APEC Business Advisory Council

18 August 2023

The Honorable Dr. Janet L. Yellen
Chair, APEC Finance Ministers Meeting
Secretary of the Treasury
1500 Pennsylvania Ave NW, Washington, DC 20220
United States

Dear Secretary Yellen,

It is my great honor on behalf of the APEC Business Advisory Council (ABAC) to present to you our recommendations to APEC Finance Ministers this year.

Growing ***economic fragmentation*** is a serious problem confronting our region today. A deeply concerning global outlook, conflict, and a series of grave challenges – geopolitical, economic, environmental and financial – are seriously impacting cross-border trade and investment. In addition to these, ***uncoordinated approaches*** within the region to digital transformation, data protection and sustainable finance frameworks stand to create new barriers that can cause huge output losses for Asia-Pacific economies. Ensuring the interoperability of the digital financial systems we are building today and preserving and enhancing our ability to mobilize international capital to accelerate sustainable transition within our region are key tasks we believe APEC needs to urgently address. Collaboration on these issues is critical for achieving the Putrajaya Vision of an open, dynamic, resilient and peaceful Asia-Pacific community by 2040, for the prosperity of all our peoples and future generations.

BUILDING INTEROPERABLE DIGITAL FINANCIAL SYSTEMS

End-to-End Digitalization of Trade and Supply Chain Finance

Despite significant advances in digital technology, trade finance remains to this day largely paper-based and manual. Lack of common standards for trade documents across economies and lack of interoperability of legal frameworks surrounding digital documents hinder the use of technologies to digitalize and automate on an end-to-end basis the various processes involved in trade finance. In 2022, a Regional Digital Trade Transformation and Connectivity Network was started through a pilot connecting digital platforms of Japan, Singapore and Thailand to help address these issues. Because it will lower costs and speed up the processing of trade documents and allow supply chain participants to access credit using transactional data, this will have a profound impact on MSMEs' ability to access trade financing and participate more widely in global supply chains. There is also potential for the platform to provide data that can be used for evidenced-based Scope 3 measurement of greenhouse gas emissions to facilitate the greening of supply chains.

- ***We recommend participation of more member economies in the Regional Digital Trade Transformation and Connectivity Network to standardize and digitalize trade documents, promote alignment of legal frameworks with UNCITRAL Model Law on Electronic Transferable Records (MLETR) and develop interoperable domestic digital supply chain finance platforms. We encourage participating member economies to establish task forces in their respective jurisdictions comprising both public and private/business sectors to facilitate their active engagement in this initiative.***

ABAC
UNITED STATES · 2023

Interoperable Open Data Systems

The development of secure, efficient and inclusive open data and payment systems is key to future growth. Such systems need to be designed and implemented in a way that best fits the specific conditions in each market. However, they also need to be based on commonly agreed principles in order to avoid the region's fragmentation into isolated digital islands. ABAC collaborated with industry, public sector and international organizations to develop guiding principles that can help achieve domestic and international interoperability, promote trusted and secure sharing and use of data, provide an enabling governance and regulatory framework, build the needed infrastructure, and foster education for consumers, practitioners and regulators.

- ***We recommend that APEC member economies use the Guiding Principles for the Development of Interoperable Open Data Systems in the Asia-Pacific Region[1] as a reference in the design and implementation of open data systems.***

Expanded Cross-Border Data Sharing and Privacy Enhancing Technologies

The issue of cross-border data sharing is becoming ever more critical for trade, investment and economic growth. This is especially so for financial services, where financial transactions, market infrastructures and financial institutions have become data transfers, data networks and data processors, respectively. Fragmentation of rules governing the cross-border flow of data poses a major challenge for businesses in making cross-border data transfers. MSMEs are particularly impacted, as they do not have the resources to navigate through different laws, definitions and sectoral regulations. Given the slow progress in establishing data adequacy arrangements, the region will need to develop practical interim solutions that could enable firms to conduct business operations requiring cross-border sharing of data. Privacy enhancing technologies can also be harnessed to enable the processing of data in ways that comply with privacy and data protection rules.

- ***We recommend that APEC member economies actively explore the coordinated adoption of a toolbox of business-level mechanisms supporting the goal of secure and trusted sharing of data in the region. These could include interoperable contractual safeguards, binding corporate rules, certification, codes of conduct or privacy codes, and harmonizing exemptions currently granted under existing legal or administrative frameworks.***

- ***We recommend that APEC member economies develop common core principles for data protection that promote wider and safer data sharing in the region and address uncertainties arising from measures that restrict the flow of data.***

- ***We recommend that APEC member economies foster innovation in relation to privacy enhancing technologies (PETs). This can be achieved through measures such as supporting research and development, providing secure data processing platforms, certification of trusted PETs, innovation contests, regulatory sandboxes and digital identity management, among others.***

Promoting the Development of Interoperable Wholesale CBDCs

Payment systems play a critical role in cross-border trade, investment and foreign exchange transactions. In recent years, many economies in the region have been conducting research, exploration and testing of wholesale Central Bank Digital Currencies (wCBDCs) as a way to reduce costs and increase the speed of cross-border payments. While they hold the promise of greater efficiency, their uncoordinated adoption across the region carries the risk of fragmentation, increasing barriers to cross-border business transactions. ABAC collaborated with industry, public sector including central banks and international organizations to develop Common Principles that can assist member economies in designing

[1] *Guiding Principles for the Development of Interoperable Open Data Systems in the Asia-Pacific Region*
http://www2.abaconline.org/content/download/22632171

interoperable wCBDCs. These include foundational principles for interoperability and design principles that can help promote consistency across jurisdictions.

- ***We recommend that APEC member economies consider using the Common Principles for the Development of Interoperable Wholesale Central Bank Digital Currencies[2] proposed by ABAC as a reference in the design and implementation of their respective wCBDCs.***

MOBILIZING INTERNATIONAL CAPITAL TO ACCELERATE SUSTAINABLE TRANSITION

Creating a Collaborative Framework for Financing Sustainable Transition

Various economies have adopted transition finance as a flexible approach to decarbonizing high-emitting industries that seeks to incentivize not just "green" projects, but also "amber" projects that currently form a large part of the economy. Successful implementation of this approach will require concrete, science-based and credible climate finance transition roadmaps for each economy and each key sector, with robust verification mechanisms to guide project development and ensure against greenwashing. However, these roadmaps will need to be comparable, consistent, credible and interoperable across the region and supported by robust and high-quality disclosure to allow companies to access the large-scale financing that is potentially available for their transition projects.

- ***We recommend that APEC provide a common platform for member economies to coordinate the development of climate finance transition roadmaps for each economy and for each key sector. This common platform should assist in the establishment of transition bonds and loans as a new asset class and in the development of interoperable emissions trading systems. It should also assist in the coordination of complementary fiscal incentives and regulatory approaches that can facilitate the financing of transition projects from across the region.***

- ***We recommend that APEC member economies establish climate disclosure consortia within their respective jurisdictions, based on the foundations laid down by the Task Force on Climate Related Financial Disclosures (TCFD). These consortia should promote coordination among relevant public and private sector stakeholders domestically and support regional coordination among member economies in promoting robust and standardized disclosure across the region. They should also facilitate active engagement in the ongoing efforts of the International Sustainability Standards Board (ISSB) to develop and promote disclosure standards.***

Financing Just and Affordable Energy Transition

Financing a just and affordable energy transition is a challenge that will require enormous amounts of investment in renewables and new sources of energy as well as in reducing emissions in hard-to-abate sectors. While there is no shortage of global capital looking for investment opportunities in developed economies, there are challenges for developing economies in attracting access to sufficient hard currencies. A significant factor in this is currency risk. The task of identifying and getting the right projects ready for financing to reach the net zero goal by 2050 is complex and difficult. Successful just and affordable energy transition will require leveraging existing initiatives to assist in the preparation of bankable energy infrastructure projects. A market instrument that significantly reduces currency risk can be established using a reference point for repayment and interest against a basket of international currencies explicitly chosen to reduce overall currency volatility.[3]

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[2] Common Principles for the Development of Interoperable Wholesale Central Bank Digital Currencies http://www2.abaconline.org/content/download/22632181

[3] One currency basket that may be considered for this purpose is the World Parity Unit (WPU). This is a basket of 11 widely traded international currencies, the daily settlement price of which is calculated by the FTSE-Russell division of the London Stock Exchange. For more details, see Robert Dohner, *Financing the Energy Transition: Currency Risk and WPU Indexed Bonds* https://www.mountainpacificinstitute.org/Financing_the_Energy_Transition_20230720.pdf

Fixed rate long-term bonds in which servicing and repayment obligations are indexed to such a currency basket could serve as a 'risk-free' reference rate within the new financial instrument market, leveraging diversification and indexation principles to effectively mitigate risk. A selected index that is transparent, robustly and properly regulated, and recognized by the global financing system as an appropriate store of value can serve this purpose. Convertibility of component currencies is a key success factor for indices among those offered by several trustworthy currency index providers today that enjoy wide acceptance in the market. The issuance and disaggregation mechanisms for such indexed bonds can make funding available for small projects and MSMEs in developing economies.

- ***We recommend that APEC member economies leverage existing and ongoing initiatives to promote the development of a pipeline of energy transition projects that can attract private sector financing. Examples are the digital project preparation platform SOURCE, the Global Infrastructure Hub (GIH) and GFANZ, through existing FMP policy initiatives such as the APFF Sustainable Finance Development Network (SFDN) and the Asia-Pacific Infrastructure Partnership (APIP).***
- ***We recommend that APEC provide a common platform to facilitate the use of blended finance through collaboration among governments, multilateral institutions and international initiatives to attract financing for just energy transition projects.***
- ***We recommend that Ministers explore the issuance of fixed rate long-term bonds in which servicing and repayment obligations are indexed to a basket of major international currencies. This should be designed to reduce borrower and lender risk from swings in the exchange rate of the currency of issue and thereby enable broader financing options. Suitably indexed bonds could become core allocations in the portfolios of global investors and thus allow international capital to be made available to finance a just and affordable energy transition.***

Financing Sustainable Innovation

Achieving the net zero goals will require a rapid reduction of carbon emissions, which at present remain at unsustainably high levels. Reaching these goals will require faster innovation to lower the costs and accelerate the transition toward a green future. For this to happen, economies need to develop enabling ecosystems for financing innovations. These should be based on coordination of key stakeholders through their engagement in formulating well-defined objectives and identification of policy levers. They should focus on innovations that are most needed in the region's developing economies, such as carbon capture, utilization and storage (CCUS). Voluntary carbon market (VCM) exchanges and over the longer term, emissions trading systems, as well as reforms and capacity building measures to facilitate intellectual property financing, can play important roles in incentivizing innovations.

