



CLIMATE-RELATED SECURITY RISKS IN THE 2020 UPDATED NATIONALLY DETERMINED CONTRIBUTIONS

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I. Introduction

Nationally determined contributions (NDCs) form the central policy instrument under the 2016 Paris Agreement, negotiated at the 21st session of the Conference of the Parties (COP21) to the United Nations Framework Convention on Climate Change (UNFCCC).¹ In NDCs, parties to the Paris Agreement communicate their contributions to the mitigation of and adaptation to climate change. A first round of NDCs were submitted during 2015 and 2016 (hereafter referred to as the 2015 NDCs).² By February 2020, 9–12 months in advance of COP26 in Glasgow, Scotland, parties were requested to submit their updated, and in some cases their second, NDCs.³ Only a small number of countries did so, however, and different reasons may have played into this delay. Most importantly—though only after the formal deadline for submitting updated NDCs had passed in February 2020—COP26 was postponed due to the coronavirus disease 2019 (COVID-19) outbreak and the immediate COVID-19 response became the first priority for many governments. In addition, the delay in big emitters' NDC submissions, including that of the European Union (EU), may have caused other parties to hold back on their updates; and there being no repercussions for late

¹ Paris Agreement under the United Nations Framework Convention on Climate Change (UNFCCC), opened for signature 22 Apr. 2016, entered into force 4 Nov. 2016.

² If a country had already, in response to COP19 in Warsaw, submitted an intended nationally determined contribution (INDC) before ratifying the Paris Agreement in 2015, this document automatically became the country's first NDC, unless the country chose to submit an updated NDC. Most countries chose not to revise their INDCs before submitting them as NDCs. Countries that had chosen not to submit INDCs, submitted NDCs after the ratification of the Paris Agreement; see Taibi, F., Konrad, S. and von Kursk, B., *Pocket Guide to NDCs under the UNFCCC: 2020 Edition* (European Capacity Building Initiative: Oxford, 2020).

³ Paris Agreement under the UNFCCC (note 1), para. 25. Note that not every country needs to submit a 'second' NDC in 2020, this depends on the time frame adopted in the country's first NDC. Countries that set a time frame beyond 2025 'communicate' or 'update' their first NDC, which is technically different from a second NDC; see Taibi, Konrad and von Kursk (note 2).

SUMMARY

● Nationally determined contributions (NDCs) are the central instrument for states to communicate their contribution to the 2016 Paris Agreement on climate change and reflect their wider approach to climate mitigation and adaptation. This SIPRI Insights paper analyses how the 2020 updated NDCs (16 submissions as of October 2020) discuss climate-related security risks and compares them with 2015. It finds that climate change is mainly seen as a risk to socio-economic development and human security and almost never as a risk to societal stability or the functioning of the state. The assessment of risks in NDCs largely focuses on direct climate impacts. This suggests that countries are currently not considering the risks from indirect climate impacts, including those that cross national borders, or the unintended adverse consequences of adaptation or mitigation responses. Going forward, countries will need to take account of the multi-faceted and transboundary character of climate risks in their NDCs in order to meet global expectations and goals.



Figure 1. Countries that had submitted updated nationally determined contributions to the United Nations Framework Convention on Climate Change Secretariat by October 2020

Note: The boundaries used in this map do not imply any endorsement or acceptance by SIPRI.

submissions—beyond naming and shaming—may also have played a role.⁴ Finally, once it was clear that COP26 would be postponed, some countries may have decided to await the outcome of the United States presidential election in November 2020 before submitting their NDCs.⁵

This SIPRI Insights on Peace and Security reviews the updated NDCs submitted to the UNFCCC (i.e. the second NDC round), as of 15 October 2020. The 16 countries that made submissions were: Andorra, Chile, Cuba, the Democratic People’s Republic of Korea (DPRK, North Korea), Georgia, Jamaica, Japan, the Marshall Islands, Moldova, Mongolia, New Zealand, Norway, Rwanda, Singapore, Suriname and Viet Nam (see figure 1). The paper focuses on whether and how national governments refer to climate-related security risks (CRSRs, see box 1) in their international climate commitments and compares this with their 2015 NDC submissions.⁶

While parties are not required to communicate on CSRs in their NDCs, meaning it is not explicit in the NDC mandate, studies on the first round of submissions from 2015 found that many countries were concerned about climate change being a security threat, and that 40 of the 186 first

⁴ In accordance with Article 20(3) of the Paris Agreement, both states and regional economic integration organizations that are parties to the UNFCCC are able to ratify the agreement. The EU as well as its 28 individual member states signed the agreement; see United Nations, Treaty Collection, Status of ratification of the Paris Agreement, as of 2 Dec. 2020.

⁵ Countries have been ‘strongly encouraged’ by the UNFCCC Secretariat to submit their updated NDCs before 31 Dec. 2020, in order to be included in the initial UNFCCC synthesis report due in Feb. 2021; see Espinosa, P., *Notification: Publication of Nationally Determined Contribution Synthesis Report* (UNFCCC Secretariat: Bonn, Aug. 2020). However, 14 countries have no plans to revise their NDCs in 2020, and for 71 countries it is unclear how or whether they plan to revise their NDCs; see Taibi, Konrad and von Kursk (note 2).

⁶ All the countries’ 2015 and 2020 NDCs are available at UNFCCC Secretariat, ‘Interim NDC Registry’.



NDCs even discussed direct risks to their state's peace, stability and security.⁷ This reflects a growing interest among national governments and regional organizations in the security implications of climate change, in transboundary climate risks, and in the unanticipated and unintended negative social, political, economic and ecological effects of both mitigation and adaptation climate action.⁸

Against this background, it is important to understand in what way the updated NDCs are paying attention to CRSRs. This paper considers NDCs to be important sociopolitical documents that 'should be read as important statements, not only on material action, but on the discursive positioning of countries in global climate policy debates'.⁹ The analysis conducted here is a useful indication of how countries currently understand and address CRSRs. It builds on earlier studies and contributes with new insights, by conducting a more focused analysis of how CRSRs are conceptualized in the updated NDCs.¹⁰

This SIPRI Insights on Peace and Security presents findings from original qualitative analysis of the updated 2020 NDCs, a comparison with the respective 2015 NDCs and a review of the existing literature (see box 2). The purpose of this paper is to provide an initial overview of the references to CRSRs in NDCs and it should be seen as a basis for further examination; future, in-depth analyses of incoming NDCs will be able to provide additional insights. Section II fleshes out in more detail what the role and mandate of the NDCs are. Section III presents the findings from the analysis, and the concluding discussion in section IV discusses the implications of the findings and why considering CRSRs might aid the implementation of the Paris Agreement.

