

Deforestation and the Paris climate agreement: An assessment of REDD + in the national climate action plans

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ABSTRACT

More than ten years after REDD + (Reducing Emissions from Deforestation and forest Degradation) entered the UN climate negotiations, its current state and future direction are a matter of contention. This paper analyses 162 INDCs (Intended National Determined Contributions), or climate action plans, to assess whether and how countries plan to use REDD + in their implementation of the Paris Agreement. Our analysis suggests that REDD + continues to have political traction. Many tropical countries still have expectations of REDD +, and hope that public and private donors will support chronically underfunded domestic conservation programs. However, the expectations are not formulated in detail. We argue that until the questions of how to finance REDD + and how to deal with the drivers of deforestation are resolved, REDD is unlikely to move quickly from formulated INDCs plans to implementation on the ground.

1. Introduction: REDD +, the Paris agreement and INDCs

More than ten years after REDD + (Reducing Emissions from Deforestation and forest Degradation) entered the UN climate negotiations, its current state and future direction are a matter of contention. Some observers argue that REDD + has a poor track record of achieving what it is supposed to achieve—i.e. reduce emissions—as suggested by rising deforestation rates in REDD + posterchildren like Brazil, Colombia and Indonesia (Butler 2016; Enrici & Hubacek 2016; El Espectador 2017; SINCHI 2016). One main argument for explaining its poor track record is that so far REDD + has been unable to tackle the root causes of deforestation, such as the demand for agricultural commodities like palm oil, soy, cocoa and coffee (Bastos-Lima et al. 2017, Weatherley-Singh and Gupta, 2015, Karsenty and Ongolo, 2012). Others claim that the limited success of REDD + is due to poor implementation at the national level, governance challenges and lack of progress in the wider climate change negotiations (Angelsen et al. 2017, Brockhaus et al., 2014, Cadman et al., 2017, Boer, 2018). In particular, it is argued that the absence of an international carbon market and weak international emission reduction targets have hampered the implementation of REDD + (Angelsen et al. 2017). A third group criticizes REDD + more fundamentally arguing that “the current difficulties are

symptomatic of inherent deficiencies in the REDD + mechanism, itself symptomatic of contradictions in market-based conservation” (Fletcher et al. 2016).

Despite all the uncertainties and controversies surrounding REDD + among scholars, activists and development practitioners, the national climate action plans (or INDCs: Intended National Determined Contributions) submitted as part of the Paris climate agreement demonstrate that many countries with tropical rainforests continue to have expectations of REDD +. In total, 56 countries indicate in their INDC that they aim to implement REDD + as part of their contribution to address climate change (Pauw et al., 2016). The INDCs provide rich information on how countries intend to advance domestic climate policies including efforts to reduce deforestation and forest degradation (for the BRICs countries c.f. Bhan et al. 2017). They were key to reaching the Paris Agreement and will be instrumental to implementing it (Pauw et al., 2017). However, do they also move the current debate on the future direction of REDD + beyond the known challenges?

We build on an analysis of all 162 INDCs¹ to give an overview of the current state of REDD + as reflected by countries' climate change commitments. In analyzing the INDC texts, we looked for references to REDD +, land use change and deforestation, and assessed the documents according to six criteria: 1) reference to planned or existing

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¹ Once a party to the UNFCCC ratifies the Paris Agreement it is invited to turn its Intended Nationally Determined Contribution (INDC) into an Nationally Determined Contribution (NDC). We refer to INDCs rather than NDCs because more countries have submitted INDCs than NDCs.

strategies or institutions for implementing REDD; 2) mentions of REDD + monitoring, reporting and verification (MRV) mechanisms; 3) identification of sources of REDD + finance; 4) mentions of land tenure or forest governance; 5) reference to REDD + safeguards, including issues of free prior and informed consent in the context of REDD; and 6) the level of detail about REDD implementation. In addition, we analyzed statements of conservation NGOs and donor agencies related to REDD + and INDCs as well as background literature on REDD + implementation.

