

# International regimes as a pathway for implementing SDG interactions across climate change and biodiversity conservation

Alizan Mahadi

Institute of Strategic and International Studies (ISIS) Malaysia and Graduate School of Media and Governance, Keio University

DOI: <https://doi.org/10.5281/zenodo.6948433>

Published Date: 01-August-2022

---

**Abstract:** Policy integration across the domains of social, economic and environment has attracted interest as a policy response to sustainable development. However, progress on the integration agenda has been limited. The adoption of the Sustainable Development Goals (SDGs) and the 2030 Agenda for Sustainable Development aimed to break this stalemate by addressing the goals in an “integrated and indivisible manner”. This article undertook an empirical assessment to understand if, how and to what extent the SDGs influence domestic policy integration. It studies the interactions across biodiversity and climate, where previous studies highlighted that despite synergies across the issue area, institutional interlinkages and policy responses are fragmented. A causal mechanisms framework that identified six possible pathways to influence domestic policy integration was utilised. In investigating the establishment of the carbon market in Malaysia as a form of policy integration, the study found that international regimes, namely the United Nations Framework Convention on Climate Change (UNFCCC), and influence of market forces were the key pathways of influence. These were largely explained by interest-based motivations. In this sense, the SDGs are likely to be used tactically to achieve interests of certain parties for issue linkages.

**Keywords:** SDGs; policy integration; sustainable development; biodiversity; climate change.

---

## 1. INTRODUCTION

Policy integration across the domains of social, economic and environment has attracted interest as a policy response to sustainable development (Jordan & Lenschow, 2010). Nonetheless, despite the need for integration of the pillars of sustainable development being enshrined since the first Rio Earth summit in 1992, the progress and extent of policy integration continued to be limited (Runhaar et al., 2020). The adoption of the Sustainable Development Goals (SDGs) and the 2030 Agenda for Sustainable Development aimed to break this stalemate by addressing the goals in an “integrated and indivisible manner” (United Nations, 2015). The SDGs, in this sense are unique in being explicit to address the interactions across issue areas (Kanie & Biermann, 2017). This article set out to assess if, how and to what extent does the SDGs influence domestic policy integration.

Despite the explicit agenda and principle as espoused in its integrated agenda, the SDGs, as an international goal setting agenda faces various challenges. The most pertinent of them is that the SDGs are voluntary and devoid of compliance mechanisms (Young, 2017)(Kanie & Biermann, 2017). Also, addressing interactions across issue areas are very complex, and are contextual. They are often dependent on the issue itself, geographic, and prevailing settings (Nilsson, Griggs, Visbeck, & Ringler, 2016; Tosun & Leininger, 2017). Finally, translating them to the domestic level will face challenges of breaking silos where governments often apply a logic of specialisation and task disaggregation for service delivery (A. Hezri, 2011).

The interactions across the issue areas of biodiversity and climate change have gained scholarly interest in the past (Kemppinen et al., 2020; Kim, 2004; Mooney et al., 2009; Wan Razali & Awang Noor, 2012). Despite being within the

same policy domain (environment) and its interactions being largely synergistic, the policy responses both at the international levels and domestic levels have been fragmented (Hoek, 2022; Kim, 2004). This article assessed the influence of the SDGs in addressing the influence across these two issue areas.

Towards this end, an empirical analysis was conducted on a single policy outcome to understand the influence of SDGs. Specifically, the Malaysian government announced the establishment of a carbon market under the overall strategy to achieve the SDGs. Its aims are to achieve its emission goals and is strongly linked to biodiversity conservation. A process tracing study was conducted to understand the mechanisms of how SDGs was used to influence this outcome (how), the conditions under which they were triggered, and to what extent it was influential. While comparisons are not possible, due to the relatively new adoption of the SDGs and few empirical studies on policy integration available (Bornemann & Weiland, 2021; Jordan & Lenschow, 2010; Tosun & Leininger, 2017), this article contributed to this gap and body of knowledge.

A causal mechanisms framework was adopted to elucidate how, and to what extent the SDGs influenced domestic policy integration. Based on the social mechanisms approach (Hedstrom & Swedberg, 1998), six mechanisms were identified as pathways that are theorised to explain how the SDGs influenced the policy outcomes (Alizan, unpublished). Conditions under which each pathway are likely to be triggered was also theorised (see Table 1). The framework built upon previous studies in international regimes and global environmental governance, particularly focusing on institutional interactions (Bernstein & Cashore, 2012; Gehring & Oberthür, 2009; Oberthür & Gehring, 2006). Finally, the results will discuss the extent of influence of the SDGs by discussing its possible effects. It is hypothesised that other international regimes, beyond the SDGs are likely to trigger domestic policy integration. In particular, the role of UNFCCC, is likely to be the key pathway for the policy change. The reason is likely to be due to the distribution of, and convergence of interests across the two regimes.

This article is structured as follows. Section 2 explains the causal mechanisms framework adopted, including the six mechanisms that are likely to influence domestic policy change. Section 3 identified the interactions across biodiversity and climate, including the institutional interlinkages. The results of the process tracing are presented in Section 4. Following that, the extent to which the SDGs influenced the outcome is discussed in Section 5. This is followed by concluding thoughts.

## 2. FRAMEWORK: CAUSAL MECHANISMS FOR ASSESSING INFLUENCE OF SDGS ON DOMESTIC POLICY INTEGRATION

A causal processes framework was utilised to examine whether and how the SDGs' domestic influence contributed to the formation of integrated policy. The framework studied how the SDGs are utilised to address the interactions across biodiversity and climate change (see Table 1) (Alizan, unpublished).

The framework's development was informed by earlier research on the institutional interactions in international regime theory and global environmental governance (Bernstein & Cashore, 2000, 2012; Gehring & Oberthür, 2008, 2009). It is based on the social mechanisms approach, a method that identifies mechanisms as a way to produce and explain observed causation between events (Hedstrom & Swedberg, 1998).

Paths of influence for six causal processes were identified. From the most direct to the most indirect, it covers the entire spectrum of goal-setting effect. The most direct technique is *functional influence*, in which the SDGs themselves initiate the integration of policy. This indicates that the SDGs were directly implemented through the integration of domestic policy. Second, is when interlinkages are constructed using a logic of appropriateness (rather than a logic of consequences), *institutional influence* is triggered (March & Olsen, 1998). This occurs where the structure and processes established to deliver the SDGs result in shared beliefs and intersubjective understanding (Kratochwil & Ruggie, 1986). Thirdly, *material influence* happens as a result of direct action by global and transnational players. This is mostly accomplished through funding, which are primarily provided by international organisations. The last four processes and routes are more deceptive. *Market influence* uses markets as a tool to strategically bring about domestic change (Bernstein & Cashore, 2012). When a change in domestic policy is attributed to a shift in normative or causal beliefs, *ideas and norms* are triggered. Finally, *international regimes* also influence the implementation of objectives in the SDGs and across issue areas. These are largely to meet their own goals of the international regime. Its ability to fulfil the interests of key actors is likely to be influential.

To investigate the mechanism and relationship between the SDGs' influence and the examined policy outcome, process tracing was done. The causal mechanisms approach was previously used as a reductionist approach in studying institutional

interactions at the international level (Oberthür & Gehring, 2006) and has increasingly been used in the field of international relations and comparative politics (Vanhala, 2017). The definition of process tracing are “techniques for examining the intermediate steps in cognitive mental processes to understand better the heuristics through which humans make decisions” (Benett and Checkel: 5).

The case study also combined deductive and inductive reasoning using this approach. Deductive reasoning was applied via the mechanisms and propositions identified in the framework. Inductive reasoning was also used in tracing the chronology of events in order to uncover further observable consequences in order to portray the complex relationships that occur in the real world.

