REGIONAL COORDINATION OF GREEN INDUSTRIAL POLICIES:

What can we learn from the ASEAN Experience?

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ABSTRACT

The rise of national-driven green industrial policies, along with a new mercantilist era, marked by fragmented international cooperation and protectionism, threatens the inclusive pursuit of sustainable industrialization. Meanwhile, for many small nations, many of the 'green windows of opportunities' cannot be reached without cross-border coordination. This paper therefore examines the institutional conditions necessary for the multilateral coordination of green industrial policy, arguing that developing nations must prioritize strategic regional coordination over mere integration to avoid competitive traps. While the benefits of cross-border industrial policy cooperation have long been discussed, less attention has been paid to the institutional frameworks enabling such coordination, particularly in regions with redundant and duplicating development strategies, weak political alignment, and competitive interests.

Using the Association of Southeast Asian Nations (ASEAN) as a case study, we derive four key insights: (1) well designed multilateral industrial policy cooperation does not undermine national autonomy but rather depends on strong domestic institutions and clear developmental visions; (2) issue-based cooperation can foster institutional linkages, building trust and enabling scalability in adversarial trade environments; (3) effective cooperation requires mechanisms to identify synergies, mitigate competitive risks, and depoliticize collaborative agendas; and (4) while low-institutionality/high-flexibility models offer adaptability, they risk replicating national policy limitations and may struggle to transcend foreign direct investment (FDI)-led industrialization. The ASEAN experience underscores both the potential and constraints of regional green industrial policy, offering lessons for developing economies aiming to seize green windows of opportunity.

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1. Introduction: Can Green Industrial Policy Move Beyond the National Scale?

After decades of marginalisation from the conventional economic development discourse, the importance of the state in supporting processes of structural transformation is back at the centre of political and academic discussions. From the position of 'the policy that shall not be named', industrial policy has returned (Cherif & Hasanov, 2019). If part of this renewed interest emerged from the realisation that resolving the problem of climate change (Anzolin & Lebdioui, 2021)—the 'greatest and widest-ranging market failure ever seen' (Stern, 2007)—, it is now principally driven by geo-political/economic concerns. As a result, the agenda of green industrialisation has increasingly taken a weaponised form, that of a green industrial race. What are the consequences of this development for both development outcomes and the pursuit of sustainability at the global level? And to what extent does it require a move from national to regional thinking?

The green transition opens many doors for industrial development. The structural transformations presupposed by the green transition, as Christopher Freeman (1992, 1996) and Carlota Perez (2016) argued, amount to the advent of a new 'techno-economic paradigm' that would open some green windows of opportunity for technological and industrial development (Lema et al. 2020). Rapidly, however, it appeared that the most promising cases of successful pursuit of green windows of opportunity were achieved by a handful of large and already industrialised economies, with China dominating the race. One possible implication is that, while Latin America and Africa could potentially benefit from novel and/or stronger demand for certain minerals, the space for green industrialisation for the rest of the developing world (with few exceptions) would remain largely closed (Rodrik, 2017). In particular, green segments would increasingly be victims of the same overcapacity problem that has been characteristic of the past 50 years (Boullenois & Austin Jordan, 2024; Brenner, 2006).

Furthermore, the few other cases of (more or less) 'successful' green industrial policy have also been pursued in 'large countries' (e.g., Brazil, India, USA) that were able to leverage internal demand and implement inward-looking green industrial policies (for instance, by relying on demand-side policies to generate economies of scale and imposing local content requirements). And even in these cases, the extent of green industrial development is arguably limited in both its scope (i.e., the number of green supply chains) and depth (i.e., the position of the country on the value chain).

But not all countries can achieve green industrialisation through demand-led growth. There are, however, important barriers to the pursuit of transformative green

industrial strategies on a national basis for developing countries that have a limited domestic market size. This is especially true when several countries in the same region are pursuing similar efforts, because the repetition of similar efforts on a relatively small scale exposes the least efficient producers to significant losses. Countries with smaller domestic market sizes face different constraints, and therefore replicating the same green industrial policy tools that work somewhere else might not be advisable. A serious question needs to be asked: what room is left for the rest of the developing world to take advantage of the green windows of opportunity? The question of multilateral coordination is often overlooked in the green transitions and industrial policy literature, which has focused on national conditions/dynamics/processes.

One solution to this problem is to expand the scope of 'green industrialisation', by remembering that (i) decarbonisation is not just about producing solar panels, EVs or batteries, but could also mean thinking, for example, about strategies of green industrialisation based on 'power shoring' and the importation of renewable energy technologies; and that (ii) the sustainability challenge is much bigger than decarbonisation and that the economic and industrial windows of opportunity its quest opens are vast and variegated, from the possibility of local innovations in product designs, to the use of environmental preservation as a source of innovation (Chang et al., forthcoming; Freeman, 1992; Lebdioui, 2022, 2024; Perez, 2016).

The other, complementary solution, that interests us here, is to start thinking beyond the national scale, to think about the importance of the regional coordination of industrial policies. Two models exist. The first one, historically pursued by "small" nations, has been through "market piggybacking" on a larger and/or more economically prosperous neighbouring country's demand. Vietnam, Poland, and Mexico have provided useful cases over the past few decades (Lebdioui, 2024). Nevertheless, the ability to tap into another country's market is conditioned by several factors (including signed trade agreements, domestic capabilities, geographic proximity, and transportation costs). Furthermore, this strategy is not without its risks. Heavy dependence on a single market can expose a country to economic vulnerabilities if there is a downturn or radical policy change in the larger country. Market diversification and strategic planning are essential to mitigate these risks. It is also crucial to ensure that this strategy aligns with the long-term domestic developmental goals, rather than locking countries in unsustainable development routes, or to a race to the bottom in terms of labour costs. Furthermore, not all nations have access to large neighbouring markets to bolster their green economic transformation, and countries surrounded by smaller economies therefore face a collective demand-side challenge.

This is precisely why addressing the question of green developmental regionalism is so pertinent, beyond market piggybacking. Since the 1980s, the dominant

approach to regional integration has been characterised by a linear emphasis on trade liberalisation. This period has thus seen the rise of free-trade areas, and the constitution of common markets through the establishment of joint norms, quality certifications, and the facilitation of dialogue between different stakeholders (such as industry associations). These mechanisms have generally yielded mixed results. When common markets or free trade zones cover regions with similar productive structures, they often fail to build interdependencies and improved collective productive capabilities (e.g., Latin America, Africa). One great lesson to draw looking at future efforts is that regional integration should not just be about trade, but about increased social and economic development (Stiglitz, 2016).