This paper is structured as follows. First, we analyze whether and how REDD + is included in INDC and show that REDD + features prominently in the commitments made by many countries in their INDCs. Second, we demonstrate that despite all risks associated with the mechanism the expectations of REDD + are still high, in particular in tropical rainforest countries. REDD + is still considered as a prominent instrument for mitigating climate change and to access climate finance. Finally, we provide four explanations for REDD's continued vitality, including but not only as part of the INDCs.

1.1. Taking stock of REDD + in the INDCs

Most of the countries within the tropical belt, i.e. those which belong to the main REDD + – target group, include REDD + in their INDC's mitigation strategies (Fig. 1). Together, these 56 countries account for more than 70% of the absolute natural forest cover and two thirds of the annual loss of natural forest² within Non-Annex 1 countries.³ Given that these countries included REDD + in their INDC, on paper REDD + has a vast potential for reducing greenhouse gas emissions.

The way in which planned or ongoing REDD + activities are formulated in INDCs varies widely. Some countries, such as Costa Rica, describe their REDD + policies extensively while others make only generic mentions about the instrument. The relevance of INDCs for domestic land-use planning decisions differs from one country to another, as countries do not include or refer to all domestic land use and REDD + policies in their INDCs. Therefore, we analyze REDD + mentions in INDCs according to the six criteria described in the introduction: REDD + strategy, MRV, finance, land governance/land rights, safeguards, and level of detail of implementation.

1.1.1. REDD + strategy

The formulation of a national REDD + strategy is required by the Cancun Agreements (UNFCCC, 2010, Dec 1/CP.16) to make countries eligible for international support for REDD +. Thirty-four out of the 56

countries that include REDD + in their INDC (61%) refer to such a national strategy for REDD + implementation, including readiness roadmaps and other similar documents. Some countries only mention an existing REDD + strategy or the planned formulation of a strategy while others explain in detail which issues the strategy addresses. Belize, for instance, includes a paragraph on its REDD + strategy claiming that it will “[...] address issues of deforestation and afforestation, maintaining healthy forest ecosystems by sustainable forest management [...]” (Belize 2015). Indonesia, in contrast, has published a progressive REDD + strategy in 2012 which refers to free, prior and informed consent of local and indigenous communities, benefit sharing and to a land reform (Hein, 2016) but does not mention the strategy in its INDC (Republic of Indonesia 2015). It is surprising that Indonesia and others do not refer to their REDD + strategy in their INDC given the formal importance of both documents in the UN climate negotiations.

1.1.2. MRV

Technical capacities for monitoring, reporting and verification (MRV) systems are essential for assessing the avoidance of deforestation and greenhouse gas emissions, and are thus a fundamental for successful part of REDD +. Sixteen out of the 56 INDCs that mention REDD (29%) explicitly refer to current or planned technical capacities to monitor deforestation, carbon stocks and forest cover. Cambodia, for instance, reports that it would need “[...] continued support to develop the REDD + MRV system in order to move on to the third phase of REDD + where it will receive performance based payments” (Kingdom of Cambodia 2015). Given the importance of precise monitoring and verification systems to assess forest stocks and flows, this technical side of REDD implementation would require much firmer commitments -and sound funding - from participating countries.

1.1.3. Finance

Even though finance is critical for the successful implementation of a REDD + strategy, only 18 out of 56 countries (32%) refer in their INDC to specific financing instruments such as result-based payments and carbon trade. So far, no REDD + financing mechanism has been developed under the UNFCCC. Most REDD + programs and pilot initiatives are therefore financed by multilateral and bilateral donors, and to a smaller extent through voluntary carbon markets (Norman and Nakhouda 2015). In their INDCs, Ghana, Rwanda, Sierra Leone, South Sudan, Togo and Nepal name market-based approaches (e.g. carbon trade) whereas Brazil, Guyana and Papua New Guinea mention bi- or multilateral funds (e.g. FCPF, German REDD + early movers program, Norwegian Forest and Climate Initiative) to implement REDD +. Some

