

THE SOCIAL SIDE OF CLIMATE CHANGE ADAPTATION: REDUCING CONFLICT RISK

FARAH HEGAZI AND KATONGO SEYUBA

There is growing evidence that the effects of climate change are increasing risks to people's livelihoods, access to water and food, and security.¹ Climate change creates compound risks and when these risks interact with existing vulnerabilities, it contributes to insecurity.² In developing countries, the effects of climate change interact with factors such as underdevelopment, high dependence on natural resource-based livelihoods, inequality, weak state institutions and marginalization to increase the risk of insecurity and violent conflict.³ Climate change in itself does

not cause conflict, but its impact on livelihood conditions, and migration and mobility patterns, for example, can increase the risk of conflict.⁴ A clear understanding of the contexts where different risks converge can help to identify entry points for mitigating those risks.

In addition to sustainable development and climate change mitigation, climate change adaptation is another key entry point for addressing climate-related security risks (see figure 1).⁵ Climate change adaptation is the process of adjusting to the actual or expected effects of climate change.⁶ If it is well planned and implemented, adaptation can reduce people's vulnerabilities and improve livelihoods, and water and food security.⁷ Most of the studied adaptation efforts, however, have been technical, fragmented, narrow and top-down, and displayed significant gaps in planning and implementation.⁸ In addition, key social factors that could positively influence adaptation outcomes, and

¹ Intergovernmental Panel on Climate Change (IPCC), 'Summary for policymakers', eds H.-O. Pörtner et al., *Climate Change 2022: Impacts, Adaptation, and Vulnerability*, Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change; Sakaguchi, K., Varughese, A. and Auld, G., 'Climate wars? A systematic review of empirical analyses on the links between climate change and violent conflict', *International Studies Review*, vol. 19, no. 4 (Dec. 2017); and Meierding, E., 'Climate change and conflict: Avoiding small talk about the weather', *International Studies Review*, vol. 15, no. 2 (June 2013).

² Black, R. et al., *Environment of Peace: Security in a New Era of Risk* (SIPRI: Stockholm, 2022).

³ Mobjörk, M., Krampe, F. and Tarif, K., 'Pathways of climate insecurity: Guidance for policymakers', SIPRI Policy Brief, Nov. 2020; van Baalen, S. and Mobjörk, M., 'Climate change and violent conflict in East Africa: Integrating qualitative and quantitative research to probe the mechanisms', *International Studies Review*, vol. 20, no. 4

(2017); and Pearson, D. and Newman, P., 'Climate security and a vulnerability model for conflict prevention: A systematic literature review focusing on African agriculture', *Sustainable Earth*, vol. 2, no. 1 (2019).

⁴ Mobjörk, Krampe and Tarif (note 3).

⁵ Pearson and Newman (note 3); and IPCC (note 1), p. 25.

⁶ IPCC (note 1), p. 5.

⁷ IPCC (note 1), p. 20.

⁸ IPCC (note 1), p. 20.

SUMMARY

● In developing countries, the effects of climate change interact with factors such as underdevelopment, high dependence on natural resource-based livelihoods, inequality, weak state institutions and marginalization to increase the risk of insecurity and violent conflict. Along with sustainable development and climate change mitigation, climate change adaptation is another key entry point for addressing climate-related security risks. However, key social factors that could positively influence adaptation outcomes and ultimately mitigate climate-related security risks are often overlooked.

This SIPRI Policy Brief offers insights into the importance of social capital for facilitating climate change adaptation and preventing and resolving natural resource-related communal conflict in developing countries. The policy brief recommends: (a) improving trust between communities and governments through collaborative processes for knowledge exchange, setting priorities and determining appropriate climate change adaptation practices; and (b) increasing knowledge of climate change among traditional and local leaders to strengthen local conflict resolution mechanisms.

