SIPRI Policy Brief
November 2024

CULTIVATING CHANGE: REGENERATIVE AGRICULTURE AND PEACEBUILDING IN SOUTH-CENTRAL SOMALIA

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SUMMARY

● In Somalia, climate change disproportionately disrupts agricultural and pastoral livelihoods, driving harmful practices, such as resource over-exploitation, which exacerbate conflicts. To address these challenges, the International Organization for Migration (IOM) promotes regenerative agriculture as a part of a broader environmental peacebuilding approach aiming to replace negative coping strategies with sustainable practices for long-term resilience.

This SIPRI Policy Brief explores the IOM's approach to regenerative agriculture as a tool for environmental peacebuilding in south-central Somalia. It focuses on analysing how the approach has been designed and highlights elements of the approach that can build resilient livelihoods, encourage cooperation over natural resources and strengthen social cohesion. The policy brief also offers recommendations for donors and implementing organizations to effectively leverage regenerative agriculture for environmental peacebuilding efforts.

I. Introduction

Rising temperatures, erratic precipitation patterns, and more frequent and severe extreme weather events such as droughts and floods are placing increasing pressure on agriculture.[1] In Somalia, climate stressors are compromising agriculture and pastoralism, on which most livelihoods depend, leading to reduced crop yields, livestock losses and, ultimately, social and economic disruption (see figure 1).[2] Many individuals are forced to adopt negative coping strategies such as migrating, over-exploiting natural resources and joining non-state armed groups.[3]

The International Organization for Migration (IOM) in Somalia identifies environmental degradation exacerbated by climate change as a driver of conflict between clans and livelihood groups.[4] In recently recovered areas of the Federal Member State of Hirshabelle, IOM promotes regenerative agriculture as a means of replacing negative coping strategies with sustainable practices. Community-led initiatives are designed to strengthen local capacity to adapt to changing climatic conditions and equip communities with the skills needed to build long-term resilience against climate change, and they also seek to prevent the resurgence of extremist groups such as al-Shabab. These efforts are part of a broader environmental peacebuilding programme addressing the intersection between climate change and conflict in Somalia.

This SIPRI Policy Brief explores the IOM approach to regenerative agriculture as a tool for environmental peacebuilding. As the IOM projects are ongoing, the policy brief focuses on analysing how the approach

[1] Intergovernmental Panel on Climate Change (IPCC), *Climate Change 2023: Synthesis Report*, Contribution of Working Groups I, II and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change (Core Writing Team, H. Lee and J. Romero (eds)) (IPCC: Geneva, 2023).

[2] Integrated Food Security Phase Classification (IPC), 'Somalia: IPC acute food insecurity and acute malnutrition analysis, January–June 2024', 15 Feb. 2024; Tarif, K. et al., *Climate, Peace and Security Fact Sheet: Somalia (2023)* (SIPRI: Stockholm, Sep. 2023); and World Bank, *Somalia Climate Risk Review* (World Bank Group: Washington, DC, 2023).

[3] Tarif et al. (note 2).

[4] International Organization for Migration (IOM), 'Description of action: Climate-adaptive stabilization in newly liberated areas of Somalia', Unpublished project document, [n.d.].

* This SIPRI Research Policy Paper is part of a partnership between the International Organization for Migration in Somalia and SIPRI and is funded by the European Union Foreign Policy Instrument.