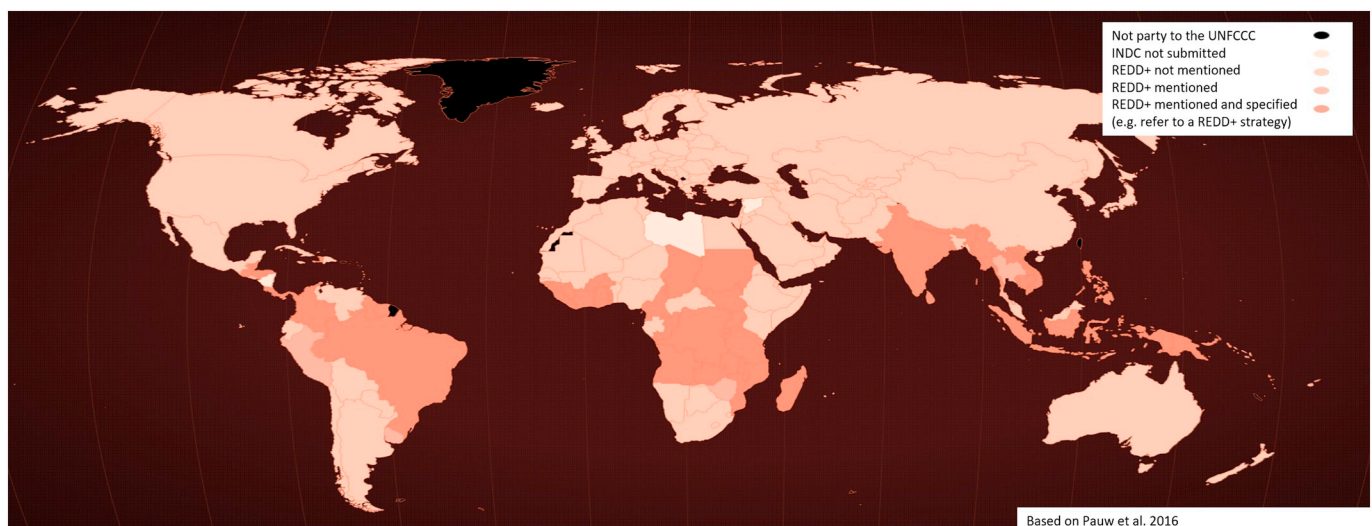


Fig. 1. Countries referring to REDD + in their INDC.

countries have high expectations of REDD +. For instance, Angola considers potential income from REDD + projects ‘substantial’ (Republic of Angola 2015) and Rwanda intends to finance its green growth and climate resilience strategy through selling REDD + and CDM credits (Republic of Rwanda 2015). Vietnam expects international support for the implementation of its payment for forest environmental services (PFES) scheme (Government of Vietnam 2015). Togo has calculated that it would need US\$ 500 million to implement land-used based mitigation activities and encourages “[...] investments in mitigation projects on its own soil, thanks in particular to the Clean Development Mechanism (CDM) and the REDD + Programed” (Republic of Togo 2015). However, 68% of the INDCs that mention REDD + do not explain how it will be financed. None of the countries in the global North that currently support REDD + activities or that might want to do so in future mention REDD + in their NDCs. This should not be seen as an indication of reduced political traction: with the exception of New Zealand and Turkey, INDCs of Annex I countries do not mention other forms of international support either (Pauw et al., 2016). However, it nevertheless contrasts both the dependence of REDD + on voluntary bilateral and multilateral support in the absence of a financial mechanism under the UNFCCC, as well as the tendency of low- and lower-middle income countries to make the implementation of their INDC’s mitigation and adaptation contributions dependent upon receiving international support (Pauw et al., 2017).