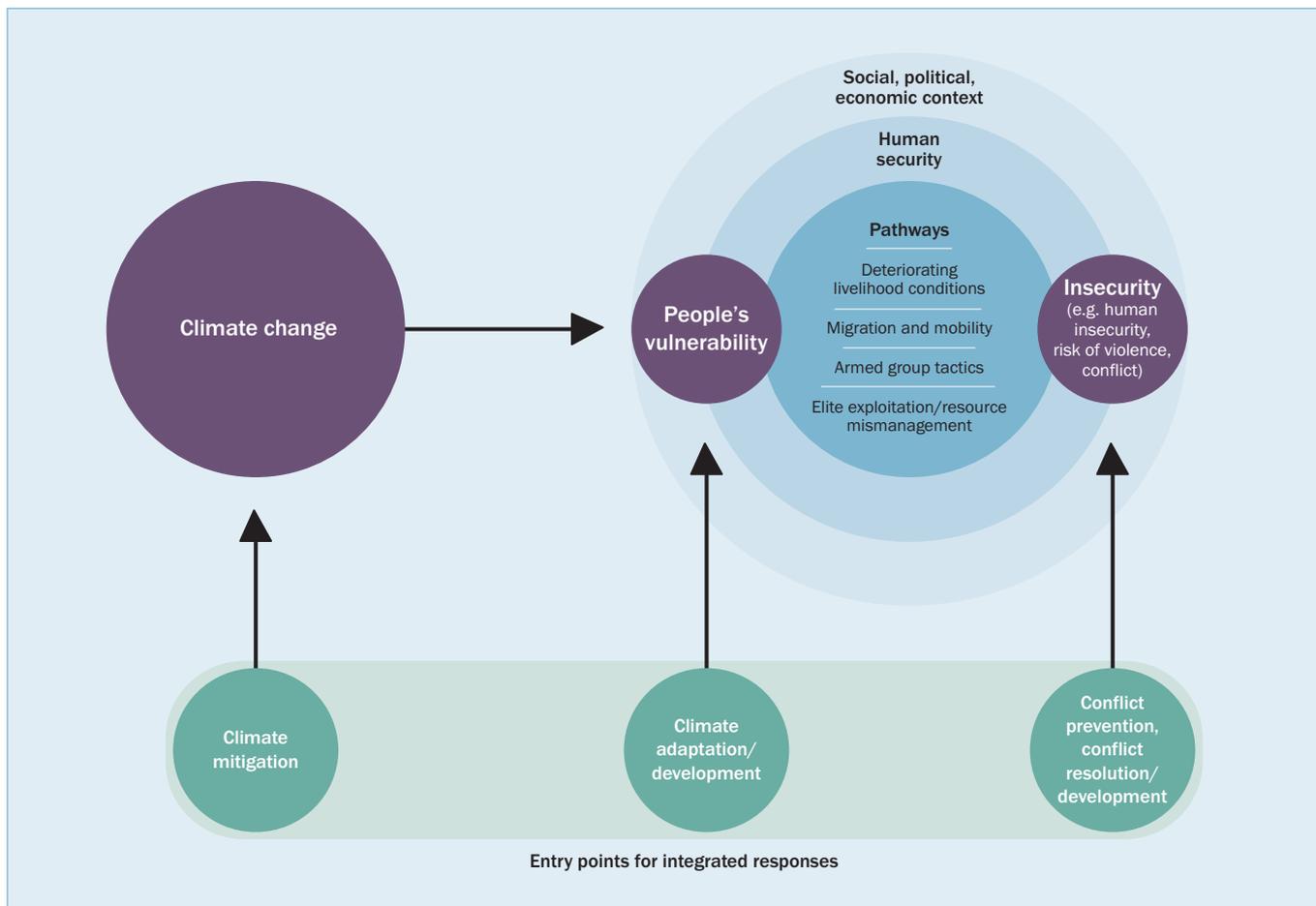


Figure 1. Pathways of climate-related security risks

Source: SIPRI Climate Change and Risk Programme.

ultimately mitigate climate-related security risks, have often been overlooked.