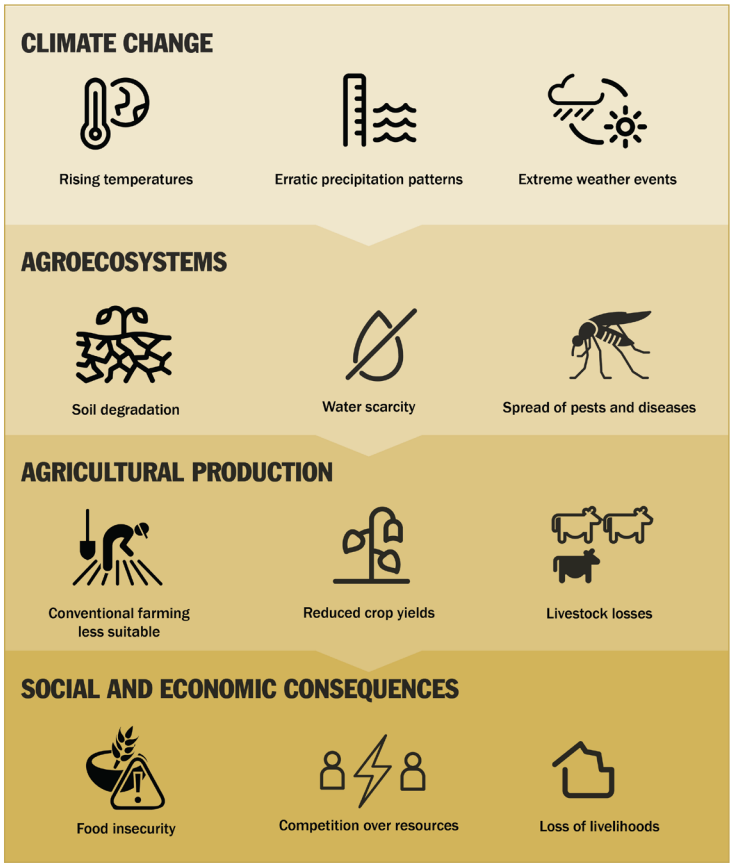

Figure 1. The environmental, social and economic effects of climate change on agriculture in south-central Somalia

has been designed. The brief also provides recommendations on how donors and implementing organizations can leverage regenerative agriculture in environmental peacebuilding.

II. Regenerative agriculture as a tool for environmental peacebuilding

Nurturing ecosystems and livelihoods with regenerative agriculture

Regenerative agriculture is a holistic approach to land management focused on restoring biodiversity and degraded soils, enhancing ecosystem functions, fostering economic prosperity and improving human health (see box 1).[5] Unlike conventional practices—such as monocropping and reliance on synthetic fertilizers and pesticides—regenerative agriculture emphasizes the revitalization of land, livelihoods and health.[6] It takes into account local environmental conditions; values traditional and Indigenous Peoples' knowledge; and is accessible by and cost-effective for farming communities.[7] By promoting crop diversity to improve soil fertility, increase water retention and maintain soil cover, regenerative agriculture can enhance the resilience of farming systems, potentially reducing or eliminating reliance on external inputs and aid.[8]

Seed systems are a key component of regenerative agriculture. As climatic conditions change, it becomes increasingly important for farmers to conserve, use and improve their access to a wide range of seeds and crop varieties naturally capable of withstanding higher temperatures, water stress or pests.[9] However, decades of protracted conflict in Somalia alongside recurring droughts and floods have contributed to a growing reliance on inconsistent

[5] Giller, K. E. et al., 'Regenerative agriculture: An agronomic perspective', *Outlook on Agriculture*, vol. 50, no. 1 (Mar. 2021); Jayasinghe, S. L. et al., 'Global application of regenerative agriculture: A review of definitions and assessment approaches', *Sustainability*, vol. 15, no. 22 (Nov. 2023); and Africa Regenerative Agriculture Study Group, *Regenerative Agriculture: An Opportunity for Businesses and Society to Restore Degraded Land in Africa* (2021).

[6] Jayasinghe et al. (note 5).

[7] Jayasinghe et al. (note 5); and Africa Regenerative Agriculture Study Group (note 5).

[8] Jayasinghe et al. (note 5); Krebs, J. and Bach, S., 'Permaculture: Scientific evidence of principles for the agroecological design of farming systems', *Sustainability*, vol. 10, no. 9 (Sep. 2018); and Vohland, K. and Barry, B., 'A review of *in situ* rainwater harvesting (RWH) practices modifying landscape functions in African drylands', *Agriculture, Ecosystems and Environment*, vol. 131, no. 3–4 (June 2009).

[9] Food and Agriculture Organization of the United Nations (FAO), *Coping with Climate Change: The Roles of Genetic Resources for Food and Agriculture* (FAO: Rome, 2015); and Mathew, E. and Mathew, L., 'Conservation of landraces and indigenous breeds: An investment for the future', eds S. T. Sukumaran and K. T R, *Conservation and Sustainable Utilization of Bioresources*, Sustainable Development and Biodiversity series, vol. 30 (Springer: Singapore, 2023).

