The-ASEAN-August-September-2021-Vaccines-for-All-2.pdf).

50. Huong, Le Thu. 2021. Delta variant outbreak challenges Vietnam's COVID-19 response strategy. Brookings. (https://www.brookings.edu/blog/order-from-chaos/2021/08/11/delta-variant-outbreak-challenges-vietnams-covid-19-response-strategy/).

Vietnam followed a self-sufficient strategy of combining its zero-COVID approach with the domestic development of vaccines by four Vietnamese companies to curtail Vietnam's dependency on international donations and supplies[51]. However, this also led to complacency in the Vietnamese government, which became less willing to invest its limited funds into the procurement of vaccines from abroad[52].

To bridge the gap in domestic vaccine demand until the successful approval of its own vaccines, Vietnam signed on to the COVAX scheme in March 2021, hoping to be able to gain access to 30 million COVID-19 vaccine doses through the scheme[53].

When case numbers began rising in May 2021 as a result of the major Delta variant outbreak, Vietnam found itself without sufficient funds for vaccine procurement and with delays in the approval of its domestic vaccines. Although Vietnam approved eight COVID-19 vaccines for emergency use to increase the number of its vaccinated population, there was still a bottleneck of funds which the government tried to solve by building public-private partnerships and signing alternative agreements.

Vietnam's government amplified its efforts to procure enough vaccines for its more than 90 million people and moved on from its zero-COVID strategy in September 2021[54]. The new policy focus shifted to living with the virus.

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51. Tran, Thi Mai Oanh, Nguyen, Khanh Phuong, and Khuong, Anh Tuan. 2021. Sustainability and Resilience in the Vietnamese Health System. Partnership for Health System Sustainability and Resilience (PHSSR). (https://www3.weforum.org/docs/WEF_PHSSR_Vietnam_Report.pdf).

52. Huong, Le Thu. 2021. Delta variant outbreak challenges Vietnam's COVID-19 response strategy. Brookings. (https://www.brookings.edu/blog/order-from-chaos/2021/08/11/delta-variant-outbreak-challenges-vietnams-covid-19-response-strategy/).

53. Tran, Thi Mai Oanh, Nguyen, Khanh Phuong, and Khuong, Anh Tuan. 2021. Sustainability and Resilience in the Vietnamese Health System. Partnership for Health System Sustainability and Resilience (PHSSR). (https://www3.weforum.org/docs/WEF_PHSSR_Vietnam_Report.pdf).

54. Yeung, Jessie and Westcott, Ben. 2021. Malaysia, Thailand and Vietnam are leaving their zero-Covid policies behind, but they aren't ready to open up, experts warn. CNN. (https://edition.cnn.com/2021/09/21/asia/covid-zero-asia-vietnam-thailand-malaysia-intl-hnk/index.html).

This included the stated aim to inoculate 70 per cent of Vietnam's population by the end of 2021 or, at the latest, early 2022[55].

3.4.2. Regional and global support for vaccine access in Vietnam

Vietnam became a major recipient of vaccines through the COVAX scheme, in particular from EU countries like Italy, which overall donated 2.8 million doses of AstraZeneca[56]. However, vaccine supply was still a major constraint as not all vaccines which were donated or promised arrived in Vietnam. Compared with other countries in the region, Vietnam received far fewer vaccine donations in relation to its population size. Consequently, beyond the COVAX scheme, Vietnam also engaged in bilateral vaccine diplomacy, including receiving bilateral donations from various EU countries, the US, Australia[57], South Korea and the United Arab Emirates[58].

Donations of vaccines and other health care supplies thus became a major instrument in the building and maintenance of bilateral relations. For example, Vietnam reciprocated vaccine donations from Cuba with food, money and medical equipment[59], along with an agreement to purchase 10 million vaccine doses from Cuba[60].

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55. Onishi, Tomoya. 2021. Vietnam backpedals on COVID-19 vaccination targets. Nikkei Asia. (https://asia.nikkei.com/Spotlight/Coronavirus/COVID-vaccines/Vietnam-backpedals-on-COVID-19-vaccination-targets2).

56. Tuoi Tre News. 2021. Italy gives Vietnam 1.2 million more COVID-19 vaccine doses: EU delegation. (https://tuoitrenews.vn/news/society/20210929/italy-gives-vietnam-12-million-more-covid19-vaccine-doses-eu-delegation/63321.html).

57. Minister for Foreign Affairs, Australia .2021. Australia partners with Vietnam on vaccine rollout. (https://www.foreignminister.gov.au/minister/marise-payne/media-release/australia-partners-vietnam-vaccine-rollout).

58. Tho, Vinh. 2021. Vietnam receives one million doses of Hayat-Vax vaccine from UAE. Tuoi Tre News. (https://tuoitrenews.vn/news/society/20210930/vietnam-receives-one-million-doses-of-hayatvax-vaccine-from-uae/63345.html).

59. Tien, Nguyen. 2021. Cuba to gift Vietnam 150,000 Covid vaccines. VNExpress. (https://e.vnexpress.net/news/news/cuba-to-gift-vietnam-150-000-covid-vaccines-4359647.html).

60. Strangio, Sebastian. 2021. Vietnam Signs Cuban COVID-19 Vaccine Supply Deal. The Diplomat. (https://thediplomat.com/2021/09/vietnam-signs-cuban-covid-19-vaccine-supply-deal/).

Despite China promising 20 million doses of its Sinopharm/VeroCell vaccine, the general Vietnamese public was reluctant to accept the vaccine[61] due to widespread public antagonism against China and in particular Chinese products. Public mistrust thus forced the government to maintain a degree of distance from China during the pandemic. The government eventually agreed in September 2021 to buy 20 million doses of the Sinopharm/VeroCell vaccine, but only for Chinese citizens living in Vietnam, Vietnamese citizens who planned on working or studying in China, and those living along the Sino-Vietnamese border[62].

3.4.3. Assessment of Vietnam's national vaccine approach

As with most Southeast Asian countries, Vietnam's response strategy at the beginning of the pandemic focused on national interests with a zero-COVID strategy which led to closed borders, limited cooperation and, thus, reduced connectivity. However, the national vaccination programme had a slow start in early 2021 due to difficulties procuring enough vaccines for the population. The government was forced to shift gears when it was clear that closed borders could not be sustained economically for much longer and that the Delta outbreak in Vietnam could only be contained with an extensive vaccination of the public.

By the end of 2021, Vietnam was eventually able to catch up with its Southeast Asian neighbours thanks to a high level of public support for vaccination and successful campaigns to push for vaccination in high-risk areas, which often used social pressure to ensure compliance.

A significant approach to Vietnam's vaccination strategy was its attempts to diversify its procurement strategy and engage with various countries and organisations with the aim of gaining access to enough vaccines. Thus,

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61. Vincent, Travis. 2021. From Delay to Desperation: The Story of Sinophobia and COVID-19 Vaccines in Vietnam. The Diplomat. (https://thediplomat.com/2021/10/from-delay-to-desperation-the-story-of-sinophobia-and-covid-19-vaccines-in-vietnam/).

62. Le, Dong Hai Nguyen. 2021. Was Vietnam's Chinese COVID-19 Vaccine Debacle Just a Stunt? The Diplomat. (https://thediplomat.com/2021/08/was-vietnams-chinese-covid-19-vaccine-debacle-just-a-stunt/).

contrary to the dis-connectivity at the beginning of the pandemic, Vietnam aimed to reconnect on the political stage.

Vietnam has also used the COVID-19 pandemic as a means to strengthen its middle power role. Vietnam has become a strong advocate for the prioritisation of countries with low vaccination rates in the distribution of vaccines. It also pushed for a relaxation of vaccine patents at the international level, arguing that this would enable countries in the Global South to engage in vaccine production and supply chains. As stated by Vietnamese State President Nguyen Xuan Phuc at the UN general assembly, the focus should be to increase international and national resilience with cooperation and connectivity[63].

In a speech at the 38th ASEAN Summit in October 2021, Vietnamese Prime Minister Phạm Minh Chính also called for a holistic, synchronous, and flexible approach to COVID-19 pandemic control by ASEAN. To this end, Vietnam pledged to contribute to the ASEAN medical supplies stockpile[64].

4. POLICY RECOMMENDATIONS

With regard to future economic development and regional security interests, it is necessary for ASEAN member states to alleviate the risks of dependencies on more developed countries. To do so, member states need to play a leading role in pushing towards a more holistic regional public health strategy. There is already a guiding framework in place for greater regional coordination on health issues in the form of the ASEAN Strategic Framework for Public Health Emergencies (ASF-PHE), which was launched in 2020.

One key initiative in the ASF-PHE is the establishment of the ASEAN Centre for Public Health Emergencies and Emerging Diseases (ACPHEED). The ACPHEED will be officially launched in November 2022 with funding

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63. Tho, Vinh. 2021. Vietnam receives one million doses of Hayat-Vax vaccine from UAE. Tuoi Tre News. (https://tuoitrenews.vn/news/society/20210930/vietnam-receives-one-million-doses-of-hayatvax-vaccine-from-uae/63345.html).

64. Minh, Khôi. 2021. ASEAN nhất trí đẩy mạnh tiêm chủng COVID-19 toàn dân và phục hồi kinh tế" (ASEAN agrees to promote universal COVID-19 vaccination and economic recovery). Tuổi Trẻ Online. (https://tuoitre.vn/asean-nhat-tri-day-manh-tiem-chung-covid-19-toan-dan-va-phuc-hoi-kinh-te-20211026170639155.htm).

from the government of Japan. The centre will serve to monitor public health emergencies in ASEAN member states and facilitate the development of joint regional capacitation, among other things[65].

Based on the case studies of the four Southeast Asian countries above, two policy recommendations are proposed to leverage the EU-ASEAN strategic relationship to strengthen the ASEAN public healthcare landscape:

- **Expand the Research Scope of the ACPHEED to Include Public Healthcare Policy**

    ASEAN member states' experience with the COVID-19 pandemic shows that member states had unique socioeconomic and political factors which influenced their respective national vaccine strategies. In order for more effective regional health initiatives to be deployed, the EU should help to fund the ACPHEED to deepen researchers' understanding of the socio-economic and cultural landscapes which influence the public healthcare policies of individual ASEAN member states.

- **Exchange Knowledge on Regional Healthcare Initiatives and Healthcare Research**

    The EU should sponsor regular knowledge exchanges and collaborations between experts from the ACPHEED and the EU's own European Centre for Disease Prevention and Control (ECDC). Similarly, the EU should promote knowledge exchanges and collaborations between the South East Asia Infectious Disease Clinical Research Network (SEAICRN) and the EU's European Clinical Research Alliance on Infectious Diseases (ECRAID). Such initiatives will allow healthcare experts from the two regions to draw from each other organisation's collective experience and widen their respective region's knowledge base.

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65. ASEAN. 2020. ASEAN Strategic Framework on Public Health Emergencies. (https://asean.org/wp-content/uploads/2020/11/4-ASEAN-Strategic-Framework-on-PHE_Final.pdf).

5. CONCLUSION

This paper has shown that several different localised factors, including geography, socioeconomic challenges, vaccine hesitancy and political considerations, affected the rollout of vaccination programmes in ASEAN member states. In turn, these factors kept ASEAN member states preoccupied from re-establishing connectivity.

There were also several factors, both localised and external, which influenced how ASEAN member governments accepted vaccine diplomacy. In the cases of Indonesia and the Philippines, China's rapid response to deliver vaccines strengthened already warm bilateral ties between China and the respective countries. However, these countries were also cautious of being over-reliant on China as the source of vaccines and sought to diversify their procurement strategies. The EU, through the COVAX facility, was a natural choice as both the ASEAN and EU are "natural partners"[66]. However, concerns regarding the "me first" policy of Western countries occasionally affected how the gestures of vaccine diplomacy were received.

With vaccination rates in ASEAN at satisfactory levels, the EU has an opportunity to take vaccine diplomacy to its next level in the region. The EU should assist ASEAN in increasing the connectivity among member states to detect potential public health emergencies early and coordinate well-informed policies to mitigate any risks arising from these emergencies.

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66. Borrell, Josep. 2021. EU, ASEAN natural partners with common agenda. The Jakarta Post. (https://www.thejakartapost.com/academia/2021/06/13/eu-asean-natural-partners-with-common-agenda.html).

EU-ASEAN Smart Green ASEAN Cities Programme

Towards Better Urban Connectivity in Southeast Asia

Nguyen Dang Dao

Abstract

Southeast Asia has been experiencing unprecedented urban growth in the past decade, which offers the Association of Southeast Asian Nations (ASEAN) and its member states several challenges and opportunities at the same time. In 2021, ASEAN, together with the European Union (EU) and United Nations Capital Development Fund, launched the Smart Green ASEAN Cities (SGAC) programme with the aim of tackling existing challenges and fully unleashing the potential of smart cities in the region. The purpose of this paper is to comprehend the full complexities of the current situation by considering the various aspects of SGAC in particular and green, smart city progress in ASEAN in general, such as energy, circular economy, infrastructure, and social services. From that, the paper aims to conclude with feasible and practical solutions for both the ASEAN Secretariat and the EU, as well as the member states in light of SDG 11-Sustainable cities and communities.