To unlock the full benefits that regional cooperation can bring for green economic transformation, it is essential to go beyond linear approaches to trade integration and emphasise multi-sectoral programmes embracing production, infrastructure, and trade, notably to build regional value chains that can foster industrial transformation (Davies, 1996; Ismail, 2018). For regional cooperation to become more than the sum of its parts, neighbouring countries must leverage their complementary assets (i.e., abundance of critical minerals, manufacturing capacity, renewable energy potential, proximity to important trade routes) to develop an efficient regional industrial ecosystem around climate-related technologies (Davies, 1996; Ismail, 2018; Lebdioui, 2022). In practice, achieving such regional coordination of green industrial policy is fraught with challenges. Political and ideological differences, external influences, and gaps in physical infrastructure connectivity, as well as disparities in economic development levels among neighbouring countries, can generate resistance to regional integration.

The experience of the Association of Southeast Asian Nations (ASEAN) offers a compelling case for examining the regional coordination of industrial policies because it brings together economies at vastly different stages of development, from advanced manufacturing hubs like Singapore to less industrialised members such as Cambodia, Laos, and Myanmar. Its consensus-driven, non-binding "ASEAN Way" provides a flexible, low-institutionality model of cooperation that avoids supranational authority, making it relevant for regions where political sensitivities limit deeper integration. Over decades, ASEAN has developed sector-specific cooperation in areas such as automotive, electronics, and the digital economy, illustrating how issue-based coordination can be pursued without full policy harmonisation. The bloc's experience in balancing national autonomy with regional objectives offers valuable insights into the trade-offs and institutional mechanisms that enable coordination despite divergent interests. Moreover, given its central role in global manufacturing value chains and its shared need to navigate sustainability transitions, ASEAN's evolving approach to industrial policy coordination holds

particular relevance for understanding how regions can align green industrial strategies while accommodating diverse national contexts.

This paper begins by offering a conceptual framework to think about the multilateral dimension of green industrial policies and then discusses some of the institutional aspects of such cooperation. It then reflects on the experience of the Association of Southeast Asian Nations (ASEAN) in terms of the coordination of industrial policy with a particular empirical assessment focusing on the case of Electric Vehicles (EVs) and the ASEAN power grid. We draw five key insights from our analysis. First, regional cooperation need not undermine national autonomy; on the contrary, it depends on strong domestic institutions and a clear development vision. Second, focusing on specific policy areas of mutual interest can build trust and establish institutional linkages that can later be scaled up. Third, effective cooperation requires mechanisms to gather and align national ambitions, identify risks of competition, and highlight potential gains, thereby depoliticising the agenda. Fourth, flexible, issue-targeted institutional arrangements can manage competing interests, though they risk perpetuating the limits of national policies if not paired with deeper integration. ASEAN's reliance on non-binding soft law has been a deliberate choice to allow for flexible cooperation amongst a diverse group of countries at different stages of development. Under that system, tensions are resolved through building consensus and voluntary implementation, which stands in contrast with the European Union (EU)'s way of resolving conflicts via delegating enforcement power to a supranational institution. However, such a flexible approach has also posed trade-offs, and boosting implementation capacity and more robust monitoring and evaluation remains a challenge. Finally, the language of cooperation matters: "coordination," situated between ad hoc collaboration and full integration, offers a pragmatic framework for aligning green industrial policies while respecting diverse national contexts.

In analysing the ASEAN experience, this paper addresses a gap in current debates on cross-border industrial policy—namely, the conditions under which cooperation can be realised, rather than its assumed benefits. The insights that we draw from this study also form the basis of policy lessons for other regions aiming to improve the regional coordination of their industrial policies.

2. Towards a Framework of Multilateral Industrial Policy Coordination[1]: Different Dimensions and the Criticality of Institutional Flexibility

Industrial policy is fundamentally a question of coordination: the coordination of policies, the coordination of institutions, the coordination of complementary or competing investments, and the coordination amongst different actors with competing interests.[2] Such coordination is also at the core of the political economy of green industrial policy, which requires us to understand the interaction between different classes of actors, the social tensions involved in the achievement and maintenance of such a process of change (Chang, 2002). This has primarily meant studying the nature of the relations of the national state with domestic and international firms, workers, and civil society, and its role in administering the tensions between them. When discussing multilateral forms of industrial policy, however, the approach necessarily takes a more complex form. Indeed, in addition to domestic political questions, the possibility of regional forms of industrial policy involves discussing coordination not only between national institutions but also between states through the management of not just domestic but also transnational tensions and conflicts. This problem will be discussed in more detail below, but first we should explore how the traditional concepts and categories of the industrial policy literature can be used to think about the multilateral scale.

When it comes to multilateral coordination for horizontal policies, there are plenty of examples worldwide, from the building of transnational electricity grids in Latin America, to the harmonisation of fiscal rules or the creation of common macroeconomic mechanisms (e.g., common currency areas) in the European Union. However, though they are widely considered to be necessary, horizontal policies are often insufficient to promote industrial development (Cherif & Hasanov, 2019; Mazzucato, 2016). A distinctive feature of successful economic experiences has been the capacity to pick and support winners in chosen sectors. When thinking at a regional scale, horizontal policies acquire a more strategic dimension: without a common regulatory framework or integrated infrastructure, the achievement of multilateral coordination is unthinkable. But when it comes to vertical policies, which promote specific sectors, there are far fewer examples at the multilateral level, and

[1] This part has been adapted from Albertone and Lebdioui (forthcoming).

[2] Industrial policy revolves around the governance of structural interdependencies and its success is premised on the capacity for coordinated (aligned) policies, and the provision of a long-term vision

most of them derive from minilateral action or coordinating councils, rather than through supranational bodies (see Tables 1 and 2).[3]

Multilateral vertical policies can potentially take a variety of forms—from establishing regional development banks that can provide subsidised credit, to the promotion of regional champions, or the pursuit of joint research programmes (see Table 1). The motivation for picking winners at the spatial and regional levels is perhaps best explained by François Perroux, who wrote, 70 years ago, that "growth does not appear everywhere at once; it manifests itself at points or poles of *growth*, with varying intensities; it spreads through various channels and with varying final effects for the economy as a whole" (1955:309). This implies that multilateral industrial policy should be best oriented towards the promotion of what Matus (1966) called 'poles of integration', that is, poles of 'growth' that maximise the potential for integration among nations through the creation of mutual interests, shared benefits, or common infrastructure. More concretely, it must establish the institutional framework that will allow for an efficient selection of the location of development poles, or the maximisation of their integration potential, as well as to govern the distribution of their benefits across national territories.