II. The role and mandate of nationally determined contributions

NDCs are the main means for parties to the Paris Agreement to communicate their plans for reducing greenhouse gas (GHG) emissions.¹¹ This means NDCs are largely about mitigation commitments that, collectively, determine whether countries will achieve the agreement's overall goal of limiting the global average temperature increase to well below 2°C.¹² However, the parties also established an unprecedented 'global goal on adaptation' and recognized that 'adaptation is a global challenge faced by all'.¹³ In line

⁷ Jernnäs, M. and Linnér, B., 'A discursive cartography of nationally determined contributions to the Paris Climate Agreement', *Global Environmental Change*, vol. 55 (Mar. 2019), pp. 73–83; and United Nations Development Programme (UNDP), *A Typology and Analysis of Climate-related Security Risks in the First Round Nationally Determined Contributions* (UNDP: New York, 2020).

⁸ Diez, T., von Lucke, F. and Wellmann, Z., *The Securitisation of Climate Change: Actors, Processes and Consequences* (Routledge: Abingdon, Oxon, 2016); and Dellmuth, L. M. et al., 'Intergovernmental organizations and climate security: Advancing the research agenda', *WIREs Climate Change*, vol. 9, no. 1 (Jan. 2018).

⁹ Mills-Novoa, M. and Liverman, D. M., 'Nationally determined contributions: Material climate commitments and discursive positioning in the NDCs', *WIREs Climate Change*, vol. 10, no. 5 (May 2019), p. 11.

¹⁰ Jernnäs and Linnér (note 7); and UNDP (note 7).

¹¹ Paris Agreement under the UNFCCC (note 1), Article 4.

¹² Paris Agreement under the UNFCCC (note 1), Article 2.1.a.

¹³ Paris Agreement under the UNFCCC (note 1), Article 7.2.

**Box 1. Key concepts and definitions***Climate-related security risks*

Climate-related security risks (CRSRs) are risks emerging from accelerating climate change to people's wellbeing and livelihoods that may have implications for societal, economic and political stability at local, national, regional and international levels.^a The concern is not only about vulnerability, human security or the immediate threat of violence or conflict, but more generally about the link between climate impacts, human security *and* deteriorating societal stability. Importantly, CSRs can emerge from three sources, and delineating between the sources introduces more precision into the analysis of CSRs and assists in determining pathways to better responses. CSRs can emerge:

1. Through *direct* climate impacts from sudden or slow onset climate change (e.g. changes in rainfall in place A affect people in place A, with potential spin offs for societal, economic and political stability).
2. Through *indirect* climate impacts, in places far removed from the direct climate impacts, even beyond a country's borders, and in interaction with other sociopolitical processes (e.g. changes in rainfall in place A have repercussions for food prices in place B, with potential knock-on effects on societal, economic and political stability).^b
3. As a result of *unintended, adverse* consequences of mitigation and adaptation responses to climate change, as a form of 'maladaptation'.^c These can be local-level side effects of climate action or cross national borders.^d

Nationally determined contributions

Nationally determined contributions (NDCs) are the central communication instrument for national objectives under the 2016 Paris Agreement within the United Nations Framework Convention on Climate Change (UNFCCC). Through NDCs, countries that are party to the agreement outline what concrete measures they will undertake to address climate change. The purpose is to communicate how the country intends to contribute to the global climate effort through national objectives and efforts.^e However, as the wording 'nationally determined' implies, the Paris Agreement stresses the sovereignty of each party and any commitments are non-binding under international law, flexible and voluntary. This is in contrast to its predecessor, the Kyoto Protocol.^f As of October 2020, 189 parties have ratified the Paris Agreement and 186 have submitted their first NDCs.^g From 2020 onwards, parties are expected to submit updated and enhanced NDCs every five years.

^a Malin Mobjörk et al., *Climate-related Security Risks: Towards an Integrated Approach* (SIPRI and Stockholm University: Stockholm, Oct. 2016).

^b Oppenheimer, M. et al., 'Emergent risks and key vulnerabilities', ed. C. B. Field et al., *Climate Change 2014: Impacts, Adaptation and Vulnerability. Part A: Global and Sectoral Aspects* (Cambridge University Press: Cambridge, 2014), pp. 1039–99; and Benzie, M. et al., 'Meeting the global challenge of adaptation by addressing transboundary climate risk', Stockholm Environment Institute (SEI) brief, 18 Apr. 2018.

^c Barnett, J., and O'Neill, S., 'Maladaptation', *Global Environmental Change*, vol. 20, no. 2 (May 2010); Juhola S. et al., 'Redefining maladaptation', *Environmental Science & Policy*, vol. 55 (Jan. 2016); and Magnan, A. K. et al., 'Addressing the risk of maladaptation to climate change', *WIREs Climate Change*, vol. 7, no. 5 (Sep. 2016).

^d Mirumachi, N., Sawas, A., and Workman, M., 'Unveiling the security concerns of low carbon development: Climate security analysis of the undesirable and unintended effects of mitigation and adaptation', *Climate and Development*, vol. 12, no. 2 (Feb. 2020), pp. 97–109; and Atteridge, A. and Remling, E., 'Is adaptation reducing vulnerability or redistributing it?', *WIREs Climate Change*, vol. 9, no. 1 (Jan. 2018), e500.

^e Paris Agreement under the United Nations Framework Convention on Climate Change (UNFCCC), opened for signature 22 Apr. 2016, entered into force 4 Nov. 2016. Note that both states and regional economic integration organizations can be parties to the agreement.

^f Jernnäs, M. and Linnér, B., 'A discursive cartography of nationally determined contributions to the Paris Climate Agreement', *Global Environmental Change*, vol. 55 (Mar. 2019), pp. 73–83.

^g United Nations Framework Convention on Climate Change Secretariat, Interim NDC Registry.

with this, they agreed that beyond mitigation commitments, NDCs may include information on adaptation activities, needs for finance, technology development and transfer, capacity building, and transparency.¹⁴

In addition, most developing countries (and some others) made their 2015 NDCs partly conditional on the provision of international support

¹⁴ Paris Agreement under the UNFCCC (note 1), Articles 3, 7, 9, 10, 11, 13.



Box 2. Methodology

Parties to the 2016 Paris Agreement on climate change submit nationally determined contributions (NDCs) to the United Nations Framework Convention on Climate Change (UNFCCC) Secretariat, which are made public in the Interim NDC Registry.^a For this analysis, the authors downloaded empirical material from the NDC Registry, which consisted of 16 updated or second NDCs from 2020 and the first round of NDCs from 2015. Submissions included NDCs from Andorra, Chile, Cuba, the Democratic People's Republic of Korea (DPRK, North Korea), Georgia, Jamaica, Japan, the Marshall Islands, Mongolia, Moldova, New Zealand, Norway, Rwanda, Singapore, Suriname and Viet Nam.

PDFs of the NDCs were uploaded for analysis to the qualitative data analysis software MAXQDA. To avoid imposing too narrow or specific an interpretation of climate-related security risks (CRSRs) onto the NDCs (and because different policy communities use different concepts to frame the security risks posed by climate change), the documents were approached inductively with a deliberately broad understanding of CSRs (see box 1). They were read and coded based on the general question 'What CSRs are brought up?' While MAXQDA was used to structure and organize the analysis, the identification of codes was based on a careful reading of each NDC. Rather than limiting the search to key words (e.g. security, conflict, threat, war), this close reading aimed at identifying and unpacking different understandings of security risks referred to in the NDCs in their specific context.