1.1.4. Land governance and land rights

Land and forest governance reforms are often considered as preconditions for implementing REDD + (Awono et al. 2014; Larson et al. 2013; Naughton-Treves and Wendland 2014; Resosudarmo et al. 2014), but only 10 out of 56 countries that mention REDD in their INDC (18%) address forest governance, spatial planning and land tenure. Cameroon and the Ivory Coast, for instance, explicitly refer to policy coherence between national spatial and development planning and REDD + (Republique du Cameroun 2016; Republique de la Côte D’Ivoire 2015). Rwanda indicates plans to systematize land registration and land tenure (Republic of Rwanda 2015). Indonesia refers to past reforms which include a forest moratorium, to strengthening of conservation and protection of its forests and to the involvement of local communities through social forestry programs (Republic of Indonesia 2015). The low number of INDCs that address forest governance, spatial planning and land tenure suggests that land governance reforms are difficult, do not enjoy much political support and are probably considered as fully domestic policy issues that are beyond the mandate of the UNFCCC.

1.1.5. Safeguards

To avoid some of potential negative effects of REDD, the UNFCCC decided in Cancun to establish a number of social and environmental safeguards (UNFCCC decision 1/CP. 16), including principles for transparency and respect for indigenous peoples. Only 4 out of 58 countries (7%) mention REDD + safeguards or free, prior and informed consent - a mechanism used to ensure that indigenous and other local communities fully understand, and agree, with the terms of their involvement in REDD + projects. Cambodia for instance announces that it will establish a Safeguards Information System as requested in the relevant decisions of the UNFCCC. Costa Rica explicitly mentions its commitment to universal human rights and states that Costa Rica’s

climate policies “[...] require full compliance with Cancun’s safeguards on REDD +, as well as, securing the indigenous people’s Prior, Free and Informed Consent” (Government of Costa Rica, Ministry of Environment and Energy 2015). The rights of indigenous peoples to be consulted and informed about projects that could affect their livelihoods is enshrined in ILO convention 169 of 1989. To date only 22 countries - most of them Latin American - have signed this convention, suggesting that the issue of indigenous peoples’ rights remains contentious and within the purview of domestic policy.

1.1.6. Details on implementation

Given the limited guidance by the UNFCCC, INDCs vary in length, form, content and scope (Mbeve & Pauw, 2016). From this perspective, REDD + does not appear to be the highest priority for many countries, even those that are rich in tropical forests. Only a few of the countries that mention REDD + in their INDC (e.g. Cambodia, Costa Rica, Guyana, Myanmar, Nepal and Papua New Guinea) have been clear about how REDD + will be put into practice. Although this makes it more difficult to understand implementation planning, the description of implementation planning in INDCs was not required by the UNFCCC (see UNFCCC, 2014), and most countries include information on implementation only in general terms (see Pauw et al., 2016).

2. What is maintaining the political momentum for REDD +?

Our analysis of 162 INDCs shows that expectations of REDD + are still high. Despite the fact that formulation guidance by the UNFCCC does not mention REDD +, 56 countries include it in their INDC. What keeps REDD + relevant in national and international climate change mitigation agendas? Below we discuss four reasons that help explain why REDD + is still pushed politically, albeit in different ways: REDD + as a low hanging fruit, demand for green aid, and a push by NGOs as well as donor countries for REDD +.

2.1. REDD + as a low hanging fruit

Since its inception, REDD + has been considered the “low hanging fruit” among available mitigation policies. The idea of REDD + as a cost-efficient win-win instrument to reduce net carbon emissions while contributing to biodiversity conservation and rural development at the forest margins was promoted by influential policy reports such as Nicholas Stern’s “Review on the Economics of Climate Change” (Stern, 2007) and Johan Eliasch’s review “Climate Change: Financing Global Forests” (Eliasch, 2008). Today, this perception has changed but REDD + is still perceived as having lower opportunity costs than reducing emissions from fossil fuel combustion (Angelsen et al. 2014). The idea that forest management can be changed “more quickly than phasing out of fossil fuels” (Houghton et al. 2017) is still widespread. For policy makers in the North, REDD + is attractive because it transfers obligations to the global periphery and avoids hard emission cuts. However, as outlined above, the interests of donors from the North are not manifested in the INDCs but are reflected through bilateral and multilateral aid for REDD +. For example, in the case of Germany, the national sustainability strategy mentions investments in REDD + abroad (Federal Government of Germany, 2012). Norway has established result-based partnerships with seven partner countries and claims to have contributed to 20 million tons of emission reduction abroad (in 2016) which correspond to 40% of Norway’s annual emissions (Government of Norway, 2017).