It should be noted, however, that the emphasis placed on regional cooperation should certainly not be equated with a search for autarky or self-sufficiency. The pursuit of regional productive development should, as in the context of national development, still be guided by concerns for efficiency and global competitiveness. In other words, a regional developmentalism does not aim for the negation of the benefits of globalised and vertical forms of productive integration. Nor should it serve to prolong the life of uncompetitive productive actors, as in many Import Substitution Industrialisation (ISI) experiences. Regional developmentalism, indeed, should enable the prevalence and effectiveness of *corporate disciplinary powers,* both through market competition and institutional mechanisms (Amsden, 1992, 2001).

Table 1: Classification of Multilateral Industrial Policy Measures

[3] Vertical policies can take a variety of forms, from tariff barriers, subsidies, preferential credit policies, consumer tax credit, R&D support etc. By creating the conditions for the development of specific industries, the prime objective of vertical policies is to develop a mix of industries that can allow for a broad base transformation of the productive structure.

	Supply	Demand
Horizontal	Infrastructural Integration Regulatory Harmonisation Monetary Integration	Common Market Monetary Integration
Vertical	Regional Investment Promotion and Cooperation Agencies Joint Research Programmes Joint Investment Programmes Regional Development Banks Resource Cartels Coordinated Subsidies Regional Clusters Joint Ventures Coordinated Skills Programmes	Coordinated Green Public Procurement Harmonised Consumer Tax Benefits Coordinated Climate Plans Regional (green) External Tariffs

Table 2: Levels of Green Multilateral Coordination

	Examples	Benefits	Limitations
1st Level: Supranational Coordination	The EU 'Green Deal' 'African Union Green Recovery Action Plan'	Greater and more diverse potential benefits from coordination	High coordination costs, institutional rigidity, High risk for asymmetrical outcomes, Difficulty to maintain trust, Risk of *de facto* inefficacy
2nd Level: Multilateral Coordination	ASEAN Leaders' Declaration on Developing Regional Electric Vehicle Ecosystem	Easier to identify productive complementarities, Open to a plurality of institutional configurations	Risk of *de facto* inefficacy, Uncertain potential benefits from cooperation
3rd Level: Minilateral Coordination	Airbus (a joint initiative between the governments of	More realistic in context of low interdependence or low trust between the participants, Open to a plurality of configurations	Limited potential benefits from cooperation amongst fewer actors

	the UK, France, Germany and Spain) Singapore-Australia Green Economy Agreement UK and Norway Green Industrial Partnership	amongst a coalition of the willing

Historically, supranational coordination of industrial policies has been less effective for promoting structural transformation than other models, including in Europe, where the success with Airbus came from a minilateral coordination between four European governments (see Albertone and Lebdioui, forthcoming). In some ways, this has to do with two obstacles: the reduced ownership of an industrial policy agenda by national governments, and the rigidity of supranational institutions in adapting to changing economic and political contexts. In that sense, simplicity, as the adage goes, is the ultimate sophistication. The variety of political realities, ideological diversity, economic disparities, and institutional fragmentation that often characterise regional blocs (despite – or perhaps due to – the multitude of overlapping regional agreements, trade blocs and declarations) make the creation of a supranational coordinating body both impractical and unlikely in the foreseeable future. Instead, a more pragmatic approach might take the form of coordination over integration and prioritise flexibility and simplicity in institutional design.

Flexibility is a cornerstone of effective regional coordination, especially in a region as diverse and dynamic as Latin America, Africa, or South Asia. Those mechanisms must be able to bend in challenging times, when political consensus will be difficult to generate, without breaking. In other words, regional institutional mechanisms must be designed to accommodate varying political, economic, and environmental realities. We can distinguish three types of flexibility that are particularly important for regional coordination:

Flexibility in the inclusion of diverse nations *(Spatial Flexibility)*	Flexibility over time *(Longitudinal Flexibility)*	Flexibility in the agenda (*Directional Flexibility*)
Some regions are characterised by significant diversity in economic development, resource endowments, political systems, and environmental challenges. For instance, while some countries may have abundant renewable	Longitudinal flexibility ensures that regional coordination mechanisms can accommodate these changes over time without disrupting ongoing collaboration. For example, a change in government	The dynamic nature of green industrial policy demands mechanisms that can adapt to rapidly evolving technologies, market conditions, and global climate commitments. Directional flexibility ensures

energy resources, others may lack the infrastructure or capital to exploit them. Spatial flexibility allows countries to adapt regional policies to their specific contexts, ensuring that all participants can engage to the extent they are comfortable without jeopardising collective goals. This is particularly important in a region where political ideologies often swing between left and right, creating shifting alliances and priorities.	should not derail a country's participation in a regional green industrial policy initiative. Instead, the mechanism should allow for adjustments in commitments and strategies as national circumstances evolve.	that regional coordination frameworks can pivot as new opportunities and challenges emerge. For instance, a regional coordinating council might initially focus on renewable energy standards but later expand its agenda to include carbon pricing or circular economy initiatives. This kind of flexibility not only helps countries adopt the right regional strategies but also shapes markets in ways that align with their interests.

Source: Albertone and Lebdioui (forthcoming)

One interesting example of institutional flexibility in the coordination of industrial policies is offered by ASEAN Coordinating Council and Community Councils. In contrast to supranational bodies, coordinating councils allow countries to retain control over decision-making, fostering collaboration through consensus-based approaches. They are better suited to regions with significant political and economic diversity, as they enable countries to identify regional coalitions and align their strategies without requiring deep institutional integration. However, they are not without challenges. They may lack enforcement power, leading to weak implementation, and decision-making can be slow due to the need for consensus. In contrast, supranational bodies offer stronger enforcement mechanisms and can streamline decision-making, but they are often perceived as undermining national sovereignty and are less adaptable to the unique needs of individual countries, which leads to complete withdrawal by participating members. ASEAN's flexible institutional arrangements have enabled regional bargaining and dialogue, allowing member states to identify shared strategies and targets while respecting national sovereignty.