Focus Group Discussions were held to identify the interactions across biodiversity and climate change. Key informant interviews were also conducted as input into the process tracing exercise. These were supplemented by literature reviews. Combined these methods provided the chronology of events and insights into the decision-making.

The case was selected based on the use of SDGs in the interaction across biodiversity and climate change. Despite the various interactions were found through the FGD, there were few concrete examples of the use of SDGs in bridging both climate and biodiversity objectives. In the course of interviews, it was found that the budgeting process provided the most concrete linkage and this was reflected in its release. The use of budget as instrument of policy integration has also been studied and recognised in previous studies (Runhaar et al., 2020).

The results of the process tracing and the testing of the hypothesis are presented in Section 4. To establish its interactions, the next section provides an overview of the interactions across biodiversity and climate change in Malaysia.

### **3. INTERACTIONS OF BIODIVERSITY CONSERVATION AND CLIMATE CHANGE IN MALAYSIA**

#### ***3.1 Interactions across biodiversity and climate change***

Climate change and biodiversity are within the same policy domain (environment) and are closely interconnected due to its ecological interdependence (Kim, 2004). The direction of influence is both ways with changes in biodiversity in particular biodiversity loss affecting climate change, as well as climatic shifts affecting biodiversity conservation. Both the climate and biodiversity has been predominantly affected negatively in the face of anthropogenic pressures related to development (Pörtner et al., 2021). In turn, both biodiversity loss and climate change pose significant threats to human security including to public health, safety, food security and water security.

Climate change has impacted biodiversity and ecosystems through altering the distribution, functioning and interactions of organisms (Pörtner et al., 2021). While its impacts are contextual dependent on locality, generally, as an outcome, extinction risks are increasing (Mooney et al., 2009). This includes losses not only at the species level, but also at the ecosystems level with observational evidence pointing to an acceleration in impacts and losses across marine, terrestrial and freshwater ecosystems (IPBES, 2019). The future of biodiversity will further be affected by climate change and other anthropogenic and natural drivers. According to scenarios, the future climate change is projected to become an even greater and direct driver of biodiversity loss, with studies estimating 5 per cent extinction at 2 degrees Celsius warming (IPBES, 2019). Also, large scale species migration is projected with 35 per cent of mammals and 29 per cent of birds projected to have their climate niche in not their current habitats (Pettorelli et al., 2021). These changes are also projected to impact the ability for ecosystems to deliver its services including for agriculture, aquaculture and fisheries (Mooney et al., 2009).

Biodiversity also affects the climate system. Firstly, various ecosystems, such as forests landscapes contribute significantly to carbon sinks, contributing to climate mitigation. Conservation of forest landscapes, coral and reefs, seagrass and other nature based solutions provide co-benefits for addressing both biodiversity and climate change challenges. It is estimated that nature-based solutions are to provide 37 per cent of climate change mitigation until 2030 towards meeting the target of keeping climate within 2 degrees Celsius of warming (IPBES, 2019). Biodiversity also plays a major role in climate change adaptation and increasing adaptive capacity. This includes its important contributions in food security and ensuring sustainable food production, sustaining freshwater systems for water security as well as more localised impacts such as the ability of forests to alleviate large scale flood incidents (IPBES, 2019). Climate resilient development, including resilient cities require functioning ecosystems.

Responses to both climate change and biodiversity can also be synergistic or conflictive. Nature-based solutions (NbS) has been mooted as an important strategy to deliver co-benefits. However, its contribution to biodiversity is being debated as

some only are focussed on rapid carbon sequestration. For example reforestation efforts to increase carbon sequestration that adopt monoculture plantations may not increase biodiversity (Hall, van Holt, Daniels, Balthazar, & Lambin, 2012; Hoek, 2022). Nonetheless, reforestation, in particular, tropical reforestation, if managed and designed correctly can benefit both mitigation and adaptation including ameliorating altered hydrological cycles and conserve threatened species (Kemppinen et al., 2020; Locatelli et al., 2015).

While the interactions across biodiversity and climate change are extremely complex and localised, the most evident interconnection is across forests and climate change. In particular, megadiverse tropical forests have high potential for climate sequestration, habitat preservation, with an estimated 50 per cent to 70 per cent of all terrestrial species and, on the other hand, becoming a source of carbon emissions when deforested or lost, for example due to forest fires (Kim, 2004).

The interactions across biodiversity and climate change can be seen across the SDGs. It is worth noting that as the SDGs were adopted just before the Paris Agreement, SDG13 (Climate action) acknowledged the UNFCCC process and the primary international global response to climate change. Therefore, the Paris Agreement is directly linked to the achievement of SDG13. Beyond SDG 15 and SDG 13, various other SDGs are relevant to the interactions of biodiversity and climate change, and in particular, to forestry and the carbon market. SDG 13 also focuses on adaptation with SDGs 13 through strengthening resilience and adaptive capacity which can be linked to biodiversity. While all SDGs 15 targets are relevant, target 15a., aims to mobilize and financial resources from all sources to conserve and sustainably use biodiversity and ecosystems, which is directly linked to carbon credits. Other relevant SDGs includes the SDG7 (energy) on access to energy and energy efficiency which affects mitigation; SDG2 on climate smart agriculture, which, for example, may include biofuels; SDGs 11 (Cities) which includes adaptation by targeting to reduce deaths and losses due to natural disasters with a focus on protecting the poor.

### ***3.2 Interactions of biodiversity and climate change in Malaysia***

Malaysia is one of the world's seventeen megadiverse nations. It is a hotspot for biodiversity due to being located in the tropical belt. About 54% of the landmass is covered in forests, which provide home for a variety of plant and animal species (NRE, 2016). There are 380 mammal species and around 25,000 vascular plant species in the entire Sundalan region (Ministry of Natural Resources and Environment, 2019). The richness of marine and coastal environments is likewise abundant, and mangrove shorelines designated as Ramsar sites are among them. The creation of protected areas, which cover 3.3% of marine areas and 13.2% of terrestrial biodiversity, has been the primary strategy for conservation and management (Ministry of Natural Resources and Environment, 2019). In 1994, Malaysia ratified the Convention on Biological Diversity (CBD), which stipulates that three main goals must be upheld: the preservation of biological diversity; the sustainable use of its components; and the fair and equitable distribution of the benefits resulting from the use of genetic resources. the conservation of biological diversity; the sustainable use of the components of biological diversity; and the fair and equitable sharing of benefits arising from the utilization of genetic resources. In addition to the CBD, Malaysia has ratified 17 other international environmental treaties that deal with biodiversity (Tong, 2020). This includes the Ramsar Convention on Wetlands of International Importance (Ramsar), the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), and pertinent protocols under the CBD, such as the Cartagena Protocol on Biosafety and the Nagoya Protocol on Access to Genetic Resources and Fair and Equitable Sharing of Benefits Arising from their Utilization.

Climate action in Malaysia is driven by two key sectors. Firstly, the energy sector, including electricity and transport, accounts for approximately 80 per cent of its emission (Ministry of Environment and Water, 2020). As a fossil fuel producing country that is still developing, one of the major challenges is to decarbonise the economy (Susskind et al., 2020). Secondly, is the forestry sector, of which Malaysia relies on for its carbon sinks. In fact, as recent as 2004, Malaysia's emissions were net negative due to the removals of the Land Use, Land Use Change and Forestry (LULUCF) sector (Ministry of Environment and Water, 2020). In absolute terms, Malaysia's GHG emissions including deforestation emissions (but not including removals) equate to 335 million tonnes, while including removals, it equates to 75 million tonnes. The difference demonstrates the significant role played by LULUCF for Malaysia's emissions. Internationally, Malaysia ratified the UNFCCC in 1992 as a Non-Annexe I member state. This was followed by the Kyoto Protocol in 2002 and more recently, the Paris Agreement was ratified in 2016. Malaysia's submitted a Nationally Determined Contribution (NDC) in 2016 and this was updated in the run up to COP26 in 2021. The main target is an economy-wide carbon intensity reduction (against GDP) of 45% in 2030 compared to 2005 level (Government of Malaysia, 2021). Malaysia has also

committed to achieve net zero GHG by as early as 2050 though this was not communicated in the NDC but in the five year economic plan (EPU, 2021).