2.2. Demand for green aid

REDD + could be an important source of funding for conservation programs in the Global South. Many countries that mention REDD + in their INDC have received a substantial amount of biodiversity conservation aid in the past (see Miller et al. 2013). A high-ranking official

² The calculation is based on the FAO Global Forest Resources Assessment 2015 (FAO, 2015). In cases where country-specific data for the period of 2010–2015 was not available, data for the period of 2005–2010 from the FAO Global Forest Resources Assessment 2010 (FAO, 2010) was used.

³ We refer here to all Non-Annex I countries, as per UNFCCC classification. In the 1992 UNFCCC, ‘Annex I’ countries were member states of the Organisation for Economic Cooperation and Development (OECD) (as of 1992) plus a number of additional states with economies in transition; ‘Non-Annex I countries’ became a synonym for developing countries

of an Indonesian sub-national forest authority argued that “[...] we want compensation for protecting our national parks from international donors” (Hein et al. 2017), and Brazil's INDC states clearly that the “[...] implementation of REDD + activities and the permanence of results achieved require the provision of adequate and predictable results-based payments in accordance with the relevant COP decisions on a continuous basis” (Federative Republic of Brazil 2015). Costa Rica's national Payment for Ecosystem Services (PES) scheme was from its beginnings supported by donors such as the Global Environmental Facility (Murillo et al. 2011; FONAFIFO 2014). Vietnam has also received donor support for its PES scheme and ideas to link it with a donor financed REDD + schemes are under discussion (Trædal et al., 2016). From a recipient-country perspective, a global REDD + mechanism could help to close financial gaps, and might help to maintain national PES schemes and protected areas.

2.3. Objectives and priorities of NGOs

Just as governments see potential in REDD + as a mechanism to fund public conservation programs, non-governmental organizations were early to identify REDD's potential for supporting private conservation initiatives. From the beginning, conservation NGOs have been involved in lobbying for integrating forest conservation into the UNFCCC by implementing REDD + pilot projects in many tropical countries and designing accounting and social-environmental standards for voluntary market REDD + projects (Hein and Garrelts, 2014). Conservation International, for example, also actively lobbied for the integration of REDD + into INDCs before the COP 21 in Paris (Conservation International 2015).

2.4. Donor influence on INDC formulation

If REDD + continues to be relevant, it is in great part because it continues to receive donor interest and support (Watson et al., 2016, Deutsche Klimafinanzierung, 2017). Most donor countries do not mention REDD + (and other climate finance instruments) in their INDCs, probably because they do not consider international support for REDD + as part of a domestic contribution or because they consider REDD + finance as a voluntary commitment outside of the UNFCCC climate finance architecture. However, donors have been actively involved in financing REDD + as well as in the preparation and communication of developing countries' INDCs. For example, German development cooperation directly supported at least 24 countries in the preparation of their INDCs through its agency for international cooperation (GIZ) and the private consulting company Climate Analytics (Scholz 2014; Climate Analytics, 2016), and UNEP DTU Partnership supported another 32 countries (UDP/UNEP DTU Partnership, 2015). Many of the countries that were supported have also received bilateral and multilateral support for REDD + and broader forest governance reforms. If financing of REDD + and NDC preparation occurred simultaneously or through the same institutions, this could have contributed to the inclusion of REDD + in these documents.

3. Conclusion

As we have demonstrated, the expectations of REDD + are still high: 56 countries, representing 70% of the natural forest cover of Non-Annex 1 countries, included it in their INDCs as a climate mitigation instrument. Political support for REDD + is likely to be sustained, as avoiding deforestation is still perceived as a cheaper way of avoiding emissions than cutting the use of fossil fuels, and because REDD as an idea aligns well with private and public forest conservation and social development initiatives.