3. ASEAN Economic Cooperation and Integration: A *Bamboo* Approach to Multilateral Coordination?

3.1 Historical overview

The approach taken by ASEAN differs from the standard model of regional integration since there is no customs union, while the AEC model is more akin to an FTA-Plus model of regional cooperation (OECD, 2005). Progressive expansion and the deepening of cooperation efforts are used to achieve economic integration (Intal Jr., 2017a). The existing ASEAN Way based on non-interference, quiet diplomacy, non-use of force, and decision-making through consensus (Mahaseth and Narain 2022), means that arriving at a consensus is not a small feat since each ASEAN member state (AMS) is constantly striving to balance its national sovereignty with collective action.

ASEAN was founded by five original member countries, namely Indonesia, Malaysia, the Philippines, Singapore and Thailand in August 1967. Initially the focus was on political cooperation and security due to the Vietnam War (Ishikawa 2021). Later in 1976, economic cooperation was included in the 1976 Declaration of ASEAN Concord, which was adopted that year. Specific projects were proposed for economic cooperation. These are ASEAN Industrial Projects (AIP), the ASEAN Industrial Complementation (AIC), ASEAN Industrial Joint Ventures (AJIV), ASEAN Brand-to-Brand Complementation (BBC) and the ASEAN Preferential Trade Agreement (PTA). All projects encountered different challenges and were subsequently replaced by the ASEAN Free Trade Area (AFTA) in 1993, which focused on tariff liberalisation.

After tariff liberalisation was achieved, ASEAN did not adopt a common external tariff wall or a customs union since Singapore has zero tariffs and the other member economies were reluctant to adopt while Singapore could not agree with imposing a positive tariff rate, even if this is agreed (Das et al., 2015). Instead, ASEAN embarked on the formation of the ASEAN Economic Community (AEC) in 2003, which broadened the scope beyond mere tariff liberalisation. AEC 2015 had four main pillars of cooperation, which aim to create: (i) single market and production base, (ii) competitive economic region, (iii) equitable economic development, and (iv) integration into the global economy, which included global integration by participating in global supply chains and actively promotes FTAs with countries outside the ASEAN region.

AEC 2015 set lofty targets, but implementation is left to the respective member countries. By 2015, there were numerous unmet targets because countries found it difficult to comply with the broad policies in AEC 2015 or used the flexibilities as an excuse not to comply in a timely manner (Das, 2017). The unmet targets were

then rolled over to the next strategic plan which is the current AEC Blueprint 2025. AEC 2025 also further expanded the scope of economic cooperation. In particular, it included a new pillar of cooperation, which is enhanced connectivity and sectoral cooperation (Das, 2016). Equitable economic development under AEC 2015 was reconfigured to become a resilient, inclusive, people-oriented and people-centred ASEAN. Hence, community building in ASEAN is essentially an evolving work in progress (WIP).

Currently, ASEAN is preparing the next blueprint which will be ASEAN 2045, which will also include a new AEC 2045. The Lee Kuan Yew School of Policy, which has been tasked by the ASEAN Secretariat, to conduct a study on the post-2025 AEC, has raised five key issues for consideration in the new blueprint: an ASEAN Digital Community 2045, carbon neutrality, narrowing the development gap, and inclusivity, and trade facilitation as well as a shift towards a rules-based order, as the new ASEAN way (Hew and Tijaja, 2024). It is not known whether these five issues will be adopted as part of the AEC 2045 as the document will be released in 2026.

3.2 Institutional Features

The ASEAN Summit (AS) is the highest policymaking body in ASEAN, where each member state is represented by its head of state. It takes the form of biannual meetings, with dialogue partners invited to these meetings. The Chair of the Summit or the ASEAN Chair rotates annually in alphabetical order of the member states. Malaysia is the current Chair of the Summit, marking its fifth time holding this role. The Chair performs three duties: (a) being the spokesperson for the ten-member regional organisation, (b) being 'chief executive' in chairing and facilitating official meetings and task forces, (c) tabling new initiatives and programmes to advance regional cooperation (Tang, 2016). The Chair proposes the priorities of ASEAN for its year of Chairmanship, but other member states must agree with these priorities based on the principles of consultation and consensus. Each Chair must rally support from fellow member states, which requires it to be impartial, facilitate consensus within ASEAN as well as act as an effective interlocutor with external parties. Driving a consensus requires considerable diplomatic acumen, as it must find a common position when there are divergent opinions among member states (Tham, 2017).

The Chair is assisted by the ASEAN Secretariat (ASEC), which was established on 24 February 1976 by the Foreign Ministers of ASEAN. The Agreement on the establishment of the ASEAN Secretariat stated that the basic mandate of the ASEAN Secretariat is "to provide for greater efficiency in the coordination of ASEAN organs and for more effective implementation of ASEAN projects and activities" (ASEAN, n.d.). There have been several amendments to the 1976 basic Agreement to allow for organisational changes. For example, in 1985, the tenure of office of the Secretary-

General was changed from 2 years to 3 years and subsequently to 5 years. The Director General of the ASEC is appointed by the ASEAN Summit for a non-renewable term of office of five years, selected from among nationals of the ASEAN Member States based on alphabetical rotation.

The Secretary-General and ASEC are ASEAN's central administrative body, with its own financial resources and professional staff (Pattharapong, 2014). ASEC's core functions are coordination and facilitation. The latter includes quiet diplomacy to nudge member countries towards a common position. Additionally, ASEC also provides support for effective implementation of ASEAN measures and initiatives. Despite all these responsibilities, ASEC has limited power as it is not a decision-making body while ASEAN is still very much a top-down organisation. Furthermore, ASEC faces resource constraints, most importantly, finance and talent. The former includes a dependency on dialogue partners to fund cooperation projects (Pattharapong, 2014), while attracting top talents to work in ASEAN would also require improving its staff salary (Laksamana, 2017). The rotational Chairmanship and ASEC is supported by a complex and extensive hierarchy of ministerial and senior-official bodies that make it difficult to "track progress or hold AMS accountable" (Elms, 2020, pp. 23).