Climate change and biodiversity interact in various and complex ways depending on geographically as well as seasonally. However, generally, as a tropical megadiverse country, the major interactions in literature centered around forestry and land use and the interactions with climate change. This includes literature primarily on mitigation including on response options through the forestry sector (Raihan, Nizam Mohd Said, Mastura Syed Abdullah, & Ara Begum, 2018), economic value of carbon stocks (Raihan, Begum, Said, & Pereira, 2021); and effects of logging to greenhouse gases (Yashiro, Kadir, Okuda, & Koizumi, 2008). Despite the role forests and biodiversity play for adaptation, there is comparatively less studies undertaken to understand this interaction. One example is a focus on mangrove as a 'bioshield' in protecting the coastline against tsunami, surges, erosion and other coastal disasters (Ghazali et al., 2016). In reviewing the literature, the focus is largely on the effects of deforestation to CO<sub>2</sub> or the potential for preservation of forestry. There are few examples of literature on conservation strategies, such as protected areas, in contributing to carbon sinks.

### ***3.3 Institutional interlinkages across biodiversity and climate change***

At the international level, the climate change and biodiversity regimes overlap, with United Nations Convention Framework on Climate Change (UNFCCC) and the Convention on Biological Diversity (CBD) being the main international organisations. The UNFCCC inclusion of sinks and reservoirs in its convention and the reporting of greenhouse gases as well as using the net emissions approach demonstrated a clear link across the two regimes (Kim, 2004). Under the Paris Agreement, Article 5 makes direct reference to sinks and reservoirs as well as forests. It also makes reference to Reducing Emissions from Deforestation and forest Degradation which refers to the REDD+, the use of economic incentives to conserve forests previously agreed in 2005 and evolved since (Nielsen, 2016) (see below for further discussion). Article 6 provides both market and non-market mechanisms for carbon trading. The institutional linkages above demonstrate two clear institutional interlinkages across international biodiversity and climate change regimes. Firstly, is the forestry sector, explicitly mentioned in the Paris Agreement, and historically through REDD+, as the main issue bridging biodiversity and climate regimes. Secondly, is the use carbon market as a strategy for integration.

CBD also links with the climate change regime through its targets under the Aichi Biodiversity Targets. While many of its targets are relevant to climate mitigation and adaptation, Target 15 aim for "by 2020, ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced, through conservation and restoration, including restoration of at least 15 per cent of degraded ecosystems, thereby contributing to climate change mitigation" is a direct reference to climate action (see Aichi Biodiversity Targets).

Domestically, the two key institutions governing biodiversity and climate change are the ministries in charge and their relevant policies. The institutional interlinkages are seen in both its structure as well as in its policies. In terms of the structure for biodiversity governance, the Ministry of Natural Resources and Environment (NRE) was established in 2004, signalling a move towards establishing a more coordinated environmental policy by setting up a 'mega-ministry' related to environment (A. A. Hezri, 2014). This included the division for biodiversity and the relevant agencies all being placed under the ministry. Subsequently, the first change of government since Malaysia's independence in 2018 signalled a change in biodiversity governance (Tong, 2020). A restructuring led to NRE being changed to the Ministry of Land, Water and Natural Resources. In 2020, the government changed again, and a further restructuring was undertaken, with functions of biodiversity under the Ministry of Energy and Natural Resources.

Climate change structure began in 1994 following on from the establishment of the United Nations Framework Convention on Climate Change (UNFCCC) in 1992. A National Steering Committee on Climate Change (NSCCC) was formulated to implement policies to address and adapt to climate change and was chaired by the Ministry of Science, Technology and Environment. However, the focus was piecemeal and largely to only meet international commitments. This shifted with the establishment of NRE in 2004 which resulted in the climate change division to be placed under the ministry (A. A. Hezri, 2014; Ministry of Natural Resources and Environment Malaysia, 2011). In 2009, another reshuffle was undertaken due to a focus on a low carbon economy, and more specifically green technology, resulted in a new the formation of the Ministry of Energy, Green Technology and Water (A. A. Hezri, 2014). Nonetheless, climate change remained under NRE while certain focus on green technologies and low carbon economy were placed under the new ministry. Post the government regime change in 2018, climate change was incorporated at the ministerial level for the first time with the formation of the Ministry of Energy, Science, Technology, Environment and Climate Change (MESTECC), replacing the Ministry of

Energy, Green Technology and Water (Tong, 2020). Subsequently, after the regime change in February 2020, the climate change division was placed under the Ministry of Environment and Water.

The evolution in the structure resulted in the divisions in charge of biodiversity and climate change to be fragmented. Under the NRE the two functions, although in different divisions, were under the same umbrella ministry. Subsequently, since 2018, biodiversity and climate change were placed under different ministries. This resulted in a fragmented structure and interviewees highlighted the impact of these shifts. One respondent highlighted that “while the functions of the division do not change, biodiversity and climate change should be under one ministry to avoid rivalry and turf war”.

In terms of policy, after Malaysia ratified the CBD in 1994, the first National Policy on Biological Diversity was formulated in 1998. Nonetheless, partly due to challenges in its implementation due to the lack of concrete targets, the National Policy on Biological Diversity 2016-2025 was launched in 2016 with 17 targets that aligns with the Aichi Biodiversity Targets as well as addresses domestic issues (Tong, 2020). While the policy is relevant to climate change, in particular towards ensuring mitigation and carbon stocks, there was little explicit mention of climate relevant actions. There were only two explicit mentions of climate change; one as a challenge being one of the pressures contributing to biodiversity loss; and secondly as a consideration under the Target to enhance protected areas (Target 7). No explicit targets or actions were formulated to link the implementation of the biodiversity policy with climate action.

The climate change policy highlighted more explicit links to biodiversity and forestry (NRE, 2009). The policy objectives included a focus on carbon sinks and various strategies focus on both biodiversity and forestry as a sector. This includes a specific action to “conserve and enrich carbon pools in natural ecosystems including plantations and promote rehabilitation of sensitive and degraded ecosystems through sound management practices and land use planning” (KA15-ST4), and sectoral focus, in particular for forestry, for various strategies on balanced adaptation and mitigation measures, mobilising financing, policy integration, low carbon economy, carbon accounting and research and development. This demonstrates that through the policy, issue linkages are made, particularly, in relation to forestry and in relation to carbon sinks. However, no action plan exists for the delivering the policy and therefore, no instruments were found to implement the strategies outlined in an integrated manner.

Institutionally, one of the major challenges of biodiversity governance is also addressing the challenge of Federalism (Kangayatkarasu, 2017). The vertical interplay across social organisations and jurisdiction, in this case across federal (national) and state (sub-national) governments, can provide limitations in its implementation due to various issues including power asymmetry, conflictive discourses and objectives and (Young, 2006). In the context of Malaysia and this case study, the division of powers between the state and federal governments have resulted in a fragmented biodiversity governance where natural resources are largely under the state. For example, forestry is under the State List in the constitution. This division of power is also made more complicated as the most states rely on the exploitation natural resources for its revenue (Kangayatkarasu, 2017). Climate change, on the other hand, has no mention under the Constitution and is currently a focus at the federal level. However, its implementation will depend on sectors under the Constitution. This vertical challenge where the issue areas are governed under two different levels of political jurisdiction, illustrates the challenge in the effectiveness of policy implementation and environmental policy integration in Malaysia (A. Hezri, 2016).