Box 1. Regenerative agriculture on farms and in landscapes

Agroforestry. Integrating trees into an agricultural setting to build up soil organic matter; reduce erosion; provide a windbreak, shade and a microclimate; conserve biodiversity; diversify income; and provide nutritional diversity for humans and animals.[a]

Composting. Converting organic waste into a nutrient-rich soil amendment, which reduces landfill and enhances soil fertility naturally.[b]

Cover cropping. Planting nitrogen-fixing species between cash crop seasons to protect the soil from erosion (by covering and stabilizing the soil and providing root structure), which also adds organic matter, fosters microbial activity, improves nutrient and water retention, and enhances biodiversity. Cover crops can be used for animal fodder or as mulch.[c]

Crop rotation. Planting crops in a planned sequence to help break pest and disease cycles, improve soil fertility and nutrient supply, and reduce the use of arduous or costly fertilizers.[d]

Organic mulching. Applying a layer of material to soil to provide protection from the elements, add soil organic matter and increase microbial activity (which improves soil biology and, in turn, produces natural fertility).[e]

Rotational grazing. Moving livestock strategically across pasturelands, which prevents overgrazing, allowing vegetation to recover and improving overall ecosystem health.[f]

Use of soil bunds. Placing small barriers made of stones or soil along the contours of sloping land to help slow water run-off and promote water infiltration, reducing erosion, improving soil moisture retention and recharging groundwater supplies.[g]

[a] Quandt, A., Neufeldt, H. and Gorman, K., 'Climate change adaptation through agroforestry: Opportunities and gaps', *Current Opinion in Environmental Sustainability*, vol. 60 (Feb. 2023).

[b] Food and Agriculture Organization of the United Nations (FAO), 'The benefits of composting, reusing and recycling nutrients for agricultural productivity', [n.d.], accessed 13 Oct. 2024.

[c] Scavo, A. et al., 'The role of cover crops in improving soil fertility and plant nutritional status in temperate climates: A review', *Agronomy for Sustainable Development*, vol. 42 (2022).

[d] Malik, A. I. et al., 'Exploring the plant and soil mechanisms by which crop rotations benefit farming systems', *Plant and Soil* (2024); and Shah, K. K. et al., 'Diversified crop rotation: An approach for sustainable agriculture production', *Advances in Agriculture* (2021).

[e] Ngosong, C., Okolle, J. N. and Tening, A. S., 'Mulching: A sustainable option to improve soil health', eds D. G. Panpatte and Y. K. Jhala, *Soil Fertility Management for Sustainable Development* (Springer: Singapore, 2019).

[f] Dillon, J. and Machmuller, M., *Regenerative Grazing, Carbon, and Climate* (Pasture Project at the Wallace Center: Little Rock, AR, 2021).

[g] Demissie, S. et al., 'Effects of soil bund spacing on runoff, soil loss, and soil water content in the Lake Tana Basin of Ethiopia', *Agricultural Water Management*, vol. 274 (Dec. 2022).

aid supplies of seed varieties poorly suited to local conditions or on expensive commercial seeds.[10] Such dependence can erode traditional knowledge of seed selection and storage, drive deskilling, and disrupt adaptive practices and social learning processes.[11] As a result, agriculture and its supportive biodiversity base become even more vulnerable to climatic shocks and environmental stress.

Reviving community- and farmer-managed seed systems is essential to preserving indigenous crop varieties and landraces, which hold enormous potential for adaptation.[12] Fostering these systems will also enable farmers

[10] Sperling, L. and McGuire, S. J., 'Persistent myths about emergency seed aid', *Food Policy*, vol. 35, no. 3 (June 2010); and Mercy Corps and United States Agency for International Development, 'Seed system assessment (SSA) in the Middle Shebelle Region, Somalia', Aug. 2022.

[11] Marshak, M. et al., 'Losing practices, relationships and agency: Ecological deskilling as a consequence of the uptake of modern seed varieties among South African smallholders', *Agroecology and Sustainable Food Systems*, vol. 45, no. 8 (2021); and Bezner Kerr, R. and Wynberg, R., 'Fields of contestation and contamination: Maize seeds, agroecology and the (de)coloniality of agriculture in Malawi and South Africa', *Elementa: Science of the Anthropocene*, vol. 12, no. 1 (2024).