The ASEAN Coordinating Council (ACC) is made up of the Foreign Ministers of each ASEAN member state (AMS). It meets at least twice a year to oversee the development and implementation of assigned documents. These are documents from the Councils of the three pillars of cooperation in ASEAN, namely the ASEAN Political-Security Community (APSC) Council, ASEAN Economic Community (AEC) Council, and ASEAN Socio-Cultural Community (ASCC) Council (ASEAN Secretariat, n.d (b)). The three councils for each of the three different pillars form a second layer of coordination. The ASEAN Coordinating Council (ACC) seeks to coordinate cross-sectoral issues and concurrence across the three pillars of cooperation.

For the AEC Council, its stated objectives are to: (i) ensure the implementation of AEC-relevant decisions of the ASEAN Summit, (ii) coordinate the work of the ASEC Sectoral Bodies, which essentially oversee the progress of the different sectoral commitments, and (iii) submit reports and recommendations to the ASEAN Summit, on AEC matters (ASEAN n.d.(c)). Numerous bodies and working groups report to the AEC Council, which forms the third layer of coordination.

The ACC thus stands at the top of a complex, multi-layered structure for each of the three pillars of cooperation, and reports to the ASEAN Summit. Whether this system of coordination is effective or not is difficult to track, as observed by Elms (2020).

3.3 Industrial cooperation, role of the private sector and governments

Several industrial cooperation schemes were proposed in the 1980s as shown in Table 3. These are mainly capital-intensive projects, with ASEAN providing the regional market for it to be economically viable (Intal Jr., 2017b). Since AMS were mainly primary product exporters in the 1980s, import-substitution was used as the overall industrial development strategy. The AIP projects encountered challenges with the projects allocated to the Philippines and Singapore officially withdrawn, while the fertiliser project in Indonesia and Malaysia continued because they were also part of national initiatives. Thailand switched from soda ash to potash mining, while the potash mining stalled, with media reports of Thailand seeking Saudi investors to revive the projects in 2024 (The Nation, 2024). Intal Jr. (2017b) identified a few reasons for the failures of the AIP projects, namely: high production costs; the need for region-wide tariff protection and monopoly power to survive; the absence of private sector inputs.

Table 3. Industrial Cooperation Projects, 1981-1988

Name of Scheme	Features	Projects
ASEAN Industrial Projects (AIP), 1980	Intergovernmental Joint Ventures, host country holding at least 60% equity	Fertiliser (Indonesia, Malaysia) Copper fabrication (Philippines). Soda ash/potash mining (Thailand). Diesel engine (Singapore).
ASEAN Industrial Complementation (AIC), 1981	Private sector led (ASEAN Chambers of Commerce and Industry (ACCI)), complementary products with each located in a separate participating country in ASEAN, with at least four participating countries	Two packages approved in automotive sector
ASEAN Industrial Joint-Ventures (AJIV), 1983	Proposed by ACCI, Participation from nationals of only two countries	25 Products (1984 -1991)
ASEAN Brand-to-Brand Complementation (BBC), 1988	Auto sector only Pairing of products produced in different participating AMS, as part of a brand	Mitsubishi and Toyota

Source: Intal Jr. 2017b, De Lombaerde 1994

Governments were deemed better equipped to handle large projects involving heavy capital outlays, while the private sector, on account of its extensive commercial linkages, was in a better position to initiate and promote relatively smaller projects (Wong, 1985). ASEAN thus switched to a private-sector-led approach focusing on industrial complementation, leading to the AIC and AIJV initiatives. ASEAN was aiming at horizontal specialisation whereby different AMS can produce or manufacture different components or parts of the same product, say an automobile. Despite this, the AIC ran into problems with choosing suitable projects, while the requirement of at least four participating countries was deemed difficult to comply (Intal Jr., 2017b). In the case of the AJIVs, there were bureaucratic delays while AMSs were unwilling to participate as there were concerns that the tariff cuts accorded to AJIVs firms would negatively impact domestic firms which are manufacturing similar products. De Lombaerde (1994) further noted a poor response from the private sector, while not all AJIV projects were successful. Nestlé S.A. was cited as an exceptional example of a successful case.

Wong (1985) and Intal Jr (2017b) noted the tensions between maintaining national interests and economic cooperation by market sharing as contributory factors for the limited progress in AIC and AJIV projects. Wong (1985) further noted that most AMS adhered to the 30% national equity requirement for fostering local firms while AICO applications that worsened trade balances in their countries were not forwarded for consideration.

The last industrial cooperation initiative, that is the Brand-to-Brand Complementation (BBC) scheme for the auto sector, was deemed the most successful. The scheme originated from a proposal by a Japanese automaker Mitsubishi Motors (Ishikawa, 2021). Local content requirements rendered an investment burden as a local plant had to be established in the main auto markets then (namely the Philippines, Malaysia and Thailand) as the domestic market of each country was deemed to be too small. Thus, Mitsubishi proposed a BBC scheme that was granted tariff reduction and local content accreditation so that different parts were manufactured in different countries, but it was sold to the whole region. Subsequently, other car companies such as Toyota, Nissan, Volvo, Mercedes-Benz and DAF also joined the scheme. Nevertheless, the BBC scheme was criticised for benefiting the primarily Japanese MNCs in the auto sector while local companies did not gain from the scheme.

Meanwhile, private sector input or feedback is provided by the Association of Southeast Asian Nations (ASEAN) Business Advisory Council (ASEAN-BAC) as the region-wide business representative. It is composed of the BAC of each member state. Herein lies the difficulty as each member state's council representative must

adhere to the national priorities which render the council to be internally incoherent (Faisal Karim and Heryanto, 2022). This structure also implies that lobbying at the ASEAN level is less likely than at the national level.

Chandra et. al., (2017) further noted the resource constraints of council as council members are CEOs who have their own companies to run while financial resources of the council are limited. In terms of membership, although the council is mandated to include the SMEs since these are large in numbers in the AMS, in reality the SMEs are difficult to engage since each of these firms have limited resources to run their business and put more weight on the immediate needs of their own enterprises rather than engaging with ASEAN issues, especially if they are not exporters. In general, Chandra et al. (2017) found that technical expertise for effective engagement in the technical details of cooperation is also not available for these non-state actors. Importantly, communication with the authorities is viewed as a one-way communication tool for ASEAN to socialise its policies rather than to gather input.

