



Climate Governance and Agriculture in Southeast Asia: Learning From a Polycentric Approach

Siw Fasting^{1*}, *Imelda Bacudo*², *Beau Damen*³ and *Dhanush Dinesh*¹

¹CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS), Wageningen University and Research (WUR), Wageningen, Netherlands, ²Association of Southeast Asian Nations Climate Resilience Network (ASEAN-CRN), Jakarta, Indonesia, ³Food and Agriculture Organization of the United Nations (FAO), Regional Office for Asia and the Pacific, Bangkok, Thailand

The global climate governance framework will need to empower a wide range of groups representing different geopolitical and sector-specific interests to engage in climate action. Learning from polycentric governance approaches could provide insight on how to foster more inclusive engagement and more effective outcomes from global efforts to fight climate change. The Paris Agreement has opened up room for this type of bottom-up, polycentric governance and new attention to important issues such as agriculture. The Association of Southeast Asian Nations Climate Resilience Network (ASEAN-CRN) is an example of a polycentric system to enhance resilience and adapt to climate change. The ASEAN Negotiating Group on Agriculture (ANGA) enables the region's agriculture sector to shape global climate governance frameworks. The case of ANGA highlights that opening up space for polycentric systems can foster climate action in relevant sectors. Supporting regions to navigate UNFCCC processes can further enable polycentric systems, enhancing climate resilience and adaptation.

Keywords: ASEAN, polycentric governance, agriculture, global climate governance, UNFCCC

OPEN ACCESS

Edited by:

Daniele Conversi,
IKERBASQUE Basque Foundation for
Science, Spain

Reviewed by:

Israel Solorio,
National Autonomous University of
Mexico, Mexico
Zafar Nazarov,
Purdue University Fort Wayne,
United States

*Correspondence:

Siw Fasting
s.fasting@cgiar.org

Specialty section:

This article was submitted to
Comparative Governance,
a section of the journal
Frontiers in Political Science

Received: 21 April 2021

Accepted: 09 July 2021

Published: 20 August 2021

Citation:

Fasting S, Bacudo I, Damen B and
Dinesh D (2021) Climate Governance
and Agriculture in Southeast Asia:
Learning From a Polycentric Approach.
Front. Polit. Sci. 3:698431.
doi: 10.3389/fpos.2021.698431

GLOBAL CLIMATE GOVERNANCE AND THE POLYCENTRIC APPROACH

There is growing recognition that, while climate change is a global problem, it will not be effectively (Bulkeley and Moser, 2007) tackled with top-down, one-size fits all approaches. Due to weaker capacity for international engagement and collaboration, the needs and opportunities of developing countries have often been underrepresented in global climate governance (Cao and Ward, 2017). Weak and powerful parties are often unequally represented in decision making and objective setting processes (Grasso and Sacchi, 2015). Issues associated with procedural injustice in accessing knowledge and questions regarding responsibility for climate change have also deterred the engagement of developing countries (Grasso, 2011; Uddin, 2017). The North-South divide that has often characterised negotiations around the global climate governance framework has been well noted (Uddin, 2017). Developing countries have tended to prioritize needs to address near-term risks and adaptation while the industrialized North emphasized long term impacts and mitigation (Johnson and Urpelainen, 2012; Chandra et al., 2016; Stephenson et al., 2019). Therefore, the need for more ambitious action on climate change requires governance arrangements that are responsive to the wide variations in context, challenges, and opportunities across countries that empower action in different arenas at different scales. The food sovereignty movement, for example,

emphasizes the need for independence, autonomy and context specificity shifting responsibility and action to a more local level to empower communities and countries to ensure local food security (Pierrick, 2003). Furthermore, procedural justice can be achieved by shaping decision-making processes in governance systems (Grasso and Sacchi, 2015). The Paris Agreement and the Nationally Determined Contributions, by setting procedural obligations while allowing for countries to decide the nature and extent of their actions, opens up opportunities for more bottom-up engagement in global climate governance and a wider range of possible climate actions (Cole, 2015; Van Asselt and Zelli, 2018). Polycentric governance provides a useful lens for assessing the implications of these developments (Bulkeley and Moser, 2007; Ostrom, 2012; Wang and Chen, 2013).