INTRODUCTION

In 2021, the Association of Southeast Asian Nations (ASEAN), together with the European Union (EU) and United Nations Capital Development Fund (UNCDF), launched the Smart Green ASEAN Cities programme (SGAC). The programme aims to assist the ASEAN member states (AMS) in adopting green and smart solutions for rapid urbanisation by accelerating the digitalisation process and the use of technologies.

On the one hand, SGAC will improve the regional connectivity between ASEAN countries by synergising existing ASEAN urban programmes, including the ASEAN Initiative on Environmentally Sustainable Cities, the ASEAN Smart Cities Network, the ASEAN Sustainable Urbanisation Strategy, and the EU-supported SMART CHANGE programme. On the other hand, it fosters inter-regional ties between ASEAN and the EU on a critical aspect of connectivity – smart and green cities.

In this paper, three main challenges for SGAC, namely, lack of resources, inadequate infrastructure development and absence of strategy and concrete action plans, are examined. In order to tackle these challenges, ASEAN, with assistance and collaboration from the EU, will need to utilise public-private partnerships effectively to secure sufficient resources, strengthen the alignment between national, regional, and cross-regional frameworks on smart city development, and create suitable blueprints with smart city task forces.

SMART GREEN ASEAN CITIES PROGRAMME

Almost 300 million of the 630 million ASEAN residents are living in urban areas, and in the next two decades, the number of urban residents is expected to increase by 400 million[1]. It has led to a significant rise in the exchange of people, goods, and capital between cities and countries in the region. In light

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1. ASEAN Secretariat. 2021. Smart Green ASEAN Cities: New initiative to promote sustainable and smart cities in ASEAN. (https://asean.org/smart-green-asean-cities-new-initiative-to-promote-sustainable-and-smart-cities-in-asean/).

of that, ASEAN member states have been establishing partnerships with the EU to achieve a smart city future in the region.

SGAC started in November 2021 with the aim of assisting member states to tackle the challenges and needs of rapid urbanisation by enacting green and smart solutions[2]. In the period 2021–2015, the EU invested €5.1 million to facilitate digitalisation and public-private partnerships in Southeast Asia, as well as cooperation between cities in ASEAN and EU member states[3].

There are three main expected outputs from SGAC. First, the programme is expected to direct and improve the design, planning, and implementation of smart and green city solutions in designated cities in AMS. Furthermore, the project is expected to improve the national capacity for building and sustaining green and smart cities by sharing experiences between the EU and ASEAN. The last expected output indicates that SGAC will facilitate the exchange of experiences in smart and eco-city management from the EU and within AMS, mainly from Singapore[4].

ASEAN and the EU decided to categorise activities into three types, namely: (a) formulating and supporting green city development by providing technical assistance; (b) facilitating cross-regional, regional, and policy dialogues to promote capacity-building and knowledge exchanges and assisting AMS in drafting a national strategy for smart city development; and (c) strengthening EU-ASEAN collaboration through trade and knowledge production on green and smart city practices[5]. One of the key focuses of SGAC is two-way knowledge exchange, where the ASEAN Smart Cities Network (ASCN) is also expected to play an effective support role in achieving SGAC's goals.

Before the establishment of SGAC, ASCN had been serving as the main collaborative platform for AMS to develop and partner with other cities in

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2. ASEAN Secretariat. 2018. ASEAN Smart Cities Framework. (https://asean.org/wp-content/uploads/2019/02/ASCN-ASEAN-Smart-Cities-Framework.pdf).

3. ASEAN Secretariat. 2021. Smart Green ASEAN Cities: New initiative to promote sustainable and smart cities in ASEAN. (https://asean.org/smart-green-asean-cities-new-initiative-to-promote-sustainable-and-smart-cities-in-asean/).

4. ASEAN Secretariat. 2021. Smart Green ASEAN Cities: New initiative to promote sustainable and smart cities in ASEAN. (https://asean.org/smart-green-asean-cities-new-initiative-to-promote-sustainable-and-smart-cities-in-asean/).

5. European Union External Action Service. 2021. Smart Green ASEAN Cities presented as part of the EU-ASEAN green partnership. (https://www.eeas.europa.eu/eeas/smart-green-asean-cities-presented-part-eu-asean-green-partnership_en).

the region. There are 26 ASCN Pilot Cities, with six focus areas for all se-lected cities, including (a) civic and social; (b) health and security; (c) safety and security; (d) quality environment; (e) infrastructure; and (f) industry and innovation[6]. In general, this network has brought several opportunities for collaboration between cities and member states to improve the lives of ur-ban residents, strengthen their economic performance, and build a liveable and sustainable environment for all. More importantly, the abovementioned focus areas also overlap with SGAC's activities, which leaves room for synthe-sising these two programmes.

CHALLENGES

Regardless of the existing mechanisms and programmes, building smart cities in Southeast Asia still faces several challenges, namely: (a) lack of re-sources; (b) inadequate infrastructure; and (c) lack of concrete strategy and legislation. There is no one-size-fits-all solution for all Southeast Asian cities, but many have faced similar challenges in the past.

Lack of Resources

Building smart cities is costly and not all ASEAN member states have suf-ficient resources, including financial and human resources, with suitable expertise to realise the goals of smart cities. Singapore has been acting as the main resource provider in this network, mainly through capacity-build-ing workshops. However, the financial assistance between ASEAN member states is still limited and insufficient for less developed countries to catch up with leading countries like Singapore, Indonesia, and Vietnam. In many cases, signing memoranda of understanding does not necessarily lead to

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6. ASEAN Secretariat. N.d. ASEAN Smart Cities Network. (https://asean.org/our-communities/asean-smart-cities-network/).

joint projects due to the vagueness of financial contributions between signing parties[7].

SGAC, funded by the EU, is a gateway to solving this issue, yet so far there is little public information on how the budget is allocated and how effective SGAC's activities are. Furthermore, the EU itself also faces a similar issue in financing its projects, which makes it difficult for both sides to overcome the challenges[8]. ASEAN and the EU organised the first EU-ASEAN Knowledge Exchange where ASEAN, the EU, and other stakeholders shared best practices on cybersecurity and urban infrastructure[9].

Inadequate Infrastructure

The infrastructure gap – the difference between the required investment in infrastructure and the actual spending – in many ASEAN member states has long been problematic. ASCN experts have been struggling to close the infrastructure gaps despite the network's goal of promoting more effective collaboration among selected cities and transferring smart city solutions on infrastructure to other cities[10]. In general, infrastructure spending as a percentage of the gross domestic product (GDP) of AMS is low compared to other emerging countries in Asia like China or India[11]. Therefore, within the ASCN framework, investment in smart infrastructure is expected to ben-

7. Tan, S., Taeigagh, A., and Sha, K. 2021. How Transboundary Learning Occurs: Case Study of the ASEAN Smart Cities Network (ASCN). Sustainability, 13, 6502. (https://doi.org/10.3390/su13116502).

8. Vodafone. 2022. European Commission's 2023 Smart city target at risk. (https://www.vodafone.com/news/digital-society/smart-cities-report?fbclid=IwAR0wn-yYAr-NP2089MRv41lzamor2zPhguNakuF4eSoKRW4JJcP-zaJhk3U).

9. Cities Development Initiative. 2022. CDIA Contributes to the First EU-ASEAN Knowledge Exchange Workshop on Smart and Green Cities. (https://cdia.asia/2022/08/12/cdia-contributes-to-the-first-eu-asean-knowledge-exchange-workshop-on-smart-and-green-cities/).

10. Tan, S., Taeigagh, A., and Sha, K. 2021. How Transboundary Learning Occurs: Case Study of the ASEAN Smart Cities Network (ASCN). Sustainability, 13, 6502. (https://doi.org/10.3390/su13116502).

11. PwC. 2017. Understanding infrastructure opportunities in ASEAN Infrastructure Series Report 1. (https://www.pwc.com/sg/en/publications/assets/cpi-mas-1-infrastructure-opporunities-in-asean-201709.pdf).

efit both the private and public sectors in several ways, such as energy and waste management, smart mobility and transportation, and smart buildings[12]. However, given the differences in urban settings and capacities between ASEAN member states, the information and communication technology infrastructure for smart cities is still underdeveloped[13].

To tackle this problem, many types of partnerships with the United States (US), Australia, Japan, China, Korea, and other countries have been established by the ASCN since 2018[14]. However, due to the global pandemic, most partnerships have been postponed. The EU is expected to provide technical assistance in building digital infrastructure in Southeast Asian cities through SGAC, yet apart from some capacity-building programmes, the role of the EU in this field is still limited compared to the key players in the region like China and the US[15]. China has been actively investing in and assisting Southeast Asian countries in building smart cities from scratch with five US$9 million key projects, namely Forest City in Malaysia, New Clark City and New Manila Bay-City of Pearl in the Philippines, Eastern Economic Corridor in Thailand and New Yangon City Development in Myanmar[16]. In 2019, the 22nd ASEAN-China Summit also came up with the ASEAN-China Leaders' Statement on Smart City Cooperation Initiative, where both sides agreed to further enhance cooperation[17] in promoting smart city policymaking, planning, and best practices. The US and ASEAN also established the US-ASEAN

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12. ASEAN Secretariat. N.d. ASEAN Smart Cities Network. (https://asean.org/our-communities/asean-smart-cities-network/).

13. ADB. 2020. Smart City Pathways for Developing Asia: An Analytical Framework and Guidance. (https://www.adb.org/sites/default/files/publication/673441/sdwp-071-smart-city-pathways-developing-asia.pdf).

14. Martinus, M. 2020. ASEAN Smart Cities Network: A Catalyst for Partnerships. (https://www.iseas.edu.sg/wp-content/uploads/2020/02/ISEAS_Perspective_2020_32.pdf).

15. Okano-Heijmans, M. 2022. The EU's digital connectivity agenda in Southeast Asia and the benefits of coordination with Japan. (https://cadmus.eui.eu/bitstream/handle/1814/74566/QM-AX-22-038-EN-N.pdf?sequence=1&isAllowed=y).

16. He, Y., and Tritto, A. 2021. Chinese-Invested Smart City Development in Southeast Asia - How Resilient Are Urban Megaprojects in the Age of Covid-19? University of Kentucky UKnowledge. (https://uknowledge.uky.edu/cgi/viewcontent.cgi?article=1000&context=patterson_reports).

17. ASEAN Secretariat. 2019. ASEAN-China Leaders' Statement on Smart City Cooperation Initiative. (https://asean.org/asean-china-leaders-statement-on-smart-city-cooperation-initiative/).

Smart Cities Partnership at the 6th ASEAN-US Summit in November 2018 to strengthen the capacity of AMS in seven areas, including Private Sector Engagement, Water Security, Transportation, Innovation Research Grants and University Partnerships, Health in Cities, Integrated Urban Services, Energy Systems Modelling, and Cybersecurity[18]. In light of that, the EU only officially started its partnership on smart cities with ASEAN in 2021 to catch up with the other players in Southeast Asia.

Lack of Concrete Strategy and Action Plans

Despite the existence of ASCN, not all countries have a concrete national smart city strategy, and these strategies are not well-aligned with one another. Singapore has a very concrete smart nation strategy where it facilitates innovation and collaborations between all stakeholders to improve the quality of life[19]. Other countries like Brunei, Indonesia, and Vietnam have been catching up with their national strategy and legal framework for smart cities. However, unlike them, some member states like Laos or Cambodia still depend on support from ASEAN and other partners in the region and the world[20].

Unfortunately, SGAC is unable to directly solve this issue, even though it still has potential in knowledge and best practices exchange, where EU countries can share their experience with each AMS on how they can come up with their respective national strategies and action plans.

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18. US Mission to ASEAN. 2020. U.S.-ASEAN Smart Cities Partnership (USACSP): Sharing Expertise between Cities to Benefit the People of ASEAN. (https://asean.usmission.gov/u-s-asean-smart-cities-partnership-usascp-sharing-expertise-between-cities-to-benefit-the-people-of-asean/).

19. Aisyah, K. 2021. Singapore's Smart Nation Strategy. (https://opengovasia.com/singapores-smart-nation-strategy/#:~:text=As%20part%20of%20Singapore%27s%20roadmap,and%20the%20lives%20of%20people).

20. Nguyen, C. 2022. The Emerging Legal Framework for Smart Cities in Vietnam. Smart Cities in Asia. SpringerBriefs in Geography. Springer, Singapore. (https://doi.org/10.1007/978-981-19-1701-1_7).

POLICY RECOMMENDATIONS

Ensure Adequate Resources Through Public-Private Partnerships

The role of the private sector in achieving smart cities is critical, as the private sector has been able to provide funding, technical know-how, and innovation in many smart city development models across the globe[21]. Public-private partnership (PPP) is not explicitly mentioned in either SGAC or ASCN, and among ASEAN member states, only half (Singapore, Thailand, Malaysia, Indonesia, and the Philippines) have progressive and more-developed PPPs, while the other half do not[22].

PPPs will be the solution for several activities of SGAC, particularly in infrastructure, where the cost is high while the returns are modest, and technology, in which private corporations are leading the field. As such, it is crucial to enhance the role of the private sector in SGAC, besides governments and international organisations, by engaging them in dialogues, knowledge exchange, and cost-share programmes.