3.4 ASEAN Free Trade Agreement (AFTA)

Over time, China's rise, particularly as a competitor in attracting foreign direct investment (FDI), along with broader liberalisation trends such as the formation of free trade agreements like NAFTA, placed increasing pressure on ASEAN to liberalise its own trade regime (Hill and Menon, 2010). In response, ASEAN decided to establish the ASEAN Free Trade Area (AFTA), which officially began on 1 January 1993.

For the first time, ASEAN pursued the creation of a free trade area using a negative list approach, meaning that all goods were subject to scheduled tariff reductions unless explicitly excluded (Hill and Menon, 2010). The main instrument for tariff reduction was the Common Effective Preferential Tariff (CEPT) scheme, which aimed to lower intra-ASEAN tariffs to between 0% and 5% for most goods. In addition to tariff cuts, the CEPT framework called for the elimination of quantitative restrictions and other non-tariff barriers (NTBs). To qualify for preferential tariffs under CEPT, goods were required to have a minimum of 40% regional content. Liberalisation was phased in gradually, with newer ASEAN Member States (Cambodia, Laos, Myanmar, and Vietnam (CLMV), granted extended timelines to reduce their tariffs. By mid-2016, over two decades after AFTA's inception, 99.2% of intra-ASEAN tariffs had been eliminated among the original ASEAN-6 countries (Brunei Darussalam, Indonesia, Malaysia, the Philippines, Singapore, and Thailand). Among the CLMV countries, 90.9% of intra-ASEAN tariffs had also been removed (Intal Jr., 2017a). The average CEPT rate for the ASEAN-6 fell from 11.44% in 1993 to just 0.03% in 2015, while the rate for CLMV countries dropped from 6.31% in 1999 to 0.55% in 2015.

However, despite these significant reductions in tariffs, ASEAN was less successful in addressing non-tariff barriers, which continued to grow even as tariffs declined. With the establishment of AFTA, ASEAN's pursuit of an economic community is based on expanding and deepening economic cooperation rather than the pursuit of industrial cooperation à la 1980s. Industrial development and policies are determined by national interests at each country's level, while ASEAN cooperation focuses on broader goals such as enhancing human capital and harmonising standards and regulations, besides facilitating trade as these can benefit all AMS without impinging on their domestic priorities. ASEAN cooperation is essentially voluntary and driven by consensus. This is illustrated in the case studies of EVs and the ASEAN Power Grid below.

3.5 The case of EVs[4] in ASEAN

The four AMS with large automobile assembly and manufacturing are Indonesia, Malaysia, Thailand and Vietnam. Each is pursuing a shift from internal combustion engines (ICE), towards electric vehicles (EVs) using industrial policies to facilitate the reduction in carbon emissions, attract new investment into a growing sector and a new source of growth. Each AMS is using fiscal incentives to attract new FDI, as well as country-specific policies dedicated to this purpose. Indonesia is using its resource advantage in nickel reserves, by banning the export of nickel and to attract investments for mining, processing minerals and using them to assemble and manufacture EV batteries (Negara, 2024). It aspires to use the critical mineral value chain for the development of electric motorcycles and cars in the country. Malaysia, likewise, is also using an FDI approach with incentives to localise production that are tied to the reduction in excise duties as well as import duty exemptions (Tham, 2021, 2024b). Thailand is using subsidies to draw EV multinationals to manufacture in Thailand to maintain its position as "Detroit of the East" (Kohpaiboon, 2024). Vietnam is supporting its local champion, Vinfast, to lead the vanguard in developing the local EV supply chain (Pham, 2024). Each country is aspiring to build the entire EV supply chain, including battery assembly and manufacturing, with the objective of localisation to reduce the price of EVs and increase affordability as well as to build up local capacity. Chinese OEMs have moved swiftly into the auto markets of Indonesia, Malaysia and Thailand, as the Japanese and Korean incumbents have been slow to make the change, which would negatively affect their legacy investments in the ICE market.

ASEAN does not interfere in any of the country's national policies and instead lets national policies (especially non-tariff barriers) and market forces shape the outcome on the emerging EV supply chain in the region. ASEAN Cooperation Policies for EVs instead focus on exploring areas of cooperation for improving the EV

[4] This section is based on an updated version of Tham 2024a.

ecosystem, which refers to components that enable an EV environment, including EV model and supply, charging infrastructure, awareness and acceptance, and policies (Table 4). It initially focused on mineral cooperation with the creation of the ASEAN Minerals Database and Information System (AMDIS), the ASEAN Minerals Trust Fund and the ASEAN Minerals Award. The AMDIS was developed in cooperation with Japan's Geological Survey but is currently being revamped to provide the latest, most-up-to-date information in order to promote greater investments and develop high-quality geological data and resource mapping. The ASEAN Minerals Trust Fund was established with contributions from all AMS to support the strengthening of ASEAN institutions and capacities in the minerals-sector development while the ASEAN Minerals Award was also established in 2017 to recognise sustainable development practices and associated best practices of industry players.

In 2023, ASEAN Leaders issued a declaration to explore cooperation and collaboration on the development of the EV ecosystem in the region (ASEAN, 2023). The focus is on exploring and there is no actual plan yet. There is also a call to promote collaboration and partnerships with ASEAN's external partners. The ASEAN Economic Community (AEC) Council is tasked to oversee the execution of this declaration. Although the details are not known at the time of writing, ASEAN cooperation in the EV ecosystem, is expected to focus on common manufacturing standards, infrastructure guidelines, and incentives for businesses and consumers, which will seek to complement the national initiatives (Southeast Asia Infrastructure, 2025).

In the same year, the ASEAN Plus Three Leaders issued a statement on the development of an electric vehicle ecosystem in the region. Northeast Asian economies (namely China, Japan and Korea) are all interested in the development of EVs in ASEAN as they view the region as the next consumption and production hub for their manufacturers. The statement echoes the call to explore cooperation and collaboration on the development of the electric vehicle ecosystem, as in the ASEAN Leaders' Declaration, and tasked the relevant ASEAN Sectoral Bodies in coordination with their counterparts in the ASEAN Plus Three countries to follow up the implementation of this Statement. Thus, while the outcome is yet to be known, the interests will focus on enabling and facilitating measures for the region as for example in trade liberalisation and facilitation measures.

It is therefore national policies that are shaping the development of the EV supply chain in the region and ASEAN's plans as well as plans with the Plus Three partners all seek to identify areas of cooperation that can complement national policies. For example, battery standardisation and the development of common standards for EV charging infrastructure can facilitate investments in this sector in the region. ASEAN and ASEAN Plus Three cooperation efforts do not in any way displace

or impede any AMS from the freedom of pursuing its own industrial priorities and policies, nor require policy harmonisation of any sort.