A polycentric system is made of autonomous units which act formally independent from each other and collaborate without a hierarchy (Ostrom, 2010). These policy units are interdependent and adjust mutually, similar to a living organism (Ostrom, 2010; Cole, 2011; Morrison et al., 2017). It has been suggested that fostering polycentric approaches could improve outcomes from the global climate governance framework by fostering diversity and participation, flexibility, experimentation, innovation and learning, communication and knowledge sharing, autonomy and self-regulation, collaboration, integration and shared decision-making (Feiock, 2013; Acemoglu et al., 2014; Fraser and Kirbyshire, 2017).

Dorsch and Flachsland, (2017) outlined four key features of a polycentric system that enhance cooperation and mitigation specifically in relation to the global climate governance framework:

- *self-organization* (empowering subsidiary actors enables action at the closest level to the problem)
- recognition of *site-specific conditions* (recognition of preferences, competencies and constraints at different levels and areas fosters engagement and reduces inefficiencies)
- *experimentation and learning* (decentralized experimentation and mutual learning enhances the learning curve, reduces costs, enables flexible adaptation, can change preference structures and enhances engagement)
- *building trust* (face-to-face communication and monitoring at various levels enhances cooperation and deters free-riding)

These features a useful framework for assessing the extent to which different actors and groups align with polycentric systems and to provide insights on how these such actors and groups can influence the global climate governance framework through the adoption of polycentric approaches—even beyond a mitigation context. Self-organization amongst individual policy units in a polycentric system fosters the development of new or new types of actions based on diverse contexts, regarding smaller units as active creators and reshaping the relationships between sectors and actors for efficient collaboration (Atkinson et al., 2017). The recognition of site-specific conditions leads to higher levels of engagement from a wider group of actors based on local knowledge and the development of diverse tailor-made strategies that can increase adaptation and mitigation

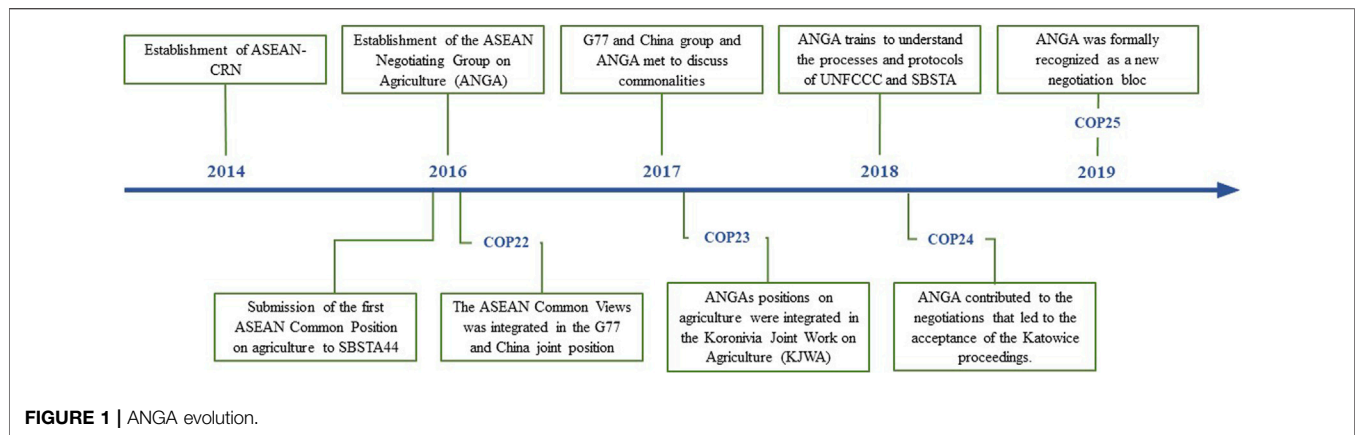
efficiency and reduce the risk of failure (Dorsch and Flachsland, 2017; Morrison et al., 2017; Homsey et al., 2019). Experimentation and mutual learning on smaller scales reinforce these effects encouraging units to engage and adopt a broader set of strategies and technologies for climate action (Douthwaite, 2002; Abbott, 2012). Building trust between units and having one unifying vision supporting one identity within various rising discourses strengthens ties and increases policy coordination (Bulkeley and Moser, 2007; Johnson and Urpelainen, 2012).