- ***We recommend that APEC member economies collaborate with multilateral institutions and the private sector to design enabling ecosystems for financing sustainable innovation that leverage their complementary roles and meet the needs of their respective jurisdictions. Initial efforts could focus on fostering voluntary carbon market exchanges and prioritize incentives for the development of technologies most needed in developing economies, such as those related to carbon capture, utilization and storage (CCUS).***

- ***We recommend that APEC promote legal and regulatory reforms to enable intellectual property (IP) financing and IPR ownership under the Enhanced APEC Agenda for Structural Reform (EAASR). As a first step, we recommend that member economies collaborate with relevant international organizations and the private sector in initiating a pilot project. This would seek to develop and implement a reform agenda enabling the use of IP supporting sustainable innovation to access finance (such as through IP-backed loans and securitization). This could start with a product-based diagnostic for each participating jurisdiction to assess gaps and opportunities in the legal and regulatory environment. The diagnostic could map alignment of***

laws, regulations, valuation standards, business practices, and market development with international standards and best practices.

In addition to the preceding recommendations, ABAC is pleased to submit to Finance Ministers the 2023 Progress Report of the Asia-Pacific Financial Forum (APFF), the Asia-Pacific Financial Inclusion Forum (APFIF) and the Asia-Pacific Infrastructure Partnership (APIP). These policy initiatives continue to provide platforms for public-private collaboration assisting member economies in implementing the Cebu Action Plan and other FMP initiatives. The Executive Summary of this Progress Report is appended to this Letter and the accompanying Report, while the full text can be downloaded through this link: http://www2.abaconline.org/content/download/22632361.

Details of our recommendations are contained in the attached Report. We hope that they will provide meaningful ideas for concerted action, and look forward to our upcoming dialogue this coming November in San Francisco.

Sincerely yours,

Dominic Ng
ABAC Chair 2023

ATTACHMENTS:

- *APEC Business Advisory Council 2023 Report to APEC Finance Ministers*
- *2023 Progress Report: Asia-Pacific Financial Forum ● Asia-Pacific Financial Inclusion Forum ● Asia-Pacific Infrastructure Partnership – Executive Summary*

APEC Business Advisory Council

2023 Report to APEC Finance Ministers

FINANCING THE FUTURE OF APEC

Toward a Green and Digitally Connected Asia-Pacific Region

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2023 Report to APEC Finance Ministers

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APEC Business Advisory Council

2023 Report to APEC Finance Ministers

FINANCING THE FUTURE OF APEC

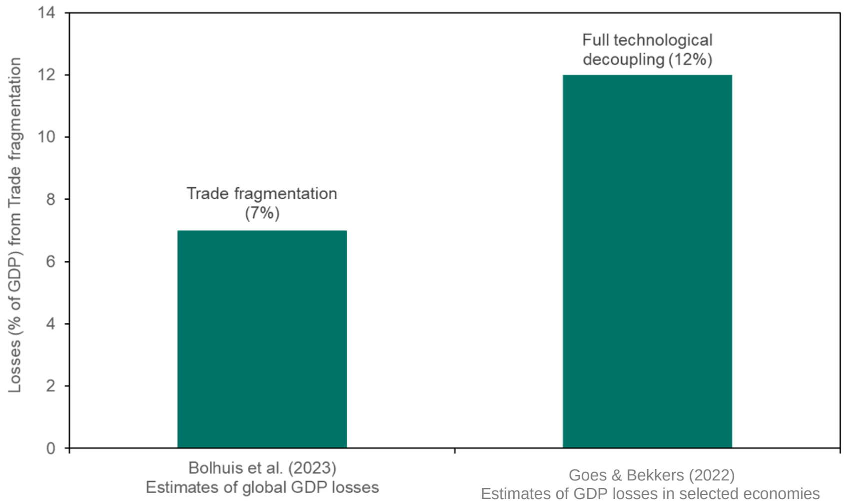
Toward a Green and Digitally Connected Asia-Pacific Region

Introduction

Asia-Pacific economies today face an environment of heightened uncertainty. This comes against the backdrop of protracted crisis: a deeply concerning global outlook, conflict, and a series of grave challenges – geopolitical, economic, environmental and financial – that continue to confront the region. Although the situation remains fluid, anxiety remains about the resilience of the global financial system. This heightened sense of uncertainty is exacerbating the growing trend toward ***economic fragmentation***, which is a serious challenge that threatens APEC's vision of free and open trade and investment and regional integration.

Trade restrictions and disputes have enormously increased over the past decade and their growth has accelerated. In addition to the fragmentation resulting from the factors mentioned above, the ***uncoordinated approaches*** to digital transformation, data protection, development of digital currencies and sustainable finance frameworks have significant potential to cause huge output losses from trade and technological fragmentation. Some estimates indicate that such output losses from trade fragmentation could reach as high as 7 percent of global GDP (roughly equivalent to the combined output of Japan and Germany) and as much as 12 percent in selected economies if the impact of technological fragmentation is added (See Figure 1).

FIGURE 1: The Long-Term Costs of Economic Fragmentation

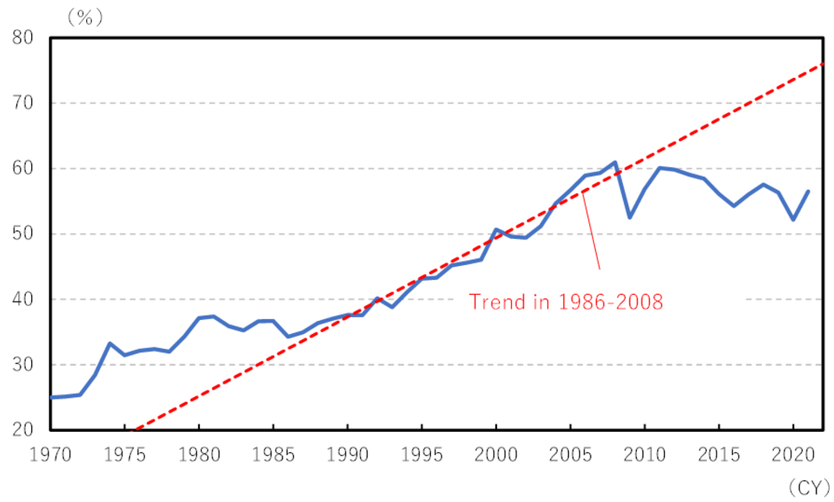


Source: Marijn A. Bolhuis, Jiaqian Chen, Benjamin R KettBolhuis, 2023. " Fragmentation in Global Trade: Accounting for Commodities." IMF Working Paper, Carlos Goes, Eddy Bekkers, 2022. "The Impact of Geopolitical Conflicts on Trade, Growth, and Innovation." WTO Staff Working Paper; compiled by DIR

Three important considerations call for attention. First, the deeper the fragmentation is, the larger the economic losses are likely to be. Second, the combined effects of trade and technological fragmentation will take a significantly heavy toll on the global economy. Third, Asia-Pacific economies that are highly dependent on trade are likely to incur bigger losses. Unless addressed, growing economic fragmentation will further widen the gap between the actual volume of global trade and what it could have been based on the long-term trend from the period of 1986 to 2008 when the global economy enjoyed a peace dividend from the end of the Cold

War up until the Global Financial Crisis (GFC) – a gap that has already been widening since 2010 as a result of structural factors. (See Figure 2).

FIGURE 2: Global Trade to GDP Ratio



Source: World Bank; compiled by DIR

As the principal forum for Asia-Pacific regional collaboration, APEC can play an important role in addressing the factors leading to economic fragmentation. It can bring the region's economies back on the path to sustained trade, investment and economic growth, and to realize the promise of digitalization and sustainable development. Within APEC, the Finance Ministers' Process can take the lead in advancing initiatives that will enable the financial sector to harness the power of technology to more efficiently and effectively play its critical and catalytic roles in the region's economy. These roles include:

- more affordable and speedier financing of trade across markets and supply chains;
- providing more efficient and safer ways for consumers and business owners to access a wider variety of services by leveraging their data;
- enabling more efficient large-value payment and settlement transactions among financial institutions;
- facilitating expanded safe and trusted use and flows of data in financial services across jurisdictions; and
- mobilizing capital across the region to finance projects and innovations that can accelerate member economies' and companies' progress toward their net zero carbon emissions goals.

This report seeks to provide concrete recommendations for endorsement by APEC Finance Ministers and for action by relevant stakeholders in member economies in pursuit of these objectives. It is divided into two parts.

- The first part contains recommendations related to the ***interoperable digitalization of finance***: the end-to-end digitalization of trade finance, the development of interoperable open data systems, the development of a toolbox of mechanisms to facilitate cross-border data flows and wider adoption of privacy enhancing technologies; and the development of interoperable wholesale central bank digital currencies (wCBDCs).
- The second part focuses on ***mobilizing sustainable finance*** through the development of a regional framework for financing and supporting just and affordable transition and enabling and facilitating finance for sustainable innovation.

The recommendations contained in this report have been developed through discussions with experts from industry, multilateral organizations, and government and regulatory agencies in the course of several roundtables that ABAC convened in collaboration with FMP policy initiatives, various entities and institutions.[1]

[1] These included the ASEAN Bankers' Association, the ASEAN Business Advisory Council, the Asia-Pacific Financial Forum (APFF) Data Ecosystem Working Group, the APFF Digital Trade Finance Lab, the APFF Financial Market Infrastructure Network, the APFF Sustainable Finance Development Network (SFDN), the Asia-Pacific Infrastructure Partnership (APIP), the Asian Development Bank (ADB), the Australian APEC Study Centre at RMIT,

The reports and summaries of these roundtables form the annexes to this report and are available for download. The 2023 Progress Report of the Asia-Pacific Financial Forum (APFF), the Asia-Pacific Financial Inclusion Forum (APFIF) and the Asia-Pacific Infrastructure Partnership (APIP) is also annexed to this report.

I. Building Interoperable Digital Financial Systems

End-to-End Digitalization of Trade and Supply Chain Finance

Despite significant advances in digital technology, trade finance (and trade in general) remains to this day largely paper-based and manual. Lack of common standards for trade documents across economies hinders the use of technologies to digitalize and automate on an end-to-end basis the various processes involved in trade finance.[2] Lack of interoperability of legal frameworks surrounding digital documents also poses another important challenge. Uncertainties over the validity of electronic documents related to acceptance of security or ownership across jurisdictions result in continued reliance on paper documents. These are particularly key challenges for micro-, small and medium enterprises' (MSMEs) participation in global supply chains.[3]

In 2022, a Regional Digital Trade Transformation and Connectivity Network was started through a pilot that connected Thailand's digital trade platform (NDTP) with Singapore's Networked Trade Platform (NTP) and Japan's TradeWaltz. Proof-of-concept undertakings were successfully executed among the three platforms, and additional ones between TradeWaltz and TradeWindow of Australia and New Zealand were completed. This network seeks to standardize key trade documents,[4] promote interoperable legal frameworks aligned with the UNCITRAL Model Law on Electronic Transferable Records (MLETR) and develop domestic digital supply chain finance platforms that comprise an important prerequisite for inclusive end-to-end digitalization of trade finance.