[12] Mathew and Mathew (note 9); and Cortés, A. J. and Blair, M. W., 'Lessons from common bean on how wild relatives and landraces can make tropical crops more resistant to climate change', ed. O. Grillo, *Rediscovery of Landraces as a Resource for the Future* (IntechOpen: London, Sep. 2018).

to access affordable, culturally relevant and climate-resilient seeds and to diversify crops beyond climate-sensitive staples such as maize.[13] Women play a vital role in managing, preserving and storing seeds, and they participate in informal seed networks.[14] Such networks, which span communities, facilitate seed exchange, increasing crop diversity and therefore resilience during times of hardship.[15]

Supporting peacebuilding with sustainable farming

Environmental peacebuilding assumes that groups in conflict can be incentivized to collaborate on environmental projects that offer shared benefits—such as ecosystem restoration, equitable access to water and sustainable agriculture—which in turn strengthens intergroup relations and addresses some of the root causes of conflict.[16]

Sustainable farming initiatives can transform conflicts by addressing not only the symptoms of conflict but also their underlying dynamics and causes, such as structural inequalities and resource-based tensions, to facilitate positive social and ecological change.[17] Being a holistic approach to landscape management, regenerative agriculture practices are labour-intensive and thus often require collective effort and encourage collaboration. In fragile and conflict-affected contexts, community-led farming systems grounded in local knowledge and culture have enhanced trust within the community and social cohesion.[18] For example, research finds that community-based agroecology schools contributed to community-led peacebuilding in post-conflict contexts in Colombia.[19] These schools strengthened social cohesion by creating a space for dialogue and fostering a shared identity, promoting solidarity and support within the community. Moreover, improved collective capacity, skills and knowledge allowed socioeconomic recovery and adaptation to climate change through sustainable land management, diversified

[13] Westengen, O. T., Dalle, S. P. and Mulesa, T. H., 'Navigating toward resilient and inclusive seed systems', *Proceedings of the National Academy of Sciences*, vol. 120, no. 14 (Apr. 2023); and Vernooy, R. et al., 'The roles of community seed banks in climate change adaption', *Development in Practice*, vol. 27, no. 3 (2017).

[14] Hosken, L., 'The critical role that African rural women play as custodians of seed diversity and wild relatives in the context of climate change', *Biodiversity*, vol. 18, no. 2–3 (2017); and Otieno, G. et al., 'Gender and social seed networks for climate change adaptation: Evidence from bean, finger millet, and sorghum seed systems in East Africa', *Sustainability*, vol. 13, no. 4 (Feb. 2021).

[15] FAO (note 9).

[16] Conca, K. and Dabelko, G. D., *Environmental Peacemaking* (Woodrow Wilson Center Press/Johns Hopkins University Press: Washington, DC/Baltimore, MD, 2002); Dresse, A. et al., 'Environmental peacebuilding: Towards a theoretical framework', *Cooperation and Conflict*, vol. 54, no. 1 (Mar. 2019); Ide, T. et al., 'The past and future(s) of environmental peacebuilding', *International Affairs*, vol. 97, no. 1 (Jan. 2021); and Johnson, M. F., Rodríguez, L. A. and Quijano Hoyos, M., 'Intrastate environmental peacebuilding: A review of the literature', *World Development*, vol. 137 (Jan. 2021).

[17] Lederach, J., *Little Book of Conflict Transformation: Clear Articulation of the Guiding Principles by a Pioneer in the Field* (Skyhorse Publishing: New York, 2003).

[18] Hellin, J. et al., 'Increasing social-ecological resilience within small-scale agriculture in conflict-affected Guatemala', *Ecology and Society*, vol. 23, no. 3 (2018); and 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 (Feb. 2019).

[19] Agroecology is a broad sociopolitical approach to sustainable farming that has similar aims to regenerative agriculture and includes regenerative practices. Tittonell, P. et al., 'Regenerative agriculture: Agroecology without politics?', *Frontiers in Sustainable Food Systems*, vol. 6 (2022).

low-cost production and market access.[20] Similarly, case studies in conflict-affected contexts in Guatemala found that collective community action to improve the sustainability and resilience of smallholder farmers rebuilt trust within the community despite long-standing social, economic and political divisions.[21] In rural Zimbabwe, farming communities transitioning to agro-ecology fostered a collective social and ecological vision for a positive future, shared resources and created a culture of reciprocity, and as a result, trust was strengthened among land and resource users.[22]

Nevertheless, research on the ways in which regenerative approaches to agriculture can support peacebuilding remains limited. Much of the environmental peacebuilding literature focuses on governance, which, while important, often overlooks the technical aspects of sustainable farming that can drive both environmental restoration and social cohesion.