The Paris Agreement, as described above, has increased the possibility for polycentric approaches to influence discourses under the global climate framework and in doing so fosters more inclusive climate action. The agricultural sector is highly vulnerable to climate change but also a driver of land degradation and emissions, making it a priority for action. While there is significant potential for mitigation from improved soil carbon, and other practices, technical and political challenges need further attention. Meanwhile, developing countries are particularly focused on the need for adaptation to better manage observed and future climate impacts in order to protect hard-won gains in socio-economic development and food security (Chandra et al., 2016). The polycentric system that has emerged around the Paris Agreement has encouraged agriculture stakeholders to strengthen their engagement in global climate governance fora and register the unique needs and potential of the agricultural sector (CCAFS, 2016). This development was reflected most clearly in the decision to adopt the Koronivia Joint Work on Agriculture (KJWA) at COP23 in 2017. KJWA has accelerated agriculture sector-specific engagement within the global climate governance framework as would be expected in a polycentric system. This could drive further ambition and improved implementation of climate action across sectors (Dinesh et al., 2017; Drieux et al., 2019).

ANGA AND POLYCENTRIC GOVERNANCE FOR CLIMATE ACTION IN AGRICULTURE

Being one of the most at-risk regions to climate change worldwide makes effective climate adaptation and mitigation in Southeast Asia urgent. Rising temperatures between 4–5°C and a sea-level rise up to 70 cm by 2,100 are estimated with increasing occurrence of climate-related disasters (Raitzer, 2015). Floods and salination processes reduce the amount of fertile land and crop failure affects the major staple crops; rice and corn (ASEAN Secretariat, 2017). Declining agricultural productivity threatens food security (ASEAN Secretariat, 2017; Øverland et al., 2017). Livelihood dependency on agriculture increases the threat of poverty and social inequality (Asian Development Bank, 2017; Øverland et al., 2017; Prakash, 2018). The agricultural sector is also a driver of greenhouse gas emissions in the region particularly from deforestation and peatland drainage (ASEAN Secretariat, 2017).

The ASEAN Climate Resilience Network (ASEAN CRN) has developed a process of collaboration and self-organization to highlight the specific needs of the region in the context of the



global climate governance framework. ASEAN-CRN was formed in 2014, providing a platform for regional exchange (see **Figure 1**) by the ASEAN Technical Working Group on Agriculture Research and Development (ATWGARD) reporting to the ASEAN Ministers of Agriculture and Forestry (AMAF). Utilizing knowledge products and insights from the activities of the network, the ASEAN Negotiating Group on Agriculture (ANGA) was further established by AMAF to enhance regional engagement in multilateral environmental agreements on issues related to agriculture.

The following analysis is based on six semi-structured interviews with key informants including ANGA focal points and UNFCCC experts and a focus group discussion. Given the relatively small group of actors involved in ANGA and ASEAN CRN and the recent formation and engagement of ANGA as a regional grouping in climate change negotiations, key informant interviews and a focus group discussion were used to qualitatively assess how these groups aligned with a polycentric system (Taylor and Blake, 2015). These interviews and discussions were supplemented with a review of program documents about ASEAN-CRN and relevant literature.