However, private investors often encounter several barriers when investing in smart city projects, such as political and macroeconomic risks. Furthermore, there is no one-size-fits-all approach for all cities because of national and local conditions and bureaucracy. Therefore, city leaders and authorities need to actively collaborate with the private sector and create a more favourable environment for them, particularly in policies and regulations, so that private investors will be able to access information on the different projects, make investment decisions and monitor their projects more easily. For example, foreign investors from developed countries like the US or the EU are often concerned about currency fluctuations. Therefore, ASEAN member states can provide local currency financing to stabilise the currency

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21. McKinsey Global Institute. 2019. How can the private and public sectors work together to create smart cities? (https://www.mckinsey.de/business-functions/operations/our-insights/how-can-the-private-and-public-sectors-work-together-to-create-smart-cities).

22. Zen, F. 2018. Public–Private Partnership Development in Southeast Asia. (https://olc.worldbank.org/system/files/Bite%2B%203%20Pages%20from%20ewp-553-ppp-development-southeast-asia-4.pdf).

rates for the private investors. More importantly, at the regional level, it is necessary to share best practices and provide sufficient information to the private sector so that they can overcome the main barrier in identifying a suitable pipeline of size and quality for each city[23].

Improve Alignment Between National, Regional and Cross-Regional Frameworks

Although the framework at the ASEAN level is non-legally-binding and the situations, urban capacities, and challenges in each country and city are varied, enhancing the alignment between AMS and the strategic outcomes could represent significant steps forward for ASEAN. The knowledge sharing between ASEAN and the EU under the framework of SGAC can serve as the key for ASEAN. The three phases of the Smart Cities Market Place, namely, Explore, Shape, and Deal, have the potential to be applied in ASEAN and foster collaboration between countries[24]. The ASEAN Secretariat and AMS can re-evaluate the existing smart city projects and policies under ASCN and continuously update the knowledge on smart cities. It will help in identifying the best practices and coming up with new ideas that are suitable for each city and country. The next phase is to shape concrete action plans and project pipelines, where the EU and ASEAN can share how to turn ideas into bankable smart city projects. The last phase is the Deal phase, where exchanges between promoters of the projects and members of the financing community will be facilitated. These phases are particularly useful for public-private partnerships and make it more feasible for both the EU and ASEAN to learn from each other and collaborate on smart cities under the framework of SGAC.

23. The World Bank Group, United Nations Development Programme, Global Infrastructure Facility. 2020. Catalyzing Private Sector Investment in Climate Smart Cities. (https://www.undp.org/publications/catalyzing-private-sector-investment-climate-smart-cities?).

24. European Commission. N.d. Smart cities. (https://ec.europa.eu/info/eu-regional-and-urban-development/topics/cities-and-urban-development/city-initiatives/smart-cities_en).

Creating Smart City Blueprints with Smart City Task Forces

As mentioned, many MoUs have been signed between ASEAN member states, but in practice, there is still a lack of concrete and effective task forces and action plans like in other fields such as education or security. The task forces at the regional and national levels will make sure that the two main enablers of smart cities in ASEAN, technological and digital solutions, and partnership and funding, will be further enhanced constantly[25]. The EU can also send experts to the task forces to help local and national authorities develop a designated and suitable path to smart cities.

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25. ASEAN Secretariat. 2018. ASEAN Smart Cities Framework. (https://asean.org/wp-content/uploads/2019/02/ASCN-ASEAN-Smart-Cities-Framework.pdf).

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He, Y., and Tritto, A. 2021. Chinese-Invested Smart City Development in Southeast Asia - How Resilient Are Urban Megaprojects in the Age of Covid-19? University of Kentucky UKnowledge. (https://uknowledge.uky. edu/cgi/viewcontent.cgi?article=1000&context=patterson_reports).

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The World Bank Group, United Nations Development Programme, Global Infrastructure Facility. 2020. Catalyzing Private Sector Investment in Climate Smart Cities. (https://www.undp.org/publications/catalyzing-private-sector-investment-climate-smart-cities?).

US Mission to ASEAN. 2020. U.S.-ASEAN Smart Cities Partnership (USACSP): Sharing Expertise between Cities to Benefit the People of ASEAN. (https:// asean.usmission.gov/u-s-asean-smart-cities-partnership-usascp-sharing-expertise-between-cities-to-benefit-the-people-of-asean/).

Vodaphone. 2022. European Commission's 2023 Smart city target at risk. (https://www.vodafone.com/news/digital-society/smart-cities-report?fbclid=IwAR0wn-yYAr-NP2089MRv41lzamor2zPhguNakuF4eSoKRW4JJcP-zaJhk3U).

Zen, F. 2018. Public–Private Partnership Development in Southeast Asia. (https://olc.worldbank.org/system/files/Bite%2B%203%20Pages%20from%20ewp-553-ppp-development-southeast-asia-4.pdf).

08

Artificial Intelligence and the Sustainable Development Goals in ASEAN

Challenges and Policy Recommendations on EU-ASEAN Partnership

Nguyen Dang Dao | Upalat Korwatanasakul | Suonvisal Seth

Abstract

The Association of Southeast Asian Nations (ASEAN) is one of the fastest-growing regions in the world, but overall progress toward the Sustainable Development Goals (SDGs) is worrying. ASEAN, with the rapid digitalisation of its economy and society, has been considered a potential key driver for using artificial intelligence (AI) to promote the SDGs in the region. Yet member states still face significant challenges in developing their regional artificial intelligence capacity. This paper suggests ways ASEAN and the European Union (EU) can collaborate to strengthen the regional development of AI applications, including (i) formulating a regional framework to narrow the development gap; (ii) strengthening research collaboration in AI applications in sustainable development; (iii) learning and applying best practices from the EU, and (iv) promoting EU-ASEAN partnership on connectivity within the EU's Global Gateway framework. In general, fostering cooperation and harmonisation between ASEAN and the EU will create new opportunities for ASEAN to strengthen its AI capacity and AI readiness to promote the realisation of the SDGs in the region.

1. INTRODUCTION

Much of our world today is powered by rapid developments in science and technology. According to the World Economic Forum, artificial intelligence (AI) will be the key driver of the Fourth Industrial Revolution (4IR) and has the potential to solve pressing issues in society. Specifically, AI could help achieve 79 per cent of the Sustainable Development Goals (SDGs) of the United Nations, ranging from infrastructure, energy, agriculture, and manufacturing to governance.[1] Since the applications of AI have been considered useful for assisting governments, corporations, and individuals in many ways, several countries have been working to develop their AI capacity. While Singapore is Southeast Asia's leading country in AI, other Association of Southeast Asian Nations (ASEAN) member states have been catching up and speeding up their AI development plans in recent years.

2. OVERVIEW OF THE PROBLEM

According to the World Economic Forum, ASEAN is one of the world's fastest-growing regions and is on track to becoming the fourth-largest economy in 2022.[2] However, the rapid economic development has not been accompanied by sufficient progress toward the SDGs. The United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP) pointed out that Southeast Asia is lagging behind the rest of the countries in the Asia-Pacific region in many sustainable development goals, particularly in Climate Action

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1. ACCIONA. N.d. The Alliance between Artificial Intelligence and Sustainable Development. (https://www.activesustainability.com/sustainable-development/the-alliance-between-artificial-intelligence-and-sustainable-development/?_adin=02021864894).

2. World Economic Forum. 2022. ASEAN is poised for post-pandemic inclusive growth and prosperity – here's why. (https://www.weforum.org/agenda/2022/01/asean-is-poised-for-post-pandemic-inclusive-growth-and-prosperity-heres-why/).

(SDG 13), Life below Water (SDG 14), Life on Land (SDG 15), and Peace, Justice, and Strong Institutions (SDG 16).[3]

Several studies have illustrated the potential of AI applications in promoting and achieving sustainable development.[4] On the global scale, AI has affected roughly 80 per cent of the targets under the SDGs, which include 93 per cent of the environmental targets, 70 per cent of the economic targets, and 82 per cent of the social targets.[5] In light of that, ASEAN should examine how to leverage AI to improve productivity, equality, inclusion, and environmental protection so as to achieve the 2030 Agenda.

According to Kearney, by 2030, AI is expected to contribute up to $1 trillion to the ASEAN economy.[6] Moreover, AI-enabled initiatives can improve environmental and social targets. For instance, Malaysia implemented a "City Brain" initiative for urban planning and crime prevention.[7] Thailand launched the "AiMASK" project to improve mask-wearing behaviours during the COVID-19 pandemic[8], the "Doctor Raksa" project to provide telemedicine services[9], and the AI programme for diabetic eye disease to improve

3. United Nations Economic and Social Commission for Asia and the Pacific. 2021. Asia and the Pacific SDG Progress Report 2021. New York: United Nations. (https://www.unescap.org/sites/default/d8files/knowledge-products/ESCAP_Asia_and_the_Pacific_SDG_Progress_Report_2021.pdf).

4. Galaz, V., M. A. Centeno, P. W. Callahan, A. Causevic, T. Patterson, I. Brass, S. Baum, D. Farber, J. Fischer, D. Garcia, T. McPhearson, D. Jimenez, B. King, P. Larcey, and K. Le. 2021. Artificial Intelligence, Systemic Risks, and Sustainability. Technology in Society 67.

5. Venuesa et al. 2020. The Role of Artificial Intelligence in Achieving the Sustainable Development.

6. Kearney. 2020. AI is integral to Southeast Asia's future, but it is still in an early stage. (https://www.middle-east.kearney.com/digital-transformation/article/-/insights/racing-toward-the-future-artificial-intelligence-in-southeast-asia).

7. AI4SDGs Think Tank. 2022. Projects Under Specific SDGs Topics. (https://ai-for-sdgs.academy/topics).

8. Korwatanasakul, U., and S. Lertphusit. 2022. Public mask-wearing behaviour and perception towards COVID-19 intervention policies in Thailand: A mixed-methods study. In N. Suzuki, X. Mellet, S. Annaka, and M. Endo (eds.). Public Behavioural Responses to Policy Making during the Pandemic: Comparative Perspectives on Mask-Wearing Policies (pp. 204-218). Oxfordshire: Routledge.

9. Kearney. 2020. AI is integral to Southeast Asia's future, but it is still in an early stage. (https://www.middle-east.kearney.com/digital-transformation/article/-/insights/racing-toward-the-future-artificial-intelligence-in-southeast-asia).

the current diagnostic technique[10]. Regarding environmental development, Indonesia, the Philippines, and Vietnam created an image-recognition tool to monitor and control plastic waste management and ocean pollution.[11]

3. CHALLENGES

However, ASEAN faces three main challenges in catching up with the industrialised world's AI development.

3.1. The Low Levels of AI Readiness

Based on the Government AI Readiness Index, AI readiness refers to how ready a given government is to implement AI to deliver public services to its citizens.[12] AI resilience refers to the ability to prepare for, adapt to, and withstand broader structural changes brought about by AI, such as changing operational conditions.[13]

Figures 1 and 2 show the levels of AI preparedness (through indicators for "technology" and "data and infrastructure" in Figure 1 and "consumers" and "business" in Figure 2) and AI resilience (captured by "government" in both figures) for ASEAN and the world. Overall, ASEAN's AI preparedness and AI resilience are just above the world average, signalling a slow adjustment to fast-growing AI technologies (Figure 1). The figures for three of the ten members are below the world average, although Singapore is ranked second in the overall index. At the national level, the primary reason why less-

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10. International Institute of Communications (IIC) and TRPC. 2020. Artificial Intelligence in the Asia-Pacific Region. (https://www.iicom.org/wp-content/uploads/IIC-AI-Report-2020. pdf).

11. AI4SDGs Think Tank. 2022. Projects Under Specific SDGs Topics. (https://ai-for-sdgs. academy/topics).

12. Oxford Insights. 2021. Government AI Readiness Index 2021. (https://static1. squarespace.com/static/58b2e92c1e5b6c828058484e/t/61ead0752e7529590e98d3 5f/1642778757117/Government_AI_Readiness_21.pdf).

13. Asia Business Council. 2017. Artificial Intelligence in Asia: Preparedness and Resilience. (https://www.asiabusinesscouncil.org/docs/AI_briefing.pdf)

developed members like Myanmar and Cambodia scored below the global average score is the lack of a national AI strategy, which significantly affects their scores in the Vision category. There is also a lack of a coordinated plan for the Association to collaborate in the field of AI at the regional level.