In order to ensure the validity of the analysis, the 16 NDCs were first read and coded by Amar Causevic and then reviewed by Elise Remling. Where interpretations differed, the authors discussed and resolved the issue to make sure that the coding was consistent. Initial findings were discussed with a wider reference group in the Stockholm Climate Security Hub. The information gathered through the coding process was then transferred and compiled in a Microsoft Excel database. The database was used to identify each party's perspective on CSRs, compare with other parties, and compare the same party's 2020 and 2015 NDCs.

^a United Nations Framework Convention on Climate Change Secretariat, 'Interim NDC Registry'.

(e.g. capacity building, mitigation and adaptation finance, and technology transfers).¹⁵ These so-called conditional NDCs can be interpreted both as an outline of further needs that cannot be addressed with the countries' own resources and capabilities, and as sending a political message to industrialized countries and economies in transition (categorized as Annex I parties by the UNFCCC).¹⁶

In the first round of NDCs, a majority of countries chose to include adaptation components—including most African states—with developing countries generally giving adaptation more prominence.¹⁷ The EU and other Annex I parties such as Japan and New Zealand chose not to include any reference to adaptation in their NDCs.¹⁸ While the extent to which countries include adaptation varies greatly, in general, 'all NDCs with an adaptation component include information on key impacts and vulnerabilities'.¹⁹ Therefore, although NDCs do not have a clear mandate to address CSRs, such risks can be expected to play into this part of the NDCs, where countries

¹⁵ Pauw et al., 'Conditional nationally determined contributions in the Paris Agreement: Foothold for equity or achilles heel?', *Climate Policy*, vol. 20, no. 4 (Apr. 2020), pp. 468–84; and Taibi, Konrad and von Kursk (note 2).

¹⁶ The UNFCCC divides its parties into three groups. The term 'Annex I parties' refers to 43 parties that are listed in Annex I of the convention. These include the industrialized countries that were members of the Organisation for Economic Co-operation and Development (OECD) in 1992, and countries with economies in transition. UNFCCC Secretariat, 'Aggregate effect of the intended nationally determined contributions: An update', Synthesis report by the secretariat, FCCC/CP/2016/2, 2 May 2016; Pauw et al. (note 15); and Chamling Rai, S. and Acharya, S., *Anchoring Loss & Damage in Enhanced NDCs* (World Wide Fund For Nature: Gland, 2020).

¹⁷ Taibi, Konrad and von Kursk (note 2); and African Development Bank, *Analysis of the Adaptation Components of Africa's Nationally Determined Contributions (NDCs)* (African Development Bank: Abidjan, 2019).

¹⁸ Taibi, Konrad and von Kursk (note 2).

¹⁹ Taibi, Konrad and von Kursk (note 2).



assess their own vulnerability, the risks to their country's socio-economic development and related adaptation needs.

It is important to acknowledge, of course, that NDCs are not the only documents that countries prepare in order to communicate or report their national circumstances, positions and actions to the UNFCCC, or that are relevant when considering CRSRs. Such risks may be addressed in other documents within the UNFCCC agenda, such as national adaptation plans (NAPs) established under the Cancun Adaptation Framework, or national communications, adaptation communications, technology needs assessments and biennial transparency reports in accordance with the Paris Agreement.

Nevertheless, when analysing different narratives in the first round of NDCs concerning how parties portray climate change as a political problem, a study by Jernnäs and Linnér found that 'climate change as an urgent security threat' was the fourth most prominent theme (of eight) across NDCs.²⁰ The study found that 85 out of the 164 NDCs that it covered raised concerns over climate change contributing to national and human insecurity. The countries highlighting these concerns were mainly from South America, Central America and the Caribbean, Africa, the Middle East, Central Asia and the Small Island Developing States (SIDS), especially in the Pacific Ocean.²¹

A recent study by the UN Development Programme (UNDP) reviewed all 186 NDCs in the first round for direct references to conflict, peace, security, stability and war, and found that many NDCs addressed these issues.²² The 40 parties that did so included low- and middle-income countries, SIDS and countries affected by conflict and fragility. The study concluded that, in NDCs, 'climate change is recognized by many countries as a matter of national security, but also as a factor that exacerbates the drivers of different types of conflict and security risks'.²³

Complementing these earlier studies, this SIPRI Insights paper looks in more qualitative detail at how security concerns are articulated, and which particular ones are in focus. While the number of updated NDCs available at the time of writing was relatively small (16 NDCs) and there is a need for further systematic analysis of the growing sample of updated NDCs in the future, the paper demonstrates that there is value in this exploratory study given the growing interest in CRSRs in both academic and policy debates. Exploring how CRSRs are addressed in these initial updated NDCs and unpacking different understandings of security risks can highlight gaps and pose important new questions about how to address such risks more effectively.

²⁰ Jernnäs and Linnér (note 7).

²¹ Small Island Developing States (SIDS) are a distinct group of developing countries made up of small island countries facing similar social, economic and environmental development challenges; see United Nations Office of the High Representative for the Least Developed Countries, Landlocked Developing Countries and Small Island Developing States, 'About Small Island Developing States', Dec. 2020.

²² UNDP (note 7).

²³ UNDP (note 7), p. 5.

Although NDCs do not have a clear mandate to address CRSRs, many discuss risks to their country's socio-economic development



III. Climate-related security risks in the updated nationally determined contributions

Overview

Owing to a lack of clear guidance from the UNFCCC on what NDCs need to contain and the bottom-up, country-driven nature of the NDC drafting process, countries have considerable leeway when developing their respective submissions.²⁴ As a result, the form, scope and content vary considerably across the NDCs reviewed for this study. For example, Japan's and New Zealand's 2020 NDCs are brief statements, merely two pages long and discuss only mitigation commitments, whereas other parties include long discussions of their minimal historic responsibility for climate change, vulnerability and adaptation needs (see annex A).²⁵ Rwanda, for instance, goes into great detail—in over 100 pages—discussing adaptation efforts, funding requirements, capacity building and technological transfer needs in order to fulfil the promises outlined in the NDC.²⁶ In contrast, North Korea submitted an NDC update just over one page in length, in which it re-emphasizes its general willingness to tackle climate change.²⁷ These stark differences are reflective of the fact that, as noted in earlier research, NDCs are sociopolitical documents that reveal the national circumstances, underlying values and political positions of parties regarding climate change responses.²⁸

Assessing CRSRs in the 2020 NDCs

Of the 16 countries that had submitted their updated NDCs to the UNFCCC Secretariat by October 2020, many discuss climate change as a risk to socio-economic development and some refer to CRSRs, but with substantial differences between countries. Only three—Andorra, Japan and New Zealand—do not discuss any such risks, and Norway only does so briefly in the context of its high dependence on food imports.²⁹ Japan, New Zealand and Norway also chose not to include a distinct adaptation component in their NDCs, as did North Korea (see table 1).³⁰

In the updated NDCs, climate change is largely seen as a risk to the well-being of individuals and populations (e.g. through human health, disasters and emergency situations), to socio-economic development and, in some

²⁴ Pauw, W. P. and Klein, R. J. T., 'Beyond ambition: Increasing the transparency, coherence and implementability of nationally determined contributions', *Climate Policy*, vol. 20, no. 4 (Apr. 2020).