Consistent with the features of polycentric systems, the establishment of ANGA came from ASEAN members' recognition of the need for improved self-organization and collective action in highlighting the region-specific issues for agriculture in the global climate governance framework. ANGA was formally accepted as a negotiation group to the United Nations Framework Convention on Climate Change (UNFCCC) to represent the agriculture sector of ASEAN under G77 and China (ANGA, 2020). The objective of the UNFCCC is the stabilisation of greenhouse gas concentrations in the atmosphere, enabling natural adaptation of ecosystems to climate change while not threatening food production and sustainable economic development (UNFCCC 1992). Meanwhile, ASEAN-CRN facilitates experimentation and learning, providing a platform for sharing regional information, experience and expertise to improve climate adaptation and mitigation in the agricultural sector and translates science into policy. Member countries individually develop agricultural practices, policies and technologies to

improve food security, productivity, and resilience to climate change. The exchange of knowledge enables members to adjust their national climate strategies and policies. Especially least developed countries are benefitting from knowledge exchange and discussions between member states, learning from various best practices under diverse contexts (ASEAN-CRN, 2015; ANGA, 2020).

Two joint submissions to UNFCCC have been formulated with recognition of region-specific conditions including presentation of national and regional adaptation measures as well as a definition of priorities and needs of the network to scale up adaptation measures through UNFCCC processes. The joint positions, representing the view of ANGA on agriculture and climate change, contributed to the adoption of the COP decision on the establishment of the Koronivia Joint work on Agriculture (KJWA) (ASEAN-CRN, 2015; ANGA, 2020) and demonstrates the effectiveness of the system as such.

As outlined in **Table 1**, workshops and group meetings fostered a good understanding of national challenges and practices which enabled the recognition of site-specific conditions. During these events, countries were asked to reflect on national conditions and priorities, while also encouraged to identify how they related to the needs and priorities of other countries at the regional level. The process allowed for country focal points to become climate change champions in their own countries. This enabled self-organization and strengthening of the national agricultural agenda in the context of climate change. Regular meetings during workshops and preparation for negotiations foster the recognition of one unifying identity (ANGA, 2020) or vision and provide opportunities for direct interaction to build trust among members. Direct interaction between members and regional monitoring efforts can build trust and commitment between members (Salamanca and Nguyen, 2016; ANGA, 2020). Continuous exposure to actual negotiations during SBSTA and COP builds confidence and trust that a joint approach is ultimately more effective (based on interviews with ANGA focal points and UNFCCC experts see **Table 1**). These procedures and outcomes highlight the function and benefits of a polycentric system.

Having in place such mechanisms to develop and express common positions, following ASEAN protocols on consensus

TABLE 1 | Results from six interviews with ANGA focal points and UNFCCC experts and one ANGA group discussion.

Principles	Mechanisms	Results
Self-Organization	Guiding Questions	- Guiding questions increase awareness and ease the process to engage with issues at the national level strengthening their position also at the global level
	Workshops Preparatory meetings	- Preparatory meetings with external technical input are improving the knowledge and skill of the negotiators which increases confidence. Strong leadership of focal points to tackle internal political challenges and push the process are essential for successful proactive engagement - Gaining knowledge within the group including UNFCCC processes, technical aspects, practices and strategies increase the confidence of focal points and benefit national climate adaptation strategies - Group activities foster the visibility of the members in their own countries and support the vision of individual countries to follow one agenda - Through ANGA agriculture became a higher priority in several countries due to focal points becoming champions in their own country for climate adaptation and mitigation
Site-Specific Conditions	Guiding questions	- Discussion and revision of individual submissions increase understanding and knowledge of focal points
	Workshops	- Workshops and group meetings to discuss commonalities and individual views foster a good understanding of the different positions as well as close collaboration and exchange between members. External professionals smoothen this process
	Third-party revision of country submissions	- Basing regional priorities on national priorities to foster a clear objective and goal at the global level leads to stronger identification with the group
Experimentation and Learning	Workshops Third-party consultants	- Through ANGA countries had the chance to broaden their horizon, profiting from others experiences and best practices as well as share ideas and discussions. This connection with other countries is highly valued by many members
Trust	Scientific knowledge	- Workshops and group meetings provide possibilities for direct interactions, reflection and understanding of different views. Personal meetings are important to be able to represent the regional context, highlighting the benefits of a regional position to enhance national views
	Workshops Preparatory meetings	- Continuity of the focal points, people who gain an in-depth understanding of diverse views and issues are essential to enable strong collaboration and leadership - A group such as ANGA is drawn together through their similarities feeling united and building one identity which enables reflection and learning from differences - Preparatory meetings and debriefing sessions support a common understanding and unification of the group, leading to more effective coordination and enabling dynamic reaction - Science-backed processes and positions give credibility to the group and a good base for submissions and negotiations, providing a strong base for formal endorsement