III. Regenerative agriculture to support peacebuilding in south-central Somalia

Exploring the links between environmental pressures and conflict

Most livelihoods in south-central Somalia are tied to livestock farming. Along the upper Shabelle River in Hiran Administrative Region, a combination of pastoralism and riverine pump irrigated agriculture is predominant, while in southern areas of Middle Shabelle Administrative Region, gravity irrigated crop-farming is more common.[23]

IOM has identified that environmental degradation—which both contributes to and is exacerbated by climate change—is a driver of local conflicts between clans and livelihood groups in Hirshabelle. In times of drought, as vegetation cover and freshwater sources become scarce, communities concentrate their resource use in the few remaining areas where these resources are still available, intensifying competition and increasing the risk of conflicts over grazing lands and water points. IOM has also found that some conflicts arise owing to changing patterns in human mobility: as climate change impacts challenge their livelihoods, some pastoralists migrate from rural areas to semi-permanent and permanent settlements in search of alternative livelihoods.

Understanding the approach of the International Organization for Migration to regenerative agriculture

In Somalia, the IOM Community Stabilization Unit supports the development of local governance in areas of the country that have been brought

[20] Chavez-Miguel, G. et al., 'Agroecology as a grassroots approach for environmental peacebuilding: Strengthening social cohesion and resilience in post-conflict settings with community-based natural resource management', *GAIA—Ecological Perspectives for Science and Society*, vol. 31, no. 1 (2022).

[21] Hellin et al. (note 18).

[22] McAllister and Wright (note 18).

[23] Food Security and Nutrition Analysis Unit and Famine Early Warning Systems Network, 'Somalia—livelihood zones', Oct. 2015.

under government control from the non-state armed group al-Shabab.[24] The IOM environmental peacebuilding approach seeks to build on existing legitimate natural resource governance mechanisms in these communities and shift resource-based competition between clans towards resource-based cooperation through projects that integrate environmental management, environmental governance and sustainable economic development.[25]

Project activities are designed in integrated packages that are intended to reinforce one another by creating positive feedback loops between different activities in the same locations, and regenerative agriculture is one element of this approach.[26] IOM also seeks to provide alternative energy solutions to rural communities and implements these projects through a community-led co-funding mechanism.[27] The IOM approach in Hirshabelle demonstrates three ways in which regenerative agriculture can support environmental peacebuilding.

Improving livelihood security to reduce reliance on negative coping mechanisms

In IOM target areas in south-central Somalia, rising temperatures, decreasing rainfall and diminishing water availability have had a negative impact on agricultural productivity, grazing land availability and livestock health.[28] Negative coping mechanisms such as deforestation and overgrazing have exacerbated environmental degradation. For example, anecdotal evidence suggests that 'pastoral dropouts' (i.e. nomadic pastoralists who adopt completely or partially sedentary livelihoods) have resorted to cutting trees for firewood and charcoal production and sale, further exacerbating environmental degradation and causing tensions with host communities.[29] Tensions around natural resources are often intertwined with clan conflicts that have spillover effects in social, economic and political life, with different impacts on men and women. In times of conflict, Somali men are more vulnerable to forced recruitment into armed groups, and women make up a larger percentage of internally displaced populations.[30]

International actors working in conflict settings can support environmental peacebuilding processes by promoting a shared understanding of environmental norms and natural resource management between different

[24] For information on the Federal Government of Somalia's National Stabilization Strategy see United Nations Assistance Mission in Somalia, 'Community recovery and extension of state authority and accountability (CRESTA/A)', [n.d.], accessed 25 July 2024.

[25] IOM Somalia, 'Environmental peacebuilding', 2023.

[26] IOM Somalia (note 25); and IOM staff, Interview with authors, 21 Aug. 2024.

[27] Tarif, K., *From Conflict to Collaboration: Co-funding Environmental Peacebuilding in South-central Somalia* (SIPRI: Stockholm, Sep. 2024).

[28] These factors were voiced by participants in focus group discussions held in Beer-Gadid, Mataban and QodQod in January 2024. The focus group discussions were designed by SIPRI and convened by a Somali partner organization, Elman Peace.