However, while the INDCs provide information on national climate policies including emission reduction targets, adaptation needs and the policies to reduce deforestation, they do not move beyond the known

challenges. Specific measures or plans with regard to financing REDD + are scarce, drivers of deforestation are hardly mentioned, and details of implementation—including, crucially, finance and MRV—are thin. That some of the aspects of REDD + implementation are not fully developed in INDCs is not surprising, as many of them, such as indigenous peoples' rights or land tenure, are contentious issues in the domestic policy arena. Moreover, REDD + is one of other mechanisms available to countries to reduce deforestation, and the INDCs are only one among many other policy statements used by countries regarding climate change mitigation. For example, Brazil, which has the world's largest tropical forest cover, and which has been generally successful at reducing deforestation (in the past), includes only one sentence about REDD + in its INDC. Depending on national circumstances, other documents might be more relevant for explaining the future directions of domestic forest policies.

Avoiding tropical deforestation is a crucial part of achieving global climate change mitigation targets, and REDD +—despite all its shortcomings—is the only existing mechanism legitimized and recognized by all members of the UNFCCC. So far REDD + has been able to keep its momentum, but—if the INDCs are any guidance—for most countries the path to implementation is still long.

Until the question how to finance REDD + and how to deal with the drivers of deforestation such as oil palm, soy and cattle ranching are resolved, REDD + is unlikely to move quickly from paper to implementation on a larger scale.

References

- Angelsen, A., et al., 2014. REDD Credits in a Global Carbon Market: Options and Impacts. Nordic Council of Ministers.
- Angelsen, A., Brockhaus, M., Duchelle, A.E., Larson, A., Martius, C., Sunderlin, W.D., Verchot, L., Wong, G., Wunder, S., 2017. Learning from REDD + : a response to Fletcher et al. *Conserv. Biol.* 31, 718–720. <https://doi.org/10.1111/cobi.12933>.
- Awono, A., et al., 2014. Tenure and participation in local REDD + projects: insights from Southern Cameroon. *Environ. Sci. Pol.* 35, 76–86.
- Bastos-Lima, M.G., Visseren-Hamakers, I.J., Braña-Varela, J., Gupta, A., 2017. A reality check on the landscape approach to REDD + : lessons from Latin America. *For. Policy Econ.* 78, 10–20.
- Belize, 2015. (INDC) Submitted to the UNFCCC on 1 October, 2015.
- Bhan, M., Sharma, D., Ashwin, A.S., Mehra, S., 2017. Policy forum: nationally-determined climate commitments of the BRICS: at the forefront of forestry-based climate change mitigation. *For. Policy Econ.* 85, 172–175.
- Boer, H.J., 2018. The role of government in operationalizing markets for REDD + in Indonesia. *For. Policy Econ.* 86, 4–12.
- Brockhaus, M., Di Gregorio, M., Mardiah, S., 2014. Governing the design of national REDD + : an analysis of the power of agency. *For. Policy Econ.* 49, 23–33.
- Butler, R.A., 2016. Brazil: Deforestation In The Amazon Increased 29% Over Last Year. Retrieved from: <https://news.mongabay.com/2016/11/brazil-deforestation-in-the-amazon-increased-29-over-last-year/>.
- Cadman, T., Maraseni, T., Ma, H.O., Lopez-Casero, F., 2017. Five years of REDD + governance: the use of market mechanisms as a response to anthropogenic climate change. *For. Policy Econ.* 79, 8–16.
- Climate Analytics, 2016. Support for Preparing Intended Nationally Contributions (INDCs). Retrieved from: <http://climateanalytics.org/projects/support-for-preparing-intended-nationally-determined-contributions-indcs.html>.
- Conservation International (2015). The New Global Climate Agreement: What it is and what to expect. Retrieved from <http://www.conservation.org/publications/Documents/CI-Science-to-Policy-The-New-Global-Climate-Agreement.pdf>
- El Espectador, 2017. Se disparó la tasa de deforestación en Colombia. Retrieved from: http://www.elespectador.com/jsrroll_view_entity/node/701754/full/x701754-p704425.
- Eliasch, J., 2008. The Eliasch Review—Climate Change: Financing Global Forests. Commissioned by the Office of Climate Change, UK, Richmond, UK, the Stationery Office Limited on Behalf of the Controller of Her Majesty's Stationery Office.
- Enrici, A., Hubacek, K., 2016. Business as usual in Indonesia: governance factors effecting the acceleration of the deforestation rate after the introduction of REDD +. *Energy, Ecol. Environ.* 1 (4), 183–196.
- FAO, 2010. The Global Forest Resources Assessment 2010. Author, Rome.
- FAO, 2015. The Global Forest Resources Assessment 2015. Author, Rome.
- Federal Government of Germany, 2012. National Sustainability Strategy – Progress Report. Retrieved from: https://m.bundesregierung.de/Content/DE/_Anlagen/Nachhaltigkeit-wiederhergestellt/2012-06-07-fortschrittsbericht-2012-englisch-barrierefrei.pdf?__blob=publicationFile.
- Federative Republic of Brazil, 2015. Intended Nationally Determined Contribution, Towards Achieving the Objective of the United Nations Framework Convention on Climate Change.
- Fletcher, R., Dressler, W., Büscher, B., Anderson, Z.R., 2016. Questioning REDD + and the