The institutional interlinkages demonstrated that despite the interactions across biodiversity and climate change being largely synergistic, and the fact that they are in the same policy domain (environment), the fragmented governance has resulted in the lack of policy integration. However, the interplay challenges are shallow, in the sense that its principles, norms, discourses and values largely align and thereby the challenges are more of a technical and operational level (Young, King, & Schroeder, 2008). This article focuses on the implementation of pre-existing interlinkages already made, focusing on the forestry sector, and in particular, the use of the carbon market as an instrument for policy integration.

#### **4. RESULTS: PROCESS TRACING OF HOW THE SDGS INFLUENCE ISSUE LINKAGES ACROSS BIODIVERSITY AND RIGHTS TO A HEALTHY ENVIRONMENT IN MALAYSIA**

##### **4.1 Background**

A method of interviews with key informants and literature reviews were utilised in undertaking a process tracing to assess the linkage across biodiversity and climate in a single incident. Specifically, the case study selected was based on the Malaysian Federal Budget 2022, where the issue linkage was made through its focus on establishing the carbon market under its strategy to meet the SDGs (Strategy 1: Sustainability Agenda).

It was hypothesised that it is likely that the outcome is triggered by the influence of other international regimes (as opposed to the SDGs itself). This is due to the fact that the SDGs operate at a scale that interacts with various other regime complexes and international regimes. Regime complexes are defined as an “array of partially overlapping and non-hierarchical institutions governing a particular issue-area” (Raustiala & Victor, 2004). Carbon trading is a quintessential example of an outcome of the climate change regime complex where it consists of trading schemes at various levels including regional, national and sub-national levels and only loosely coupled with the UNFCCC (R. O. Keohane & Victor, 2010). In this complex governance landscape, and overlapping of institutions, it is likely that actors would choose the institution that provides that aligns with their interest, akin to forum shopping (Alter & Meunier, 2009). The linkages are likely to be influential in the condition that it provides clear interests for both issue areas at the domestic level.

#### **4.2 International Regime Influence**

The international carbon market was initiated in 1997 through the Kyoto Protocol (Michaelowa, Shishlov, & Brescia, 2019). It set a target to reduce emissions by 5% below 1990 levels by 2008 to 2012. The mechanism allowed countries a platform and rules for trading, including Certified Emission Reductions (CERs) generated from Clean Development Mechanism (CDM) projects or activities under Article 12 of the Kyoto Protocol. As the target was set for Annex I or industrialised nations, trading schemes were formulated in developed nations. The period of 2005-2011 saw significant growth of the carbon market in particular, with the European Union’s Emissions Trading Scheme (EU ETS), the first large-scale emissions trading scheme in the world, allowing the use of credits from CDM and JI (Michaelowa et al., 2019).

The experience under Kyoto Protocol provided valuable experience for the international carbon market as an important mechanism for the achievement of climate goals under the Paris Agreement (Andresen, Skjærseth, Jevnaker, & Wettestad, 2016; Michaelowa et al., 2019). The use of a market mechanism was enshrined in Article 6, which states that “*cooperative approaches that involve the use of internationally transferred mitigation outcomes*” which implicitly allowed member states to buy and sell their achieving each country’s NDCs. Article 6 establishes two avenues of trading, the possibility of trading GHG emissions reductions (known as mitigation outcomes) bilaterally (Article 6.2) and an international carbon market mechanism to replace the Clean Development Mechanism (CDM) (Article 6.4).

The Glasgow Climate Pact further enhanced Article 6, with a focus on implementation through the agreement of the ‘Article 6 rulebook’. This includes ensuring that no double counting will be allowed as ‘corresponding adjustments’ will be reported to ensure that any credits sold will be transferred to the purchasing country. Article 6 rulebook also allows for all sectors, including REDD+, to be eligible to participate in the carbon market. While the international rules and procedures continue to provide clarity, in particular of how REDD+ can be operationalised, the evolution demonstrates both the importance of the carbon market in achieving the goals under the Paris Agreement as well as the issue linkage through both Article 5 (see previous section) and Article 6.

The effects of the Paris Agreement many countries can be seen by the significant increase in the establishment of domestic or regional emissions trading schemes and growth of the market size. At least 32 Emissions Trading Schemes are operating around the world and the revenue for global carbon pricing increased by almost 60 per cent from 2020 to 2021, to around US\$84 billion (The World Bank, 2022). Beyond emissions trading, the ambitious goals set out to achieve the Paris Agreement also meant that carbon taxes have emerged as an important mechanism for the achievement of climate goals with 36 operating systems (The World Bank, 2022).

The influence of the institutional regime can be seen in its implementation domestically. One of the major differences of the Paris Agreement is that it applies to all countries. Despite not being an Annex I country, Malaysia was introduced to the carbon market through its participation in the Kyoto Protocol and the Clean Development Mechanism (CDM) (Amran, Zainuddin, & Zailani, 2013). As a Non-Annex I party, there was no necessity to create a domestic carbon market. While the creation of a domestic carbon market was not required due to its status as a Non-Annex I party, Malaysia voluntarily participated as a seller of carbon credits to Annex I parties with emissions commitments. The focus was therefore on generating CERs, as opposed to purchasing the credits to offset domestic emissions.. This provided a historical and path dependency explanation in Malaysia’s continuation and interest in the carbon market, especially as a seller through being the Host Party under the CDM. The experience gained under Kyoto Protocol provide a starting point for Malaysia to be a part of the carbon market. However, there is marked difference in establishment of a domestic carbon market.

In terms of forestry, under the UNFCCC, the framework to Reduce Emissions from Deforestation in Developing Countries (REDD) was adopted at COP9 in 2003 as a sustainable financing mechanism. However, there has often been doubts on its

effectiveness in pursuing biodiversity goals (Hoek, 2022; Visseren-hamakers, Mcdermott, Vijge, & Cashore, 2012). The Cancun Agreement in COP13 created a link to biodiversity by ensuring that it creates incentives to protect, natural forests, biodiversity and ecosystem services (Hoek, 2022). Ultimately, the REDD Plus reached a consensus at COP15, followed by the Warsaw Framework for REDD plus in providing a structure and mechanism for its implementation. As a response, Malaysia formulated a National REDD+ strategy to comply with the UNFCCC's requirement to be eligible for undertaking REDD plus activities (NRE, 2016).

Towards meeting the Paris goals, Malaysia announced its intention to develop a domestic carbon pricing scheme in the Twelfth Malaysia Plan in 2021 (EPU, 2021). In the announcement of the Budget 2022, towards meeting the SDGs and the Paris Agreement, the Ministry of Finance announced launching of a Voluntary Carbon Market that was to be led by Bursa Malaysia, the country's stock exchange.

The attribution of the carbon market is largely driven to Malaysia's ratification to the Paris Agreement as well as the SDGs as an umbrella goal. While there is still no decision on the extent of biodiversity and forestry being a part of the carbon market, interviewees highlighted that this is still being debated. Nonetheless, interviews highlighted that the potential for state revenue through forestry is a major discussion as part of the policy triggering the linkage with biodiversity, forestry, and conservation financing. These are further discussed below.

#### **4.3 Market influence**

The market can influence policy integration when it is used to manipulate the market. Although carbon pricing, and more broadly, economic instruments, aim is for economic efficiency and to internalise externalities its ability to send price signals will change the incentive structure (N. O. Keohane & Olmstead, 2016). In this sense, the use of economic instruments, broadly speaking, changes the incentive structure. In this context, the market was influential in the policy integration above in a few ways.