building, supports a process of knowledge exchange, collaboration, and creation of one identity, and promoting leadership at the regional level. Regional mechanisms for consensus building can also help to facilitate consensus building at the national level by providing new fora for national actors to exchange views and interact that are not subject to prevailing hierarchies or procedural constraints of government institutions.

LESSONS LEARNED FROM ANGA ON ENABLING AND BENEFITING FROM POLYCENTRIC SYSTEMS

Polycentric approaches can enable more effective climate action at global, regional and national levels and across sectors.

The example of ASEAN-CRN and ANGA shows that opening up space for polycentric approaches within the global climate governance framework can lead to effective climate action. By fostering self-organization, based on the identification of shared priorities forming one identity, the recognition of site-specific conditions, facilitation of experimentation and mutual learning and the building of

trust, ANGA has strengthened the role of the agriculture sector both within the global climate governance framework and in regional and national policy processes regarding climate action.

At the regional level, several countries speaking with one voice, having one strategy for voicing their concerns and preferences and submitting coordinated positions with key points rather than several submissions with a lot of overlap improves communication and effectiveness of negotiations and eases the consensus process (UNFCCC expert, 2020a, 2020b). ANGA adhered to this approach in its engagement with KJWA, strengthening its positions, the coherence of the group and its effectiveness in pushing for support (ANGA focal point, 2020a; ANGA group meeting, personal communication). At the national level, the revised NDCs already available from the region, many have strengthened the role that agriculture will play in adaptation and some cases mitigation as well. This can further push local context-specific action and engagement as outlined above.

The countries have achieved this outcome by employing a structured process (**Box 1**) to organize, develop and express common positions through submissions and as negotiators. This process ensures coordination, inclusiveness, context specificity and credibility of the group members and may be

BOX 1 | ANGA consensus-building process

- Scientific knowledge and policy positions from sources such as national NDCs, NAPs and ASEAN Regional Guidelines are used to identify common needs and opportunities.
- Coordination and acceptance of ANGA focal points by national appointed UNFCCC teams.
- Guiding questions regarding key discussion topics are developed and shared with each member to define specific positions.
- Workshops and consultations are organized to allow all members to collectively share and agree on common challenges, practices and needs as the basis of shared positions and submissions. During these meetings countries discuss, agree and sometimes fight for individual views to be included.
- External technical experts are sought out to support discussions and provide feedback on submissions.
- Negotiation preparatory meetings are organized to test positions and negotiation scenarios.

instructive for other policy units looking to enhance geopolitical or sectoral engagement under the global climate governance framework (ANGA, 2020). This highlights that in the practical implementation of a polycentric system, following specific processes, enables more effective climate action at various levels.

Support to developing countries to engage in global climate governance enables effective bottom-up polycentric approaches.

Supporting groups to better understand the global climate governance framework and its processes and outline the possibilities for engagement enables effective bottom-up polycentric approaches. One of the main struggles faced by the group was the lack of knowledge of how the UNFCCC and subsidiary bodies work and how submissions look like (ANGA, 2020). ANGA members have noted that other regions “*are strong negotiators and understand how to express their positions. But when I look at myself and other ASEAN countries, we still didn’t have the strength.*” (ANGA focal point, 2020b). This highlights the knowledge gap and the inequality between the North and South as described previously.