Table 4. ASEAN Cooperation Plans for EVs

Year	Cooperation Area	Focus
2005	ASEAN Minerals Cooperation Action Plan (AMCAP) (Five Year Plans)	1. Facilitation and enhancement of trade and investment; 2. Promotion of environmentally and social sustainable mineral development; 3. Strengthening institutional and human capacities; and 4. Maintenance of an ASEAN Mineral Database. 5. 2019: Shift towards sustainability by promoting information sharing among its members on social frameworks, environmental standards and legislations and implementing a sustainability assessment framework and guidelines (AMCAP-III).
2016	ASEAN+3 Minerals Cooperation Work Plan	Capacity building and investment promotion
2023	ASEAN Leaders' Declaration on Developing Regional Electric Vehicle Ecosystem The EV ecosystem refers to components that enable an EV environment, including EV model and supply, charging infrastructure, awareness and acceptance, and policies	Explore cooperation and collaboration on the development of the electric vehicle ecosystem
2023	ASEAN Plus Three Leaders' Statement on developing an electric vehicle ecosystem The EV ecosystem refers to components that enable an EV environment, including EV model and supply, charging infrastructure, awareness and acceptance, and policies	EXPLORE cooperation and collaboration on the development of the electric vehicle ecosystem .

Source: Tham 2024 b, updated,
ASEAN: https://asean.org/wp-content/uploads/2023/05/07-ASEAN-Leaders-Declaration-on-Developing-Regional-EV-Ecosystem_adopted.pdf.
ASEAN Plus Three (APT): https://aseanplusthree.asean.org/wp-content/uploads/2023/09/ASEAN-Plus-Three-Leaders-Statement-on-Developing-of-Electric-Vehicle-Ecosystem-1.pdf

3.6 The experience of the ASEAN Power Grid

Energy cooperation is critical for security, affordability and sustainability reasons. In recognition of its importance, the ASEAN Power Grid (APG) initiative was first identified as an area of cooperation for ASEAN way back in 1999, in the first ASEAN Plan of Action for Energy Cooperation (APAEC) or APAEC 1999-2004. It aims to expand cross-border electricity interconnections to create an integrated regional electricity grid system. However, as in all other areas of cooperation, energy cooperation is also managed by consensus in ASEAN via the national Energy Ministers and participation is voluntary among the ASEAN Member States (AMS).

Thus, it took eight years for ASEAN to sign a memorandum of understanding (MOU) in 2007 and another two years for the MOU to enter into force in 2009 (ASEAN 2007). The MOU is to remain in force for 15 years and it is extendable based on mutual agreement. The objective of the MOU is to establish a broad framework for AMS to cooperate on developing a common policy for power interconnection and trade, and ultimately for the development of a regional power grid.

A pilot project was first initiated for four AMS, namely Laos, Thailand, Malaysia and Singapore in 2014. Subsequently, the first multilateral power trading arrangement took place in 2018, almost ten years after the MOU was enforced (Energy Commission Malaysia 2023). The Lao PDR-Thailand- Malaysia Power Integration Project (LTM-PIP), Phase 1, was the first multilateral cross-border electricity trading initiative, involving commercial transactions between three national utility companies, namely Électricité du Laos, Tenaga Nasional Berhad (TNB), Malaysia and Electricity Generating Authority of Thailand (EGAT). The first transfer took place in 2019, twenty years after energy cooperation was first identified for ASEAN. In this transaction, Malaysia bought power from Laos, via Thailand which served as an intermediary state. Singapore did not join the first initiative as the country operated a competitive wholesale electricity market and was reluctant to commit to buying fixed supplies, as required by such an initiative (Enerdata 2023).

ASEAN encountered various technical, institutional and political issues in the implementation of the project (Mirza et al., 2023). Technical issues included among others, harmonising technical standards, while institutional arrangements as well as settlement and payment mechanisms had to be established. Political will was needed to overcome the lack of regional trust while negotiating with more than two parties was also more challenging as the ASEAN Way required consensus among all relevant parties. Phase 2 of the project was delayed by a drought in Laos which affected the generation of hydropower there. Additionally, Malaysia and Thailand had to

rehabilitate the EGAT transmission line which was lagging due to ageing issues. It was launched later in 2020, during the COVID-19 pandemic.

Subsequently, Singapore entered the arrangement (LTMS-PIP), in 2021 with Singapore represented by Keppel Electric Pte. Ltd., and it was operationalised in 2022. Under this arrangement, Singapore imported hydropower from Laos for a two-years period via existing interconnections (through Thailand and Singapore), for two reasons: (i) to meet Singapore's climate change commitments; and (ii) to meet the environmental, social and governance (ESG) commitments of the multinationals and other companies in Singapore.

The successful launch of the LTMS-PIP in 2022 has spurred further regional cooperation projects. Phase 2 of the LTMS-PIP was launched in 2024, with a plan to double the electricity traded, increasing the capacity from 100 megawatts (MW) to 200 MW (Energy Market Authority 2024). Keppel will also import electricity from Malaysia, besides Laos.

A sub-regional project launched in 2023, aims to establish interconnections between four economies, namely Brunei Darussalam, Indonesia, Malaysia, and the Philippines (or BIMP-PIP), which are members of the Brunei Darussalam-Indonesia-Malaysia-the Philippines (BMIP), a sub-regional grouping formed in 1994. The BIMP-PIP includes the Trans Borneo Power Grid, which will facilitate the export of hydropower from Sarawak to West Kalimantan via a grid-to-grid transmission line (Mirza et. al., 2023).

Going forward, building the APG continues to meet technical and financial challenges. This includes the construction of a submarine power cable from Singapore to Sumatra, Kalimantan, Sabah, Sarawak, and Brunei to the Philippines (Enerdata, 2023). Financial barriers include investing in transmission grid upgrades to absorb renewable energy and directing it to meet demand in different parts of the region.

ASEAN is in the midst of preparing a new MOU for energy cooperation that would consider the new developments in this area. To move forward in energy cooperation, the new MOU would have to consider a shift towards a more rules-based structure to accelerate implementation, such as establishing a regional energy institution, binding commitments, as well as the development of a regional wheeling charge, which are fees paid for transmitting electricity from one grid to another, as well as a dispute settlement mechanism (Mirza, 2025).