This SIPRI Policy Brief draws on the social side of adaptation to emphasize that social capital facilitates adaptation, which can reduce climate-related security risks. Social capital plays a key role in the success of adaptation efforts and the success of conflict prevention and peacebuilding.⁹

It is particularly important in the context of climate-related security risks because of its potential to facilitate and improve adaptation and, in turn, conflict prevention. Improved climate change adaptation has the potential to lead to greater capacity for conflict prevention, as it can decrease vulnerabilities and risks, including climate-sensitive conflict drivers, while also improving people's

⁹ Aldrich, D. P., Page-Tan, C. M. and Paul, C. J., 'Social capital and climate change adaptation', *Oxford Research Encyclopedias, Climate Science*, 22 Nov. 2016; Bukari, K. N., Sow, P. and Scheffran, J., 'Cooperation and co-existence between farmers and herders in the midst of violent farmer-herder conflicts in Ghana', *African Studies Review*, vol. 61, no. 2 (2018); Bogale, A. and Korf, B., 'To share or not to share? (Non-) violence, scarcity and

resource access in Somali region, Ethiopia', *Journal of Development Studies*, vol. 43, no. 4 (2007); Kilroy, W., 'Social capital and peace', eds K. Standish et al., *Palgrave Handbook of Positive Peace* (Springer Nature Singapore: Singapore, 2022); and Colletta, N. J. and Cullen, M. L., *Violent Conflict and the Transformation of Social Capital: Lessons from Cambodia, Rwanda, Guatemala, and Somalia* (World Bank: Washington, DC, 2000).



choices, livelihood options and resilience.¹⁰ Policymakers and practitioners at various levels should therefore leverage social capital to achieve better climate change adaptation and conflict prevention outcomes.

This policy brief offers insights into the importance of social capital for facilitating climate change adaptation and preventing and resolving natural resource-related communal conflict in developing countries. The policy brief recommends: (a) improving trust between communities and governments through collaborative processes for knowledge exchange, setting priorities and determining appropriate climate change adaptation practices; and (b) increasing knowledge of climate change among traditional and local leaders to strengthen local conflict resolution mechanisms.

THE IMPORTANCE OF SOCIAL CAPITAL FOR ADAPTATION AND RESOLVING NATURAL RESOURCE CONFLICTS

Social capital is defined as relationships between individuals and between and within networks, which are built on norms of reciprocity and trust.¹¹ Evidence shows that social capital can break down during conflict.¹² Evidence also shows that social capital can reinforce existing power imbalances, increase inequality and be used to incite violence.¹³

¹⁰ IPCC (note 1), p. 25.

¹¹ Putnam, R. D., *Bowling Alone: The Collapse and Revival of American Community* (Simon and Schuster: New York, 2000); and Szreter, S. and Woolcock, M., 'Health by association? Social capital, social theory, and the political economy of public health', *International Journal of Epidemiology*, vol. 33, no. 4 (2004).

¹² Colletta and Cullen (note 9).

¹³ Ballet, J., Sirven, N. and Requieres-Desjardins, M., 'Social capital and natural

Nonetheless, by promoting information sharing and a common set of values, and helping to build, maintain and restore trust and social cohesion, it can also improve governance, reduce conflict and build peace at the local level.¹⁴ Social capital can also give a voice to marginalized groups and communities, allowing them to take an active role in making decisions about resolving the challenges they face. This can help to increase the credibility, accountability, ownership and sustainability of interventions.¹⁵ In addition, shared learning and partnerships that leverage local legitimacy and support local agency are a significant component of how social capital can address conflict and build peace.¹⁶

Social capital can improve governance, reduce conflict and build peace at the local level

resource management: A critical perspective', *Journal of Environment & Development*, vol. 16, no. 4 (Dec. 2007); Byg, A. and Herslund, L., 'Socio-economic changes, social capital and implications for climate change in a changing rural Nepal', *GeoJournal*, vol. 81, no. 2 (Apr. 2016); Eriksen, S. and Lind, J., 'Adaptation as a political process: Adjusting to drought and conflict in Kenya's drylands', *Environmental Management*, vol. 43, no. 5 (May 2009); and Jordan, J. C., 'Swimming alone? The role of social capital in enhancing local resilience to climate stress: A case study from Bangladesh', *Climate and Development*, vol. 7, no. 2 (Mar. 2015).