²⁵ Government of Japan, 'Submission of Japan's nationally determined contribution (NDC)', Mar. 2020; and Government of New Zealand, 'Submission under the Paris Agreement Communication and update of New Zealand's nationally determined contribution', Apr. 2020.

²⁶ Government of Rwanda, 'Updated nationally determined contribution', May 2020.

²⁷ Government of the Democratic People's Republic of Korea, 'Updated nationally determined contribution of the DPRK', Sep. 2019.

²⁸ Mills-Novoa and Liverman (note 9).

²⁹ Government of Andorra, 'Contribución Determinada A Nivel Nacional De Andorra' [Nationally determined contributions of Andorra], May 2020; Government of Japan (note 25); Government of New Zealand (note 25); and Government of Norway, 'Update of Norway's nationally determined contribution', Feb. 2020.

³⁰ Government of the Democratic People's Republic of Korea (note 27); Government of Japan (note 25); Government of New Zealand (note 25); and Government of Norway (note 29).



Table 1. Selected references to CRSRs in the updated 2020 NDCs

2020 NDC	Source of CRSRs				
	Adaptation	Climate change as a risk to socio-economic development	Risks emerging from direct climate impacts	Risks emerging from indirect climate impacts/transboundary risks	Risks emerging from climate action
Andorra	●	○	●	○	○
Chile	●	●	●	●	○
Cuba	●	●	●	○	○
Georgia	●	●	●	●	○
Jamaica	●	●	●	○	○
Japan	○	○	○	○	○
Korea, North	● ^a	○ ^b	●	○	○
Marshall Islands	●	●	●	●	○
Moldova	●	●	●	○	○
Mongolia	●	○	●	○	○
New Zealand	○	○	○	○	○
Norway	○ ^c	○	○	●	○
Rwanda	●	●	●	○	○
Singapore	●	○	●	●	○
Suriname	●	●	●	○	○
Viet Nam	●	●	●	○	○

CRSR = Climate-related security risk; NDC = Nationally determined contribution; ● = referred to; ○ = not referred to

^a In its 1.5-page long NDC, North Korea mentions disaster risk reduction and material damages caused by climate change, but does not mention adaptation as such.

^b North Korea’s NDC briefly states that climate change is a ‘global issue’ and that it ‘directly relates to the future of humankind’, but does not make an explicit link to it posing a risk to socio-economic development or human wellbeing.

^c Norway’s NDC does not include a designated adaptation component, it only mentions adaptation once in the context of food security.

Source: Authors’ own analysis of NDCs from the United Nations Framework Convention on Climate Change Secretariat, Interim NDC Registry.

cases, to infrastructure. For example, Jamaica’s NDC states that ‘as a small island developing state, Jamaica is acutely aware of how the physical risks of climate change threaten its development and the wellbeing and economic security of its citizens’.³¹ While there are many references to climate risks to socio-economic development and the wellbeing of people, the concern as stated in the NDCs is not with security risks (understood here as risks to societal, economic or political stability). For example, climate change is not framed as a risk to peace, stability or—with a few exceptions—the functioning and operation of states. Therefore, the analysis suggests that countries

³¹ Government of Jamaica, ‘Update of nationally determined contribution of Jamaica to the United Nations Framework Convention on Climate Change’, June 2020, p. 2.



are either not overly concerned about security risks or they do not consider NDCs the right policy instrument to discuss them.

In general, direct references to ‘security’ are made in connection to food, water, or energy (supply) security. None of the 16 NDCs makes reference to potential conflict, violence, direct threats to peace and stability, or repercussions for regional or international security. For example, ‘conflict’ only ever comes up in reference to conflicting norms or conflicting policy signals and never in the political or physical sense of the word. ‘Peace’ is only mentioned once, in the Marshall Islands’ NDC, when reflecting on the country’s troubled history.³² References to ‘fragility’ appear in two updated NDCs—Georgia and Suriname—and both times in the context of fragile ecosystems and mountain regions, not in relation to the functioning or stability of the state.³³ National defence and security actors are mentioned in passing in two NDCs: Viet Nam and Moldova.³⁴

Contrary to earlier studies, and with the exception of the Marshall Islands, the updated 2020 NDCs clearly do not consider climate change as a threat to the social, economic or political stability of the state.³⁵ One other exception—but slightly different, because here instability is framed as a hindrance to climate action, not a result of climate impacts—is Moldova’s NDC. It refers to ‘political instability’ as one of several barriers to effective sectoral adaptation, and extreme weather events as a source of ‘increased risks of social conflicts, accentuating gender and other social inequalities’ and ‘conflicts between water users’, but without specifying what these conflicts might look like.³⁶ Almost no NDC mentions increased competition over resources as a result of climate change, with the exception of Chile that mentions increased competition for land for food production.³⁷

Rather than reflecting on all nuances of climate risk contained in the NDCs, this analysis considers four broad themes: (a) risks to food, water and energy; (b) risks to individuals and vulnerable populations; (c) risks to territories and culture; and (d) geopolitical aspects of climate risks. These serve to illustrate the shared themes identified in the qualitative coding process (see box 2) across the 16 NDCs.

In the updated NDCs, climate change is not framed as a risk to peace, stability or—with the exception of the Marshall Islands—the functioning and operation of states

³² Government of the Marshall Islands, ‘The Republic of the Marshall Islands nationally determined contribution’, Nov. 2018.

³³ Government of Georgia, ‘Georgia’s intended nationally determined contribution submission to the UNFCCC’, May 2017; and Government of Suriname, ‘Intended nationally determined contribution Under UNFCCC’, Feb. 2019.

³⁴ Government of Viet Nam, ‘Updated nationally determined contribution (NDC)’, July 2020; and Government of Moldova, ‘Updated nationally determined contribution of the Republic of Moldova’, Mar. 2020.

³⁵ For most countries, the assessment of NDCs that discuss CRSRs in this report overlaps with Jernnäs and Linnér’s findings. The only exceptions are Rwanda and Singapore, where Jernnäs and Linnér did not find any concerns regarding climate acting as a security risk, and Suriname, which was not part of their sample, see Jernnäs and Linnér (note 7). Of the 40 NDCs discussed in UNDP’s study, which focused only on NDCs that mentioned terms such as conflict, peace, security, stability and war, only the Marshall Islands and Viet Nam overlap with this report’s sample of submitted 2020 NDCs, see UNDP (note 7).

³⁶ Government of Moldova (note 34), pp. 66, 24.

³⁷ Government of Chile, ‘Chiles’ nationally determined contribution’, Apr. 2020.