As a group, ANGA members sought out negotiation training, workshops and capacity building support from partners such as FAO and GIZ which enabled ANGA to speak with one voice (ANGA, 2020; ANGA group meeting, personal communication). While this type of support “*must be dedicated to creating conditions in which parties could meet and talk but not affecting outcomes of these talks*” (UNFCCC expert, 2020a, 2020b), improved understanding of UNFCCC processes and reports enhanced regional and national engagement in climate action (ANGA, 2020; ANGA focal point, personal communication, December 22, 2020; ANGA group meeting, personal communication). Neutral information and materials and technical briefings by experts to answer process-related or technical questions can reduce obstacles in a party-driven process for group formation and, in doing so, lead to more effective polycentric approaches. Bridging this knowledge gap increases therefore procedural justice in climate governance.

REFERENCES

- Abbott, K. W. (2012). The Transnational Regime Complex for Climate Change. *Environ. Plann. C Gov Pol.* 30 (4), 571–590. doi:10.1068/C11127
- Acemoglu, D., Aghion, P., and Hémous, D. (2014). The Environment and Directed Technical Change in a North-South Model. *Oxford Rev. Econ. Pol.* 30 (3), 513–530. doi:10.1093/oxrep/gru031
- ANGA (2020). *ASEAN Negotiating Group on Agriculture (ANGA): A Reflection on its Value and Relevance.*

CONCLUSION

This case study suggests that decision-makers at different levels should aim to create conditions that enable and benefit from polycentric systems to climate resilience and encourage more ambitious action to address climate change. Opening up space for polycentric systems to emerge can also give voice to important sectors for scaling climate action such as agriculture. As the example of ANGA demonstrates, effective climate action is facilitated by self-organisation through national and regional engagement, individual leadership, recognition of context-specific conditions through active discussion of different views, learning through experimentation, and knowledge exchange. Through support to better understand UNFCCC processes and engagement options, groups such as ANGA can assert their views within the global climate governance framework, making negotiations more efficient and inclusive. To further analyse the effectiveness of a polycentric system such as ASEAN-CRN further quantitative empirical analyses or similar case studies are necessary to support the qualitative conclusions reached here.

AUTHOR CONTRIBUTIONS

SF wrote the first draft of the manuscript. SF, IB, BD, and DD wrote sections of the manuscript. All authors contributed to manuscript revision, read, and approved the submitted version.

FUNDING

SF and DD acknowledge support from the CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS), which is carried out with support from CGIAR Fund Donors and through bilateral funding agreements. For details, please visit <https://ccafs.cgiar.org/donors>. The views expressed in this paper cannot be taken to reflect the official opinions of these organizations.

- ASEAN Secretariat (2017). Fifth ASEAN State Environment Report. Jakarta. Available at: <http://environment.asean.org/wp-content/uploads/2018/01/SOER5.pdf>.
- ASEAN-CRN (2015). Report: ASEAN-CRN Workshop on the Promotion of Climate Smart Agriculture Practices. Available at: <https://asean-crn.org/asean-crn-workshop-promotion-climate-smart-agriculture-practices/#more-891>.
- Asian Development Bank (2017). *A Region at Risk: The Human Dimensions of Climate Change in Asia and the Pacific*. Manila, Philippines: Asian Development Bank. doi:10.22617/TCS178839-2