- future of market-based conservation. *Conserv. Biol.* 30, 673–675. <https://doi.org/10.1111/cobi.12680>.
- FONAFIFO, 2014. Pago de Servicios Ambientales. Retrieved from. <http://www.fonafifo.go.cr/psa/index.html>.
- Government of Costa Rica, Ministry of Environment and Energy, 2015. Costa Rica's Intended Nationally Determined Contribution. Author, San Jose.
- Government of Norway, 2017. More Money for Rainforests. Retrieved from. <https://www.regjeringen.no/en/aktuelt/meir-pengar-til-regnskog/id2575048/>.
- Hein, J.I., 2016. Rescaling conflictive access and property relations in the context of REDD+ in Jambi, Indonesia (Doctoral dissertation, Dissertation, Göttingen, Georg-August Universität, 2016).
- Hein, J., Garrelts, H., 2014. Ambiguous involvement: civil-society actors in forest carbon offsets: the case of the climate community and biodiversity standards (CCB). In: Garrelts, H., Dietz, M. (Eds.), *Routledge Handbook of the Climate Change Movement*. Routledge, New York, pp. 319–333.
- Hein, J., et al., 2017. The Trans Nationalization of Competing State Projects –Carbon Offsetting and Development in Sumatra's Coastal Peat Swamps. (Submitted to Antipode).
- Houghton, R., Byers, B., Nassikas, A.A., 2017. A role for tropical forests in stabilizing atmospheric CO₂. *Nat. Clim. Chang.* 5 (12), 1022–1023.
- Karsenty, A., Ongolo, S., 2012. Can “fragile states” decide to reduce their deforestation? The inappropriate use of the theory of incentives with respect to the REDD mechanism. *For. Policy Econ.* 18, 38–45.
- Kingdom of Cambodia, 2015. Cambodia's Intended Nationally Determined Contribution. *Klimafinanzierung, Deutsche*, 2017. Deutsche Zusagen zur Klimafinanzierung: Ein Zwischenstand. Retrieved from. <http://www.deutschklimafinanzierung.de/blog/2017/03/zwischenstand-zusagen/>.
- Larson, A.M., et al., 2013. Land tenure and REDD+: the good, the bad and the ugly. *Glob. Environ. Chang.* 23 (3), 678–689.
- Mbeva, K.L., Pauw, W.P., 2016. Self-Differentiation of Countries' Responsibilities: Addressing Climate Change Through Intended Nationally Determined Contributions. German Development Institute/Deutsches Institut für Entwicklungspolitik (DIE), Discussion Paper 4/2016.
- Miller, D.C., Agrawal, A., Roberts, J.T., 2013. Biodiversity, governance, and the allocation of international aid for conservation. *Conserv. Lett.* 6 (1), 12–20.
- Murillo, R., Kilian, B., Castro, R., 2011. Leveraging and sustainability of PES. In: *Ecosystem Services from Agriculture and Agroforestry. Measurement and Payment*. Earthscan, London, pp. 267–287.
- Naughton-Treves, L., Wendland, K., 2014. Land tenure and tropical Forest carbon management. *World Dev.* 55, 1–6.
- Norman, M., Nakhoda, S., 2015. The state of REDD+ Finance. In: *CGD Climate and Forest Paper Series #5*. Center for Global Development, Washington, D.C.