[29] IOM staff, Interview with authors, 27 June 2024. These findings are reflected in an IOM-commissioned field-based context analysis of the needs related to, and opportunities for, environmental peacebuilding and the restoration of trust between communities and local leaders in Beer-Gadid, Mataban Town, QodQod and Takaarale.

[30] El-Bushra, J. and Gardner, J., 'The impact of war on Somali men: Feminist analysis of masculinities and gender relations in a fragile context', *Gender and Development*, vol. 24, no. 3 (Nov. 2016); and United Nations Office for the Coordination of Humanitarian Affairs (OCHA), *Humanitarian Needs Overview: Somalia*, Humanitarian programme cycle 2023 (OCHA: Feb. 2023).

communities.[31] This approach can mitigate conflict drivers and foster long-term stability in fragile contexts.[32]

The IOM theory of change posits that addressing environmental degradation, sharing technical information on regenerative practices and seed saving, and engaging in conflict mediation increase the adaptive capacity of farmers and reduce their need for negative coping mechanisms. In this way IOM aims to relieve pressure on livelihoods, thereby decreasing the risk of conflict.

In 2023 IOM conducted a baseline assessment of on-farm resilience and soil health for 12 pilot farms in Hirshabelle, which revealed poor resilience and soil health and identified water availability as a key challenge.[33] IOM designed soil amendment strategies for the farms with the aim of improving soil water retention and infiltration and restoring soil fertility, thereby enhancing overall farm resilience. The strategies were based on context-appropriate, replicable actions that could be implemented by local farmers and included regenerative agriculture practices such as agroforestry, cover cropping and use of soil bunds (see box 1).

The IOM approach to regenerative agriculture on the pilot farms also fostered relationship-building. For example, when carrying out the assessments, IOM field teams facilitated dialogue between farmers, community members and local authorities on local environmental concerns.[34] IOM also provided training to 309 farmers on regenerative agriculture practices and seed networks to improve their knowledge and develop their technical skills, complemented by mediation training to strengthen dispute resolution capacity in farming communities.[35]

IOM envisaged these 12 farms as a 'proof of concept' for the potential of regenerative agriculture to contribute to reversing environmental degradation, improving farmers' livelihood security and reducing conflict. It also designed a mechanism for disseminating knowledge beyond the pilot communities and project implementation period through the development of knowledge networks (see the section 'Enhancing rural–urban networks to strengthen social cohesion' below).

The focus of IOM on crop farming in areas where pastoralist livelihoods are both more prevalent and more often connected with local-level conflicts could prove to be a shortcoming. However, IOM has sought to support pastoralist livelihoods in Hirshabelle through other project activities in its integrated packages, such as connecting communities via livestock markets and providing clean energy to women-led businesses in local markets.[36] Nevertheless, given that small-scale agriculture represents a smaller proportion of livelihoods in Hirshabelle, the emphasis of IOM on farmers sup-

[31] Krampe, F., Hegazi, F. and VanDeveer, S. D., 'Sustaining peace through better resource governance: Three potential mechanisms for environmental peacebuilding', *World Development*, vol. 144 (Aug. 2021).

[32] Conca and Dabelko (note 16).

[33] The assessment covered livestock health, access to water, harvesting techniques, fertilizer application, access to farming cooperatives and more. IOM Somalia Community Stabilization Unit, 'Baseline assessment, farm resilience design, Deegan Bile Hirshabelle', Unpublished document, 2023.

[34] IOM Somalia Community Stabilization Unit (note 33).

[35] IOM staff (note 26); IOM Somalia, 'Climate initiative empowers communities for a greener, peaceful Somalia', 3 June 2024.

[36] Tarif (note 27).

ports, in effect, a marginalized group with less influence on the local economy. Emphasizing regenerative agriculture in environmental peacebuilding can therefore contribute to addressing structural inequalities in local economies.