4. The ASEAN Way of Resolving Conflicts and Collective Action Problems

The two case studies (EVs and the power grid) indicate that while ASEAN can continue to cooperate in industrial development and other forms of economic cooperation, its progress is very slow due to the need to build consensus and voluntary implementation.

Notably, ASEAN currently faces two important and related limits. Firstly, it has largely failed to help most of its members move beyond FDI-led industrialisation models. This matters in developmental terms because, as Lee & Kamiya (2025) remind us, '[n]o economy has achieved high-income status without generating some critical mass of locally-owned big businesses'. It also matters from a cooperative perspective. In a context of increasing trade tensions between dominant economic players, global attention to emerging markets' labour forces, resources, and jurisdictions is intensifying. This situation creates significant potential for both rewards and losses depending on the level and effectiveness of regional cooperation. On one hand, it opens opportunities for ASEAN members to make greater demands on foreign firms and governments seeking access to local resources. On the other hand, it heightens the risk of destructive competition—in social, environmental, and development terms—among members as they compete to attract FDI.

Secondly, and this is one of the causes of the first limit, the Association has, to some extent, failed to build productive complementarities between member states. Productive cooperation, however, does not necessarily require, as it is often believed, the existence of supranational powers and institutions. A brief reminder of the history of Airbus offers a compelling example of how regional productive cooperation can enable smaller economies to compete in capital-intensive, technologically sophisticated industries. Airbus is the product of a decision to create a European consortium of aerospace companies. The initiative required unprecedented coordination of industrial policies, substantial government backing, and the willingness to share advanced technologies and production capabilities across national borders. However, this did not take place within the limits of an existing institutional framework. It was primarily motivated by a common realisation of the risk of non-cooperation. Moreover, central to this success was the vision and work of French engineer Roger Béteille, who meticulously engineered a division of labour that allocated specific aircraft components and expertise to different countries based on their industrial strengths. While the aircraft industry has unique characteristics, the Airbus experience nonetheless demonstrates the possibility of multilateral forms of productive cooperation.

As noted by Tan (2024), ASEAN prefers to use soft laws, which are non-binding, thus are non-litigable. Tensions are resolved through building consensus and

voluntary implementation. This is completely different from the European Union (EU)'s way of resolving conflicts by delegating enforcement power to a supranational institution. Since ASEAN stakeholders are fully aware and have been exposed to the EU model, the choice of not having a supranational institution is deliberate. Flexibility provided by the ASEAN Way is deemed to allow the region to move forward in economic cooperation for a diverse group of countries at different stages of development, without being caught in an impasse. However, it also means that cooperation is slow to emerge, especially when implementation is weak.

Because it is exceedingly unlikely that ASEAN would embrace supranationalism or use hard laws to enforce cooperation, ASEAN must boost effective implementation, with close monitoring and effective stakeholder feedback. Feedback should focus on the outcomes of projects implemented rather than the number of projects. Overall, ASEAN also needs to be more transparent in the outcomes as initiatives are announced with a big bang while outcomes are reported occasionally. Moving forward, strong monitoring and evaluation capacity is therefore critical in guiding the direction of future cooperation in the region. While national economies and the ASEAN Secretariat are limited in terms of resources for assessing initiatives, collaborations with the academic community in terms of data sharing, especially on the projects implemented, can help to overcome resource limitations at the national and Secretariat level.

5. Concluding Remarks

The pursuit of sustainable forms of industrialisation, we have argued in this article, remains essential for both the prosperity and sustainability of the developing world. Achieving such an endeavour is, however, seriously threatened by the consolidation of a new mercantilist moment, denoted by a lack of international and regional cooperation and coordination. As a result, the principal objective of this paper has been to reflect on the institutional conditions for the pursuit of multilateral forms of green industrial policy. Thinking green industrial policy and development beyond the national scale has been raised many times across the history of development in the face of the difficulty countries have experienced in realising their development dreams.

Yet, most of the discussions have revolved around the justification of the benefits that nation-states could gain by joining up efforts rather than the conditions for such realisation. This shortcoming is precisely what the present article has aimed to address by analysing the ASEAN experience, from which several policy-relevant theoretical insights can be drawn:

Firstly, the ASEAN experience demonstrates that cooperation of industrial policies across borders does not negate or contradict national autonomy. Indeed, successful multilateral cooperation relies on solid domestic institutional capacity and clear development vision. In other words, thinking about industrial policy at the multilateral level should not be limited to a discussion about the limits of governance and the obstacles to implementing industrial policy.

Secondly, it also shows that issue-based forms of cooperation possess the potential for important institutional linkages. In other words, the selection of certain areas of common interest for policy coordination can serve as a basis to create trust and strengthen cooperative links between partners. This is particularly important since, in the context of increasing trade tensions, the existence of well-functioning cooperative cases can easily be used to scale up the scope of cooperation against adversarial conditions.

Thirdly, a key dimension in the building of efficient and effective cooperative institutions relies on the capacity to *collect* information from national participants' aims and ambitions and *identify* potential areas of cooperation, thereby (i) highlighting potential risks from competition, and (ii) clarifying potential gains from cooperation. By playing the role of a facilitator, this institutional form of cooperation contributes to limiting the politicisation of the cooperation agenda.

Fourthly, the ASEAN experience evidences the key role of flexible institutions capable of creating targeted areas of cooperation (rather than rigidly fixing the parameters of regional cooperation to full regional economic integration) that help manage competitive interests and increase trust between the participants. However, it is also necessary to highlight an important limit to such low-institutionality, high-flexibility forms of cooperation. Indeed, it presents a tendency to reproduce rather than address certain limits of national industrial policies and is arguably limited in its capacity to fully take advantage of the potential benefits of cooperation. In particular, it still must demonstrate a capacity for ASEAN countries to use cooperation to move beyond FDI-driven forms of industrialisation and increase integration by building regional productive players.

Lastly, it must be stressed that the semantics of regional coordination matter. While integration seeks to merge policies and institutions, and cooperation involves ad hoc collaboration on specific issues, coordination occupies a middle ground, which allows countries to align national green industrial policies while respecting each country's autonomy and vision. This approach is particularly well-suited to green industrial policy, where the need for regional coherence must be balanced against the diversity of national contexts and priorities.

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