- Pauw, W.P., Cassanmagnano, D., Mbeva, K., Hein, J., Guarin, A., Brandi, C., Dzebo, A., Canales, N., Adams, K.M., Atteridge, A., Bock, T., Helms, J., Zalewski, A., Fromm, E., Lindener, A., Muhammad, D., 2016. NDC Explorer. German Development Institute/Deutsches Institut für Entwicklungspolitik (DIE). African Centre for Technology Studies (ACTS), Stockholm Environment Institute (SEI) https://doi.org/10.23661/ndc_explorer_2017_2.0.
- Pauw, W.P., Klein, R.J.T., Mbeva, K., Dzebo, A., Cassanmagnano, D., Rudloff, A., 2017. Beyond headline mitigation numbers: we need more transparent and comparable NDCs to achieve the Paris agreement on climate change. *Clim. Chang.* <https://doi.org/10.1007/s10584-017-2122-x>.
- Republic of Angola, 2015. Draft Intended Nationally Determined Contribution (INDC).
- Republic of Indonesia, 2015. Intended Nationally Determined Contribution.
- Republic of Rwanda, 2015. Intended Nationally Determined Contribution.
- Republic of Togo, 2015. Intended Nationally Determined Contribution (INDC) within the Framework of the United Nations Framework Convention on Climate Change.
- Republique de la Cote D'Ivoire, 2015. Contributions prevues determine au niveau national de la Cote D'Ivoire.
- Republique du Cameroun, 2016. Contribution prevue determine au plan national (CPDN). In: *Intended Nationally Determined Contribution (INDC)*.
- Resosudarmo, I.A.P., et al., 2014. Does tenure security lead to REDD+ project effectiveness? Reflections from five emerging sites in Indonesia. *World Dev.* 55, 68–83.
- Scholz, V., 2014. How GIZ supports partner countries in the preparation of their INDCs. Bonn.
- SINCHI (Instituto Amazónico de Investigaciones Científicas), 2016. Orientaciones para reducción de la deforestación y degradación de los bosques. Author, Bogota.
- Stern, N., 2007. *The Economics of Climate Change: The Stern Review*. Cambridge University Press, Cambridge, UK.
- Trædal, L.T., Vedeld, P.O., Pétursson, J.G., 2016. Analyzing the transformations of forest PES in Vietnam: implications for REDD+. *For. Policy Econ.* 62, 109–117.
- UDP/UNEP DTU Partnership, 2015. UDP Supports Countries Prepare and Implement INDCs. <http://www.unepdtu.org/feature-story-udp-helps-countries-prepare-indcs>.
- UNFCCC, 2010. The Cancun Agreements: Outcome of the Work of the Ad Hoc Working Group on Long-Term Cooperative Action Under the Convention. Decision 1/CP.16. Author, Bonn.
- UNFCCC, 2014. Lima Call for Action. Decision/CP.20. Author, Bonn.
- Watson, C., Patel, S., Schalatek, L., 2016. Climate finance thematic briefing: REDD+ finance. In: *Climate Funds Update*. Heinrich Böll Stiftung. <https://www.odi.org/sites/odi.org.uk/files/resource-documents/11030.pdf>.
- Weatherley-Singh, J., Gupta, A., 2015. Drivers of deforestation and REDD+ benefit-sharing: a meta-analysis of the (missing) link. *Environ. Sci. Pol.* 54, 97–105.