Building cooperation on natural resource management to reduce conflict

When resources such as water and land become diminished and degraded, tensions often arise over their use, particularly in areas where displaced or migrant populations place pressure on host communities. Gender disparities in access to and control over natural resources place an additional burden on women.[37]

Environmental peacebuilding research finds that strengthening natural resource governance can facilitate collaboration between groups living in conflict, which, in turn, helps to reduce intergroup biases and to build relationships of trust, leading to long-term socioecological resilience as well as supporting peacebuilding.[38] This research aligns with bottom-up peacebuilding theories, which emphasize the role of local institutions in resolving conflicts and preventing conflict escalation.[39]

In newly recovered territories of Hirshabelle, where formal institutions have limited presence, IOM aims to use identified local natural resource management committees and farmer cooperatives as entry points for establishing locally legitimate governance.[40] It also aims to improve the participation and decision-making power of Somali women in natural resource management, for example by providing women from different clans with training on how to leverage their ability to communicate across lines of conflict.[41]

Owing to their differing levels of access to financial resources, men are often in a better position than women to afford external inputs such as fertilizers, pesticides and hybrid seeds. Regenerative agriculture, with its focus on restoring land and sustainable natural resource management, can reduce reliance on costly external inputs.[42] In this way the approach can increase the financial independence of farmers, who are mostly male, and make farming more economically viable and equitable. For Somali women, who often face challenges in accessing education, financial services, employment, political representation and justice, the lower input requirements of regenerative farming can enable them to derive an income from agriculture.[43]

[37] Horn Africa Consultants Firm, *Gender, Climate and Conflict Analysis in Somalia and Assessment of Opportunities for Climate Agriculture and Livelihood Opportunities for Crisis-affected and At-risk Women in Somalia*, Study Report (United Nations Entity for Gender Equality and the Empowerment of Women, East and Southern Africa Regional Office: 2022).

[38] Krampe, Hegazi and VanDeveer (note 31); and Ratner, B. D. et al., 'Resource conflict, collective action, and resilience: An analytical framework', *International Journal of the Commons*, vol. 7, no. 1 (Feb. 2013).

[39] Ljungkvist, K. and Jarstad, A., 'Revisiting the local turn in peacebuilding: Through the emerging urban approach', *Third World Quarterly*, vol. 42, no. 10 (2021); Leonardsson, H. and Rudd, G., 'The "local turn" in peacebuilding: A literature review of effective and emancipatory local peacebuilding', *Third World Quarterly*, vol. 36, no. 5 (2015); and Mac Ginty, R. and Richmond, O. P., 'The local turn in peace building: A critical agenda for peace', *Third World Quarterly*, vol. 34, no. 5 (2013).

[40] IOM Somalia (note 25).

[41] IOM, 'Description of action: Climate-adaptive stabilization in newly liberated areas of Somalia', Unpublished project document, [n.d.].

[42] Phiri, A. T. et al., 'A review of gender inclusivity in agriculture and natural resources management under the changing climate in sub-Saharan Africa', *Cogent Social Sciences*, vol. 8, no. 1 (2022).

[43] Horn Africa Consultants Firm (note 37).

Regenerative practices tend to be labour-intensive and require cooperation and collaborative effort, which can contribute to social cohesion. IOM has identified Climate Resilience and Peacebuilding Hubs, which include seed banks, as a further opportunity to foster cooperation between communities. With seed banks in Hirshabelle, IOM seeks to both create infrastructure that supports regenerative agriculture and nurture inter-community relationships founded on the preservation of indigenous seed varieties. In support of this aim, IOM worked with Seed Savers Network Kenya to deliver a training of trainers to field teams and Somali researchers who will then train community representatives to establish and maintain seed banks.[44] The establishment of multiple Climate Resilience and Peacebuilding Hubs in different locations in Hirshabelle is also intended as a step towards connecting rural and urban communities.

Through its emphasis on natural resource management, particularly seed management, the IOM approach to regenerative agriculture seeks to strengthen local farming and support local mechanisms for resolving conflicts around natural resources. The focus on seed banks and the preservation of indigenous seeds shows how tangible, small-scale activities can support natural resource management and regenerative agriculture. The approach is not without its challenges, however, one of which is the limited scope for long-term evaluation of how IOM interventions influence norms around community cooperation on natural resource management and whether they improve environmental health. Similarly, understanding how greater participation of women in natural resource management can support more inclusive decision making on community affairs is a challenge given the short project implementation periods.

Enhancing rural–urban networks to strengthen social cohesion

Structural inequalities shape both people's vulnerability to climate change and their options for adapting to its effects. As a result of the combined pressures of long-standing conflict and intensifying climate change, many rural communities in Somalia have limited coping capacities.[45] In some cases, people engage in maladaptive strategies that provide security in the short term but contribute to environmental degradation and worsen livelihood and food insecurity in the long term—deforestation being one such example.