*Risks to food, water and energy security*

The most common security-related concerns voiced in the updated NDCs relate to livelihood security risks and supply chain security risks in relation to food, water and energy (see table 2).³⁸ Food security is the most common concern and is mentioned in 10 updated NDCs, but in different ways. While some countries are concerned about decreasing domestic food production as a result of decreased productivity, water availability or arable land (Chile, Georgia, the Marshall Islands, Moldova, Rwanda, Suriname and Viet Nam), others see their high dependence on global food supply chains as the source of risk (Norway and Singapore).³⁹ For example, Viet Nam's NDC claims that 'rice productivity could be reduced by 8% to 15% in 2030 and up to 30% in 2050 . . . accompanied by many threats, such as lack of water for domestic use, saline intrusion, negative effects on the aquaculture and

fishing environments, increased crop diseases, degradation of soil, and the loss of biodiversity and rare genetic resources'.⁴⁰

As a contrasting example, Norway's NDC states that 'there is a scarcity of agricultural land in Norway especially suitable for arable crops. Norway's role in global food security in the context of climate change is to adapt to a changing climate, manage and use these resources sustainably, to secure food supplies while emissions of greenhouse gases are reduced'.⁴¹ While these references to food security demonstrate many countries are concerned about their citizens' wellbeing, none of the updated NDCs discusses food security as a potential source of societal instability or unrest, for instance in the form of food riots.

Water security, often in relation to agriculture, is discussed in 7 of the 16 NDCs (Chile, the Marshall Islands, Moldova, Mongolia, Rwanda, Singapore and Viet Nam), making it the second most prominent concern.⁴² Georgia's NDC, for instance, states that 'due to decreased rainfall and enhanced evaporation semi-arid regions in Eastern Georgia are under the threat of desertification'.⁴³ Other common themes within water security are access to clean and reliable drinking water, and water for ecosystems. For example, the Marshall Islands' NDC states that 'salt water is increasingly seeping into fresh water lenses, creating urgent challenges for the islands'.⁴⁴ Suriname discusses water security indirectly and only as an ambition, not a

Food security is the most common security-related concern in the updated NDCs

³⁸ In some cases, countries refer to water, energy or food security as aspirational goals, not as an issue of immediate concern. In other cases, 'security' is mentioned as a topic, not as a concern or aspiration in the context of the NDC, e.g. Government of Rwanda (note 26), p. 45: 'Over two-thirds of the population engage in agriculture, forestry, and tourism for income and food security'. The paper attempts to differentiate some of these nuances in this section.

³⁹ Government of Chile (note 37); Government of Georgia (note 33); Government of the Marshall Islands (note 32); Government of Moldova (note 34); Government of Rwanda (note 26); Government of Suriname (note 33); Government of Viet Nam (note 34); Government of Norway (note 29); and Government of Singapore, 'Singapore's update of its First NDC and accompanying information', Mar. 2020.

⁴⁰ Government of Viet Nam (note 34), p. 15.

⁴¹ Government of Norway (note 29), p. 9.

⁴² Government of Chile (note 37); Government of the Marshall Islands (note 32); Government of Moldova (note 34); Government of Mongolia, 'Mongolia's nationally determined contribution to the United Nations Framework Convention On Climate Change', Oct. 2020; Government of Rwanda (note 26); Government of Singapore (note 39); and Government of Viet Nam (note 34).

⁴³ Government of Georgia (note 33), p. 4.

⁴⁴ Government of the Marshall Islands (note 32), p. 7.



problem.⁴⁵ As with food security, water security is not linked to a potential increase in violence, conflict or seen as contributing to societal instability.

Energy (supply) security is referenced in seven NDCs. The shared ambition across these NDCs is ensuring the security of supply, yet the cause of concern is very different. Some NDCs are focused on the impact of climate change on domestic energy production and infrastructure (Moldova and Viet Nam), while others discuss their reliance on energy imports and hence their vulnerability to price volatilities and high geopolitical dependencies (the Marshall Islands, Rwanda and Singapore).⁴⁶ For example, the Marshall Islands' NDC states that 'the heavy reliance on fossil fuel imports represents a highly significant energy security risk. Being at the end of the supply chain due to its remote location, RMI [Republic of the Marshall Islands] is highly susceptible to changes in supply due to geopolitical shocks or fuel price spikes'.⁴⁷ Suriname discusses energy security mainly as an ambition, not as an existing risk, as does Andorra's NDC.⁴⁸

In relation to food and energy security it is noteworthy that there is some concern about these risks arising as a result of indirect climate impacts through the interdependence of global markets and global supply chain disruptions. In other words, there is a transboundary climate risk dimension here that will be discussed below (see Geopolitical risks and implications).

Risks to human health, vulnerable groups and the movement of people

Human health is referenced as a concern in many of the NDCs (Chile, Georgia, Jamaica, the Marshall Islands, Moldova, Mongolia, Rwanda, Singapore, Suriname and Viet Nam).⁴⁹ Specific health risks discussed as a result of climate change include direct harm caused by climate-related disasters, heat stress, water and vector-borne diseases, and mosquito infestations. In some NDCs, there is also a level of concern about the direct impacts on healthcare systems and infrastructure. Sometimes human health concerns are part of a general preamble to climate-related risks (e.g. Georgia and Jamaica), while other NDCs go into greater detail (e.g. the Marshall Islands and Moldova).⁵⁰

The unequal distribution of climate-related risk across societies is referenced in a number of NDCs (Andorra, Chile, Georgia, Viet Nam, Suriname, the Marshall Islands and Moldova).⁵¹ Here, some countries discuss coastal populations at risk from sea level rise (SLR) (Viet Nam, Suriname and the

⁴⁵ Government of Suriname (note 33).

⁴⁶ Government of Moldova (note 34); Government of Viet Nam (note 34); Government of the Marshall Islands (note 32); Government of Rwanda (note 26); and Government of Singapore (note 39).

⁴⁷ Government of the Marshall Islands (note 32), p. 21.

⁴⁸ Government of Suriname (note 33); and Government of Andorra (note 29).

⁴⁹ Government of Chile (note 37); Government of Georgia (note 33); Government of Jamaica (note 31); Government of the Marshall Islands (note 32); Government of Moldova (note 34); Government of Mongolia (note 42); Government of Rwanda (note 26); Government of Singapore (note 39); Government of Suriname (note 33); and Government of Viet Nam (note 34).

⁵⁰ Government of Georgia (note 33); Government of Jamaica (note 31); Government of the Marshall Islands (note 32); and Government of Moldova (note 34).

⁵¹ Government of Andorra (note 29); Government of Chile (note 37); Government of Georgia (note 33); Government of Viet Nam (note 34); Government of Suriname (note 33); Government of the Marshall Islands (note 32); and Government of Moldova (note 34).