Firstly, as highlighted above, one of the key challenges of biodiversity conservation and forestry in Malaysia is due to the fact that states depend on exploitation of natural resources for their revenue. Therefore, interviews have highlighted the promise of trading for carbon have resulted in interest and lobby from the states for a national carbon pricing policy. The political economy of natural resources is influential, in this case, as an influence for policy integration. The case in Sabah, a state in East Malaysia provided a demonstration of the need for a carbon pricing policy and strategy to address forestry and the carbon market. Media reports and interviews highlighted what is known as the 'Nature Conservation Agreement' (NCA), which involved the 'lease' of 2 million hectares (ha) of land over a period of 100 years. It was purported that the deal would give the third-party (i.e. the buyer) a means of receiving funds from the sale of carbon credits, and additionally, other natural capital such as water resources (carbon and non-carbon), depending on specific terms and conditions. While the deal was very opaque, it highlighted two major points relevant to this case study. Firstly, that state governments are interested to participate in the carbon market, either compliance market or non-compliance market (i.e. VCM). Therefore, there is a need for a carbon pricing policy to clarify the rules and procedures. Secondly, is that increasingly, the states are using UNFCCC for forest preservation. Therefore, the linkage with biodiversity conservation needs to be made to ensure the safeguards are legitimate. As Malaysia relies on its carbon sinks to meet its NDCs, the changes in the Article 6 rulebook would require clarity on the amount of carbon that can be sold for offsets. One interviewee highlighted, that due to this complexity, the carbon market will focus on domestic emissions trading to ensure Malaysia can meet its NDCs. This demonstrates the linkage and influence of the forestry and biodiversity sector, and in particular, of states towards the establishment of a carbon market in Malaysia.

Secondly, another influence of the Paris Agreement and the rise in carbon pricing schemes internationally the trend towards extraterritorial means of imposing their schemes. For example, the EU, through the Carbon Border Adjustment Mechanism (CBAM), is planning to roll out tariffs on selected products based on their carbon content, as part of the EU ETS under the objective of avoiding carbon leakage. Although implementation will be challenged under the World Trade Organisation (WTO) as not being compliant with trade rules, efforts and mechanisms to implement carbon taxes will likely continue. Moving forward, carbon leakage is likely to be a feature of supranational policies in the future landscape of international trade. Interviewees highlighted these trade risks have become a major influence in the need for Malaysia to establish its own carbon pricing to enhance readiness in Border Adjustment Mechanisms in the future.

Thirdly, another development is the role of financial institutions as a response to the Paris Agreement. Establishment of clubs such as the Net Zero Asset Managers initiative, launched in December 2020, with aims of galvanising the asset

management industry into committing to a goal of net-zero emissions, that consists of some of the leading asset managers in the world has resulted in major corporations to support and even lobby for a carbon pricing mechanism. This includes carbon intensive industries, as according to one respondent, “we are forced to comply to our investors needs and fully support a carbon pricing mechanism to be in place as soon as possible”. The conditions were made possible with powerful actors such as Blackrock and Vanguard, which manages over \$15.2 trillion in assets (an amount equivalent to about three-fifths of US GDP) as members of this club. The need for access to finance and investments has resulted in major corporations, and significantly State-Owned Enterprises (SOEs) in Malaysia to push for a carbon pricing mechanism. This is evident where PETRONAS, the state oil company, and the Tenaga Nasional Berhad (TNB), the sole electricity provider in Peninsular Malaysia, have committed to Net Zero by 2050.

#### **4.4 Other influences**

Through the use of inductive methods, other influences were also found towards implementing a carbon pricing system as highlighted by respondents. One major influence is to raise revenue, either through tax or a cap and trade system. The combination of the economic challenges faced due to COVID-19 and the abolishment of the Good and Services Tax (GST) during the change of government in 2018, there was a need to raise revenue or find economically efficient ways to meet policy goals. The GST abolishment reportedly resulted in a loss of approximately RM20 billion of government revenue. Furthermore, the Covid-19 pandemic has resulted in widening fiscal deficit (from about 6.5% in 2021) and Federal government debt (58.5%) (World Bank, 2021). The Budget 2022 announced an expansionary budget with a higher revenue collection of RM234 billion in 2022 compared to RM221 billion in 2021, requiring options for raising and diversifying revenue collection. One of the instruments established for conservation is the Ecological Fiscal Transfer (EFT), a mechanism for transferring public revenue between federal and state levels. However, the financing is currently limited and options, including through selling of credits are considered to enhance revenue or increase efficiency in meeting conservation goals.

The process tracing above, generally highlighted that the developments internationally have influenced greatly the progress in carbon pricing domestically. This includes compliance with intergovernmental processes and the impacts to the economy, and specifically, to trade and investment. Domestically, the appeal in generating revenue has also been highlighted as a rationale in establishing a carbon tax scheme by stakeholders. More broadly, the rationale is largely influenced by the market, including the benefits of selling carbon as well as the risks and opportunities in attracting international investments, and generating government revenue.

## **5. DISCUSSION: HOW AND TO WHAT EXTENT DID SDGS INFLUENCE DOMESTIC POLICY INTEGRATION**

The results of the process tracing highlighted a few important findings. The findings are further discussed below.

### **5.1 How did the SDGs influence Policy Integration?**

The case study highlighted that policy integration was triggered by two major pathways; international regimes, namely the UNFCCC, and; through market influence. Furthermore, the need for government revenue and economic efficiency also influenced the establishment of a carbon market.

The case study highlighted how the SDGs was firstly utilised as an umbrella objective. Within the Budget 2022 strategy, the need to initiate ‘low carbon practices’ and focus on environment and biodiversity is premised on the need to meet the SDGs and Agenda 2030 on Sustainable Development (MOF, 2021). In investigating the influence of the SDGs on the issue linkage, it demonstrated findings both on the design of the SDGs as a goal setting strategy, and the its potential use for coordination and harmonisation. In terms of design, Goal 13 on climate action is unique in that it is linked with the UNFCCC and subsequently the Paris Agreement. In this context, the linking of the Paris Agreement and the SDGs transpired to the domestic level where the two agendas are coupled in addressing both emissions reduction and biodiversity conservation. This is in line with the notion that in some settings linking goal setting and rule making can be complementary (Young, 2017).

The path that triggered the issue linkage across biodiversity and climate change was initiated by the UNFCC and its focus on forestry. This demonstrated the influence and link across international goal setting and international rules (Young, 2017). Specifically, the UNFCCC, firstly through REDD+, and currently, through Article 5 and Article 6 of the Paris Agreement

provides incentives for countries that are able to be sellers of carbon credits. With previous experience under the Kyoto Protocol and the CDM, and being a megadiverse country with significant tropical forests as carbon sinks, Malaysia has utilised the UNFCCC as an important for addressing forestry. While CBD continues to be the main forum for overall biodiversity conservation, sustainable use and ABS, UNFCCC is becoming one of the key forums for addressing forestry.

Secondly, it was found that market influence has allowed other actors to be influential forces in arriving to the establishment of the carbon market. In particular, these forces are important actors in the political economy of the linked issue-area. State governments, who govern natural resources including forestry under the Constitution, and have long exploited natural resources for their revenue, have now supported a carbon market system. Large and powerful carbon intensive industries including oil and gas and electricity companies that are state owned enterprises have also become positive forces for linking the issue area. One of the major challenges that created a 'carbon lock-in' is due to the lack of support from powerful actors in the political economy (Susskind et al., 2020). The market influence therefore addresses the political economy challenge of this lock-in.

IN terms of the SDGs, its linkages with UNFCC were in two ways; firstly, the UNFCCC and the Paris Agreement are linked to the SDGs themselves, with Goal 13 unique in the sense it acknowledges that UNFCC is the primary forum for achieving its objectives. Secondly, the Ministry of Finance, using SDGs as an overarching strategy, established carbon market as a possible tool for issue linkage. This can be seen as a use in terms of problem framing by linking the two sectors together as a strategic objective (Runhaar et al., 2020).