Figure 1. AI Preparedness and Resilience Index 2021 for ASEAN and the World.
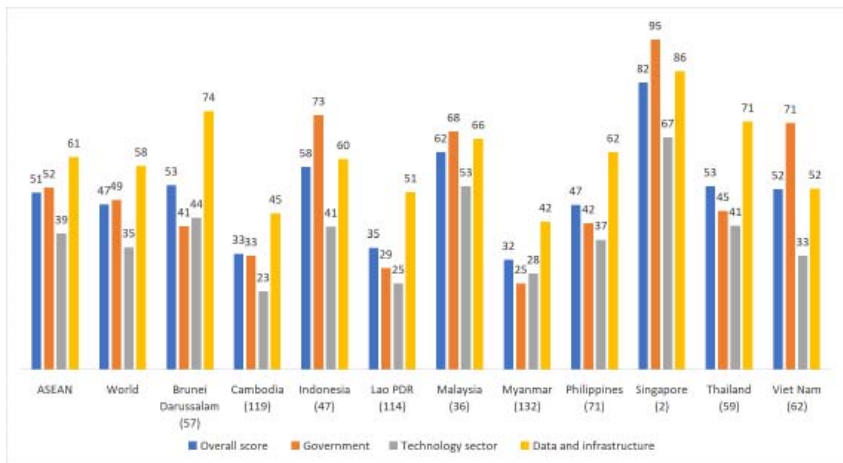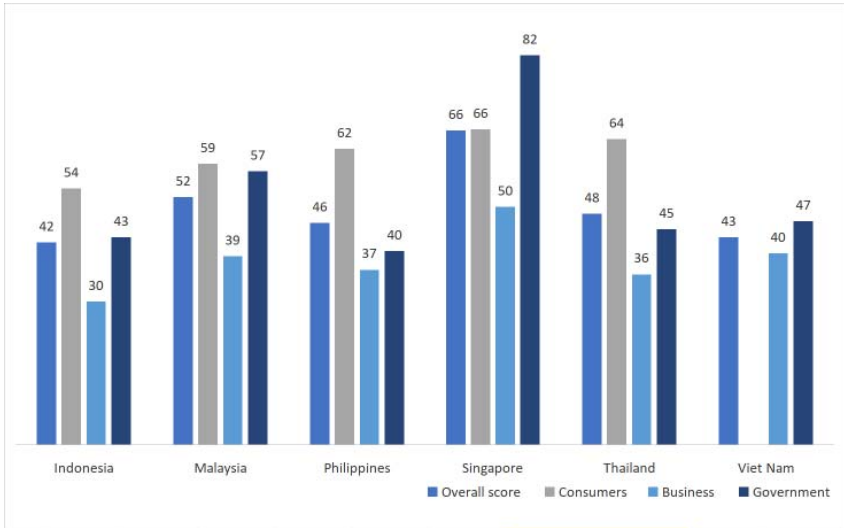

Notes: ASEAN = Association of Southeast Asian Nations; Lao PDR = Lao People's Demographic Republic.
The numbers in parentheses indicate the global ranking out of 160 economies. The maximum score for each pillar is 100.
Source: Korwatanasakul, Nguyen, and Seth.[14]

Figure 2. Asia Pacific AI Readiness Index 2021 for Selected ASEAN Countries.

Note: The maximum score of each pillar is 100. Consumer readiness data is not available for Vietnam.
Source: Korwatanasakul, Nguyen, and Seth.[15]

3.2. The Development Gap in AI Across ASEAN Countries

There are four leading countries in Southeast Asia in AI, namely Indonesia, Singapore, Thailand, and Vietnam. While these countries have been aiming to become innovation and AI hubs and to place themselves within the top 50 countries in the world, the overall scores of the three less-developed countries (Cambodia, the Lao People's Democratic Republic (PDR), and Myanmar) were still under 35 (Figure 1).[16] Furthermore, AI preparedness lev-

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15. Korwatanasakul, U., Nguyen, D. D., and Seth, S. 2022. Artificial intelligence to unlock sustainable development potential in Southeast Asia. Asia Pathways: The blog of the ADBI.

16. Dharmaraj, S. 2021. Vietnam Aims to Become AI Hub in ASEAN By 2030. OpenGov. (https://opengovasia.com/vietnam-aims-to-become-ai-hub-in-asean-by-2030/).

els vary across the ASEAN member states. Within AI preparedness, the levels for "data and infrastructure" (Figure 1) and "consumers" (Figure 2) are well above those for the "technology sector" (Figure 1) and "business" (Figure 2). This illustrates the huge gap between AI technologies and the potential users (consumers), who are ready to adopt AI-related products and services. In other words, the development of AI technologies in the region is not keeping up with the potential AI users. In 2019, while the US spent $155 per capita investing in AI applications, AI investment in ASEAN was only approximately $2 per capita.[17] It indicates the under-investment in AI in Southeast Asian countries.

3.3. Differences in AI Regulations and Policies

Since there is no general AI strategy and policy for all ASEAN members, there is also a vast difference in how ASEAN member states regulate AI applications in their countries. Figure 3 illustrates the current situation of AI policy instruments in selected member states. Singapore has adopted the highest number of policy instruments in several fields, including but not limited to governance, regulation, and finance. However, apart from Singapore, other governments still lag in initiating and applying policies since many countries are still at the early stage of adopting their policy ecosystem on AI. In Indonesia, the Ministry of Research and Technology announced its AI strategy in 2020 with a focus on critical sectors of its national development, including healthcare, bureaucratic reform, smart cities, food security, education, and research. Likewise, Thailand drafted its AI ethics guidelines in 2019, while Malaysia set its AI guidelines in 2020. Vietnam also announced its AI master plan in 2020.

Figure 3. National AI Policies and Strategies for Selected ASEAN Countries.
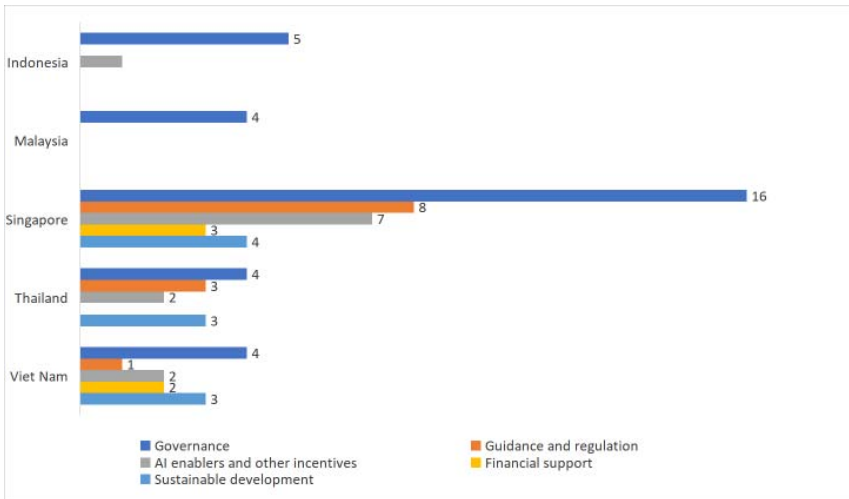
Note: The total number of policy instruments is equal to the sum of "governance", "guidance and regulation", "AI enablers and other incentives", and "financial support." "Sustainable development" indicates the number of policy instruments explicitly discussing sustainable development.

Source: Korwatanasakul, Nguyen, and Seth.[18]

Nevertheless, ASEAN successfully established numerous frameworks, actions, and master plans associated with digitalisation. ASEAN Digital Master Plan 2025 is one of the most important documents which measures support of e-commerce development, such as (i) promoting digital trade in ASEAN; (ii) nurturing the free flow of information and communications technology (ICT) products and services in ASEAN; and (iii) developing regional data protection principles. In addition, the new version of ASEAN Digital Master Plan 2025, as recently updated by ASEAN[19], upgrades eight desired outputs, including (i)

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18. Korwatanasakul, U., Nguyen, D. D., and Seth, S. 2022. Artificial intelligence to unlock sustainable development potential in Southeast Asia. Asia Pathways: The blog of the ADBI.

19. ASEAN. 2021. ASEAN Digital Master Plan 2025. (https://asean.org/wp-content/uploads/2021/09/ASEAN-Digital-Masterplan-EDITED.pdf).

quality and coverage of broadband infrastructure, (ii) trusted digital services, (iii) cross-border trade with digital connectivity, (iv) capacity building for people and businesses in the digital economy, and (v) digitally inclusive.

4. POLICY RECOMMENDATIONS

Given the previously discussed challenges, how should ASEAN member states collaborate with each other to narrow the gaps between themselves, and what lessons can they learn from the European Union (EU)? This section suggests four recommendations for ASEAN to promote sustainable development by accelerating the development of AI applications in the region.

First, since 2021, the EU has been working on the first-ever legal framework for AI and a Coordinated Plan with member states.[20] The decision to harmonise AI policies in all member countries and to categorise four levels of AI-related risk further strengthens the policy coherence and investment in AI to create the "development of human-centric, sustainable, secure, inclusive, and trustworthy AI" under the leadership of the EU. Given that ASEAN has fewer members than the EU and most countries are still at the early stage of their AI development, ASEAN has the potential to negotiate and develop a new workplan on AI from the ASEAN Digital Masterplan. The Masterplan already mentions a regional policy to deliver best-practice guidance on AI governance and ethics under Desired Outcomes no. 2 and Enable Action 2.7.[21] However, the focus of this enable action is the digital economy, which is much narrower in scope than the four levels of risk system initiated by the EU. As such, ASEAN and the EU may establish working groups or expert meetings where experts and officials from both sides can exchange ideas and formulate a suitable policy framework at the regional level for ASEAN, which is a critical step in narrowing the development gap among ASEAN member states.

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20. European Commission. 2021. Europe fit for the Digital Age: Commission proposes new rules and actions for excellence and trust in Artificial Intelligence. (https://ec.europa.eu/commission/presscorner/detail/en/ip_21_1682).

21. ASEAN. 2021. ASEAN Digital Master Plan 2025. (https://asean.org/wp-content/uploads/2021/09/ASEAN-Digital-Masterplan-EDITED.pdf).

Second, through the Roadmap for EU-ASEAN Science and Technology Cooperation, the EU's Horizon 2020, the EU's research and innovation funding programme, has already paved the way for collaboration on AI applications in the health sector in ASEAN countries.[22] Therefore, there is considerable potential for expanding the scope of AI development to other areas of cooperation between ASEAN and the EU, including food security, ICT, mobility, access to clean water, and sustainable transportation. Specifically, the EU's Horizon Europe programme offers researchers from ASEAN countries the opportunity to collaborate with EU countries in various fields. ASEAN universities and research institutions can play a more active role in participating in Horizon Europe programmes aimed at building AI capacity.

Third, ASEAN should seek best practices from its EU counterpart in structuring comprehensive cybersecurity policies to mitigate accelerating risks likely under the 4IR. The four countries with the highest possible Global Cyber Index (the index is known as the global benchmark for legislation and commitment to cybersecurity, institutionalised by the International Telecommunication Union) in ASEAN, namely Indonesia, Malaysia, Singapore, and Vietnam, will take the lead in various initiatives with the EU. For instance, areas to be considered in the EU's assistantship may include, but are not limited to, legal perspectives, technical support, organisational measures, capacity building, and cooperation in combating crime in cyberspace.[23]

Fourth, ASEAN needs consolidated strategies in addressing cyber threats, requiring particular attention to regional cybersecurity plans concerning the 4IR. As of now, specific AI strategies in the ASEAN member states are limited; only a few have been discovered, i.e., the Philippines' National Artificial Intelligence Strategies and Vietnam's National Strategy on Research, Development, and Application of Artificial Intelligence to 2030.[24]

Last but not least, with the existence of new initiatives of the EU's Global Gateway embracing the principles of the rule of law, human rights, and in-

22. European Commission. 2018. Roadmap for EU - ASEAN S&T cooperation. (https://ec.europa.eu/info/sites/default/files/research_and_innovation/strategy_on_research_and_innovation/documents/asean_roadmap_2018.pdf).

23. ASEAN. 2021. Consolidated Strategy on 4IR for ASEAN. (https://asean.org/wp-content/uploads/2021/10/6.-Consolidated-Strategy-on-the-4IR-for-ASEAN.pdf).

24. ASEAN. 2021. Consolidated Strategy on 4IR for ASEAN. (https://asean.org/wp-content/uploads/2021/10/6.-Consolidated-Strategy-on-the-4IR-for-ASEAN.pdf).

ternational norms and standards, ASEAN could potentially benefit from at least one of the Gateway's key areas of partnership – "the Digital Sector".[25] ASEAN and the EU could aim for connectivity to bridge the digital divide by (i) building a vibrant global digital ecosystem; (ii) addressing technological governance and cybersecurity; and (iii) increasing AI development and innovation that is environmentally friendly in prominent service sectors (i.e., health services, finance, logistics, education, tourism, agriculture, and other professional services).

25. European Commission. N.d. Global Gateway. (https://ec.europa.eu/info/strategy/priorities-2019-2024/stronger-europe-world/global-gateway_en#:~:text=Through%20the%20Global%20Gateway%2C%20the,into%20the%20global%20digital%20ecosystem).

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Oxford Insights. 2021. Government AI Readiness Index 2021. (https://static1.squarespace.com/static/58b2e92c1e5b6c828058484e/t/61ead0752e7529590e98d35f/1642778757117/Government_AI_Readiness_21.pdf).

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09

Developing an ASEAN AI Ethical Framework
Lesson Learned from the EU

Catherine Setiawan

Abstract

Most of ASEAN's citizens will be fully empowered to use high-tech tools like Artificial Intelligence (AI) in the next few years, especially to enhance their personal and professional lives. AI's strong overall impact across Southeast Asia is predicted to be nearly US$1 trillion by 2030. However, to achieve this potential, it is important to develop a trusted ecosystem within which the citizens of ASEAN feel confident in using AI. Consistent with what is stated in the ASEAN Digital Masterplan 2025, ASEAN needs to develop a regional policy to address key governance and ethical issues when deploying AI solutions, to promote understanding and trust. This can be done by looking through best practice guidance on AI governance and ethics. This paper specifically looks at the European Union's (EU) practices, considering that the EU is the champion on AI ethical frameworks globally. At the end, this paper also provides some recommendations for ASEAN to develop its regional AI ethical framework.