If expanded with the participation of more APEC economies, this can accelerate digital trade transformation and connectivity in our region. Considering that APEC accounts for over 44 percent of total world trade, an initiative to digitalize trade under its leadership can influence the rest of the world to move faster. Because it will lower costs and speed up the processing of trade documents and allow supply chain participants to access credit using transactional data, this will also have a profound impact on MSMEs' ability to access trade financing and participate more widely in global supply chains. There is also potential for the platform to provide data that can be used for evidence-based Scope 3 measurement of greenhouse gas emissions to facilitate the greening of supply chains. There is an important role that APEC can play, in collaboration with the private sector through ABAC and leveraging public-private collaboration platforms such as the APFF, to provide a forum for promoting expanded and more active participation by member economies in this initiative.

Recommendation #1:[5]

We recommend participation of more member economies in the Regional Digital Trade Transformation and Connectivity Network to standardize and digitalize trade documents,

Daiwa Institute of Research, the Emerging Payments Association (EPA) Asia, FinCity Tokyo, the Institute of International Finance (IIF), the International Chamber of Commerce (ICC) Digital Standards Initiative, the Joint Standing Committee on Industry Commerce and Banking (JSCCIB) of Thailand, KPMG, the Ministry of Digital Economy and Society (MDES) of Thailand, the World Bank Group's International Finance Corporation (IFC), the Singapore Business Federation, Standard Chartered Bank (Hong Kong, China), the Thai Bankers' Association (TBA) and the US NCAPEC.

[2] These include product selection, data entry, workflow management, document checks, compliance checks and post-transaction problem resolution.

[3] MSMEs' participation in global supply chains, in most cases as second- and third-tier suppliers, is important for them to benefit from and contribute to the region's economic integration. Much of trade is dependent on availability of and accessibility to trade finance, and the high operational costs and amount of time needed to process documents make it very challenging for financial institutions to provide timely access to affordable working capital particularly to MSMEs.

[4] These include electronic purchase order, e-invoice and e-packing lists. It also involved the process for verifying the authenticity of underlying documents for financing by banks.

[5] For details, refer to the Report *Facilitating End-to-End Cross-Border Digital Trade Finance*. http://www2.abaconline.org/content/download/22632371

promote alignment of legal frameworks with UNCITRAL Model Law on Electronic Transferable Records (MLETR) and develop interoperable domestic digital supply chain finance platforms. We encourage participating member economies to establish task forces in their respective jurisdictions comprising both public and private/business sectors to facilitate their active engagement in this initiative.

INTEROPERABLE OPEN DATA SYSTEMS

The development of secure, efficient and inclusive open data[6] and payment systems is key to achieving strong and sustained growth in the digital economy. It is important that such systems be designed and implemented in a way that best fits the specific conditions in each market and meets the needs of its consumers and businesses. For member economies of APEC, which aspires to a vision of regional economic integration and free and open trade and investment, there is an added requirement that future open data systems be interoperable. In order to avoid the region's fragmentation into isolated digital islands and ensure the free flow of services across the Asia-Pacific in the digital age, APEC member economies need to advance the development of their respective open data systems in accordance with commonly agreed principles that can help them achieve future interoperability.

To assist in this process, ABAC undertook discussions with experts from industry, public sector and international organizations to develop guiding principles that member economies can consider and use as reference in the development of open data systems in their respective jurisdictions. These principles draw from experiences of industry and regulators with the workings of open banking systems where they have been introduced, perspectives from market participants operating across the region and insights from financial, technology and services industry experts. The guiding principles-[7] are organized under the following six sections:

- *Achieving Domestic and International Interoperability*. The principles stress the importance of a Whole-of-Economy approach, which will involve collaboration among government and regulatory agencies and private/business sectors. While economies should adopt models that best fit their respective market conditions, they should be designed and implemented with a view toward international interoperability through collaboration with international standard setting bodies.
- *Enabling Trusted and Secure Sharing and Use of Data*. The principles highlight the need for developing a toolbox of mechanisms that can enable expanded trusted and secure cross-border data flows, agreement on common principles of privacy protection in the context of the introduction of data localization measures, and promoting wider adoption of privacy enhancing technologies. The principles also call for proportionality in the design and implementation of data laws and regulations.
- *Providing an Enabling Governance and Regulatory Framework*. The principles call for a centrally organized framework that provides standards, tools, policies and regulations based on constant communication between business and regulators. It also calls for regulatory cooperation in utilizing global data to strengthen AML and CFT efforts and combating crime and fraud; as well as incentives and regulations that can drive market competition, innovation and connectivity; and adaptation of regulatory frameworks to ensure financial stability.
- *Building the Infrastructure*. The principles highlight the importance of a common identity and authorization framework as a foundation of an open data ecosystem and a sufficient foundational infrastructure to enable collection, processing and sharing of customer data.

[6] Open data is an expanded version of open banking, a concept implemented in Europe through the Payment Services Directive 2 (PSD2), as well as in a few other markets. While the classic open banking involves a one-way flow of permissioned consumer data from banks to third-party service providers, open data involves a multi-directional flow of data across market participants. If properly designed, an open data system can enable competition and empower innovation. It can enable better consumer outcomes and provide an ecosystem for fintech firms and service providers to collaborate with banks. Examples of the wide range of services that open data can provide to customers include business accounting, authentication and identity, budgeting and financial planning, data analytics, payment processing, account aggregators, credit scores, and subscription and tax management. When supported by digital enablement and access, open data can promote financial inclusion.

[7] *Guiding Principles for the Development of Interoperable Open Data Systems in the Asia-Pacific Region* http://www2.abaconline.org/content/download/22632171

- *Fostering a Dynamic Market*. The principles emphasize the importance of customer-centricity and of creating an efficient and competitive market conducive to innovation and the secure and trusted unlocking of data sets across industries.
- *Laying the Foundations for Adoption through Education*. The principles highlight the importance of customer education and the development of human resources for open data systems, both on the industry and the regulatory side.

Recommendation #2:

We recommend that APEC member economies use the *Guiding Principles for the Development of Interoperable Open Data Systems in the Asia-Pacific Region* as a reference in the design and implementation of open data systems.

EXPANDED CROSS-BORDER DATA SHARING AND PRIVACY ENHANCING TECHNOLOGIES

Data sharing plays a central role in financial services and inclusive economic growth, enabling lenders and insurers to make risk-based decisions based on customer information. The financial services sector is reliant on data sharing as financial transactions have become data transfers, market infrastructures have become data networks and financial institutions have become data processors that gather, analyze and trade customer data.[8] The issue of cross-border data sharing arising from differences in regulatory requirements is becoming ever more critical for financial inclusion, particularly with respect to cross-border payments and credit history.

The main barrier to data sharing has not been the lack of tools but the complexity of legal frameworks. This is true in domestic contexts wherever the approach to data privacy is fragmented. In today's world, fragmentation of rules governing the cross-border flow of data poses an even bigger challenge for businesses in making cross-border data transfers. MSMEs are particularly impacted, as unlike larger companies they do not have the resources to navigate through different laws, definitions and sectoral regulations applying to the same sets of data.

Data adequacy across economies would be the ideal solution, but it is currently difficult to achieve due to the inherent inefficiency in its application, as demonstrated by the limited number of jurisdictions that have succeeded in concluding adequacy arrangements. Without any consensus for the moment on more flexible ways to achieve data adequacy, the region will need to develop practical interim solutions that could enable firms to conduct business operations that require cross-border sharing of data. These include business-level mechanisms such as contractual safeguards, binding corporate rules, certification, codes of conduct or privacy codes, statutory and administrative exemptions and wider participation in the APEC Cross-Border Privacy Rules (CBPR).[9]

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[8] Douglas Arner, Giuliano Castellano, Eriks Selga, Financial Data Governance: The Datafication of Finance, the Rise of Open Banking and the End of the Data Centralization Paradigm (February 2022) [https://hub.hku.hk/bitstream/10722/311588/1/content.pdf?accept=1]

[9] Asian Business Law Institute, *Transferring Personal Data in Asia: A path to legal certainty and regional convergence* (May 2020).[https://fpf.org/wp-content/uploads/2021/01/Girot_Transferring.pdf]. These mechanisms are as follows:

- Contractual safeguards: Regulators could agree to a set of contractual data privacy and security controls that are compatible across jurisdictions, allowing for flexible implementation. Clauses will need to be sufficiently detailed, and common approaches developed to provisions for recourse of individuals whose data are transferred.
- Binding corporate rules (BCRs): Authorities could develop common procedural and administrative rules (e.g., prior regulatory authorization) based on assessment of BCRs' strengths and limitations in the Asia-Pacific context and the demand for this mechanism among companies operating in the region.
- Certification: Regulators could develop common criteria for certification and accreditation of certification bodies to promote convergence of certification mechanisms across jurisdictions that would enable organizations to demonstrate their adoption of safeguards that would be compliant with personal data protection frameworks across the region. This could build on certification schemes that are already in place within the region such as in Japan, the Republic of Korea and Singapore.
- Codes of Conduct or Privacy Codes: Jurisdictions could allow organizations to transfer data to overseas organizations that adhere to a locally approved Code of Conduct or Privacy Code. This would require the Code to be legally binding and a contract between organizations transferring data across borders to be concluded to ensure application and enforcement of the safeguards of the Code, especially those concerning the rights of data subjects, in the receiving jurisdiction. In addition, this would also require agreement among jurisdictions on the criteria for approval of Codes, how the Codes may be considered legally binding in multiple jurisdictions, appropriate recourse mechanisms for

The uncertainties arising from data localization may be practically addressed through various means. These include rules requiring common and consistent standards for localization requirements as applied to different sectors. They may also be addressed by clarifying the interplay between transfer provisions in general data protection laws and localization requirements mandated by specific sectoral laws or regulations. Clarification of the scope of localization measures, the conditions under which exemptions are permitted and regulatory expectations in the implementation of localization rules for specific categories of data will also be important.

Privacy-enhancing technologies (PETs) have great potential as pragmatic digital solutions that can enable the processing of data in ways that comply with privacy and data protection rules. There are various categories of PETs with different use cases, including tools for data obfuscation, distributed data processing, data accountability and encrypted data processing (See Figure 3).[10] Technologies are rapidly evolving, and are at various stages of maturity. Being still at early stages of development, PETs face a number of challenges.[11] In order to facilitate their adoption, governments have taken various measures providing useful examples that can be studied.[12]

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individuals in the event of breaches happening overseas, and criteria for accrediting monitoring bodies to ensure compliance with the Code, among others.