In the updated NDCs, food and water security are not linked to a potential increase in violence, conflict or seen as contributing to societal instability



Table 2. Security-related themes referred to in the updated 2020 NDCs

NDC	Security-related theme								
	Food security	Water security	Energy (supply) security	Human health	Vulnerable/disadvantaged groups	Movement of people (displacement, migration, resettlement)	Sea level rise	Territorial security	Cultural security
Andorra	○	○	●	●	●	○	○	○	○
Chile	●	●●	○	●●	●●	○	○	○	○
Cuba	○	○	○	○	○	○	○	○	○
Georgia	●	○	○	●●	●●	●●	○	○	○
Jamaica	○	○	○	● ^a	○	○	●	○	○
Japan	○	○	○	○	○	○	○	○	○
Korea, North	○	○	○	○	○	○	○	○	○
Marshall Islands	●●	●●	●●	●●	●●	●●	●●	●●	●●
Moldova	●●	●●	●	●●	●●	●	○	○	○
Mongolia	●	●	○	●	●	○	○	○	○
New Zealand	○	○	○	○	○	○	○	○	○
Norway	●	○	○	○	○	○	○	○	○
Rwanda	●●	●●	●●	●●	○	○	○	○	○
Singapore	●	●	●	●	○	○	●●	●●	○
Suriname	●●	○	●	●	○	● ^b	●●	○	○
Viet Nam	●●	●●	●	●●	●●	●	●●	○	●

NDC = Nationally determined contribution; ● = referred to in passing; ●● = referred to as a central concern; ○ = not referred to

^a Jamaica mentions health once, but only as part of a longer list of concerns.

^b Suriname states that relocation was considered as an adaptation option in its 2015 NDC, but is no longer in its updated 2020 NDC.

Source: Authors' own analysis of NDCs from the United Nations Framework Convention on Climate Change Secretariat, Interim NDC Registry.

Marshall Islands), in other words, how biophysical factors are shaping the spread of risks to different population groups.⁵² Others discuss groups as vulnerable due to their socio-economic situation or various social drivers (Chile, Georgia, the Marshall Islands, Moldova and Viet Nam).⁵³ Georgia's NDC, for instance, identifies the following vulnerable groups: 'children and youth, women, older persons, persons with disabilities, persons with chronic diseases, internally displaced persons and people displaced as a result of

⁵² Government of Viet Nam (note 34); Government of Suriname (note 33); and Government of the Marshall Islands (note 32).

⁵³ Government of Chile (note 37); Government of Georgia (note 33); Government of the Marshall Islands (note 32); Government of Moldova (note 34); and Government of Viet Nam (note 34).



disasters caused by climate change or threatened by climate change'.⁵⁴ Chile and Viet Nam's NDCs mention indigenous people and ethnic minorities as disproportionately affected.⁵⁵ Some NDCs, such as Andorra's, mention vulnerable groups but without providing any specifics.⁵⁶

The climate-related movement of people emerges as a concern in a few NDCs, in relation to people being displaced by disasters (Georgia and the Marshall Islands) and the possible need to relocate populations affected by SLR (the Marshall Islands and Viet Nam).⁵⁷ Interestingly, Suriname's updated NDC mentions that relocation was considered as an adaptation measure in its 2015 NDC but is now 'abandoned' as a response measure.⁵⁸ Migration is also mentioned once in Moldova's NDC, but not as a concern for human security, rather as something that may impact negatively on the development potential of the shipping sector as people move closer to 'aquatic basins'.⁵⁹

Risks to national territory and culture

The loss of statehood and sovereignty due to SLR—and, therefore, the risk to territorial security—is referred to as a concern in the NDCs of Singapore and the Marshall Islands.⁶⁰ For the Marshall Islands, the risk of SLR is phrased as a potentially existential security risk, impacting 'RMI's claim to its sovereign territory, exclusive economic zone, and the resources within its current boundaries'.⁶¹ As a SIDS, the country sees itself unable to address this challenge alone, arguing that it can only be ameliorated with foreign aid for capacity building and finance. In stark contrast, in Singapore's NDC, this risk is framed as not only manageable but even an opportunity: 'Singapore has . . . developed a national, island-wide plan to protect itself from rising sea levels. Singapore will continue to explore innovative approaches to coastal protection measures . . . These various coastal protection measures will not only help overcome the challenges of sea level rise, but also present new exciting opportunities for new green and blue community spaces for Singaporeans'.⁶² SLR is also mentioned in the NDCs of Viet Nam and Suriname, but not as a main concern in Suriname, rather as something that efficient planning needs to protect against (as stated above, relocation of low-lying areas, recommended in the first NDC, is no longer a suggestion in the updated version).⁶³ Inundation of land due to SLR is a major concern for Viet Nam and is discussed as posing a significant risk to major cities, agricultural land and national infrastructure, but it is not seen as threatening national territory.⁶⁴ Georgia and Jamaica both briefly discuss SLR.⁶⁵

⁵⁴ Government of Georgia (note 33), p. 3.

⁵⁵ Government of Chile (note 37); and Government of Viet Nam (note 34).

⁵⁶ Government of Andorra (note 29).

⁵⁷ Government of Georgia (note 33); Government of the Marshall Islands (note 32); and Government of Viet Nam (note 34).

⁵⁸ Government of Suriname (note 33), p. 25.

⁵⁹ Government of Moldova (note 34), p. 26.

⁶⁰ Government of Singapore (note 39); and Government of the Marshall Islands (note 32).

⁶¹ Government of the Marshall Islands (note 32), p. 46.

⁶² Government of Singapore (note 39), p. 21.

⁶³ Government of Viet Nam (note 34); and Government of Suriname (note 33).

⁶⁴ Government of Viet Nam (note 34).

⁶⁵ Government of Georgia (note 33); and Government of Jamaica (note 31).



Beyond the risk to national territory and material assets, the NDC of the Marshall Islands also discusses climate change as posing a risk to ‘cultural security’ and, therefore, raises concerns over non-material losses. Specifically, it discusses the potential loss of Marshallese culture and language, and raises questions about the rights of Marshallese migrants once resettled in other countries and the ‘natural and inalienable right to continue living and thriving in these islands’.⁶⁶ To a lesser degree, Viet Nam’s NDC also mentions ‘non-economic losses . . . of cultural heritage and local knowledge’.⁶⁷ While none of the other updated NDCs discusses adverse impacts on cultural dimensions of human security, the findings from the UNDP’s review of first round NDCs suggest that this is a common theme across SIDS, especially those in the Pacific Ocean.⁶⁸

Geopolitical risks and implications

In general, the CRSRs that are discussed in the 16 updated NDCs are largely seen as arising from changes in climate and associated extreme events within the respective country’s borders. In other words, countries see direct climate impacts as the main trigger of different (human) security-related risks. Accordingly, the risk assessments that NDCs make are focused on the national effects of climate change, identifying risks arising domestically, and most do not consider risks that may arise from indirect climate impacts elsewhere, including those that cross borders. Only five updated NDCs—Chile, Cuba, Georgia, the Marshall Islands, and Singapore—discuss trans-boundary climate risk dimensions that arise from outside their borders.⁶⁹

Most updated NDCs only focus on CRSRs that arise in their own country, they do not consider indirect risks that may cross national borders

As discussed above, in the case of Singapore and the Marshall Islands, these risks are associated with a high dependency on global supply chains in the context of concerns over food and energy supply security. Singapore’s NDC is most explicit about this: ‘Singapore is heavily dependent on the global supply chain for its food and energy security. Its economic activity and emissions are also highly sensitive to the volatility of regional and global developments. These challenges mean that Singapore’s climate strategies have to take into account international developments that may adversely affect its economy, and its food and energy security.’⁷⁰ In the cases of Cuba and Georgia, some risks are seen as arising from other governments’ hostile foreign policies. For example, Cuba’s NDC mentions the ongoing economic, commercial and financial blockade and ‘hostility from the United States government towards Cuba’ as a hindrance to the country’s ability to take climate action.⁷¹ Georgia’s NDC mentions a ‘trade embargo’ imposed by Russia as one of several external factors that have impacted on its GHG emissions, but without going into detail.⁷² Chile’s NDC discusses a more general risk due to its international connections, lamenting that its economy

⁶⁶ Government of the Marshall Islands (note 32), p. 47.