BACKGROUND

Artificial intelligence (AI) could boost productivity in the Southeast Asian region.[1] AI's overall impact is predicted to be nearly US$1 trillion across Southeast Asia by 2030 (see Figure 1).[2]

Figure 1. AI is expected to provide uplift in ASEAN GDP in 2030.

Economic Impact of AI in ASEAN, 2030 (USD Billion)
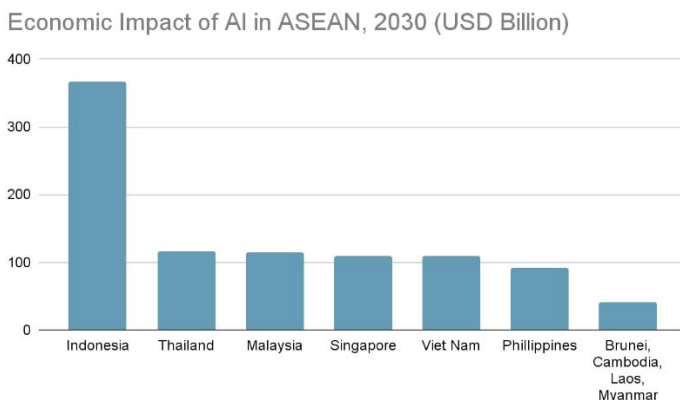
Source: AT Kearney (2020).

AI is an interdisciplinary field, usually regarded as a branch of computer science, dealing with models and systems for the performance of functions generally associated with human intelligence, such as reasoning and learning.[3] As much as AI transforms our societies, it leaves us to wonder about several rising ethical challenges. United Nations Educational, Scientific and

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1. McKinsey. 2017. AI and Southeast Asia Future. (https://www.mckinsey.com/~/media/McKinsey/Featured%20Insights/Artificial%20Intelligence/AI%20and%20SE%20ASIA%20future/Artificial-intelligence-and-Southeast-Asias-future.pdf).

2. AT Kearney. 2020. Racing towards the Future: AI in Southeast Asia. (https://www.kearney.com/digital/article/-/insights/racing-toward-the-future-artificial-intelligence-in-southeast-asia).

3. International Telecommunication Union. 2021. Artificial Intelligence Definition. (https://www.itu.int/br_tsb_terms/#?q=artificial%20int&sector=T,R&from=2002-10-04&to=2022-10-04&status=Recommended&page=1).

Cultural Organisation (UNESCO) listed several such challenges. First, AI is not neutral; it is susceptible to inaccuracies, discriminatory outcomes, or bias. AI tools on data gathering and privacy also lack transparency. Some other concerns include AI risks and fairness concerning human rights and other fundamental values.[4]

Recognising the significant potential of AI technology in Southeast Asia, it is important to strengthen the relevant fundamental frameworks, standards, policies, and initiatives, especially in the ethical aspect. Ethical AI ensures that AI initiatives will maintain human dignity and do not in any way cause harm to people.[5] Consistent with the ASEAN Digital Masterplan 2025, specifically Enabling Action 2.7, the Association of Southeast Asian Nations (ASEAN) needs to adopt a regional policy to address key governance and ethical issues when deploying AI solutions, so as to promote understanding and trust.[6] Having clear ethical AI guidelines in Southeast Asia will create consistency to ensure that AI implementation in Southeast Asia will foster interoperability, innovation, transparency, a diverse market, and security.

As one of ASEAN's strategic partners, the European Union (EU) is the champion and also the first regional organisation to establish an AI ethical framework.[7] In addressing the adoption of a regional policy to address key AI governance and ethical issues in Southeast Asia, this policy paper will investigate the EU's ethical AI framework and examine which aspects of the framework could be adapted and developed further by ASEAN. At the end, this paper will also provide some recommendations for ASEAN in drafting its ethical AI framework.

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4. UNESCO. 2021. Recommendation on AI Ethics. (https://en.unesco.org/artificial-intelligence/ethics).

5. David Roe. 2021. Why Ethical AI Won't Catch On Anytime Soon. (https://www.cmswire.com/information-management/why-ethical-ai-wont-catch-on-anytime-soon/).

6. ASEAN Secretariat. 2016. ASEAN Digital Masterplan. (https://asean.org/book/asean-digital-masterplan-2025/).

7. EU Commission. 2019. EU Ethics Guidelines for Trustworthy AI. (https://www.aepd.es/sites/default/files/2019-12/ai-ethics-guidelines.pdf).

WHAT ARE THE EU GUIDELINES FOR ETHICAL AI?

The EU's Ethics Guidelines for Trustworthy AI aims to promote trustworthy AI, with three components, namely, lawfulness, ethics, and robustness. AI needs to be: (i) lawful, as it should comply with all applicable laws and regulations; (ii) ethical, as it should ensure ethical principles and values; and (iii) robust, from both a technical and social perspective. See Table 1 for more details.

Table 1. EU Ethical AI: Trustworthy AI Layers.

Intro	Components: Trustworthy AI		
	Lawful AI	**Ethical AI**	**Robust AI**
Layer 1	Foundation	Four ethical AI principles	1. Respect for human autonomy 2. Prevention of harm 3. Fairness 4. Explicability
Layer 2	Realisation	Seven key requirements for Trustworthy AI • Technical • Non-technical	1. Human agency and oversight 2. Technical robustness and safety 3. Privacy and data governance 4. Transparency 5. Diversity 6. Non-discrimination and fairness 7. Environmental and societal wellbeing 8. Accountability
Layer 3	Assessment	Trustworthy AI assessment list	

Source: EU Ethics Guidelines for Trustworthy AI (2019).

The EU's Ethical AI Guidelines are very comprehensive; they ensure that AI is trustworthy by incorporating layers from the base foundation until its assessment. The first layer focuses on four key ethical principles, namely, respect for human autonomy, prevention of harm, fairness, and explicability.

The EU approach to AI ethics is based on the fundamental rights enshrined in the EU Treaties, the EU Charter of Fundamental Rights and international human rights law.[8] These principles are rooted in fundamental rights and must be respected and developed in a trustworthy manner. Further, to realise trustworthy AI, the EU seeks to ensure that the development, deployment, and use of AI systems meet the seven key requirements for trustworthy AI, namely, human agency and oversight, technical robustness and safety, privacy and data governance, transparency, diversity, non-discrimination and fairness, environmental and societal wellbeing, and accountability. These requirements are non-exhaustive. They include systemic, individual, and societal aspects. Lastly, in assessing trustworthy AI, the EU's ethical AI guidelines adopt a trustworthy AI assessment list.[9] The assessment list is a set of questions from each of the seven requirements from the second layer of AI realisation. The intention is not only about ticking boxes, but about continuously identifying and implementing requirements, evaluating solutions, ensuring improved outcomes throughout the AI system's lifecycle, and involving stakeholders in this.

RECOMMENDATIONS

There are several things ASEAN needs to consider in developing a framework for its region. However, before going directly to look at the EU guidelines and practices, ASEAN needs to first investigate its members' national AI strategies and find the link from one ethical concept to another, so that it can reach the best-fit regional guidelines for all. Most ASEAN member states have launched or are in the process of developing national AI strategies and governance frameworks. Singapore launched its National Artificial Intelligence Strategy in November 2019,[10] with the vision of becoming a leading global AI player by 2030. Thailand's Digital Economy and Society (DES) Ministry has drafted

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8. Ibid, p. 9.

9. Ibid, pp. 36-41.

10. Smart Nation Singapore. 2019. National AI Strategy. (https://www.smartnation.gov.sg/files/publications/national-ai-strategy.pdf).

the country's first AI ethics guidelines.[11] Indonesia released its national AI strategy in mid-2020, which emphasises the importance of ethics as one of the key components of a well-functioning AI ecosystem.[12] Malaysia[13] and the Philippines launched their AI roadmaps in 2021.[14] But so far, only Singapore and Thailand already have their own specific AI ethical frameworks.

After ASEAN has examined the national strategies, it could consider looking towards the EU to fill in the gaps that might still exist. From the EU Ethics Guidelines for Trustworthy AI, there are several things to consider. First, ASEAN needs to ensure the lawfulness aspect, ensuring that **the proposed ethical AI framework will comply and be consistent with all laws** that have been enforced in all countries in the region.

Second, in developing its foundational base, ASEAN needs to **define ethics suitable to its region's** practices and standards. Like the EU, the main point of ethics in ASEAN needs to focus on human beings. Four EU ethical AI principles will be equally important to ASEAN, namely (a) respect for human autonomy, (b) prevention of harm, (c) fairness, and (e) explicability. Further explanations can be seen in Table 2.

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11. Thailand Digital Economy and Society Ministry. 2019. Thailand AI Ethics Guideline. (https://www.etda.or.th/getattachment/9d370f25-f37a-4b7c-b661-48d2d730651d/Digital-Thailand-AI-Ethics-Principle-and-Guideline.pdf.aspx?lang=th-TH).

12. BPPT. 2020. Indonesia National Strategy on AI. (https://ai-innovation.id/server/static/ebook/stranas-ka.pdf).

13. Ministry of Science, Technology and Innovation of Malaysia. 2021. Malaysia AI Roadmap. (https://ai-innovation.id/server/static/ebook/stranas-ka.pdf).

14. Department of Trade and Industry Philippines. 2021. National AI Roadmap. (https://innovate.dti.gov.ph/resources/roadmaps/artificial-intelligence/).

Table 2. The EU's Four Ethical AI Principles.

Ethical Principles	Definition
1. Respect for human autonomy	The principle of respect for human autonomy ensures respect for the freedom and autonomy of human beings. It means that AI systems should not unjustifiably deceive or manipulate humans, but rather complement and empower human cognitive, social, and cultural skills.
2. Prevention of harm	The principle of prevention of harm means that AI systems should neither cause nor exacerbate harm or otherwise adversely affect human beings. This entails the protection of human dignity as well as mental and physical integrity. Moreover, the environment of AI systems' operation must be safe and secure. Also, greater attention needs to be given to vulnerable persons as it entails consideration of the natural environment and all living beings.
3. Fairness	The principle of fairness has both a substantive and a procedural dimension. The substantive dimension implies a commitment to ensure equal and just distribution of both benefits and costs and ensuring that individuals and groups are free from unfair bias, discrimination, and stigmatisation. Further, the procedural dimension entails the ability to contest and seek effective redress against decisions made by AI systems and by the humans operating them. To do so, the entity accountable for the decision must be identifiable, and the decision-making processes should be explicable.
4. Explicability	The principle of explicability is crucial for building and maintaining trust in AI systems. This means that AI systems and processes need to be transparent, their capabilities and purpose openly communicated, and decisions to the extent possible should be able to be explainable to those directly and indirectly affected.

Source: EU Ethics Guidelines for Trustworthy AI (2019).

As we can see from Table 2, the EU's definitions for its ethical AI principles might be general and could possibly be applied to ASEAN. However, the EU's interpretation and standards for those four ethical AI principles might differ from ASEAN's. The ASEAN approach to AI ethics needs to be based on the fundamental rights enshrined in the ASEAN Human Rights Declaration and other human rights-related treaties that have been ratified by ASEAN, for example: the Convention on the Elimination of All Forms of Discrimination

against Women (CEDAW), the Convention on the Rights of the Child (CRC), and the Convention on the Rights of Persons with Disabilities (CRPD), and/or any related and relevant documents or international norms acceptable in the region, such as the Universal Declaration of Human Rights. Furthermore, the interpretation can be adjusted on a case-to-case basis considering the culture and norms acceptable in each ASEAN country but still considering the acceptable international standard.

Third, in realising trustworthy AI, there are **five elements** that ASEAN needs to pay more detailed attention to, namely: (a) **privacy and safety**, (b) **non-discrimination and fairness**, (c) **accountability**, (d) **environmental and societal wellbeing**, and (e) **transparency**.

(a) Data privacy is an important aspect in realising trustworthy AI. Speeding up the development and implementation of data privacy governances and ensuring high standards of safety and equal access to data across Southeast Asia is very pertinent.

(b) ASEAN is a very diverse region. Ensuring the non-existence of discrimination and fairness means avoiding and eliminating unfair bias, accessibility, universal design, and ensuring equal and adequate stakeholder participation.

(c) Holding organisations and individuals accountable to ensure the proper functioning of AI systems throughout their lifecycles, from drafting the policy to implementation, especially in ensuring that they are in accordance with the applicable regulatory frameworks, is an important point that needs to be taken into consideration in fulfilling the realisation of trustworthy AI.

(d) Moreover, AI needs to ensure societal and environmental wellbeing, including sustainability and environmental friendliness, social impact, society, and democracy.

(e) It is also important to maintain transparency in the process. Transparent AI is explainable AI, meaning that the outcome of an AI model can be properly explained and communicated and allows humans to see and understand why particular decisions are made and how the models have been thoroughly tested and make sense. This can give further information and understanding to society at large

on how AI could have social and environmental impacts, as now its benefits and costs can be measured justly to maintain sustainability.