- Exemptions: Jurisdictions could work toward harmonization of existing statutory exemptions or derogations from the main rule applicable to data transfers to allow the same approach to be used in the same set of circumstances across the region. While this approach may not be practically applicable in matters of sovereignty, exemptions in more neutral areas could be achievable. Commonly agreed rules of interpretation would be needed to ensure that exemptions are narrowly interpreted and do not end up becoming the rule.
- Administrative exemptions: Jurisdictions could work together to harmonize the conditions for granting individual exemptions from compliance with data transfer rules that are granted upon request in certain jurisdictions.
- Wider participation in the APEC Cross-Border Privacy Rules (CBPR): Participation of more economies as well as organizations would help CBPR achieve a network effect and facilitate its use to enable expanded data transfers across the region.

[10] Future of Privacy Forum, *Privacy 2020: 10 Privacy Risks and 10 Privacy Enhancing Technologies to Watch in the Next Decade* [https://fpf.org/wp-content/uploads/2020/01/FPF_Privacy2020_WhitePaper.pdf]; and OECD (2023), "Emerging privacy-enhancing technologies: Current regulatory and policy approaches", *OECD Digital Economy Papers*, No. 351, OECD Publishing, Paris [https://doi.org/10.1787/bf121be4-en].
[10] These include insufficient understanding by many regulators and consequently the lack of clear guidance that can provide certainty to businesses that the use of particular technologies are compliant with privacy requirements in their jurisdictions, which in turn hinders investment given the high cost of implementation in terms of effort, time and resources and the development of talent.

[11] These include insufficient understanding by many regulators and consequently the lack of clear guidance that can provide certainty to businesses that the use of particular technologies are compliant with privacy requirements in their jurisdictions, which in turn hinders investment given the high cost of implementation in terms of effort, time and resources and the development of talent.

[12] Examples from OECD (2023) are as follows:
- Research and development: The US' official strategy for privacy preserving data sharing and analytics aims to foster R&D to help researchers, physicians and others gain better insights from sensitive data without the need for data access.
- Secure data processing platforms: In the United Kingdom, OpenSAFELY was developed as a secure analytics platform in response to the COVID-19 pandemic.
- Certification of trusted PETs: In Japan, the Ministry of Internal Affairs and Communications (MIC) and the Ministry of Economy, Trade and Industry (METI) formulated guidelines for the certification of personal data trust banks that are used by private organizations such as the Information Technology Federation of Japan.
- Innovation contest: In France, the CNIL together with France's Institute for Research in Digital Science and Technology (Inria) have been giving since 2016 the CNIL-Inria Privacy Award to scientists and researchers in order to encourage research on PETs. Similar initiatives are also being sponsored by the UK and USA.
- Regulatory sandboxes: In Singapore, the Infocomm Media Development Authority (IMDA) and the Personal Data Protection Commission (PDPC) launched in 2022 a PETs sandbox aiming to provide a safe environment and testing ground for pilot PET projects, with participation from the financial industry.
- Digital identity management: In Finland, policymakers are developing domestic legislation on digital ID and digital wallet solutions that can enable individuals to have enhanced control over their personal data using PETs.

FIGURE 3: Overview of Major Types of Privacy Enhancing Technologies

Types of PETs	Key technologies	Current and potential applications*	Challenges and limitations
Data obfuscation tools	Anonymisation / Pseudonymisation	Secure storage	- Ensuring that information does not leak (risk of re-identification) - Amplified bias in particular for synthetic data - Insufficient skills and competences
	Synthetic data	Privacy-preserving machine learning	
	Differential privacy	Expanding research opportunities	
	Zero-knowledge proofs	Verifying information without requiring disclosure (e.g. age verification)	- Applications are still in their early stages
Encrypted data processing tools	Homomorphic encryption	Computing on encrypted data within the same organisation	- Data cleaning challenges - Ensuring that information does not leak - Higher computation costs
	Multi-party computation (including orivate set intersection)	Computing on private data that is too sensitive to disclose Contact tracing / discovery	
	Trusted execution environments	Computing using models that need to remain private	- Higher computation costs - Digital security challenges
Federated and distributed analytics	Federated learning Distributed analytics	Privacy-preserving machine learning	- Reliable connectivity needed - Information on data models need to be made available to data processor
Data accountability tools	Accountable systems	Setting and enforcing rules regarding when data can be accessed Immutable tracking of data access by data controllers	- Narrow use cases and lack stand-alone applications - Configuration complexity - Privacy and data protection compliance risks where distributed ledger technologies are used - Digital security challenges - Not considered as PETs in the strict sense
	Threshold secret sharing		
	Personal data stores / Personal Information Management Systems	Providing data subjects control over their own data	

Note: (*) Only one application has been included for the sake of readability.

Source: OECD (2023), "Emerging privacy-enhancing technologies: Current regulatory and policy approaches", *OECD Digital Economy Papers*, No. 351

Recommendation #3-A:[13]

We recommend that APEC member economies actively explore the coordinated adoption of a toolbox of business-level mechanisms supporting the goal of secure and trusted sharing of data in the region. These could include interoperable contractual safeguards, binding corporate rules, certification, codes of conduct or privacy codes, and harmonizing exemptions currently granted under existing legal or administrative frameworks.

Recommendation #3-B:

We recommend that APEC member economies develop common core principles for data protection that promote wider and safer data sharing and address uncertainties arising from measures that restrict the flow of data.[14]

[13] For details, refer to the Report *Toward Freer Safe and Trusted Flow of Data in the Asia-Pacific Region.* http://www2.abaconline.org/content/download/22632381

[14] These could include agreement on a principles-based approach to data protection; enhanced international cooperation; use of international trade agreements to remove barriers; and addressing regulatory concerns by focusing on rules of access and the quality of the outsourcing solution instead of location. Uncertainties related to data localization may be addressed through common and consistent standards for localization requirements as applied to different sectors; clarifying the interplay between provisions in general data protection laws and localization requirements mandated by specific sectoral laws or regulations; and clarifying the scope of localization measures, the conditions under which exemptions are permitted and regulatory expectations in the implementation of localization rules for specific categories of data.

Recommendation #3-C:

We recommend that APEC member economies foster innovation in relation to privacy enhancing technologies (PETs). This can be achieved through measures such as supporting research and development, providing secure data processing platforms, certification of trusted PETs, innovation contests, regulatory sandboxes and digital identity management, among others.

PROMOTING THE DEVELOPMENT OF INTEROPERABLE WHOLESALE CBDCS

Payment systems play a critical role in enabling cross-border trade, investment and foreign exchange transactions, which are important for achieving the APEC vision of free and open trade and investment. The region's economies are currently exploring ways to create more effective and efficient arrangements leveraging new technologies. In recent years, wholesale Central Bank Digital Currencies (wCBDCs) have attracted much attention as a way to reduce the costs and increase the speed of cross-border payments. Today many Asia-Pacific economies are conducting research, exploration and testing of wCBDCs.

While wCBDCs hold the promise of greater efficiency, their uncoordinated adoption across the region carries the risk of fragmentation, which could increase barriers to cross-border business transactions among Asia-Pacific economies, in contravention of the APEC vision. In this context, ABAC submitted to the APEC Finance Ministers in 2022 a White Paper[15] as an annex to its annual report. The paper called on the Ministers to "encourage relevant stakeholders to collaborate in drafting common principles to guide member economies intending to develop wCBDCs."

Following the 2022 AFMM Chair's Statement[16] calling on relevant stakeholders to collaborate in implementing ABAC's recommendations, ABAC endeavored to develop the Common Principles in 2023. In support of this effort, the APFF convened various experts from financial industry associations and firms, multilateral institutions, central banks and government and regulatory agencies to develop a set of principles that could assist APEC member economies in coordinating the development of wCBDCs to avoid fragmentation and enhance regional integration.

The Common Principles are primarily concerned with domestic and cross-border *wholesale* CBDC arrangements for faster, efficient, transparent and accessible financial system flows. They are aligned with an analogous set of principles for *retail* CBDC (rCBDC) arrangements put forward by the G7,[17] the G20 and the BIS.[18] In proposing these Common Principles, ABAC is not in any way recommending the adoption of wCBDCs as the most suitable arrangement for member economies. However, they are addressed to those member economies that are exploring wCBDCs for possible adoption, for the purpose of assisting them in designing interoperable wCBDCs. The Common Principles are divided into two main sections: foundational principles and design principles.

The *foundational principles* touch on fundamental considerations to facilitate the conceptualization of wCBDCs that are intended to provide seamless interoperability across markets.

- These include policy considerations such as a conscious intent to design for cross-border interoperability, a recognition of diversity across jurisdictions, anticipation of a need to balance conflicting policy goals and recognition of the need for seamless linkage with domestic arrangements to ensure a coherent and efficient payment infrastructure.
- They also include a reference to an ecosystem approach that needs to be considered from the outset to ensure the coherence of wCBDCs with the broader economy and basic policy and regulatory goals, including the engagement of all relevant stakeholders and coexistence with other payment methods.

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[15] Laying the Foundations of Interoperable Wholesale Central Bank Digital Currencies in the Asia-Pacific Region http://www2.abaconline.org/content/download/22629711

[16] https://www.apec.org/meeting-papers/sectoral-ministerial-meetings/general/chair-s-statement-of-the-29th-apec-finance-ministers-meeting

[17] See G7: Public Policy Principles for Retail Central Bank Digital Currencies (CBDCs). 2021; G7 Finance Ministers and Central Bank Governors' Statement on Digital Payments | U.S. Department of the Treasury Oct. 2020

[18] BIS, "Group of seven" Central Banks: Central bank digital currencies: foundational principles and core features. June 2020

The *design principles* focus on the key features that need to be incorporated into wCBDC arrangements across jurisdictions in order to promote consistency among economies that can facilitate interoperability. These include:

- principles that fall under general organization (terminological clarity and the legal and governance frameworks underpinning wCBDC arrangements);
- considerations around financial stability and monetary and fiscal policy (doing no harm to jurisdictions' financial stability and control over policy, as well as monitoring and review to address unintended consequences);
- alignment with international obligations around data privacy and security and integrity of financial systems;
- facilitation of cross-border foreign exchange transactions and investment; and
- alignment with broader policy goals of fair competition, innovation and inclusion, and common policy goals that have been adopted by jurisdictions as part of their international engagement, including the APEC vision of free and open trade and investment and an open, dynamic, resilient and peaceful Asia-Pacific community as well as the UN Sustainable Development Goals.

Recommendation #4:

We recommend that APEC member economies consider using the *Common Principles for the Development of Interoperable Wholesale Central Bank Digital Currencies* proposed by ABAC[19] as a reference in the design and implementation of their respective wCBDCs.