⁶⁷ Government of Viet Nam (note 34), p.17.

⁶⁸ UNDP (note 7).

⁶⁹ Government of Singapore (note 39); Government of the Marshall Islands (note 32); Government of Georgia (note 33); and Government of Cuba, ‘Summary of the First Cuba Updated (2020–2030)’, Sep. 2020.

⁷⁰ Government of Singapore (note 39) p. 15.

⁷¹ Government of Cuba (note 69), p. 2.

⁷² Government of Georgia (note 33), p. 5.



is ‘at the mercy of the international market, given its high level of economic integration . . . which exposes it to external turmoil’.⁷³ In contrast to these five NDCs, Norway’s NDC is the only one that vaguely alludes to risks imposed by its own actions on others, through its high dependency on food imports.⁷⁴

In comparison with the 2015 NDCs

Not surprisingly, the updated 2020 NDCs differ somewhat from their 2015 predecessors. Except for five NDCs (Cuba, Japan, Mongolia, New Zealand and North Korea), most countries’ second NDCs are significantly longer than their first versions.⁷⁵ For instance, Andorra’s NDC expanded from 6 to 23 pages and Rwanda’s from 24 to 101 pages.⁷⁶ However, there is little noticeable change when it comes to the focus on mitigation and adaptation between the different versions from the same country, meaning those countries that did not have a distinct adaptation component in 2015 do not have one in 2020 either. Andorra is the exception, with its updated NDC communicating on adaptation for the first time.⁷⁷

Cumulatively, the updated NDCs have stronger references to CRSRs compared to the 2015 versions

Cumulatively, the updated NDCs have stronger references to CRSRs compared to the 2015 versions. Often, the increase in NDC length overlapped with an increase in detail on the risks to a country’s socio-economic development. For example, the updated NDCs from Chile, Moldova and Rwanda, which are considerably longer than their first versions, elaborate in more detail on different risks.⁷⁸ A good example is the cost of disasters in Moldova’s 2020 NDC, where information about the dangers of climate-induced disasters is supplemented with additional information on the monetary and human costs they generate.⁷⁹ One exception to this tendency towards more detail is North Korea, whose updated 2020 NDC does not discuss security concerns in connection to food, water, health and SLR—themes that were present in its first and significantly longer NDC.⁸⁰

In some instances, the updated NDCs mention specific CRSRs that were not discussed in the earlier versions. The Marshall Islands is a case in point: while its 2015 NDC does not mention migration risk, the 2020 version raises concerns that SLR and other sudden and slow onset climate impacts might seriously endanger the viability of human settlements on the coast and lead to migratory movements.⁸¹ Another example is Suriname, whose updated NDC raises concerns about food security and risks to human health that

⁷³ Government of Chile (note 37), p. 7.

⁷⁴ Government of Norway (note 29).

⁷⁵ Government of Cuba (note 69); Government of the Democratic People’s Republic of Korea (note 27); Government of Japan (note 25); Government of Mongolia (note 42); and Government of New Zealand (note 25).

⁷⁶ Government of Andorra (note 29); and Government of Rwanda (note 26).

⁷⁷ Government of Andorra (note 29).

⁷⁸ Government of Chile (note 37); Government of Moldova (note 34); and Government of Rwanda (note 26).

⁷⁹ Government of Moldova (note 34).

⁸⁰ Government of the Democratic People’s Republic of Korea (note 27); and Government of the Democratic People’s Republic of Korea, ‘Intended nationally determined contribution of Democratic People’s Republic of Korea’, Oct. 2016.

⁸¹ Government of the Marshall Islands (note 32).



were not present in the earlier version.⁸² The same goes for Mongolia's 2020 NDC, which discusses human health, vulnerable groups and water security for the first time.⁸³

Among all these changes, however, two things are particularly noteworthy. First, those countries that have a relatively strong focus on CRSRs in their updated NDCs already had this in their first versions. Second, the source of CRSRs discussed in updated NDCs has not expanded from the earlier versions, meaning they continue to focus largely on direct climate risks, arising and impacting domestically. None of the updated NDCs in 2020 discusses risks to regional or international stability.

IV. Conclusion and ways forward: Thinking climate risk beyond borders

NDCs are important statements by parties to the Paris Agreement that convey how countries view climate risks impacting on their territory and what mitigation and adaptation actions they plan to take in response. This review of the updated NDCs submitted by mid-October 2020 has made several important observations. First, insofar as countries choose to include a

distinct adaptation component in their NDC, most also discuss risks to their socio-economic development. However, climate change is only seen as a risk to security by posing a threat to the wellbeing of a country's citizens and to some degree its economy, but never to social stability, national sovereignty or the functioning of the state (except for the Marshall Islands).

Other than passing comments in the NDCs from Moldova and Chile, this review found no reference to climate change exacerbating or generating conflict. Importantly, other than in the NDCs from the Marshall Islands and Viet Nam, the risks to human security referred to focus entirely on material aspects such as risks to food, water, housing and energy.

Second, this study shows that cumulatively the updated NDCs have stronger references to different aspects of human security (despite no direct mention of the term as such), and that the countries which have a strong focus on such risks in their 2020 NDC already had this embedded in their 2015 version. It is also noteworthy that several NDCs from high-income countries such as Andorra, Japan, Norway and New Zealand do not discuss any risks to socio-economic development or possible human security implications.

Third, the study found that countries largely frame climate-related risks, including those that may carry security implications, through a national lens. In other words, CRSRs are mostly seen as arising domestically from direct climate impacts and only as a problem for the country submitting the NDC. Risks emerging indirectly from climate impacts elsewhere are only discussed in the context of global supply chains (i.e. trade-related transboundary climate risks). Risks emerging through the unintended, adverse consequences of mitigation or adaptation responses (as a form of maladaptation) are not discussed at all. This means that although NDCs are

Other than passing comments in two NDCs, none of the updated NDCs makes reference to climate change exacerbating or generating conflict

⁸² Government of Suriname (note 33).

⁸³ Government of Mongolia (note 42).



paying some attention to CRSRs, they are only looking at a narrow range of sources for potential security risks.