Lastly, **overall assessments need to be conducted regularly**, especially on regulations, codes of conduct, standardisation, certification, accountability via governance frameworks, education, and awareness to foster an ethical mindset, stakeholder participation and social dialogue, diversity, and inclusive design teams, to maintain trustworthy AI. ASEAN could perhaps develop or adopt a trustworthy AI assessment list to be able to continuously identify and implement requirements, evaluate solutions, ensure improved outcomes throughout the AI system's lifecycle, and involve relevant stakeholders on this.

In addition to the EU Ethics Guidelines for Trustworthy AI, ASEAN needs to also find references from other international practices on AI frameworks to fill the gaps, and to find the best-fit AI ethical framework, for example, by looking through the Universal Guidelines for Artificial Intelligence, and the UNESCO Recommendation on the Ethics of Artificial Intelligence, as well as the Organisation for Economic Cooperation and Development (OECD) principle on Artificial Intelligence. These global frameworks need to be researched and investigated in more detail and should be considered carefully by ASEAN in developing its framework, considering all ASEAN member states have already signed, adopted, and ratified these global frameworks. These frameworks are also based on broader and general international norms and standards that are acceptable globally.

CONCLUSION

The EU Ethics Guidelines for Trustworthy AI have three layers of components, namely, lawfulness, ethics, and robustness. Despite having three components, the guidelines are not explicitly dealing with the lawful element, instead offering guidance on the ethical and robustness elements. Further, the guidelines have three layers of abstraction. The first layer identifies the ethical AI principles and their correlated values that must be respected in the development, deployment, and use of AI systems. The second layer provides guidance on how trustworthy AI can be realised, by listing seven requirements that AI systems should meet. Both technical and non-technical methods can be used for their implementation. The third layer provides a

concrete and non-exhaustive trustworthy AI assessment list aimed at operationalising the key requirements set out in the second layer.

Before going directly to look at the EU guidelines and practices, ASEAN needs to first investigate its members' national AI strategies and find the link from one ethical concept to another, so that it can reach the best-fit regional guidelines for all, especially considering that some ASEAN countries already have their own AI national strategy.

From the EU guidelines, there are several aspects that ASEAN can draw upon. Firstly, ensuring the lawfulness aspect, meaning that the proposed ethical AI framework will comply with all laws that have been enforced in the region. Secondly, ASEAN could generally use similar ethical AI principles as the EU; however, its interpretations need to be suitable to its region's practices and standards. Thirdly, ASEAN needs to pay more detailed attention to the five elements, namely, (a) privacy and safety, (b) non-discrimination and fairness, (c) accountability, (d) environmental and societal wellbeing, and (e) transparency. Lastly, the implementation needs to be evaluated and assessed on an ongoing basis. ASEAN can adopt a trustworthy AI assessment list to be able to continuously identify and implement requirements, evaluate solutions, ensure improved outcomes throughout the AI system's lifecycle, and involve relevant stakeholders on this.

Finally, in order to develop a comprehensive Ethical AI framework, and to fill the gaps in the EU Ethics Guidelines for Trustworthy AI, ASEAN should also refer to other international guidelines such as the Universal Guidelines for Artificial Intelligence, the UNESCO Recommendation on the Ethics of Artificial Intelligence, as well as the OECD principle on Artificial Intelligence.

Acknowledgement

10

Digitalisation in ASEAN
Challenges and Opportunities for EU-ASEAN Cooperation

Afiq Ismaizam | Suonvisal Seth | Etienne Höra | Pingkan Audrine | Anousa Inthaboualy

Abstract

Digital transformation around the world has been greatly accelerated by the COVID-19 pandemic. Adoption of digital technologies and embracing of various technological developments have led us to the Fourth Industrial Revolution, challenging our thinking on how our societies should be organised and how to develop our economies. ASEAN member states are no exception and must be quick to leverage these digital technologies' development in order not to be left behind and to gain the full benefits that digitalisation offers. For this, international cooperation can play an important role. At the Commemorative Summit in December 2022, EU and ASEAN leaders renewed their commitment to their common connectivity agenda, including "the development of peaceful, secure, open, interoperable, reliable and inclusive digital economies".

The paper investigates the ASEAN countries' digital development needs and how the EU can contribute to meeting them with solutions adapted to local contexts. It is true that technological adoption across the ASEAN countries is uneven and disproportionately incentivised. This was reflected in the "Digital Readiness Index" (DRI) published by Cisco in 2021 that covers 146 countries around the world. Some ASEAN countries, such as Singapore, Malaysia and Thailand, are at the top of the list (of the DRI) whilst others, such as Cambodia, Laos and Myanmar, need considerable improvements in their DRI. By analysing the "ASEAN Digital Master Plan" and other ASEAN initiatives that aim to harness the potential of digitalisation, this paper seeks to make recommendations on how ASEAN can develop a vibrant ecosystem and narrow the digital adoption gaps between the ASEAN countries. Using the case of Singapore, the paper lays out some of the best practices that should be adopted to build a vibrant digital community. The paper also looks at how ASEAN can cooperate with the EU to improve ASEAN's digital readiness, including under the Global Gateway. Finally, a list of recommendations is provided to build new perspectives on Digital ASEAN mainstreaming capacity building, institutionalising legal frameworks, incentivising digital entrepreneurship and fully leveraging ASEAN's relationship with external partners, notably the EU.

INTRODUCTION

Digitalisation is one of the most important frontiers for development in the Association of Southeast Asian Nations (ASEAN), both from the economic and societal perspectives. With 125,000 new users joining the internet every day, ASEAN is the world's fastest expanding internet market. Hence, the ASEAN digital economy is expected to develop considerably, contributing an estimated US$1 trillion to regional Gross Domestic Product (GDP) over the next ten years.[1] The digital infrastructure gap is rapidly closing, with internet penetration reaching over 70 per cent in all ASEAN countries except Laos and Myanmar.

Some ASEAN governments have pushed the digitalisation agenda within their respective countries and have released national digitalisation strategies. For example, Singapore has its Smart Nation 2025 Blueprint. Indonesia is currently implementing its Digital Indonesia Road Map 2021-2024 while working on harmonising its digitalisation strategy across ministries beyond 2024. Malaysia has its Malaysian Digital Economy Blueprint (MyDIGITAL), which aims to attract billions in digital investments by 2025. In addition, Thailand has drawn up a national roadmap for the country's Digital Economy and Society Development Fund to improve Thailand's economic and social development capacity.

At the ASEAN level, there exists a framework called Developing Digital Readiness Among ASEAN Citizens. It has identified three interrelated elements that need to be prioritised, namely (i) digital access; (ii) digital literacy; and (iii) digital participation. This framework, however, is merely aspirational, with no binding commitments. The ASEAN Digital Masterplan (ADM) 2025 represents the Association's dedication to developing a thriving ecosystem for digital talents. The comprehensive action plan in the ADM 2025 sets out actions that need to be taken by ASEAN member states in order to better equip their citizens to participate in the digital economy.

The ADM is an update on the previous ASEAN ICT Master Plan 2020 that measured support of e-commerce development, such as: (1) promot-

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1. World Economic Forum. 2022. Digital ASEAN. (https://www.weforum.org/projects/digital-asean).

ing digital trade in ASEAN, (2) nurturing the free flow of Information and Communications Technology (ICT) products and services in ASEAN, and (3) developing regional data protection principles. ADM 2025 lays out a plan to help the ASEAN region become a digitally inclusive community through eight desired outputs, which are (1) actions of ADM 2025 prioritised to speed ASEAN's recovery from COVID-19, (2) increase in the quality and coverage of fixed and mobile broadband infrastructure, (3) delivery of trusted digital services and the prevention of consumer harm, (4) sustainable competitive market for the supply of digital services, (5) increase in the quality and use of e-government services, (6) digital services to connect businesses and to facilitate cross-border trade, (7) increased capability for business and people to participate in the digital economy and (8) digitally inclusive society in ASEAN.

Although national and regional strategies and blueprints are being set forth, numerous barriers are still holding back the widespread adoption of digital technologies by people and businesses in the region. The two main barriers are skills adoption and the development gaps in the digital infrastructure.

Previous and existing programmes spearheaded by The Asia Foundation with support from the ASEAN Coordinating Committee on Micro, Small and Medium Enterprises (ACCMSME) and Google, tend to be project-based with limited timeframes and narrow beneficiaries – such as entrepreneurs and micro, small, medium enterprises. It was orchestrated in response to the COVID-19 pandemic.[2] To be sustainable, digital capabilities expansion should move beyond a mere crisis response and be incorporated into a systemic approach, such as through the national education curriculum. In this scenario, improving the digital capabilities of ASEAN's 659 million-strong population would guarantee that opportunities and advantages will benefit all. Schools and universities in the region must become more flexible in order to enable their students to acquire the expertise necessary to compete in a digital economy. These abilities extend from fundamental computer knowledge to more advanced and sophisticated skills such as coding and data analysis.[3]

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2. ASEAN. 2022. "Go Digital ASEAN" Impact Summary Report: MSMEs, job seekers benefit from digital skills training. Available at (https://asean.org/go-digital-asean-impact-summary-report-msmes-job-seekers-benefit-from-digital-skills-training/).

3. ITU. 2021. Skills Development for the Digital Economy. (https://www.itu.int/ en/ mediacentre/backgrounders/Pages/skills-development-digital-economy.aspx)

The development gaps among ASEAN member countries, notably in the field of digital infrastructure, are limiting the digital transformation. This limitation calls for immediate attention to explore further and expand existing cooperation in bridging the digital divide and ICT development gaps within ASEAN, particularly for the less developed countries.

This policy paper examines the barriers that ASEAN countries continue to face in adopting digital technologies and maximising the full potential that these technologies can bring to transforming their economies; and then explores how the European Union's strategic partnership with ASEAN can be leveraged to improve digital development outcomes within the region.

DIGITALISATION IN ASEAN – STATE OF PLAY

Digital Readiness in ASEAN

Infrastructure connectivity is a crucial prerequisite for participation in the digital sphere but needs to be complemented by specific skills and modalities of access. Ben Youssef identifies several layers: "access to equipment and infrastructure, the use of Information and Communications Technology (ICT) by individuals and groups", "the efficiency of use" and "the modalities of learning in a knowledge economy".[4] The notion of "digital readiness" in ASEAN can serve as an umbrella term to capture these different aspects.[5] It includes basic digital access, but also digital literacy, the skills, confidence and motivation to use technology, as well as digital participation, facilitated by user-centric and inclusive designs. The ten ASEAN states vary greatly in their digital development, which is correlated to their overall level of economic development. While Singapore's economy is taking the regional lead in data-driven digital business models, the other economies often lag behind due to a lack of the relevant knowledge and resources. Large-scale use of

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4. Ben Youssef, Adel. 2004. The Four Dimensions of the Digital Divide. Reseaux 127128, no. 5 (2004): 181–209, p. 181.

5. Cf. ASEAN. 2021. Framework for developing digital readiness among ASEAN citizens. Available at: (https://asean.org/wp-content/uploads/2021/09/FRAMEWORK-FOR-DEVELOP ING-DIGITAL-READINESS-AMONG-ASEAN-CITIZEN.pdf).

5G is in its early stages in some Southeast Asian countries, while 4G coverage in the region is slightly more than 50 per cent, and only one-third of households have access to fibre broadband.[6] Industries associated with ICT have grown tremendously during the pandemic. These trends have resulted in a dramatic acceleration in ASEAN's transition towards becoming a digital economy and digital society. Establishing a sustainable, resilient, and inclusive digital economy requires a population that has high digital literacy and a workforce possessing digital skills and competencies.

One outcome of this trend is the unprecedented increase in the need for digital skills. As a result of the rapid acceleration of digitalisation across all industry sectors, there will be an increasing demand for workers proficient in digital skills in the ASEAN region. After the pandemic, new tools, solutions, platforms and services that have emerged since 2020 will continue to be a part of the standard operating procedures. The fields, industries and professions in which digitalisation drives job growth will inexorably call for ever-increasing levels of advanced digital skills, knowledge, and competencies.

This shift opens up enormous investment needs in education and skills development. To meet these demands, the fields of education, training and learning will need to undergo expansion. These trends, therefore, also highlight the importance of establishing a learning ecosystem that is both conducive to learning and capable of fostering more digital talents in the region.

ASEAN nations have recognised the need for developing digital skills in the region. The ASEAN Foundation, for instance, works to realise the potential of young people, and has helped with the success of ADM 2025. Charged with realising the potential of young people in ASEAN, the ASEAN Foundation has developed a series of programmes aimed at equipping the young people in ASEAN with digital skills necessary for them to enter the workforce and thrive in the age of the Fourth Industrial Revolution. These include the ASEAN Digital Innovation Programme, the ASEAN Cybersecurity Skilling Programme,

and the ASEAN Digital Literacy Programme, which have been developed and implemented by the foundation since 2017[7].

EU-ASEAN Cooperation Opportunities for Digital Readiness

As the strongest supporter of ASEAN integration, the European Union (EU) has great potential to support ASEAN digitalisation, which is in line with ASEAN's specific needs and is also in the EU's priorities in engaging ASEAN. The EU's projects, such as the Global Gateway and the Enhanced Regional EU-ASEAN Dialogue Instrument (e-READI), are designed with ASEAN centrality in mind. Specifically, e-READI is designed to support ASEAN in the implementation of its Community Blue Prints, empowering local governments to reach the goals they defined.