II. Mobilizing International Capital to Accelerate Sustainable Transition

Creating a Collaborative Framework for Financing Sustainable Transition

Transition finance focuses on decarbonizing high-emitting industries that currently form a large part of the economy.[20] There is broad agreement on basic principles among economies in East Asia, the G-20, OECD, ASEAN, global financial institutions and members of the Glasgow Financial Alliance for Net Zero (GFANZ). An important point of agreement is the need to incentivize not just "green" projects, but also "amber" projects that can enable companies to realistically transition to achieve the net zero goals. These cover not only investments in energy saving and efforts to utilize cleaner fossil fuels but also R&D for new energy sources like hydrogen and ammonia as well as innovative carbon dioxide capture, utilization and storage (CCUS) technologies and their deployment.

Various economies have adopted a flexible approach instead of a binary green versus brown approach. In Japan, the government issued basic guidelines on climate transition finance with sector-specific roadmaps for industries that contribute significantly to greenhouse gas emissions.[21] These roadmaps became the basis for the issuance of transition bonds that are now helping firms in these sectors transition toward the net zero goals. In Southeast Asia, the ASEAN Taxonomy[22] identified sectors where efforts need to be focused. Similar approaches are now also being developed in other economies. It is important for companies across the region to be able to leverage these efforts to obtain financing for transition projects, especially for those that constitute important parts of supply chains and face the common challenge toward carbon neutrality.

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[19] Common Principles for the Development of Interoperable Wholesale Central Bank Digital Currencies http://www2.abaconline.org/content/download/22632181

[20] As the 2022 G20 sustainable finance report notes, a very narrow interpretation of "green" finance would limit the flow of capital towards activities and investments to support their climate transition. It may entail the risk of penalizing such companies despite having credible transition plans, thus increasing the cost of capital to firms in need of investment to realize their green transition. G20 Sustainable Finance Working Group, *2022 G20 Sustainable Finance Report* [https://g20sfwg.org/wp-content/uploads/2022/10/2022-G20-Sustainable-Finance-Report-2.pdf]

[21] https://www.meti.go.jp/english/press/2021/0507_001.html

[22] https://afcwp.asean.org/wp-content/uploads/2021/10/Annex-12-WC-CMD-Updates-on-ASEAN-Taxonomy-Board.pdf

Each jurisdiction will need to develop its own roadmap with very clear verification mechanisms and robust disclosure frameworks to ensure against greenwashing, and this will need to be done for each sector as well. However, these roadmaps will need to be comparable, credible, consistent and interoperable across the region to allow companies to access the large-scale financing that is potentially available for their transition projects. A number of challenges[23] would need to be overcome, but there are also opportunities[24] that can be leveraged. While taxonomies and transition roadmaps are recent developments and are still currently evolving, there is a potential for convergence that can be harnessed.

Following are key conclusions from discussions among industry, regulators and international organizations:

- First, concrete, science-based and credible transition roadmaps for each economy and each key sector, with robust verification mechanisms, are needed to guide project development. They are also needed by investors and lenders to ensure against greenwashing and avoid reputational risk. These roadmaps will need to be developed through a bottom-up approach that requires close collaboration between government and industry. At the same time, this process will need to be coordinated across economies to ensure comparability, consistency, credibility and interoperability, which are key to promoting access to financing from across the region.
- Second, transition bonds and loans need to be developed as a new asset class in order to attract financing. This process should go hand-in-hand with the build up of investors' knowledge that would enable them to make informed investment decisions.
- Third, the development of interoperable emissions trading systems should be pursued in order to provide strong incentives for transition toward the net zero goals. These could be combined with complementary fiscal policies to provide strong incentives for companies to accelerate the process of decarbonization.
- Fourth, there is a need to address the issue of financing emissions. This will require public sector involvement, including the formulation of appropriate regulatory approaches, incentives and actions by central banks and financial regulators to make bank financing facilities available.
- Fifth, it is important to establish consortia or governance structures around climate disclosure in each economy, based on the foundations laid down by the Task Force on Climate Related Financial Disclosures or TCFD, to achieve coordination among relevant public and private sector stakeholders. They can also facilitate active engagement in the ongoing efforts of the International Sustainability Standards Board (ISSB) and adoption of future standards of mandated disclosure.

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[23] Among the key challenges are the following:

- First, significant differences in backgrounds and starting points across economies in the region pose a challenge for developing comparable roadmaps. An example is the widely varying importance of coal as part of the energy mix in Japan and ASEAN.
- Second, incorporating technological factors in technical screening criteria would be difficult for many developing economies. For developing economies, affordability and access to technology would be challenging to many businesses. In addition, the complexity and technical details would be difficult for many stakeholders to sufficiently understand.
- Third, there are widely varying views on what "just transition" means and how it can be incorporated in a regional transition framework.
- Fourth, there is now a lot of work on developing standards around the disclosure framework. Because this has the potential of being translated into regulatory guidelines, it is important to ensure that reliable transition pathways for financing of projects are enabled.
- Fifth, the financial sector can play a key role, but it cannot drive transition alone by itself, especially in a cross-border context. There is a need for collaboration from the public sector and other industries where technological knowledge resides.

[24] These include the following:

- First, there are a lot of commonalities and overlaps in principles for transition finance in Japan, ASEAN and China (for example, principles like do no significant harm and consistency). It would be important for economies to agree on a common set of principles containing all these elements.
- Second, the flexibility of current frameworks provides a path to convergence. In the case of the ASEAN Taxonomy, the tiered system comprising green, amber tier 2 and amber tier 3 allow for the financing of projects that meet global standards that are accepted in the EU but also provide ways to invest in projects that may not meet these standards but help companies to reach net zero goals. In the case of Korea's k-taxonomy, it is revised every 3 years to take into consideration new developments such as the emergence of new technologies. The ASEAN Taxonomy is also understood as a work in progress that will continue to be updated and further developed.
- Third, the common ground taxonomy approach used by China and the EU has good potential for use in developing a framework for financing transition projects across the region. However, technical screening criteria need to be specific enough to be usable by investors and lenders. This underscores the importance of collaboration among the financial sector, wider industries and the public sector.

Accomplishing all these would require a region-wide international framework for collaboration among economies. This would serve as a platform to coordinate the bottom-up development of transition roadmaps for individual economies and key sectors, while promoting comparability, consistency, credibility and interoperability and preventing sustainability arbitrage. This process will need to involve the financial sector and relevant government and regulatory bodies. APEC is well-positioned to provide such a collaborative platform, involving key stakeholders such as finance and other relevant ministries, central banks and financial regulators, as well as the private sector. APEC should also seek to develop synergies with other international bodies that pursue similar goals, such as the ADB, World Bank Group, IMF, ASEAN, G20, G7, and GFANZ, by leveraging existing collaborative platforms under the FMP, including the APFF Sustainable Finance Development Network.

Recommendation #5-A:[25]

We recommend that APEC provide a common platform for member economies to coordinate the development of climate finance transition roadmaps for each economy and for each key sector. This common platform should assist in the establishment of transition bonds and loans as a new asset class and in the development of interoperable emissions trading systems. It should also assist in the coordination of complementary fiscal incentives and regulatory approaches that can facilitate the financing of transition projects from across the region.

Recommendation #5-B:

We recommend that APEC member economies establish climate disclosure consortia within their respective jurisdictions, based on the foundations laid down by the Task Force on Climate Related Financial Disclosures (TCFD). These consortia should promote coordination among relevant public and private sector stakeholders domestically and support regional coordination among member economies in promoting robust and standardized disclosure across the region. They should also facilitate active engagement in the ongoing efforts of the International Sustainability Standards Board (ISSB) to develop and promote disclosure standards.

Financing Just and Affordable Energy Transition

While energy is the driver of our societies' economic growth and development, the energy sector is also the single largest contributor to global warming, accounting for around two-thirds of global greenhouse gas emissions attributed to human activity.[26] Major Asia-Pacific economies are undertaking massive public sector investments in renewable energy infrastructure and innovation. However, current financing trends are still not aligned with the required transformation as fossil fuel based energy supply continues to usurp the lion's share of planned investment in Asia.[27] In Southeast Asia, for example, fossil fuels are expected to remain the most important source of energy supply through 2050 (See Figure 4).

There is increasing recognition that the costs of the transition ought to be distributed across societies in accordance with the principles of justice.[28] In this context, the first key challenge is how to achieve energy transition while fulfilling important social development goals such as investment in health, education and infrastructure while operating in a constrained fiscal environment. This needs to take into consideration that the potential pain of transition will also vary across markets. The second challenge is how to increasingly replace fossil fuels with renewable energy sources while meeting continued growing demand for a stable supply of electricity.

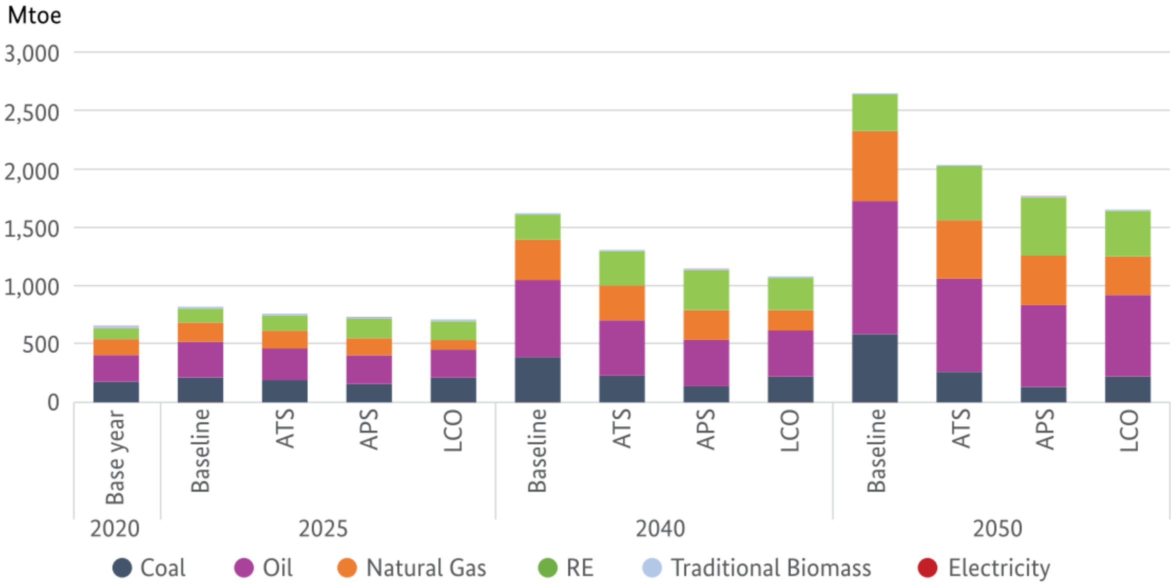
[25] For details, refer to the Report *Strategizing an Approach to Transition Finance in the Region* http://www2.abaconline.org/content/download/22632391