- Atkinson, R., Dörfler, T., Hasanov, M., Rothfuß, E., and Smith, I. (2017). Making the Case for Self-Organisation: Understanding How Communities Make Sense of Sustainability and Climate Change through Collective Action. *Int. J. Sustain. Soc.* 9 (3), 193. doi:10.1504/IJSSOC.2017.088300
- Bulkeley, H., and Moser, S. C. (2007). Responding to Climate Change: Governance and Social Action beyond Kyoto. *Glob. Environ. Polit.* 7 (2), 1–10. doi:10.1162/glep.2007.7.2.1
- Cao, X., and Ward, H. (2017). Transnational Climate Governance Networks and Domestic Regulatory Action. *Int. Interactions* 43 (1), 76–102. doi:10.1080/03050629.2016.1220162
- CCAFS (2016). *Agriculture Is Integrated into the Paris Agreement* (CCAFS Outcome Case). Copenhagen, Denmark. Available at: <https://cgspace.cgiar.org/handle/10568/76393>.
- Chandra, A., McNamara, K. E., Dargusch, P., Damen, B., Rioux, J., Dallinger, J., et al. (2016). Resolving the UNFCCC divide on Climate-Smart Agriculture. *Carbon Manage.* 7 (5-6), 295–299. doi:10.1080/17583004.2016.1235420
- Cole, D. H. (2015). Advantages of a Polycentric Approach to Climate Change Policy. *Nat. Clim Change* 5 (2), 114–118. doi:10.1038/nclimate2490
- Cole, D. H. (2011). From Global to Polycentric Climate Governance. *Clim. L.* 2 (3), 395–413. doi:10.1163/cl-2011-042
- Dinesh, D., Campbell, B., Wollenberg, L., Bonilla-Findji, O., Solomon, D., Sebastian, L., et al. (2017). A Step Forward for Agriculture at the UN Climate Talks – Koronivia Joint Work on Agriculture. Available at: <https://ccafs.cgiar.org/news/step-forward-agriculture-un-climate-talks-koronivia-joint-work-agriculture>.
- Dorsch, M. J., and Flachsland, C. (2017). A Polycentric Approach to Global Climate Governance. *Glob. Environ. Polit.* 17 (2), 45–64. doi:10.1162/GLEP_a_00400
- Douthwaite, B. (2002). Blowing in the Wind: How 'bottom-Up' beats 'topdown' for the Billion-Dollar Wind Turbine Industry. *Chapter 4*, 67–104.
- Drieux, E., St-Louis, M., Schlickerrieder, J., and Bernoux, M. (2019). State of the Koronivia Joint Work on Agriculture: Boosting Koronivia. Rome. Available at: <http://www.fao.org/3/ca6910en/ca6910en.pdf>.
- Feiock, R. C. (2013). The Institutional Collective Action Framework. *Policy Stud J* 41 (3), 397–425. doi:10.1111/PSJ.12023
- Fraser, A., and Kirbyshire, A. (2017). Supporting Governance for Climate Resilience. London. Available at: http://www.academia.edu/download/54414747/supporting_governance_for_climate_resilience_working_with_political_institutions.pdf.
- Grasso, M., and Sacchi, S. (2015). Impure Procedural Justice in Climate Governance Systems. *Environ. Values* 24 (6), 777–798. doi:10.3197/096327115X14420732702699
- Grasso, M. (2011). The Role of justice in the North-South Conflict in Climate Change: the Case of Negotiations on the Adaptation Fund. *Int. Environ. Agreements* 11 (4), 361–377. doi:10.1007/s10784-010-9145-3
- Homsy, G. C., Liu, Z., and Warner, M. E. (2019). Multilevel Governance: Framing the Integration of Top-Down and Bottom-Up Policymaking. *Int. J. Public Adm.* 42 (7), 572–582. doi:10.1080/01900692.2018.1491597
- Johnson, T., and Urpelainen, J. (2012). A Strategic Theory of Regime Integration and Separation. *Int. Org.* 66 (4), 645–677. doi:10.1017/S0020818312000264
- Morrison, T. H., Adger, W. N., Brown, K., Lemos, M. C., Huitema, D., and Hughes, T. P. (2017). Mitigation and Adaptation in Polycentric Systems: Sources of Power in the Pursuit of Collective Goals. *Wires Clim. Change* 8 (5), e479. doi:10.1002/wcc.479