¹⁴ Woolcock, M., 'The rise and routinization of social capital, 1988–2008', *Annual Review of Political Science*, vol. 16 (2010); Oh, Y. and Bush, C. B., 'Exploring the role of dynamic social capital in collaborative governance', *Administration & Society*, vol. 48, no. 2 (Mar. 2016); Fafchamps, M., 'Development and social capital', *Journal of Development Studies*, vol. 42, no. 7 (2006); Kilroy (note 9); and Cox, M., *Social Capital and Peace-building: Creating and Resolving Conflict with Trust and Social Networks* (Routledge: New York, 2009).

¹⁵ Colletta and Cullen (note 9), p. 15; and Chambers, R., *Revolutions in Development Inquiry* (Routledge: London, 2008).

¹⁶ Brigg, M., 'Relational peacebuilding: Promise beyond crisis', eds T. Debiel, T. Held and U. Schneekener, *Peacebuilding*



Social capital at various levels is important for the process and outcomes of adapting to climate change

More specifically, social capital at various levels is important for the process and outcomes of adapting to climate change.¹⁷ Adaptation is a social process, as individuals and communities interact with members of their network to gain information, share resources, create collective norms and build institutions that increase their resilience to climate change.¹⁸ At the community level in the Mazungunye communal lands in Zimbabwe, for example, communities have adopted a practice of collective field work to pool labour and share resources. This enhances food security and creates a social safety net to protect against the effects of drought and floods.¹⁹ Similarly, in the Montes de María region of Colombia, which has become drier, communities band together to dig additional reservoirs before the start of the rainy season to store water.²⁰

in Crisis: Rethinking Paradigms and Practices of Transnational Cooperation (Routledge: London, 2016), p. 64.

¹⁷ Adger, W. N., 'Social aspects of adaptive capacity', eds J. B. Smith, R. J. T. Klein and S. Huq, *Climate Change, Adaptive Capacity and Development* (Imperial College Press: London, 2003).

¹⁸ Adger (note 17); Aldrich, Page-Tan and Paul (note 9); IPCC (note 1); and Agrawal, A. and Perrin, N., 'Climate adaptation, local institutions and rural livelihoods', eds W. N. Adger, I. Lorenzoni and K. L. O'Brien, *Adapting to Climate Change: Thresholds, Values, Governance* (Cambridge University Press: Cambridge, 2009).

¹⁹ Nyahunda, L. and Tirivangasi, H. M., 'Harnessing of social capital as a determinant for climate change adaptation in Mazungunye Communal Lands in Bikita, Zimbabwe', *Scientifica*, 19 Apr. 2021.

²⁰ Castro, B. and Sen, R., 'Everyday adaptation: Theorizing climate change adaptation in daily life', *Global Environmental Change*, vol. 75 (July 2022).

Social capital between communities and formal and informal authorities, such as governments and traditional leaders, is also important, as such authorities play a significant role in climate change adaptation. Governments are the primary implementers of climate change adaptation, and their adaptation plans are more likely to be adopted if people trust them.²¹ In the Oromia region of Ethiopia, for example, farmers were more likely to implement climate adaptation strategies when they trusted and had good relationships with the farmers' training centre and local government.²² Similarly, in the Gannan Tibetan Autonomous Prefecture in China, farming households that trusted and had a strong relationship with government representatives were more likely to implement government-led climate adaptation strategies than those that did not.²³

Globally, however, trust in government is not strong.²⁴ Government-led adaptation projects can backfire if not planned and implemented properly. In Cambodia, for example, an adaptation project intended to improve livelihoods and biodiversity

²¹ Mimura, N. et al., 'Adaptation planning and implementation', eds C. B. Field et al., *Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* (Cambridge University Press: New York, 2014).

²² Belay, D. and Fekadu, G., 'Influence of social capital in adopting climate change adaptation strategies: Empirical evidence from rural areas of Ambo district in Ethiopia', *Climate and Development*, vol. 13, no. 10 (2021).