[26] https://www.unep.org/explore-topics/energy/why-does-energy-matter

[27] FFA 2022. https://fairfinanceasia.org/wp-content/uploads/2022/12/Report_FFA-SEI_Financing-just-energy-transition_powering-Asias-energy-future_final.pdf

[28] Paris Agreement (2015) [https://unfccc.int/files/meetings/paris_nov_2015/application/pdf/paris_agreement_english_.pdf]; COP26 Just Transition Declaration (2021) [https://ukcop26.org/supporting-the-conditions-for-a-just-transition-internationally/]

FIGURE 4: ASEAN Energy Supply Projection by Fuel Across Scenarios



Scenarios

- Baseline: This scenario follows the historical trend of ASEAN Members' energy systems.
- ATS (ASEAN Members' Targets Scenario): This scenario ensures attainment of official ASEAN members' policies, especially for energy efficiency (EE) and renewable energy (RE) targets.
- APS (ASEAN Plan of Action for Energy Cooperation Targets Scenario): This scenario seeks to bridge the gap between individual ASEAN Members' and regional targets outlined in APAEC 2016-2025 by escalating domestic energy intensity reduction and RE targets, and/or setting new target for Members that could potentially adopt specific policies.
- LCO (Least-Cost Optimisation Scenario): This scenario explores the least-cost dispatch in the power sector to meet the regional target throughout the entire modelling period with a technology-neutral approach that considers all viable technologies in the region.

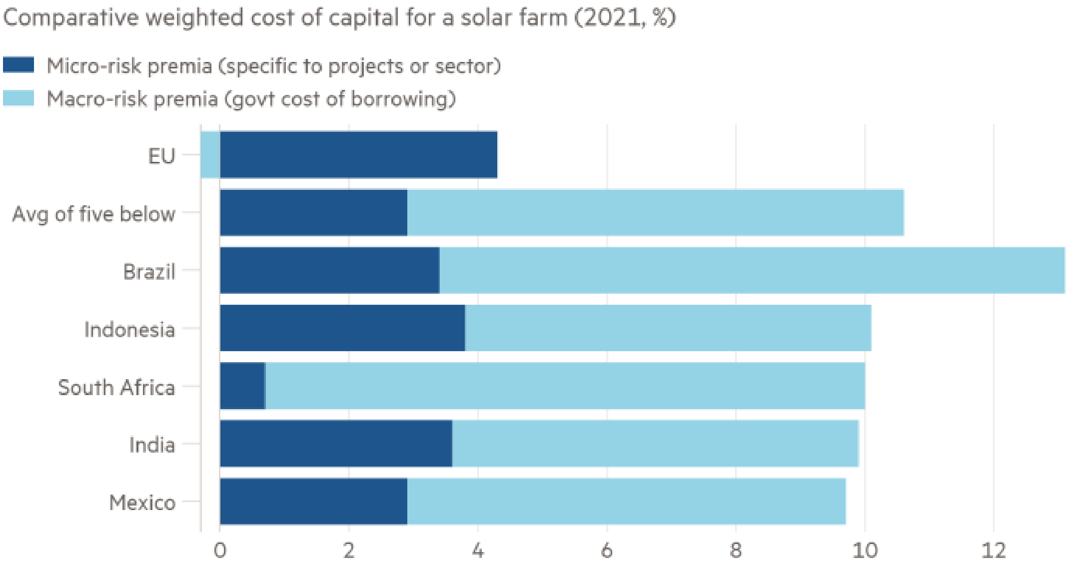
Source: ASEAN Centre for Energy, *The 7th ASEAN Energy Outlook, 2020-2050* (Volume 7, 2022)

Financing a just and affordable energy transition is a substantial challenge that will require enormous amounts of investment in renewables and new sources of energy as well as in reducing emissions in hard-to-abate sectors. While there is no shortage of global capital looking for investment opportunities in developed economies, there are challenges for developing economies in attracting access to sufficient hard currencies. A significant factor in this is currency risk., The task of identifying and getting the right projects ready for financing to reach the net zero goal by 2050 is complex and difficult due to various reasons. These include:

- the current context of heightened macroeconomic, policy and political uncertainties;
- the different requirements for energy transition across a very diverse region;
- the requirement for international coordination;
- the challenges economies face in effective execution of strategies and policies;
- the need to consider not just environmental, but also social and governance factors;[29] and
- currency risk, which is difficult for most developing economies and small projects to bear (See Figure 5).

[29] For example, regulators need to design rates in the power sector equitably to provide sufficient buffers to low-income households, while at the same time providing clear signals to markets that can enable movement toward net zero. They also need to pay attention to social and governance factors in the energy supply chain, production centers and sources of raw materials, including the impact of transition on communities and workers in sectors and industries that are heavily reliant on fossil fuels and greenhouse gas emitting activities.

FIGURE 5: Capital Costs to Developing Economies Reflect Macroeconomic Risk



Note: EU is a proxy for developed economies. Five economies selected are major industrializing developing economies. China excluded as its cost of capital is similar to developed economies.

Source: Avinash Persaud. From Martin Wolf, The green transition won't happen without financing for developing [economies], Financial Times [https://www.ft.com/content/770aadbb-1583-40ae-b072-9ef44c27cc15].

Because no one size fits all, attention needs to be focused on developing realistic and practical roadmaps for individual jurisdictions and sectors. While the goal is to progressively reduce the use of fossil fuels, economies will need to make their own decisions on practical approaches that best enable them to achieve net zero goals given local economic and political realities.[30] Energy transition involves well-coordinated policies across government agencies and thus needs leadership from the top level of government and a whole-of-government approach. Financing just and affordable energy transition will require development of commonly agreed definitions and standards and promoting availability of data, technology and metrics needed to develop strategies and identify investment opportunities.

Currency risk is increasingly being viewed as a major deterrent to marrying funding supply with demand. An initiative to address this challenge would be the establishment of a market instrument that significantly reduces currency risk by diversifying exposure over a basket of currencies. This could be achieved by creating a reference point for repayment and interest against a basket of international currencies explicitly chosen to reduce overall currency volatility. Fixed rate long-term bonds in which servicing and repayment obligations are indexed to such a currency basket could serve as a 'risk-free' reference rate within the new financial instrument market, leveraging diversification and indexation principles to effectively mitigate risk.[31]

Diversification and indexation, which are consistent in principle with the IMF's Special Drawing Rights, can serve this purpose if used with a selected index that is transparent, robustly and properly regulated, and recognized by the global financing system as an appropriate store of value. Convertibility of component currencies is a key success factor for indices among those offered by several trustworthy currency index providers today that enjoy wide acceptance in the market.

[30] Such approaches may, for example, involve the transitional use of cleaner fossil fuels (e.g., natural gas or blended biofuels) or use of nuclear energy.

[31] One currency basket that may be considered for this purpose is the World Parity Unit (WPU). This is a basket of 11 widely traded international currencies, the daily settlement price of which is calculated by the FTSE-Russell division of the London Stock Exchange . For more details, see Robert Dohner, *Financing the Energy Transition: Currency Risk and WPU Indexed Bonds* https://www.mountainpacificinstitute.org/Financing_the_Energy_Transition_20230720.pdf

The bond issuance and disaggregation mechanisms would enable funding to be made available for MSMEs. It is intended to enfranchise relatively small projects enabling them to borrow transition technologies, and would be a major practical measure towards the goal of making the transition just and affordable.

In addition to the previously mentioned recommendations (see Recommendations #5-A and #5-B above) to provide a common platform for coordinating the development of transition roadmaps and financing mechanisms for the energy and hard-to-abate sectors, and to promote robust and standardized disclosure, an additional set of recommendations is needed to address challenges specific to just and affordable energy transition.

Recommendation #6-A:[32]

We recommend that APEC member economies leverage existing and ongoing initiatives to promote the development of a pipeline of energy transition projects that can attract private sector financing. Examples are the digital project preparation platform SOURCE, the Global Infrastructure Hub (GIH) and GFANZ, through existing FMP policy initiatives such as the APFF Sustainable Finance Development Network (SFDN) and the Asia-Pacific Infrastructure Partnership (APIP).

Recommendation #6-B:

We recommend that APEC provide a common platform to facilitate the use of blended finance through collaboration among governments, multilateral institutions and international initiatives to attract financing for just energy transition projects.

Recommendation #6-C:

We recommend that Ministers explore the issuance of fixed rate long-term bonds in which servicing and repayment obligations are indexed to a basket of major international currencies. This should be designed to reduce borrower and lender risk from swings in the exchange rate of the currency of issue and thereby enable broader financing options. Suitably indexed bonds could become core allocations in the portfolios of global investors and thus allow international capital to be made available to finance a just and affordable energy transition.

Financing Sustainable Innovation

Achieving the net zero goals will require a rapid reduction of carbon emissions, which at present remain at unsustainably high levels. Transitioning from the current situation to reach these goals will require faster innovation. In addition to innovations in technologies for developing commercially viable clean energy sources and innovations across hard-to-abate sectors, innovations in the use of digital technology and finance will also be needed. These innovations will be important for lowering the costs and accelerating the transition toward a green future, especially for Asia-Pacific developing economies and for MSMEs.

For the region to accelerate the achievement of the net zero goals, economies need to develop enabling ecosystems for financing innovations. Such an ecosystem will require coordination of key stakeholders through their engagement in formulating well-defined objectives and identification of policy levers. Most critical would be the collaboration among governments, the private sector and MFIs and a holistic approach to enabling MSMEs to effectively participate in global value chains and bring innovations to the market. Strong and clear signals from regulators and governments and clear transition pathways can facilitate the flow of transition finance to sustainable innovations. Voluntary carbon market (VCM) exchanges and over the longer term, emissions trading systems, can play important roles in incentivizing innovations. It is also important to focus promotion efforts on innovations that are most needed in the region's developing economies, such as CCUS.

[32] For details, refer to the Report *Financing a Just and Affordable Energy Transition in the Asia-Pacific Region* http://www2.abaconline.org/content/download/22632401

Economies' intellectual property (IP) regimes have significant potential to facilitate the financing of innovation projects by companies and start-ups to help accelerate the transition to net zero in the region. IP financing is growing, but is still very much at a nascent stage, as there is yet no commonly accepted global standard for valuing and financing IP assets. Leveraging on IP to finance sustainable innovation entails a process of coordination among key stakeholders such as international organizations and experts in the fields of intellectual property, law, regulation and valuation to address this challenge.