### ***5.2 What are the conditions under which it was influential?***

The hypothesis is that the influence of international regimes will likely be based on the interests of stakeholders proved to be true. In particular, the SDGs as a multiple goal and issue area framework with the objective of capturing the interconnection between issues (Kanie & Biermann, 2017), also allows for actors to select the forums to which align to their interests.

Specifically, the UNFCCC, firstly through REDD+, and currently, through Article 5 and Article 6 of the Paris Agreement provides incentives for countries that are able to be sellers of carbon credits. With previous experience under the Kyoto Protocol and the CDM, and being a megadiverse country with significant tropical forests as carbon sinks, it is within Malaysia's interest to participate in the carbon market. On the other hand, the lack of market based instruments and clear interests under the CBD resulted in UNFCC being the international regime of choice. This is in line with the concept of forum shopping, although mostly related to negotiations especially in relation to disputes, highlight the strategic use of alternative arenas by actors to pursue their interests (Busch, 2007; Helfer, 1999). For example, Hafner-Burton, in her study on human rights and trade demonstrated how the European Parliament imposed their preferences on human rights bilaterally rather than through the World Trade Organisation as they have no role in the WTO (Hafner-burton, 2004). The SDGs allow for a menu for which actors can choose to achieve multiple goals and in this case, the Ministry of Finance, who are not governing both issue areas directly and are further up the hierarchy, played a major role in pursuing the forum of choice. In this sense, the focus was on pursuing the UNFCCC process for addressing deforestation.

The possibility of choices extends to the instruments of choice itself. the possibility of countries to trade bilaterally (under Article 6.2) in the carbon markets, as well as the role of voluntary markets and domestic markets means that provides a form of flexibility and further options and not only rely only on an integrated mechanism, which is currently being designed under Article 6.4. This is in line with Keohane and Victor's (2010) suggestion that the regime complex with multitude of rules, could be more effective for international emissions trading (R. O. Keohane & Victor, 2010). In the context of this study, this highlighted that the availability of choices allowed for powerful actors such as the Ministry of Finance to utilise which forum and instrument would tactically align to the interests of the state. Also, as highlighted above, the multiplicity in avenues catalysed other actors that are relevant in the political economy to influence the outcome.

One further condition found that influenced the decision the domestic situation where the need for revenue and for economic efficiency to address multiple policy objectives. Although these were not captured under the framework, through inductive approaches, interviewees highlighted that the current challenge in managing the revenue base is an important influence on the expediency of the carbon market. This includes its possibility to be linked to conservation financing mechanism. While not covered at length in this article, it highlighted the importance of policy windows that occur during critical junctures and events as a determinant of policy change (Kingdon, 1995).

### 5.3 What is the extent of influence?

The SDGs was utilised as a strategic and umbrella target to achieve multiple goals. In this way its use was for coordination through budgeting as an instrument. More broadly, the Budget 2022 also utilised SDGs budget tagging, to demonstrate the allocations across various issue areas. Although this can lead to harmonisation and balancing the goals across the different issue areas, its extent of use was more for coordination. This is in line with studies on policy integration where there are few examples of harmonisation or prioritisation (Runhaar et al., 2020). The use of the federal budget and resource allocation, nonetheless, provided a concrete instrument for coordination

The influence of the SDGs in this case study was indirect. The main pathway of influence is through the UNFCCC as the international climate regime. While the SDGs is utilised as an overarching and umbrella strategy, one limitation of this study is to test counterfactually whether the issue linkage would have occurred in the absence of the SDGs. Nonetheless, the explicit mention of the SDGs demonstrated that counterfactually, the explicit mention of SDGs as the overarching strategy under Budget 2022 for addressing the issue points to how the SDGs was utilised. Arguably, the broad development agenda has led to the enhanced role of the Ministry of Finance as opposed to being a single issue govern by one ministry. The influence and efficacy of international goal setting will likely continue to be contested (Kanie & Biermann, 2017) and the indirect nature of its use here demonstrates that the extent of influence is likely to be indirect. Whether this is a positive or negative outcome is debatable and beyond the scope of this paper.

The extent of the its influence is more likely depending on how substantive the linkages are. Due to the uncertainty of issue linkages, a process of policy and social learning to achieve consensual knowledge on the linkages is required to ensure that substantive understanding is acquired in addressing issue linkages (P. M. Haas, 1992). In this sense, there are two types of linkages that can be distinguished; substantive linkages, which are achieved when it generates social learning across the policy communities and developes a consensus on causal ideas; and tactical linkages, which occurs through log-rolling (E. B. Haas, 2008; P. M. Haas & Stevens, 2017). The study demonstrated that the pathways were largely driven by interest and therefore, the linkages are more tactical. While a degree of policy learning occurred due to path dependency and the institutional linkages developed over time through the UNFCCC, the important role played by other actors that were driven by market forces demonstrate that the linkages were largely tactical. This will likely lead to incremental linkages being established as it is driven by interests as opposed to causal consensus.

## 6. CONCLUSION

The influence of the SDGs and international goal setting in general on affecting domestic policy integration will be a litmus test on the 2030 Development Agenda. One of the major challenges of SDGs is its lack of compliance mechanisms for implementation. This is made more complex in the implementation of issues that interact with one another. To understand this further, this article undertook an empirical assessment of the influence of SDGs on linking the issues of two areas that have gained much attention in the past – climate change and biodiversity. The purpose was to understand if, how and to what extent is the SDGs influential in domestic policy integration. The results firstly demonstrated that the results other international regimes are likely to be influential in achieving the SDGs and its interlinked goals. In this case the UNFCCC triggered the linkages with CBDs aims of biodiversity conservation through its focus on carbon sinks and forestry. Secondly, through establishing an market based mechanism, the influence of the market to change the incentive and disincentive structures was a key determinant in the outcome. In investigating the conditions under which it is likely to be influential, the hypothesis that it would be dependent on interests of the actors proved to be true. Through the establishment of carbon trading, the key actors within the political economy largely benefitted, or at least perceive to benefit from its establishment. More importantly, it provided an attractive option to pursue for actors to pursue for forest conservation, in comparison with the limited interests perceived through the CBD. Finally, in understanding the extent to which the SDGs was influential, in this case study, its influence was indirect, as the main influence is through the UNFCCC. Nonetheless, powerful domestic actors utilise it as an overarching strategy to coordinate issue linkages specifically, and development more generally towards the goals as enshrined within the SDGs. It also found that the linkages are likely to be tactical, and therefore incremental as it was largely explained by interest-based motivations. These findings demonstrate that understanding the implementation of international goal setting in this complex governance setting is crucial for its effective design.