This leads to two important questions: why is there not more discussion of other sources of risks? And should NDCs communicate about CRSRs at all? One reason for the emphasis in our sample of NDCs on human security and domestic sources of risk, and the absence of transboundary climate risks might be due to sample bias: at the time of writing, none of the submitted NDCs was from a conflict-affected or fragile country, or one with existing political tensions linked to transboundary water resources.⁸⁴ Future submissions from affected countries can be expected to include more CSR concerns that go beyond this human security and domestic focus.

Another reason is that NDCs are essentially promises about national climate targets, in which parties sketch out the tangible things they can do. As such, CRSRs might not lend themselves easily to that ambition or lie within the area of expertise of the national agencies responsible for preparing NDCs, nor are they explicitly mentioned in the formal UNFCCC guidance on what countries should include in their NDCs. By definition, these *nationally* determined contributions, and the climate risk assessments they contain, focus on risks arising in national territories. Such a national focus, however, has significant 'blind spots concerning the interaction and amplification of risks and their international dimensions'.⁸⁵

It is also worth noting that those countries which have chosen not to include a discussion of CRSRs in the scope of their updated NDC may well have chosen to do so elsewhere, in other communications under the UNFCCC or in national climate change policy—something that future research may wish to investigate.⁸⁶ Regardless, CRSRs and transnational climate risks ought to be considered somewhere in national risk assessments and climate change planning.

There are two important reasons for considering CRSRs in the NDCs: first, if NDCs are understood as 'important guidepost[s] in an ongoing process of global cooperation on climate change', then more awareness of transboundary climate-related security risks might be expected, as well as an emphasis on international cooperation.⁸⁷ Second, in order to make progress in the 'global goal on adaptation' set out in the Paris Agreement, NDCs must consider how the security of individuals, communities, states, regions and the international community is impacted by different climate-related risks, and how these might be addressed.⁸⁸ This is not only relevant for particu-

⁸⁴ For instance, of the countries ranked as the 30 most fragile states in the world, none has submitted an updated NDC yet; see Fund for Peace, 'Fragile States Index 2020', 2020. Two of the countries examined here, Viet Nam and Georgia, do have shared water bodies with neighbouring countries (Mekong River and Kula River, respectively) that have some political tensions linked to their use. However, these tensions do not rise to the level of open conflict and were not mentioned as a concern in the NDCs.

⁸⁵ Challinor, A. J., Adger N. W., and Benton, T. G., 'Climate risks across borders and scales', *Nature Climate Change*, vol. 7, no. 9 (Sep. 2017), p. 621.

⁸⁶ Several European countries, for instance, have begun to undertake transboundary climate risk assessments; see Adams, K. M. et al., 'Climate-resilient trade and production: The transboundary effects of climate change and their implications for EU member states', *Adaptation Without Borders Policy Brief* no. 1, Aug. 2020.

⁸⁷ Mills-Novoa and Liverman (note 9), p. 11.

⁸⁸ Paris Agreement under the UNFCCC (note 1), Article 7.1; and Atteridge, A. and Remling, E., 'Is adaptation reducing vulnerability or redistributing it?', *WIREs Climate Change*, vol. 9, no. 1 (Jan.



larly vulnerable or fragile countries. As reflected in Singapore's NDC, high-income countries are often highly exposed to indirect climate risks, through a high dependence on global supply chains.

Suggesting that NDCs take into account CRSRs more explicitly is not to call for a 'securitization' of climate change, or a 'militarization' as sometimes feared, but to encourage governments and policymakers to consider the multifaceted and transboundary CRSRs they face when preparing their submissions.⁸⁹ It is to make them think more comprehensively about the sources of risks they are likely to face, and the risks their country may pose to others. While many of the updated 2020 NDCs do pay attention to different human security risks from climate change, this needs to be developed further in the context of climate mitigation and adaptation. In light of an increasing concern for maladaptation, parties to the Paris Agreement need to take account of the multifaceted character of climate risks by integrating the assessment of indirect and transboundary climate risks and the potential for adverse effects of climate action into their national-level risk assessments.

2018), e500.

⁸⁹ Oels, A., 'From "securitization" of climate change to "climatization" of the security field: Comparing three theoretical perspectives', eds Scheffran, J. et al., *Climate Change, Human Security and Violent Conflict: Challenges for Societal Stability* (Heidelberg: Springer, 2012), pp. 185–205.

**Annex A.** Overview of the analysed NDCs, 2020 and 2015

Country	Income group ^a	NDC version	Date submitted to the UNFCCC Secretariat	Page length	Contains adaptation and/or mitigation
<i>2020 NDCs</i>					
Andorra	High	Updated	May 2020	23	Both
Chile	High	Updated	April 2020	95	Both
Cuba	Upper-middle	Updated	September 2020	5	Both
Georgia	Upper-middle	Updated	June 2020	12	Both
Jamaica	Upper-middle	Updated	July 2020	11	Both
Japan	High	Updated	March 2020	2	Mitigation
Korea, North	Low	Updated	September 2019	2	Both
Marshall Islands	Upper-middle	Second	November 2018	75	Both
Moldova	Lower-middle	Updated	March 2020	74	Both
Mongolia	Lower-middle	Updated	October 2020	8	Both
New Zealand	High	Updated	April 2020	2	Mitigation
Norway	High	Updated	February 2020	16	Mitigation
Rwanda	Low	Updated	May 2020	101	Both
Singapore	High	Updated	February 2020	25	Both
Suriname	Upper-middle	Second	September 2020	43	Both
Viet Nam	Lower-middle	Updated	July 2020	41	Both
<i>2015 NDCs</i>					
Andorra	High	First	March 2017	6	Mitigation
Chile	High	First	September 2015	32	Both
Cuba	Upper-middle	First	November 2015	20	Both
Georgia	Upper-middle	First	September 2015	8	Both
Jamaica	Upper-middle	First	November 2015	9	Both
Japan	High	First	July 2015	17	Mitigation
Korea, North	Low	First	October 2016	14	Both
Marshall Islands	Upper-middle	First	July 2015	10	Both
Moldova	Lower-middle	First	September 2015	30	Both
Mongolia	Lower-middle	First	September 2016	10	Both
New Zealand	High	First	November 2015	3	Mitigation
Norway	High	First	March 2015	6	Mitigation
Rwanda	Low	First	December 2015	24	Both
Singapore	High	First	July 2015	7	Both
Suriname	Upper-middle	First	September 2015	12	Both
Viet Nam	Lower-middle	First	September 2015	11	Both

NDC = Nationally determined contribution; UNFCCC = United Nations Framework Convention on Climate Change

^a World Bank Group, 'World Bank Country and Lending Groups', 2021 fiscal year.

Source: Authors' own compilation from the United Nations Framework Convention on Climate Change Secretariat, Interim NDC Registry.

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CLIMATE-RELATED SECURITY RISKS IN THE 2020 UPDATED NATIONALLY DETERMINED CONTRIBUTIONS

ELISE REMLING AND AMAR CAUSEVIC

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