²³ Wang, W. et al., 'Will social capital affect farmers' choices of climate change adaptation strategies? Evidence from rural households in the Qinghai-Tibetan Plateau, China', *Journal of Rural Studies*, vol. 83 (2021).

²⁴ World Values Survey, WVS Database, <<https://www.worldvaluessurvey.org/WVSONline.jsp>>, accessed 25 Feb. 2022.



in drought-affected areas made communities more dependent on the government and reinforced power imbalances. Similarly, in Bangladesh, coastal afforestation, water management and disaster preparedness adaptation projects have allowed elites to engage in land grabbing and have further disempowered communities and increased poverty.²⁵ Building social capital by increasing trust where trust is weak or non-existent is therefore crucial for successful implementation of climate change adaptation.

In addition to social capital between the government and communities, social capital between communities themselves is another essential aspect of managing the effects of climate change, as it can prevent and resolve natural resource conflicts in times of increasing scarcity. Intercommunity customs and rules that govern resource sharing and community dialogue can reduce the likelihood of communal violence and help to build peace.²⁶ This is particularly the case where the state plays little or no role in addressing conflict.²⁷ Pastoralists and farmers, for example, rely on

their social networks to prevent and resolve conflicts over shared territory and agricultural land.²⁸ In the Somali region of Ethiopia, social capital facilitates sharing arrangements between agropastoralists and pastoralists for the use of pasture during droughts. These arrangements help agropastoralists acquire assets and resources during periods of scarcity, which plays a crucial role in preventing violent conflict.²⁹ In the coastal and highland areas of Yemen, social capital is instrumental to community implementation of informal agreements and rules on managing scarce water resources. These informal agreements, which include a ban on sales to water tankers and rules on the spacing of wells, are all aimed at preventing conflict.³⁰

For policymakers and practitioners, therefore, understanding and accounting for how social capital affects climate change adaptation and conflict prevention provides a unique entry point for addressing climate-related security risks.

RECOMMENDATIONS

Investing in social capital can strengthen both climate change adaptation and conflict prevention. To improve government-facilitated adaptation, and to decrease the likelihood of climate-related security risks, policymakers and practitioners should support increasing trust between communities and

²⁵ Black et al. (note 2).

²⁶ Bukari, Sow and Scheffran (note 9); McPeak, J. G. and Little, P. D., 'Mobile peoples, contested borders: Land use conflicts and resolution mechanisms among Borana and Guji Communities, southern Ethiopia', *World Development*, vol. 103 (2018); McAllister, G. and Wright, J., 'Agroecology as a practice-based tool for peacebuilding in fragile environments? Three stories from rural Zimbabwe', *Sustainability*, vol. 11, no. 3 (2019); and Johnson, M. F., Rodriguez, L. A. and Quijano Hoyos, M., 'Intrastate environmental peacebuilding: A review of the literature', *World Development*, vol. 137 (2021).

²⁷ Linke, A. M. et al., 'Rainfall variability and violence in rural Kenya: Investigating the effects of drought and the role of local institutions with survey data', *Global Environmental Change*, vol. 34 (2015).

²⁸ Linke et al. (note 27); and Adano, W. R. et al., 'Climate change, violent conflict and local institutions in Kenya's drylands', *Journal of Peace Research*, vol. 49, no. 1 (2012).

²⁹ Bogale and Korf (note 9).

³⁰ Taher, T. et al., 'Local groundwater governance in Yemen: Building on traditions and enabling communities to craft new rules', *Hydrogeology Journal*, vol. 20, no. 6 (2012).



governments through collaborative processes of exchanging knowledge, setting priorities and determining appropriate climate change adaptation practices. They should also seek to increase knowledge of climate change among traditional and local leaders to strengthen local conflict resolution mechanisms.