Also in addition to consistent, comparable, credible and clear science-based sectoral technology transition roadmaps with robust mechanisms for third party review, assurance and verification, as proposed in Recommendations #5-A and #5-B above, we propose the following:

Recommendation #7-A:[33]

We recommend that APEC member economies collaborate with multilateral institutions and the private sector to design enabling ecosystems for financing sustainable innovation that leverage their complementary roles[34] and meet the needs of their respective jurisdictions. Initial efforts could focus on fostering voluntary carbon market exchanges and prioritize incentives for the development of technologies most needed in developing economies, such as those related to carbon capture, utilization and storage (CCUS).

Recommendation #7-B:

We recommend that APEC promote legal and regulatory reforms to enable intellectual property (IP) financing and IPR ownership under the Enhanced APEC Agenda for Structural Reform (EAASR). As a first step, we recommend that member economies collaborate with relevant international organizations and the private sector in initiating a pilot project to develop and implement a reform agenda enabling the use of IP supporting sustainable innovation to access finance (such as through IP-backed loans and securitization). This could start with a product-based diagnostic for each participating jurisdiction to assess gaps and opportunities in the legal and regulatory environment. The diagnostic could map alignment of laws, regulations, valuation standards, business practices, and market development with international standards and best practices.

Conclusion

The Asia-Pacific region today is facing enormous economic and social challenges arising from a deeply concerning global outlook, conflict, and a series of grave challenges – geopolitical, economic, environmental and financial. The growing associated trend toward fragmentation of supply chains and payment systems is seriously impacting consumers and businesses, especially MSMEs that collectively represent the largest provider of employment in any economy. A less visible but more fundamental source of fragmentation is the uncoordinated response of economies in the region to the challenges of digital transformation and climate change, which if not addressed can create new barriers to cross-border business, increase costs and risks for

[33] For details, refer to the Roundtable Report *Financing Sustainable Innovation in the Asia-Pacific Region* http://www2.abaconline.org/content/download/22632421

[34] Collaboration between government and private sector with support from MFIs, playing complementary roles, can help provide an enabling ecosystem for financing of sustainable innovation.

- Government's role is to develop and implement robust and credible just transition plans, provide public resources to crowd-in private sector financing and facilitate the private sector's contributions through regulation, policy, encouragement of voluntary efforts at corporate social responsibility, IPR enforcement and supportive international agreements.
- MFIs can provide concessional capital to help leverage private sector funding and capacity building support and technical assistance to help governments and regulators adopt and implement policies and regulations based on internationally accepted principles (e.g., the OECD principles on blended finance) and best practices.
- The private sector can provide commercial funding in alignment with economies' strategies, provide useful feedback to help improve the effectiveness of policies and regulations, and voluntary support through the engagement of philanthropies and socially responsible investors.

consumers and businesses, and negate APEC's vision of free and open trade and investment and an open, dynamic, resilient and peaceful regional community.

Financial systems, which play a central role in connecting enterprises and individuals within and across markets, will need to be an important focus of efforts to bring the region back from the path of fragmentation to the path of integration. This report identifies practical and actionable measures that APEC and its member economies can adopt and implement to help them align their efforts to promote digital transformation and sustainable finance with the APEC vision. These include measures to facilitate end-to-end cross-border digital trade finance, ensure future interoperability of digital financial transactions and wholesale payments, promote wider cross-border sharing and use of data, and create international frameworks for financing just and affordable transition of economies toward the net zero goals and financing innovations that can lower the costs and accelerate this process.

These objectives can only be attained through collaboration within and among member economies and between the public and private sectors. For this reason, we call on APEC Finance Ministers to endorse these recommendations and urge relevant stakeholders, including government and regulatory agencies, the private sector and multilateral institutions, to work together in implementing them within APEC's voluntary and non-binding framework. We in ABAC and our network of collaborators in the APFF, APFIF and APIP remain committed to supporting the Finance Ministers in implementing their initiatives and in their continuing efforts to promote stronger, more inclusive, more sustainable and more balanced growth in a green and digitally connected Asia-Pacific region.

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6. Strategizing an Approach to Transition Finance in the Region
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7. Robert Dohner, Financing the Energy Transition: Currency Risk and WPU Indexed Bonds
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FORGING PARTNERSHIPS FOR A BETTER FUTURE

DEVELOPING INCLUSIVE, SUSTAINABLE AND RESILIENT FINANCIAL SYSTEMS IN APEC

2023 Progress Report

Asia-Pacific Financial Forum ● Asia-Pacific Financial Inclusion Forum ● Asia-Pacific Infrastructure Partnership

EXECUTIVE SUMMARY

The global economy is currently facing multiple challenges as a consequence of recent geopolitical, social and economic developments, ending the long period of low inflation and relative stability that the world had enjoyed in the years since the end of the Global Financial Crisis. Increased uncertainty, inflation and supply chain disruptions are now significantly impacting Asia-Pacific economies, particularly developing economies, small businesses and vulnerable population groups. Various indicators suggest that these challenges will continue to be felt by the region in the foreseeable future.

With today's macroeconomic realities imposing serious restraints on fiscal and monetary policies by governments and central banks and with dismal prospects for growth on the horizon, more private sources of financing will need to be mobilized in order to support continued economic activity and resilience as the public sector undertakes policy adjustments. However, while this situation poses a challenge for governments, it also presents an opportunity to advance the much–needed transformation of our economies in response to digitalization and climate change.

While there remains a number of high-level issues where consensus is still being formed, most of the important steps toward promoting digital transformation and sustainability have already been identified during previous years in APEC. Many of them are enshrined in multi-year action agenda like the Finance Ministers' Cebu Action Plan or initiatives that have been endorsed in various ministerial and Economic Leaders' statements, and only remain to be translated into concrete laws, policies, regulations and capacity building measures that meet the domestic needs and requirements of economies in this very diverse region.

It is on this process where this report is focused. The Asia-Pacific Financial Forum (APFF), the Asia-Pacific Financial Inclusion Forum (APFIF) and the Asia-Pacific Infrastructure Partnership (APIP) were established by the APEC Finance Ministers to serve as platforms for collaboration among the private sector, the public sector and international organizations to implement proposals that the Ministers have endorsed. These policy initiatives are under the umbrella of the APEC Finance Ministers' Process (FMP) and the management of the APEC Business Advisory Council (ABAC).[1]

This Progress Report covers the work and achievements of these initiatives since the last APEC Finance Ministers' Meeting hosted by Thailand in Bangkok in October 2022 until the present and provides

[1] Their work has covered various areas that are being progressed under the FMP.

- The APFIF, established in 2010, has provided a capacity-building platform for developing economy regulators and officials in working with the private sector to promote access to financial services of low-income populations and micro- and small enterprises.
- The APIP, established in 2011, has been providing advice to officials on policy reforms and measures to develop bankable infrastructure projects that can attract private sector funding. It has contributed to key documents on infrastructure issues produced by the Finance Ministers.
- The APFF, established in 2013, has engaged with various public and private sector bodies in achieving FMP deliverables in areas ranging from data and credit information, secured transactions and insolvency regimes, trade and supply chain finance, capital markets, financial market infrastructure, disaster risk financing and insurance, development of the insurance and pensions industry and the long-term investor base, as well as health care financing.

information on planned activities until the end of 2023. It focuses on three areas: (a) sustainable finance; (b) inclusive finance; and (d) financial resilience. In addition, the Report also describes new efforts to intensify engagement with local stakeholders in member economies in order to increase support for activities being undertaken to help them implement deliverables that the Finance Ministers have identified.

Capacity-Building Activities

Capacity-building activities are important tools to ***provide member economies access to expertise and other economies' experiences in implementing priorities*** that form part of the FMP work plan. To this end, various dialogues and webinars were held to assist economies in the following areas:

- workshops and establishment of local governance structures for climate-related disclosures;
- financial inclusion;
- credit reporting; personal data governance, data privacy and data analytics;
- secured transactions, factoring and digital supply chain finance systems;
- digitalization of trade finance;
- wholesale central bank digital currencies;
- valuation practices and standards;
- open data;
- catastrophe bonds;
- pandemic risk insurance;
- insurance regulation and accounting;
- circular economy infrastructure; and
- innovative health care financing solutions.

Promoting Asia-Pacific Perspectives in Global Processes

The APFF participated in international discussions with global regulatory and industry organizations to share lessons and perspectives from its work in APEC economies and ***contribute to the shaping of global standards, frameworks and model laws*** that incorporate insights from the region into their formulation, and thus promote their applicability to the region's economies. These included discussions on:

- international sustainability standards;
- just energy transition pathways;
- interoperable transition financing mechanisms
- sustainable innovation financing;
- international accounting standards for insurance contracts and financial instruments;
- insurance capital standards;
- electronic registry design and operation;
- coordinated implementation of international standards on receivables finance;
- model law for factoring; and
- PPPs in pandemic risk transfer solutions.

Tools for Reforms and Cooperation

The following documents were developed to ***provide tools for policy makers and regulators*** in translating high-level recommendations into concrete policies, regulations, collective actions and capacity building measures:

- *Guiding Principles for the Development of Inter-Operable Open Data Systems in the Asia-Pacific Region;*
- *Asia-Pacific Financial Inclusion Forum: Policy Approaches to Support Green Financing of Micro-, Small and Medium Enterprises– Proposed Actions for Policymakers and Regulators*; and
- *Principles for the Development of Interoperable Wholesale Central Bank Digital Currencies*.

Support for ABAC in the Formulation of Recommendations

Several roundtables were convened to ***assist the Council in formulating recommendations*** to Finance

Ministers and Leaders. These focused on facilitating end-to-end cross-border digital trade finance, facilitating cross-border open data and digital payment transactions, promoting interoperable wholesale central bank digital currencies, developing a toolbox of mechanisms to facilitate cross-border data flows and promoting adoption of privacy-enhancing technologies, financing just and affordable transition and financing sustainable innovation.

Conclusion

The consequences of recent geopolitical, social and economic developments are posing serious challenges to the economies of the Asia-Pacific region, most of which face record levels of public and private debt, constrained fiscal space, hugely expanded central bank balance sheets, and a return of inflation. With governments and central banks finding themselves constrained in using traditional tools to fight economic headwinds and to sustain recovery, it has become more important than ever to enable the business sector to further expand its contributions to economic growth and development. In this process, the financial industry can play a catalytic role to promote inclusive digital infrastructure, sustainability and resilience.

The road ahead for APEC is not totally uncharted, as the ways to make finance more inclusive, innovative, sustainable and resilient have already been the subject of much research and discussion for many years. Solutions are already enshrined in the Finance Ministers' Cebu Action Plan from 2015 and the FMP agenda and identified in past ministerial statements. It only remains for them to be translated into concrete policies, regulations and capacity building measures. The multiple challenges we are facing today have injected a sense of urgency representing an opportunity that is there to be seized.