## REFERENCES

- [1] Alter, K. J., & Meunier, S. (2009). The politics of international regime complexity. *Perspectives on Politics*, 7(1), 13–24. <https://doi.org/10.1017/S1537592709090033>
- [2] Amran, A., Zainuddin, Z., & Zailani, S. H. M. (2013). Carbon trading in Malaysia: Review of policies and practices. *Sustainable Development*, 21(3), 183–192. <https://doi.org/10.1002/sd.1549>
- [3] Andresen, S., Skjærseth, J. B., Jevnaker, T., & Wettestad, J. (2016). The Paris agreement: Consequences for the EU and carbon markets? *Politics and Governance*, 4(3), 188–196. <https://doi.org/10.17645/pag.v4i3.652>
- [4] Bernstein, S., & Cashore, B. (2012). Complex global governance and domestic policies: Four pathways of influence. *International Affairs*, 88(3), 585–604. <https://doi.org/10.1111/j.1468-2346.2012.01090.x>
- [5] Busch, M. L. (2007). Overlapping institutions, forum shopping, and dispute settlement in international trade. *International Organization*, 61(4), 735–761. <https://doi.org/10.1017/S0020818307070257>
- [6] EPU. (2021). Twelfth Malaysia Plan 2021-2025. In *Economic Planning Unit (EPU)*. Putrajaya.
- [7] Gehring, T., & Oberthür, S. (2009). The Causal Mechanisms of Interaction between International Institutions. *European Journal of International Relations*, 1(15), 125–126.
- [8] Ghazali, N., Zainuddin, K., Zainal, M. Z., Dali, H. M., Samad, A. M., & Mahmud, M. R. (2016). The potential of mangrove forest as a bioshield in Malaysia. *Proceeding - 2016 IEEE 12th International Colloquium on Signal Processing and Its Applications, CSPA 2016*, (March), 322–327. <https://doi.org/10.1109/CSPA.2016.7515854>
- [9] Government of Malaysia. (2021). *Malaysia's Nationally Determined Contribution (NDC)*.
- [10] Haas, E. B. (2008). *Beyond the nation state: Functionalism and international organization*. ECPR Press.
- [11] Haas, P. M. (1992). *International Organization Foundation Introduction: Epistemic Communities and International Policy Coordination* Author (s): Peter M. Haas Source: *International Organization*, Vol. 46, No. 1, Knowledge, Power, and International Policy Coordination. 46(1), 1–35.
- [12] Haas, P. M., & Stevens, C. (2017). Ideas, Beliefs, and Policy Linkages: Lessons from Food, Water, and Energy Policies. In N. Kanie & F. Biermann (Eds.), *Governing through Goals*. Cambridge, MA: MIT Press.
- [13] Hafner-burton, E. (2004). Forum Shopping for Human Rights: The Transformation of Preferential Trade. *Annual Meetings of the American Political Science Association, Washington DC, September*, 1–4.
- [14] Hall, J. M., van Holt, T., Daniels, A. E., Balthazar, V., & Lambin, E. F. (2012). Trade-offs between tree cover, carbon storage and floristic biodiversity in reforesting landscapes. *Landscape Ecology*, 27, 1135–1147. <https://doi.org/10.1007/s10980-012-9755-y>
- [15] Hedstrom, P., & Swedberg, R. (1998). *Social Mechanisms: An Analytical Approach to Social Theory*. New York: Cambridge University Press.
- [16] Helfer, L. R. (1999). Forum Shopping for Human Rights. *University of Pennsylvania Law Review*, 148(2), 2003–2016.
- [17] Hezri, A. (2011). Sustainable shift: Institutional challenges for the environment in Malaysia. *Akademika*, 81(2), 59–69.
- [18] Hezri, A. (2016). The Sustainability Shift: Refashioning Malaysia's Future. In *Areca Books*. <https://doi.org/10.2202/1949-6605.1329>
- [19] Hezri, A. A. (2014). Rearranging government Agencies for the Sustainable shift. *Journal of Sustainability Science and Management*, 9(1), 156–164.
- [20] Hoek, N. (2022). The Framework of REDD+ through the lens of CBD Natural Ecosystem Values. *Environmental Law Network International*, 22, 10–17.

- [21] IPBES. (2019). Summary for policymakers of the global assessment report on biodiversity and ecosystem services. In *Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services* (Vol. 45). Retrieved from <https://zenodo.org/record/3553579#.YfmYTerMI2w>
- [22] Jordan, A., & Lenschow, A. (2010). Policy paper environmental policy integration: A state of the art review. *Environmental Policy and Governance*, Vol. 20, pp. 147–158. <https://doi.org/10.1002/eet.539>
- [23] Kangayatkarasu, N. (2017). *Biodiversity Governance in Peninsular Malaysia - Identifying Conservation Priorities, Evaluating the Impact of Federalism and Assessing the Governance of Protected Areas* (University of Nottingham Malaysia Campus). Retrieved from <http://www.fao.org/3/I8739EN/i8739en.pdf><http://dx.doi.org/10.1016/j.adolescence.2017.01.003><http://dx.doi.org/10.1016/j.childyouth.2011.10.007><https://www.tandfonline.com/doi/full/10.1080/23288604.2016.1224023><http://pdx.sagepub.com/lookup/doi/10>
- [24] Kanie, N., & Biermann, F. (2017). *Governing Through Goals* (N. Kanie & F. Biermann, Eds.). Cambridge, MA: MIT Press.
- [25] Kemppinen, K. M. S., Collins, P. M., Hole, D. G., Wolf, C., Ripple, W. J., & Gerber, L. R. (2020). Global reforestation and biodiversity conservation. *Conservation Biology*, 34(5), 1221–1228. <https://doi.org/10.1111/cobi.13478>
- [26] Keohane, N. O., & Olmstead, S. M. (2016). *Markets and The Environment*, (Second Edi). Washington, Covelo and London: Island Press.
- [27] Keohane, R. O., & Victor, D. G. (2010). *The Regime Complex for Climate Change*. (January).
- [28] Kim, J. A. (2004). Regime interplay: The case of biodiversity and climate change. *Global Environmental Change*, 14(4), 315–324. <https://doi.org/10.1016/j.gloenvcha.2004.04.001>
- [29] Kingdon, J. (1995). *Agendas, Alternatives and Public Policies*. New york: Harper Collins.
- [30] Kratochwil, F., & Ruggie, J. G. (1986). International Organization : A State of the Art. *International Organization*, 40(4), 753–775.
- [31] Locatelli, B., Catterall, C. P., Imbach, P., Kumar, C., Lasco, R., Marín-Spiotta, E., ... Uriarte, M. (2015). Tropical reforestation and climate change: Beyond carbon. *Restoration Ecology*, 23(4), 337–343. <https://doi.org/10.1111/rec.12209>
- [32] March, J. G., & Olsen, J. P. (1998). The Institutional Dynamics of International Political Orders. *International Organization*, 52(4), 943–969.
- [33] Michaelowa, A., Shishlov, I., & Brescia, D. (2019). Evolution of international carbon markets - lessons for the Paris Agreement. *Wiley Interdisciplinary Reviews: Climate Change*, 10(6), 1–24.
- [34] Ministry of Environment and Water. (2020). *Malaysia Third Biennial Update to the UNFCCC*. Ministry of Environment and Water.
- [35] Ministry of Natural Resources and Environemnt Malaysia. (2011). *Second National Communication to the United Nations Framework Convention on Climate Change*.
- [36] Ministry of Natural Resources and Environment. (2019). *6th National Report of Malaysia to the Convention of Biological Diversity*.
- [37] MOF. (2021). *Malaysia Budget 2022 Speech*. Putrajaya: Percetakan Nasional Malaysia Berhad.
- [38] Mooney, H., Larigauderie, A., Cesario, M., Elmquist, T., Hoegh-Guldberg, O., Lavorel, S., ... Yahara, T. (2009). Biodiversity, climate change, and ecosystem services. *Current Opinion in Environmental Sustainability*, 1(1), 46–54. <https://doi.org/10.1016/j.cosust.2009.07.006>
- [39] Nielsen, T. D. (2016). From REDD+ forests to green landscapes? Analyzing the emerging integrated landscape approach discourse in the UNFCCC. *Forest Policy and Economics*, 73, 177–184. <https://doi.org/10.1016/j.forpol.2016.09.006>