Improve trust

Because trust between communities and governments is important, policymakers and practitioners should support climate change adaptation initiatives that collaboratively generate knowledge between stakeholders. In particular, the experience of local communities should be used to inform, design and implement projects that balance local climate change adaptation needs with the needs of other stakeholders. A collaborative approach to achieving this balance can build trust between communities and the government, while also improving the planning, implementation and adoption of climate change adaptation practices.³¹

Community-based organizations or intermediaries can facilitate this collaborative process while

consciously reducing the potentially negative influence of elites.³² The role of community-based organizations is especially important because trust in environmental groups, for example, is highly associated with the adoption of adaptation practices.³³

In Peru, for example, conflicts over the management of the Amarakaeri Communal Reserve were partly driven by a lack of genuine stakeholder participation in project design, implementation and management. Joint decision making between indigenous and government representatives faced many obstacles, not least disagreements among communities on the sources of conflict. To improve joint decision making, a concerted effort was made between 2014 and 2018 to build trust between the government, non-governmental organizations (NGOs) and indigenous communities in managing the reserve. The initiative to improve conflict management and natural resource management capacities relied heavily on constant dialogue between all the stakeholders, which allowed them to define the problem together and jointly determine solutions. Key to the success of this continuous dialogue was the regular integration of feedback at the project's various stages. The modes of dialogue varied based on what was culturally and politically appropriate, and what would involve the largest number of stakeholders. Examples included participatory conflict analysis, public dialogues in indigenous

³¹ Brigg (note 16), p. 64; Ensor, J. and Harvey, B., 'Social learning and climate change adaptation: Evidence for international development practice', *WIREs Climate Change*, vol. 6, no. 5 (2015); Klenk, N. et al., 'Local knowledge in climate adaptation research: Moving knowledge frameworks from extraction to co-production', *WIREs Climate Change*, vol. 8, no. 5 (2017); Kristjanson, P. et al., 'Social learning and sustainable development', *Nature Climate Change*, vol. 4, no. 1 (2014); Ziervogel, G., 'Building transformative capacity for adaptation planning and implementation that works for the urban poor: Insights from South Africa', *Ambio*, vol. 48, no. 5 (2019); and Ziervogel, G. et al., 'Supporting transformative climate adaptation: Community-level capacity building and knowledge co-creation in South Africa', *Climate Policy*, vol. 22, no. 5 (2021).

³² World Bank, *CDD and Elite Capture: Reframing the Conversation* (World Bank: Washington, DC, 2008).

³³ Cologna, V. and Siegrist, M., 'The role of trust for climate change mitigation and adaptation behaviour: A meta-analysis', *Journal of Environmental Psychology*, vol. 69 (June 2020).



communities, local municipal events, workshops and political negotiations at the regional level. Through continued engagement and collaboration between stakeholders in the design, implementation and management of improved conflict mitigation capacity and natural resource management techniques, trust and cooperation increased by generating a shared understanding of the problems and solutions.³⁴

Thus, a collaborative approach that genuinely prioritizes the needs and experiences of communities, and allows communities to learn about the obstacles and restrictions governments face in providing services, has the potential to: (a) build trust; (b) close the gap between adaptation planning and implementation; (c) positively affect the adoption of climate adaptation practices; (d) increase the effectiveness of climate adaptation; and (e) reduce the potential for conflict.³⁵

Increase knowledge

Traditional and local leaders are central to managing conflict over natural resources but there may only be limited information on how to manage the effects of climate change in their communities.

Improving knowledge among traditional and local leaders about the short-, medium- and long-term projections on climate change could harness the positive potential of their relationships and networks to influence adaptation in their

respective communities. Provided that the existence of conflict does not further their own interests, traditional leaders will be able to use climate change projections to anticipate whether and how conflict could arise and prevent its occurrence.

People often trust traditional and local leaders more than the government, and there is a demand for climate change information to be channelled to local communities. Communicating scientific climate predictions through traditional and local leaders could therefore increase communities' confidence in such information.³⁶ This would also tap into local forms of legitimacy to pre-empt conflict and support local agency by providing the information needed for local and traditional leaders to be proactive in addressing potential sources of conflict.