The APEC Finance Ministers' Process can take the lead in translating this sense of urgency into individual and collective actions to advance the implementation of these deliverables in the Finance Ministers' multi-year agenda. Much can be achieved by coordinating this with the work of the multilateral organizations participating in the FMP – the ADB, IMF, OECD and the World Bank – and with the initiatives of the business sector, as well other relevant APEC fora.

As this Progress Report shows, these initiatives continue to provide support to economies in undertaking important reforms, especially in expanding access to finance. Individual economies as well as APEC fora are coming forward to make full use of these platforms for public-private collaboration to advance various initiatives related to digitalization, sustainability and resilience. In this context, we look forward to working with APEC Finance Ministers and other relevant authorities in seizing opportunities for undertaking concrete reforms and capacity building measures that will help our region build a better future by enabling financial services to promote sustainability, digitalization and resilience.

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APPENDIX

2023 ASIA–PACIFIC FINANCIAL INCLUSION FORUM

Policy Approaches to Support Green Financing of Micro, Small, and Medium-sized Enterprises

Tokyo, Japan

21-22 June 2023

Preliminary Proposed Actions for Policymakers and Regulators

INTRODUCTION

The Asia-Pacific Financial Inclusion Forum (APFIF) is a policy initiative established in 2010 under the APEC Finance Ministers' Process, housed within the APEC Business Advisory Council (ABAC). The primary purpose of the Forum is to identify concrete actions policymakers and regulators can take to expand the reach of financial services to the underserved. The annual APFIF Policy Dialogue provides a platform for policymakers, regulators, development experts and industry leaders to take an active role in validating and refining the proposed actions developed through the APFIF initiative and achieve consensus for effective pathways for progress. These proposed actions are distributed through official APEC channels to support the work of the APEC Finance Ministers' Process.

A distinctive feature of the Forum is its broad view of financial inclusion as an enabler of inclusive growth and development in all its manifestations – financial, economic and social - and its strong focus on those at the base of the economy and the potential for financial inclusion to have a positive impact on the poor. This approach aligns with the priorities of APEC including:

- Priority areas established by the APEC Host (USA) under the theme "*Interconnected. Innovative. Inclusive."*
- The APEC Putrajaya Vision 2040
- The Cebu Action Plan, 2015 (i.e. promoting domestic strategies for financial inclusion and literacy) as well as its revised implementation strategy endorsed by APEC's Finance Minister's in 2021

To support these priorities, and recognizing the important role financial inclusion can play in delivering a sustainable future, in 2023 APFIF adopted the theme "*Policy Approaches to Support Green Financing of Micro, Small, and Medium-sized Enterprises*". Under this theme, the APFIF initiative is examining the emerging strategies and policy frameworks surrounding the development of green finance products targeting the unique needs of micro, small, and medium enterprises (MSMEs). This has resulted in the development of a preliminary set of proposed actions to support APEC's policymakers and regulators in addressing the financing needs of MSMEs, which could help facilitate net zero transition across APEC economies. Specific issues being explored through the APFIF initiative in 2023 include:

- recognizing the importance of promoting greater awareness and development of green finance products targeting MSMEs;
- addressing the unique challenges MSMEs face in accessing green finance products;
- ameliorating food insecurity by developing green finance opportunities for small-holder farmers; and
- expanding green finance opportunities and effectiveness to MSMEs through innovative technology solutions.

The preliminary proposed actions for policymakers outlined in this paper will be further refined and articulated in a full report to be published later this year.

The 2023 Asia Pacific Financial Inclusion Forum is led by the Asian Development Bank (ADB) and co-organized with the Asian Development Bank Institute (ADBI) and the APEC Business Advisory Council (ABAC).; and supported by the Griffith Asia Institute (GAI).

PRELIMINARY PROPOSED ACTIONS FOR POLICYMAKERS AND REGULATORS

Access to finance is a common challenge for MSMEs globally. However, the 'greening' of MSMEs can open more financing opportunities for this segment. The rapid expansion of green finance products through better tailoring for the MSME sector, along with the development of processes necessary to improve access to green finance, has great potential to unlock both finance and green development opportunities for enterprises operating within this underserved market. Policymakers and regulators have an important role to play in achieving this by creating the enabling environment for green financing for MSMEs.

Proposed Action 1: Understand and address the knowledge gaps

The provision of green finance products targeting the MSME sector is a relatively new concept in most economies. With the benefits of expanding green finance among MSMEs being potentially significant, there is growing interest across multiple stakeholder groups to understand this opportunity and identify best practices. However, knowledge gaps exist about how to improve supply of green finance by financial institutions and service providers (the supply side) and how to improve awareness and capacity within MSMEs (the demand side). Closing these knowledge gaps requires tailored policy and regulatory reforms to maximize the full potential of green finance for MSMEs. Policymakers can play an important role in addressing the knowledge gaps by:

- Supporting research into green financing and MSMEs, including cooperation with relevant research institutions and the private sector to gather data, pilot test products, and promote results.
- Work with stakeholders to define the scope of green finance for MSMEs, taking into account opportunities to expand the scope beyond adoption of renewable energy or energy efficient practices. Examples include climate mitigation (decarbonization), climate adaptation (insurance or liquidity support), or just transition.
- Developing economy and regional transition roadmaps, as well as priority areas for greening MSMEs (e.g., depending on sector, size, and location).
- Expanding the promotion of regional cooperation on green finance issues. This might include efforts to support greater harmonization, standardization, and comparable screening criteria on issues such as taxonomies, certification and embedded emissions accounting frameworks.
- Supporting the collection and promotion of both public and private (so as macro and micro) data which can be used to develop green finance products which address the unique needs of MSMEs.
- Supporting the collection and sharing of relevant case studies which demonstrate effective tools and policies applicable to different types of MSMEs, sectors, and economies.
- Supporting the creation of a global or regional depository of knowledge, or toolbox, to help different economies to share their experiences with green finance and MSMEs as they test new initiatives and measure results.

Proposed Action 2: Improve inclusion of MSME aspects into existing and new sustainable finance taxonomies and frameworks

Several green finance taxonomies and green banking frameworks have been, or are currently being, developed across several economies. However, the development of these green finance standards is typically done with larger firms in mind and less consideration for MSMEs. To enable financial institutions to support green financing of the MSME market (and label loans accordingly), green taxonomies need to include green projects and activities relevant to each segment of the MSME market (i.e., micro vs. small vs. medium, and the sector). Each MSME segment will have unique needs and constraints as they relate to access to finance, as well as unique needs with regard to green finance more specifically. To address this, policymakers could:

- Work with industry associations or other key stakeholders to consider how well local definitions of micro, small, and medium-sized enterprises align with the taxonomy and what challenges may exist for certain MSME segments.
- Include eligible projects and activities specifically for MSMEs as users and suppliers of green technologies and services into green taxonomies (for example smaller energy efficiency investments, circular small-scale farming, etc.) that are priorities for decarbonization and financing specific to the economy.
- Consider climate adaptation and mitigation projects as part of the green finance standards, including applicable transition financing.
- Consider the applicability and interoperability of taxonomies to meet MSME limitations (e.g., lack of collateral, lack of reporting ability) and specific sector needs (e.g., agribusiness).

Proposed Action 3: Steer financial service providers and MSMEs towards green finance opportunities through incentives and regulatory measures

Increasing access to green finance requires efforts to steer both suppliers of finance and demand from MSMEs to better utilize green finance opportunities. Policymakers can play an important role in pursuing this by providing incentives and regulatory measures to both financial service providers and MSMEs to accelerate the provision or adoption of green financing. Some examples of approaches policymakers could use to achieve this include:

- Introduce or promote incentive schemes which specifically target the expansion of green finance to the MSME sector, for example through fiscal or monetary measures (e.g., similar to support mechanisms for green bonds where governments provide funding for part of the green verification cost).
- Recognize that changing behaviors through incentive schemes is often a slow process, policymakers might also consider mandating certain changes where results are needed more urgently, for example guidance to banks in green MSME lending.
- Take a more direct approach on how government institutions interact with industry, for example, by encouraging state-owned enterprises (including banks) to provide trade financing to MSMEs that meet certain "green requirements" and including the outcome as part of lending performance criteria. At the same time, government agencies could adopt preferential purchasing from "green MSMEs" (e.g., green procurement).
- Support implementation of incentive systems within financial institutions that reward loan officers and other relevant staff for providing green MSME financing.
- Consider how existing government subsidy programs, for example for the agriculture sector, can be tied to measurable indicators of green progress.

Proposed Action 4: Embrace development and application of fintech and new financial instruments

Traditional finance systems struggle to serve MSMEs. Fintech can provide opportunities to create new financing channels targeting MSMEs, including those in remote areas and the informal sector, and to digitalize and upgrade risk management for financial institutions and service providers. Some specific actions policymakers could take to support this include:

- Develop regulations to improve compatibility and transferability of data which will facilitate greater cooperation between fintechs while enabling clients more flexibility to choose their preferred providers.
- Utilize digital technology to enable MSMEs to automate data collection and verification relevant to meet key requirements (e.g., on environment, social, and governance (ESG) data reporting and audits).
- Utilize technologies to enable a phased approach for ESG compliance, such as carbon reporting (e.g., utilize technologies to enable voluntary carbon reporting first to gradually move towards mandatory carbon reporting).
- Enhance the availability of government funding schemes and support for fintech startups, including incubators.
- Establish regulatory sandboxes or support pilot programs that support the development of green fintech solutions targeting MSMEs.
- Adopt regulation which enables innovative financial instruments to be developed that are relevant to the needs of MSMEs, including products such as microinsurance for climate disasters, biodiversity offsets, or carbon credits.
- Consider regulatory measures necessary to protect data privacy and domestic security issues regarding international data transfers and data sharing.

Proposed Action 5: Support capacity development among financial service providers, MSMEs and other economic actors to adopt green finance

Dedicated efforts are needed to support the capacity needs of green finance from both supply- and demand-side perspectives. This includes addressing both technical and managerial capabilities among financial service providers and MSMEs. Policymakers can help accelerate the capacity needs of stakeholder by:

- Working with relevant industry associations to identify capacity needs and design appropriate interventions for MSMEs.

- Providing regular updates and trainings (through local government partners or through digital means) to MSMEs on available green financial instruments and support mechanisms, as well as enhancing financial and digital literacy.
- Enabling knowledge sharing among MSMEs, and similarly, among financial institutions, on success cases and experiences of green MSME financing.
- Strengthening knowledge sharing on green technologies and green processes for MSMEs through, for example, roadshows, leaflets, digital means, etc. This can include information on green agriculture technologies, energy efficiency programs, the circular economy, etc.
- Fostering cooperation and knowledge sharing among other economic actors (e.g., multinational enterprises) on the advantages and opportunities of green financing for MSMEs.