- [40] Nilsson, M., Griggs, D., Visbeck, M., & Ringler, C. (2016). A draft framework for understanding SDG interactions. *International Council for Science*.
- [41] NRE. (2009). *National Policy on Climate Change*. Putrajaya: Ministry of Natural Resources and Environment.
- [42] NRE. (2016). *National REDD Plus Strategy*. Ministry of Natural Resources and Environment.
- [43] Oberthür, S., & Gehring, T. (2006). *Institutional Interaction in Global Environmental Governance: Synergy and Conflict among International and EU Policies* (S. Oberthür & T. Gehring, Eds.). Cambridge, MA: MIT Press.
- [44] Pettorelli, N., Graham, N. A. J., Seddon, N., Maria da Cunha Bustamante, M., Lowton, M. J., Sutherland, W. J., ... Barlow, J. (2021). Time to integrate global climate change and biodiversity science-policy agendas. *Journal of Applied Ecology*, 58(11), 2384–2393. <https://doi.org/10.1111/1365-2664.13985>
- [45] Pörtner, H. O., Scholes, R. J., Agard, J., Archer, E., Arneeth, A., Bai, X., ... Ngo, H. T. (2021). IPBES-IPCC Co-Sponsored report on biodiversity and climate change. *IPBES and IPCC Co-Sponsored Workshop*, 115(4), 608–609. <https://doi.org/10.5281/zenodo.4782538>.IPBES
- [46] Raihan, A., Begum, R. A., Said, M. N. M., & Pereira, J. J. (2021). Assessment of carbon stock in forest biomass and emission reduction potential in Malaysia. *Forests*, 12(10). <https://doi.org/10.3390/f12101294>
- [47] Raihan, A., Nizam Mohd Said, M., Mastura Syed Abdullah, S., & Ara Begum, R. (2018). Climate Change Mitigation Options in the Forestry Sector of Malaysia (Pilihan Mitigasi Perubahan Iklim di Sektor Perhutanan Malaysia). *Jurnal Kejuruteraan SI*, 1(6), 89–98. Retrieved from <http://dx.doi.org/10.17576/jkukm-2018-si1>
- [48] Raustiala, K., & Victor, D. G. (2004). The Regime Complex for Plant Genetic Resources. *International Organization*, 58(2), 277–309. <https://doi.org/10.1017/S0020818304582036>
- [49] Runhaar, H., Wilk, B., Driessen, P., Dunphy, N., Persson, Å., Meadowcroft, J., & Mullally, G. (2020). Policy Integration. In F. Biermann & R. E. Kim (Eds.), *Architectures of Earth System Governance: Institutional Complexity and Structural Transformation* (pp. 183–206). Cambridge, United Kingdom: Cambridge University Press.
- [50] Susskind, L., Chun, J., Goldberg, S., Gordon, J. A., Smith, G., & Zaerpoor, Y. (2020). Breaking Out of Carbon Lock-In: Malaysia's Path to Decarbonization. *Frontiers in Built Environment*, 6(March). <https://doi.org/10.3389/fbuil.2020.00021>
- [51] The World Bank. (2022). *State and Trends of Carbon Pricing 2022 (May)*. <https://doi.org/10.1596/978-1-4648-1895-0>.
- [52] Tong, P. S. (2020). More policies and laws, is it better for biodiversity conservation in Malaysia? *Conservation Science and Practice*, 2(8), 1–11. <https://doi.org/10.1111/csp2.235>
- [53] Tosun, J., & Leininger, J. (2017). Governing the Interlinkages between the Sustainable Development Goals: Approaches to Attain Policy Integration. *Global Challenges*, 1700036, 1700036. <https://doi.org/10.1002/gch2.201700036>
- [54] United Nations. (2015). Transforming our world: The 2030 agenda for sustainable development. <https://Sustainabledevelopment.Un.Org/Content/Documents/7891Transforming%20Our%20World.Pdf>, (1), 1–5. <https://doi.org/10.1007/s13398-014-0173-7.2>
- [55] Vanhala, L. (2017). Process tracing in the study of environmental politics. *Global Environmental Politics*, 17(4), 88–105. [https://doi.org/10.1162/GLEP\\_a\\_00434](https://doi.org/10.1162/GLEP_a_00434)
- [56] Visseren-hamakers, I. J., Mcdermott, C., Vijge, M. J., & Cashore, B. (2012). Trade-offs , co-benefits and safeguards : current debates on the breadth of REDD +. *Current Opinion in Environmental Sustainability*, 4(6), 646–653. <https://doi.org/10.1016/j.cosust.2012.10.005>
- [57] Wan Razali, W. M., & Awang Noor, A. G. (2012). Climate change and biodiversity: Research and policy issues in sustainable forestry in Malaysia. *Malaysian Forester*, 75(2), 103–118.
- [58] World Bank. (2021). “Weathering the Surge” Malaysia Economic Monitor (June). In *World Bank Group*. Washington DC.

- [59] Yashiro, Y., Kadir, W. R., Okuda, T., & Koizumi, H. (2008). The effects of logging on soil greenhouse gas (CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O) flux in a tropical rain forest, Peninsular Malaysia. *Agricultural and Forest Meteorology*, 148(5), 799–806. <https://doi.org/10.1016/j.agrformet.2008.01.010>
- [60] Young, O. R. (2006). Vertical Interplay among Scale-dependent Environmental and Resource Regimes. *Ecology and Society*, 11(1), 27. <https://doi.org/10.1007/s10021-001-0045-9>
- [61] Young, O. R. (2017). Conceptualization: Goal Setting as a Strategy for Earth System Governance. In N. Kanie & F. Biermann (Eds.), *Governing through Goals*. Cambridge, MA: MIT Press.
- [62] Young, O. R., King, L. A., & Schroeder, H. (2008). *Institutions and Environmental Change: Principal Findings, Applications and Research Frontiers*. <https://doi.org/10.7551/mitpress/9780262240574.001.0001>

## APPENDICES - A

**Table 1: Framework for studying the influence of SDGs for issue linkage**

	Mechanisms and Pathways	Forces that trigger pathway	Propositions	Primary Actors	Hypotheses for Malaysia
Direct Mechanisms	M1 Functional Influence	Combination of strong interlinkages, shared underlying beliefs and symmetrical power	P1: The strength of (inter)linkages (either synergistic or trade-offs) will only be a determinant in interplay that are shallow or synergistically deep with a symmetrical power structure.	National government agencies	Interlinkages are determined by government priorities as reflected in power asymmetries (i.e. budget allocation)
	M2 Institutional Influence	Shared beliefs, intersubjective understandings and identities	P2: Issue linkages are more likely to be substantive depending on the level of political participation and actors who operate at multiple levels of jurisdiction	Political actors, non-state actors	Due to federalism, issues of different political jurisdictions will unlikely address interlinkages
	M3 Material Influence	Material leverage	P3: The influence of either international bureaucracies or networks that attempt to directly access domestic policy processes will be dependent on the amount of funding used as leverage and is likely to be more influential on existing or previously linked issues, institutions or policies	International bureaucracies, Development Banks and Networks	Relevance to previously linked issues (for example under the 5-year economic plans) will be more likely to succeed
Indirect Mechanisms	M4 Market Influence	Exposure to global markets	P4: Influence is more likely when the relative dependence on foreign market is high and powerful actors trigger market forces	Networks of producers and consumers	Tactical linkages are likely to succeed if the exposure to global markets is high
	M5 Ideational and Normative Influence	Ideas and norms through deliberative processes in policymaking	P5: Epistemic communities and norm entrepreneurs are likely to be more influential the more deliberative domestic policy processes are	Epistemic communities and norm entrepreneurs	A more deliberative process post regime change is likely to increase influence of non-state actors
	M6 Regime Complexity Influence	Forum shopping	P6: Interlinkages are more likely when actors participate in multiple forums internationally and domestically related to SDGs implementation	Other rule-making regimes and institutions	Non-state actors are likely to participate across goals. Their influence is dependent on the interaction with other pathways
	M7 Globalisation	Motivations of financial institutions and cronyism and corruption in prevailing setting	P7: The influence of cross-border financial institutions can enhance or hinder implementation of interlinkages depending on their motivations and are more likely when the financial depth is small	Financial institutions	Financial institutions are likely to act as 'enablers' to cronyism and corruption that hinder implementation of interlinkages