Leveraging the EU Global Gateway

The Global Gateway is the EU's flagship initiative for infrastructure investment, mobilising up to €300 billion until 2027. It is partly based on the EU-Asia Connectivity strategy and combines different EU funds, notably the facility for development assistance and external action (NDICI), pre-accession funds, Connecting Europe and InvestEU. Digital connectivity is one of the five pillars of the Global Gateway. Networks and infrastructure in underserved communities are prioritised. Additionally, the EU seeks to offer "digital economy packages" that combine infrastructure investments with country-level regulatory co-operation (data protection, cybersecurity, privacy, artificial intelligence, digital markets regulation). Digital education is an important aspect of the education pillar of the Global Gateway. Here, the EU seeks to promote life-long learning (which includes skills and vocational training), especially for women, girls, and other vulnerable groups.

At the EU-ASEAN Summit in 2022, a total of €10 billion in investment was announced under the Global Gateway, including digital connectiv-

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7. CIO. 2022. Fostering digital talents to achieve the goals of the ASEAN Digital Masterplan 2025. (https://www.cio.com/article/401815/fostering-digital-talents-to-achieve-the-goals-of-the-asean-digital-masterplan-2025.html).

ity infrastructure such as undersea cables, and research and innovation partnerships.[8] Once it is launched for Asia and the Pacific, the Digital for Development (D4D) Hub will be another key venue for EU-ASEAN cooperation on digital issues.[9]

Bilateral programmes by Team Europe in ASEAN

Several national development agencies from the EU member states, notably Germany's *Gesellschaft für internationale Zusammenarbeit* (GIZ) and France's *Agence française de développement* (AFD), are active in the ASEAN region, supporting partner countries individually and in coordination with the EU's overall development vision. This "Team Europe" approach combines the strengths and assets of member states and the EU institutions and can make for better results and outcomes. While the digital economy is not at the centre of the bilateral programmes, these programmes can play a role in providing the vocational and skills training needed to thrive in the digital economy. As digital development levels vary greatly between ASEAN countries, the task of implementing digitalisation initiatives should take the form of context-sensitive approaches that are tailored to each country's needs and existing capacities. ASEAN's experience shows that it is often possible to combine a common vision with different national pathways towards its implementation.

8. European Commission. 2022. Factsheet – Global Gateway in ASEAN. (https://ec.europa.eu/commission/presscorner/detail/en/fs_22_7730).

9. See European Commission. 2021. EU launches the Digital for Development Hub for Latin America and the Caribbean. (https://ec.europa.eu/commission/presscorner/detail/en/IP_21_6835).

Case Study: Best Practices from Singapore

Singapore is ahead of the other ASEAN countries in numerous surveys and indexes about digitalisation in the region. One of these is the ASEAN Digital Integration Index (ADII) 2021,[10] which measures digital readiness based on six pillars – digital trade and logistics, data protection and cybersecurity, digital payments and identity, digital skills and talents, innovation and entrepreneurship, and institutional and infrastructural readiness.

The first ADII report in 2021 takes stock of the digitalisation progress made in each ASEAN member state and dissects it into the priority areas of the ASEAN Digital Integration Framework in each member state. Based on the ADII report, Singapore's scores are above the regional average for all pillars. This achievement is a result of the collective efforts being made by the government working in tandem with the private sector and civil society, as noted in the Digital Readiness Blueprint launched by the Ministry of Communications and Information (MCI). The blueprint articulated digital readiness as encompassing three clear objectives[11]:

- Having ready access to affordable, inclusive, and trustworthy infrastructure;

- Having the motivation and skills to use digital technologies with confidence; and

- Using technology to achieve a better quality of life (e.g., convenience in day-to-day activities, better social and economic outcomes).

Hence, this section aims to provide lessons learned from Singapore that can inspire other ASEAN countries. Even if not all of these lessons may be applicable across contexts or feasible at different levels of economic development, they can serve as a starting point for further locally driven reflections.

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10. ASEAN. 2021. ASEAN Digital Integration Index Report 2021. (https://asean.org/wp-content/uploads/2021/09/ADII-Report-2021.pdf).

11. Singapore Ministry of Communications and Information. Digital Readiness Blueprint. (https://www.mci.gov.sg/en/portfolios/digital-readiness/digital-readiness-blueprint).

The Singaporean government through its Ministry of Communication and Information defines digital access as having affordable, inclusive, and trustworthy infrastructure such as electronic devices and access to internet connection. The government orchestrated four digital enablers that were also essential to enhancing Singapore's digital access for inclusivity. These consist of subsidised computers and tablets for low-income families, mobile broadband and public wireless connectivity, cashless payments, and national digital identity.

Singapore is among those countries with the highest digital coverage in the world. A year before the pandemic, in 2019, the Infocomm and Media Development Authority (IMDA) reported[12] that 89 per cent of resident households had access to a computer, and 98 per cent had access to the internet. Nevertheless, there are some challenges that persist, especially related to digital access inclusivity for marginalised groups. The elderly, people with disabilities, and people with low income often lag behind.

Launched in 2014, Singapore's Smart Nation strategy[13] aims to empower Singaporeans to live meaningful and fulfilled lives that are enabled seamlessly by technology, crafting more opportunities for all citizens. It puts the focus on how the government can collaborate with the private sector in seizing digital economy opportunities while also opening up opportunities for international partnerships to solve problems arising from rapid digitalisation.

To improve digital literacy and transform the digital workforce, the Singaporean government through IMDA established collaboration with the Ministry of Education as well as industry and civil society or community partners. Basic digital literacy programmes help students to develop skills in coding and computational thinking. In addition, there is a basic digital skills curriculum that covers valuable insights on managing information and communication, accessing government digital services, digital transactions, and how to stay safe online. For higher education, the government has the Tech

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12. Infocomm Media Development Authority. 2019. Annual survey on infocomm usage in households and by individuals for 2019. (https://www.imda.gov.sg/-/media/Imda/Files/Infocomm-Media-Landscape/Research-and-Statistics/Survey-Report/2019-HH-Public-Report_09032020.pdf).

13. Singapore Smart Nation and Digital Government Office. 2018. Smart Nation: The Way Forward. (https://www.smartnation.gov.sg/files/publications/smart-nation-strategy-nov2018.pdf).

Skills Accelerator programme, which is a company-led training programme run by government partners in the industry sector. This public-private partnership will enable the expansion of Singapore's tech talent pool while at the same time aiming to create 6,250 job opportunities for the first two years.[14]

There are at least two major programmes by the Singaporean government to promote digital literacy, run by the Ministry of Education and the Ministry of Communication and Information:

- National Digital Literacy Programme administered by the Ministry of Education.[15]

- Digital Media and Information Literacy Framework administered by the Ministry of Communication and Information.[16]

Businesses are also encouraged by the government to train their employees, and individuals are encouraged to cultivate a habit of lifelong learning. On the government side, a few programmes were created to bolster the digital literacy of civil servants. There is a goal of training 20,000 civil servants with data analytics and data science skill sets by 2023.[17]

In Singapore, many corporations have their own initiatives to prepare their employees or the community to be digitally ready. For instance, Singaporean multinational bank, DBS, announced its plans to re-skill 1,500 employees to help them be future-ready in 2017.[18] IMDA is collaborating with multinational tech companies such as Microsoft and Apple to train a

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14. ASEAN. 2021. ASEAN Digital Integration Index 2021. (https://asean.org/wp-content/uploads/2021/09/ADII-Report-2021.pdf).

15. See (https://www.moe.gov.sg/microsites/cos2020/refreshing-our-curriculum/strengthen-digital-literacy.html).

16. See (https://www.mci.gov.sg/literacy).

17. Singapore Smart Nation and Digital Government Office. 2018. Smart Nation: The Way Forward. (https://www.smartnation.gov.sg/files/publications/smart-nation-strategy-nov2018.pdf).

18. Lynette Khoo. 31 October 2017. The Straits Times. DBS to re-skill 1,500 bank staff in its own professional conversion programme. (https://www.straitstimes.com/business/banking/dbs-to-re-skill-1500-bank-staff-in-its-own-professional-conversion-programme).

group of persons with disabilities as ambassadors to help others in their community.[19]

Bolstering digital participation needs collaboration with the people and business players. This led to the Singaporean government's strategy to attract global technology companies and infrastructure investments through tax incentives.[20] This effort is also accompanied by government action to improve the conditions for research and innovation. The government pledged S$19 billion for scientific and technological research as part of its Research Innovation and Enterprise plan in 2020.

POLICY RECOMMENDATIONS FOR ASEAN

From the experience of Singapore, we identified some of the core priorities that ASEAN member states and ASEAN should focus on:

a. **Capacity building is needed to achieve ASEAN's digital transformation**. ASEAN Digital Integration Framework Action Plan (DIFAP 2019-2025) projects the milestones for implementation, whereby the 2025 ultimate goal would require sectoral roadmaps for capacity building. Therefore, each ASEAN member state government should invest more effort in its relevant ministries to scale up the capacity that might be of relevance to digital transformation through education, technology and innovation.

19. Singapore Ministry of Communications and Information. 2017. Speech by Dr Yaacob Ibrahim, Minister for Communications and Information at the MCI Workplan Seminar 2017, Furama Riverfront Hotel, 13 April 2017. (https://www.mci.gov.sg/pressroom/news-and-stories/pressroom/2017/4/speech-by-dr-yaacob-ibrahim-minister-for-communications-and-information-at-the-mci-wps-2017?pagesize=24&page=25).

20. CISCO. 2019. Cisco Global Digital Readiness Index 2019. (https://www.cisco.com/c/dam/en_us/about/csr/reports/global-digital-readiness-index.pdf).

b. **Legal frameworks need to develop along with technology**. Other considerations in the ASEAN Digital Masterplan 2025 include: trusted digital services and cross-border trade with digital connectivity. To achieve these two aspects, there is once again a need for legal frameworks and the related laws to be implemented in country-specific contexts as domestic laws that are legally binding, i.e., Law on Consumer Protection in the Cyber Space, Law on Cybersecurity, Law on Technology Transfer, and more.

c. **Tailored incentives for digital entrepreneurship can make the transformation more inclusive**. Digital technology (i.e., social media, big data, cloud computing technology, and automation) would greatly enable micro, small and medium-sized enterprises (MSMEs) and other types of entrepreneurships to benefit from distant markets, strengthen interactions with customers, and increase market outreach. This will help to generate tremendous returns of investment through increased productivity and cost efficiency whilst also allowing data-based decision-making. This recommendation also addresses ASEAN Digital Master Plan 2025 in terms of "leveraging capacity for people and businesses in the digital economy".

d. **Digital transformation requires adaptation across administrations**. ASEAN member state governments should leverage the potential of digitalisation in all of their activities. Digital Government to Citizen (G2C) services increase efficiency and accessibility. In a first step, this could be applied to passport services, vehicle taxation, and registrations, such as estate (land and house) registration. Digital Government to Business (G2B) relations would allow the exchange of services between governments and businesses through digital platforms, including updates on business compliance to rules, regulations, and policies. The governments' digital services for businesses, e.g. application for business licenses, patenting, registration, and taxation, should progressively be moved to such platforms, ideally in a single-window logic. On a more ad hoc scale, Government to Government (G2G) transactions should also be considered for going digital. This concept refers to the facilitation of data sharing and data nexus of governmental institutions via online interactions, contributing to national governments' work transactions being processed

in a fast and efficient manner as well as strengthening collaboration between ASEAN member state governments and international partners.

EU-ASEAN cooperation can make substantial contributions to all of these priorities.

The above priorities and the capacities that ASEAN needs to develop can be strengthened through its partnership with the EU.

The EU has shown its commitment to a locally driven approach: Instruments like e-READI are designed to realise ASEAN's own vision through its Community Blue Prints. This engagement could be strengthened under the Global Gateway, especially in light of the commitments in the area of sustainable connectivity announced at the 2022 EU-ASEAN Summit. On a regional level, ASEAN can channel European support towards infrastructure, capacity building and regulatory cooperation by continuously developing its approach to digital connectivity. Bilaterally, more ASEAN countries should seek a digital partnership agreement with the EU, like Singapore, and in the long run work towards an EU-ASEAN Digital Partnership agreement, building on the lessons learnt from the successful conclusion of the EU-ASEAN Comprehensive Air Transport Agreement (CATA).

CONCLUSION

Digital transformation is becoming more relevant for all ASEAN countries going into the next stage of development. Successful digital transformation of the economy and society involves various stakeholders, i.e., the public sector, private sector, citizens, and development partners. Thus, there is a strong need for every key player, especially governments and policymakers and the business sector, to embrace this path of digital transformation. ASEAN governments need to take ownership of the national transformation process, learn from best practices within ASEAN, and at the same time make more efforts to consult, coordinate and cooperate at the regional level. Working with external partners such as the EU will help to get ASEAN digital-ready to reap the benefits of the digital economy.