Improving traditional and local leaders' knowledge of climate change has two potential benefits for reducing climate-related security risks. First, from a technical perspective, communities themselves can use the information

Purposefully supporting climate adaptation as a social process can reduce the probability of climate-related security risks

³⁴ Fisher, J. et al., 'Collaborative governance and conflict management: Lessons learned and good practices from a case study in the Amazon Basin', *Society & Natural Resources*, vol. 33, no. 4 (2020).

³⁵ IPCC (note 1), pp. 27–28; de Coning, C., 'Adaptive peacebuilding', *International Affairs*, vol. 94, no. 2 (2018); Ziervogel et al. (note 31); and Ziervogel (note 31).

³⁶ Logan, C. and Katenda, L. M., *African Citizens' Message to Traditional Leaders: Stay in Development, Stay Out of Politics*, Afrobarometer Dispatch No. 443 (Afrobarometer: Accra, 2021); Coulibaly, J. et al., *What Climate Services do Farmers and Pastoralists Need in Tanzania? Baseline Study for the GFCS Adaptation Program in Africa*, Working Paper 110 (CGIAR: Copenhagen, 2015); Spires, M., Shackleton, S. and Cundill, G., 'Barriers to implementing planned community-based adaptation in developing countries: A systematic literature review', *Climate and Development*, vol. 6, no. 3 (2014); and Antwi-Agyei, P., Dougill, A. J. and Stringer, L. C., 'Barriers to climate change adaptation: Evidence from northeast Ghana in the context of a systematic literature review', *Climate and Development*, vol. 7, no. 4 (2014).

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**STOCKHOLM INTERNATIONAL
PEACE RESEARCH INSTITUTE**

Signalistgatan 9
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Telephone: +46 8 655 97 00
Email: sipri@sipri.org
Internet: www.sipri.org

to adapt to the changes they are predicted to experience. In India and Kenya, for example, farmers switched to growing crops that are more tolerant of higher temperatures after receiving climate change-related information from a trusted source.³⁷

In addition, by leveraging social capital, traditional leaders who mediate natural resource-related conflicts can, among other things, use the information to negotiate new livestock migration routes that are aligned with the short-, medium- and long-term projections that have been shared with them. Pastoralists experiencing drought currently come into conflict with other communities if prior access to pasture and water resources has not been negotiated.³⁸ This suggests

³⁷ Singh, C. et al., 'The utility of weather and climate information for adaptation decision-making: Current uses and future prospects in Africa and India', *Climate and Development*, vol. 10, no. 5 (2018).

³⁸ Belay, K., Beyene, F. and Manig, W., 'Coping with drought among pastoral and agro-pastoral communities in eastern Ethiopia', *Journal of Rural Development*, vol. 28 (Winter 2005); Beyene, F., 'Natural resource conflict analysis among pastoralists in southern Ethiopia', *Journal of Peacebuilding & Development*, vol. 12, no. 1 (Apr. 2017); and Hegazi, F., Krampe, F. and Smith, E., *Climate-related Security Risks and Peacebuilding in Mali*,

that equipping the traditional leaders who negotiate access with climate change forecasts could pre-empt conflict. In this way, traditional and local leaders, and their conflict resolution mechanisms, become climate sensitive, forward-looking and anticipatory, thereby decreasing the occurrence of climate-related security risks. Using climate change forecasts, however, would not mean doing away with indigenous or local knowledge as this is equally important for climate change adaptation.³⁹ Scientific climate forecasts should therefore complement indigenous knowledge to produce better methods for managing climate-related security risks.

In sum, adaptation is a social process that takes place within and between communities, and between communities and the government. Purposefully supporting this social process creates an opportunity to improve the implementation of adaptation and reduce the probability of climate-related security risks.

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³⁹ IPCC (note 1), p. 28.

ABOUT THE AUTHORS

Farah Hegazi (United States) is a Researcher with SIPRI's Climate Change and Risk Programme.

Katongo Seyuba (Zambia) is a Research Assistant with SIPRI's Climate Change and Risk Programme.