- Ostrom, E. (2010). Beyond Markets and States: Polycentric Governance of Complex Economic Systems. *Am. Econ. Rev.* 100 (3), 641–672. doi:10.1257/AER.100.3.641
- Ostrom, E. (2012). Nested Externalities and Polycentric Institutions: Must We Wait for Global Solutions to Climate Change before Taking Actions at Other Scales?. *Econ. Theor.* 49 (2), 353–369. doi:10.1007/s00199-010-0558-6
- Øverland, L., Vakulchuk, R., Azlan, L., Charadine, P., Chongkittavorn, K., Eksuriya, C., et al. (2017). Impact of Climate Change on ASEAN International Affairs: Risk and Opportunity Multiplier. *Norwegian Institute of International Affairs and Myanmar Institute of International and Strategic Studies*. Available at: <https://nupi.brage.unit.no/nupi-xmlui/handle/11250/2465067>.
- Pierrick (2003). Food Sovereignty. *La via Campesina*. Available at: <https://viacampesina.org/en/food-sovereignty/>.
- Prakash, A. (2018). The Impact of Climate Change in Southeast Asia – IMF Finance & Development Magazine | September 2018. *FINANCE DEVELOPMENT* 55 (3), 22–26. doi:10.5089/9781484368800.022 Available at: <https://www.imf.org/external/pubs/ft/fandd/2018/09/pdf/southeast-asia-climate-change-and-greenhouse-gas-emissions-prakash.pdf>.
- Raitzer, D. A. (2015). *Southeast Asia and the Economics of Global Climate Stabilization*. Manila, Philippines: Asian Development Bank.
- Salamanca, A., and Nguyen, H. (2016). Climate Change Adaptation Readiness in the ASEAN Countries. Available at: <http://www.jstor.org/stable/resrep02771>.
- Stephenson, S. R., Oculi, N., Bauer, A., and Carhuayano, S. (2019). Convergence and Divergence of UNFCCC Nationally Determined Contributions. *Ann. Am. Assoc. Geogr.* 109 (4), 1240–1261. doi:10.1080/24694452.2018.1536533
- Taylor, G. A. J., and Blake, B. J. (2015). Chapter 10: Key Informant Interviews and Focus Groups. In *Nursing Research Using Data Analysis*, 153–165.
- Uddin, K. (2017). Climate Change and Global Environmental Politics: North-South Divide. *EPL* 47 (3-4), 106–114. doi:10.3233/epl-170022
- UNFCCC (1992). United Nations Framework Convention on Climate Change. UNFCCC. Available at: <https://unfccc.int/resource/docs/convkp/conveng.pdf> (Accessed July 12, 2021).
- Van Asselt, H., and Zelli, F. (2018). "International Governance," in *Governing Climate Change: Polycentricity in Action?* Editors A. Jordan, D. Huitema, H. van Asselt, and J. Forster (Cambridge, United Kingdom, New York, NY: Cambridge University Press), 29–46. doi:10.1017/9781108284646.003
- Wang, Q., and Chen, X. (2013). Rethinking and Reshaping the Climate Policy: Literature Review and Proposed Guidelines. *Renew. Sustain. Energ. Rev.* 21, 469–477. doi:10.1016/j.rser.2012.12.055

Conflict of Interest: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Publisher's Note: All claims expressed in this article are solely those of the authors and do not necessarily represent those of their affiliated organizations, or those of the publisher, the editors and the reviewers. Any product that may be evaluated in this article, or claim that may be made by its manufacturer, is not guaranteed or endorsed by the publisher.

Copyright © 2021 Fasting, Bacudo, Damen and Dinesh. This is an open-access article distributed under the terms of the Creative Commons Attribution License (CC BY). The use, distribution or reproduction in other forums is permitted, provided the original author(s) and the copyright owner(s) are credited and that the original publication in this journal is cited, in accordance with accepted academic practice. No use, distribution or reproduction is permitted which does not comply with these terms.