The post-2025 ASEAN Vision should be prioritised on a strategic direction towards (a) the evolution of the digital economy and the (b) narrowing of the digital gap in the region. In this context, the ASEAN Economic Community should aim to: (1) strengthen digital connectivity, as well as its science and technology capacities, (2) narrow the development gaps so as to enhance ASEAN competitiveness, and (3) push forward integration, inclusiveness, and resilience of trades within ASEAN, particularly navigating towards a digital economy for a prosperous ASEAN.

The proposed modalities can serve as a way forward for ASEAN to develop toolkits to leverage the ten countries' digitalisation, by using a lessons-learnt approach and all means possible to transform challenges into opportunities, thus improving the ASEAN Digital Readiness Index.

This would lead to a promising future for the 659 million citizens whose lives are advanced by enhanced digital access and newly acquired skill sets, where new opportunities are created by the digital landscape, and where rights are protected by regulatory frameworks, so that they can belong to a truly innovative, inclusive, secure, and digitally connected region.

11

The Role of Technology Ambassadors in EU-ASEAN Digital Diplomacy

Rosanna Fanni

Abstract

This paper will explore knowledge sharing and policy cooperation between the EU and ASEAN on "Technology Ambassadors". These are ambassadors that have a primary role of engaging technology companies, instead of governments, as an extension of foreign policy, thereby constituting a shift from traditional approaches to diplomacy. This paper (1) analyses the scarce literature on tech ambassadors; (2) presents two case studies of tech ambassadors in the EU and in Asia (Japan), and (3) summarises recommendations for EU and ASEAN member states on strengthening collaboration in the field of digital diplomacy more broadly.

INTRODUCTION

Ireland is the country to most recently appoint a diplomat with a rather unconventional portfolio. In April 2022, Dr. Patricia Scanlon was tasked to explain the benefits and risks of artificial intelligence (AI) to businesses, schools and institutions in Ireland and abroad. She is the country's first AI Ambassador, and once her appointment was confirmed, speculations arose over whether other countries would follow suit. The appointment of an ambassador for AI technology is one example of how important the role of digital technology has become in international relations, and more specifically the way that governments seek to seize greater control over the governance of digital infrastructures, not only domestically but also abroad. This brief finds that technology ambassadors play an increasingly important function in knowledge sharing and operationalising strategic partnerships, and argues that European Union-Association of Southeast Asian Nations (EU-ASEAN) digital cooperation would greatly benefit from a dedicated tech ambassador.

WHAT IS DIGITAL DIPLOMACY?

Considering the importance of international partnerships, multilateralism and diplomacy, the term "digital diplomacy" encompasses several definitions, and is interpreted in science and academia in at least two ways: First, digital diplomacy can be read as the application of traditional diplomacy on online platforms, supported by digital technologies. This definition includes, for example, "Zoom diplomacy", AI and natural language processing applications for analysing legislations and other long documents, or the use of social media to communicate public policies to citizens.

The second definition understands digital diplomacy (often also referred to as cyber diplomacy) as a distinct policy field that merges elements from foreign and digital policy to build alliances for joint digital projects, governance, or research and development based on common values and/or similar economic objectives. To do so, governments and civil servants make use of diplomatic means such as diplomatic channels and multi-stakeholder fora to discuss issues and find common approaches with multinational corporations, international organisations, civil society, activists, and other relevant stakeholders.

While the two definitions of digital diplomacy are non-exhaustive and operate on different levels and through different policy channels, there is one identifiable element that combines both definitions: Technology ambassadors. Tech (also referred to as digital or cyber-) ambassadors actively operate in both fields of digital diplomacy, and notably are dependent on both "modus operandi" to fulfil their role as diplomats that both communicate about, and negotiate, digital agendas and objectives. Relatively few countries, mostly highly industrialised, have appointed tech ambassadors and established dedicated units to develop digital foreign policy. Those governments can gain a competitive advantage over those who have yet to adopt them. 19 tech ambassadors have been appointed as of March 2022. Most of them are located in the European Union, with Denmark being the first country worldwide to do so, appointing Kasper Clynge in 2017. As of 2022, Kazakhstan and Japan are the two countries in Asia with dedicated tech ambassadors.

According to a recent report by the Tony Blair Institute[1], tech ambassadors assume crucial responsibilities in ensuring that the thinking and policies concerning tech, digital and cyber issues as well as their regulation and enforcement is up-to-date and coherent across ministries and regions. Among other things, they advise the government, ministries and civil servants on the links between domestic policy and current international developments, agreements and new initiatives. Tech ambassadors are also responsible for crafting a unified, whole-of-government digital foreign policy position by aligning any national tech-/digital-/cyber-policy with agreements in international multi- and mini-lateral contexts, and for shaping such agreements on behalf of the government. Finally, tech ambassadors can probe and test new bilateral partnerships, and are officially representing and promoting the home country's interests of the government, industry and civil society abroad.

The value of a dedicated tech ambassador shaping a dedicated tech policy at the intersection of the economy, trade, infrastructure, security and

1. Garson, M. and Ersze, A. 2022. A Leaders' Guide to Building a Tech-Forward Foreign Policy. Last retrieved on 21 January 2023 from (https://institute.global/policy/leaders-guide-building-tech-forward-foreign-policy).

human rights lies in the combination of policy-representing and policy-generating responsibilities, both at home and abroad.

Countries developing a dedicated digital foreign policy through tech ambassadors also accelerate progress on the United Nations Sustainable Development Goals (SDG), such as preventing internet fragmentation through more informed participation in internet global governance (SDG 16.8), building a resilient infrastructure by promoting inclusive and sustainable industrialisation and fostering innovation (SDG 9), and fostering exchanges with tech diplomat practitioners from the Global North and the Global South, and helping to establish a network of experts with mutual interests and North-South, South-South and triangular knowledge sharing mechanisms (SDG 17.6). Thus, the international presence of tech ambassadors as well as their insights and networks allow them to enhance a country's presence and impact in the international, fast-paced geopolitical environment.

THE STATE OF TECH AMBASSADORS IN THE EU

As technology converges with all aspects of policies, the European Union increasingly realises the importance of bridging its foreign policy strategy with its digital policy. Many European Union member states struggle to understand and adapt to a comprehensive, decentralised and self-sovereign technology ecosystem, often dealing with emerging digital issues indirectly and in different, disconnected ministries. Some EU countries have appointed tech ambassadors, and only recently, in September 2022, the EU appointed its first-ever technology ambassador situated in the External Action Service Delegation in San Francisco, US, to promote EU standards, interests and technologies in Silicon Valley. However, there is no formalised global tech ambassador at the EU level, nor a comprehensive digital foreign policy strategy coherent across EU institutions and member states.

Awakening to the realisation that it was lagging behind Chinese and American tech credentials, under the Juncker Commission (2014-2019), the EU adopted a new, assertive approach to tech regulation and sought to shape the digital ecosystem, mostly through its regulatory power. Under the von der Leyen Commission (2019-2024), the approach to digital transformation is broader, including most notably the digital and green "twin transitions", principles for human-centric digitalisation, and international part-

nerships. The focus on international partnerships in its digital policy allows the EU to also participate in and benefit from global coalitions such as the Declaration on the Freedom of the Internet. International partnerships are increasingly central to the building of a more comprehensive digital policy strategy across the European Commission, the European Parliament and the European Council: Recent activities include, amongst others, the 2020 Council Conclusions on Digital Diplomacy, the 2021 European Connectivity Declaration, the March 2021 Commission presentation of Europe's Digital Compass, and the September 2021 Path to the Digital Decade, presented during Commission President von der Leyen's State of the Union speech. The Global Gateway, an investment programme launched in December 2021, bundles a broader, fragmented set of EU foreign policy actions taken in recent years, and includes significant funding for digital projects. As such, the Global Gateway will promote and support resilient and trusted digital infrastructures, the enhancement of democratic digital societies beyond EU borders, digital public infrastructures and digital public goods, and digital commons, thereby strengthening the digital resilience of partner countries.

While no dedicated EU-ASEAN digital partnership exists, the EU pursues several digital initiatives in Asia. The EU-Japan Digital Partnership covers privacy-friendly data sharing, infrastructures, skills, digital transformation of businesses, and digitalisation of public services, building on existing cooperation mechanisms. In November and December 2022, European Commission President Ursula von der Leyen announced Digital Partnership agreements with South Korea and Singapore, fostering joint work in artificial intelligence (AI), digital infrastructures and digital identification schemes based on universal human rights, fundamental freedoms, the rule of law and democratic principles. In addition, the Joint Declaration by the EU and Indo-Pacific countries highlights the importance of investing in the development of privacy-friendly technologies, the protection of digital data, and the aim to enhance digital trade provisions in existing EU trade agreements. A dedicated tech ambassador to ASEAN could centralise these efforts across the individual partnerships and enable the building of a more coherent, effective digital partnership between both blocs.

THE STATE OF TECH AMBASSADORS IN ASEAN

Many ASEAN countries have yet to develop the institutional infrastructures and personnel to become active players in tech diplomacy. The current gap between those ASEAN member states that proactively participate in international tech geopolitics fora and those that lag behind has made it difficult for the ASEAN community to find an overarching approach that suits all member states. The ASEAN 2025 Digital Masterplan sets out targets and initiatives to accelerate the digital transformation of ASEAN member states, and to promote digital integration and cooperation within the region. Improving digital infrastructures is a key issue in ASEAN member states, as it includes connectivity, access to devices, and the rollout of high-speed connectivity networks such as 5G/6G. Besides digital infrastructures, the plan focuses on digital economy, digital government, digital society, and digital culture. The plan also calls for greater collaboration among ASEAN member states and with partners outside the region to achieve these goals. Through dedicated and streamlined tech diplomacy, ASEAN could more effectively engage with corporations and governments. Finally, there are ongoing debates in ASEAN about social norms and governance, including the role of social media platforms in elections and acceptable behaviour on the internet. These issues also require a holistic approach by a multidisciplinary team dedicated to resolving key issues and promoting good digital governance norms across the region. As tech diplomats are a vital part of the tech ecosystem, their presence creates opportunities for investment into local tech ecosystems and enables participation in global conversations, ranging from cybercrimes to AI governance, which will help ASEAN countries be at the forefront of deploying new tech and information and communications technology (ICT) infrastructures for their specific needs.

As ASEAN member states explore how to build their tech foreign policy capacity, a dedicated ASEAN tech ambassador could promote and facilitate the transfer of technology and knowledge within the region. This appointee can also act as a liaison between ASEAN member states, the EU and third partners, such as technology companies and research institutions, to help establish mutually beneficial collaborations and partnerships. Additionally, an ASEAN tech ambassador could closely liaise with the EU counterpart on digital policy and advancements in climate-friendly technologies and help to raise awareness of the latest developments and trends in ASEAN mem-

ber states. Lastly, an ASEAN tech ambassador could also provide coherence guidance on how ASEAN member states can collaborate across borders and regions to leverage new advancements on the ground to improve economic growth, social development, and other areas of concern for ASEAN.

COMMON CHALLENGES

One of the main challenges faced by both the EU and ASEAN is the need for collaboration within the government and with other countries, given that tech diplomacy issues often have international implications. Additionally, the fast-paced nature of the tech industry can make it difficult for governments to keep up and effectively translate initial announcements into regulations and implementation. Member states can also block the finding of a common position because of national interests and unwillingness to surrender power. Most importantly, the establishment of a dedicated tech foreign policy strategy and team requires personnel, administrative and logistical resources that the EU and ASEAN would have to be willing to invest in at the beginning. To overcome these challenges, the EU and ASEAN could jointly work on the following action steps to ensure that their foreign policy and digital policy objectives are aligned.

POLICY RECOMMENDATIONS

1. Create dedicated digital foreign policy teams: The EU and ASEAN, respectively, could establish a dedicated tech-/digital-/cyber-foreign policy team within their external policy departments. This team, composed of personnel from different ministries and member states, would be responsible for collaborating across member states, EU/ASEAN institutions and other countries to address tech diplomacy issues that have international implications. To keep up with the fast-paced nature of the tech industry, the team could also be responsible for monitoring developments in the field and making recommendations for regulations and implementation. To avoid member states blocking the finding of a common position, the team could also be responsible for identifying and addressing concerns related to national

interests and power sharing. The head of this team could become the acting technology ambassador based on practical, wide-ranging experience in the field.

2. Mutual learning across EU and ASEAN countries: Build up bilateral alliances into digital mini-lateralist alliances. Digital mini-lateralism has played an increasingly important role for government-to-government learning, adoption and governance of emerging technologies. Small states, like Malta and Estonia, have shown initiative and leadership by being agile adopters of innovative technologies. This expertise can be shared between EU and ASEAN countries with similar prerequisites, priorities and needs. Likewise, when it comes to thinking about the role of technology and tech diplomats in foreign policy, upskilling between governments in ASEAN and the EU allows countries to leverage their early mover advantage and experience and share best practices with more ASEAN and EU countries.

3. Joint trainings: Diplomatic delegations are an essential asset for disseminating and discussing digital foreign policies abroad. Diplomats both in the EU and ASEAN should undertake comprehensive digital diplomacy training, in particular when being sent to regions that place a high priority on digital matters. Likewise, diplomatic staff working on these regions should also be receptive to the key digital policy developments in their countries or international organisations. Additional digital policy experts could be trained to be sent on an ad hoc basis to implement major projects or contribute to substantial policy developments.

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