Addressing conflict through environmental peacebuilding comes with the risk that interventions can inadvertently exacerbate existing structural inequalities without providing justice, including environmental justice, to marginalized groups.[46] This risk is amplified when peacebuilding initiatives are co-opted by stronger groups or reinforce the marginalization of weaker groups.[47]

In response, IOM aims to establish a network of Climate Resilience and Peacebuilding Hubs to facilitate the dissemination of knowledge on regenerative agriculture and strengthen local capacity to apply its practices. The hubs are designed as shared spaces for dialogue, training and infor-

[44] IOM staff, Interview with authors, 20 Aug. 2024.
[45] World Bank (note 2).
[46] Ben-Shmuel, A. T. and Halle, S., 'Beyond greenwashing: Prioritizing environmental justice in conflict-affected settings', *Environment and Security*, vol. 1, no. 3–4 (Dec. 2023).
[47] Ide et al. (note 16).

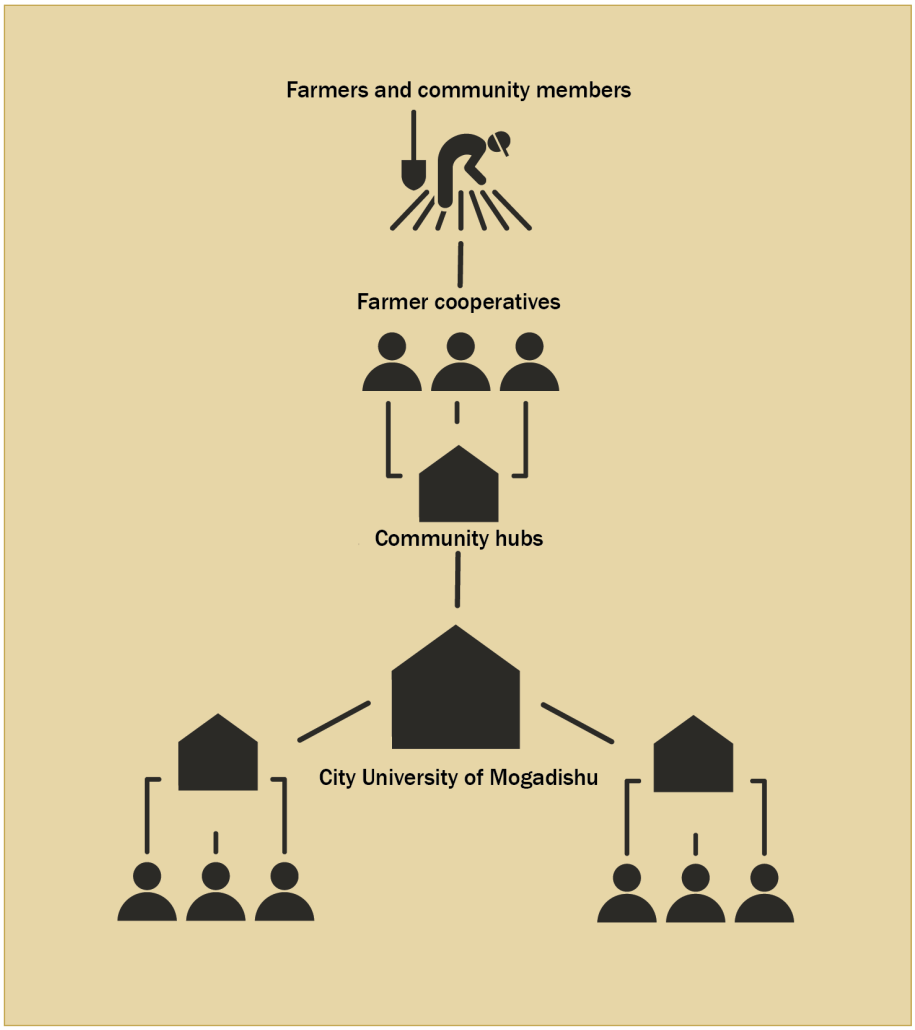

Figure 2. The network structure of the International Organization for Migration's Climate Resilience and Peacebuilding Hubs

mation exchange, linking rural and urban constituencies in addressing agriculture-related challenges. They seek to bridge gaps between informal Somali institutions, such as farmer cooperatives, and formal institutions, including universities and government authorities, by fostering collaboration between them (see figure 2). This reciprocal exchange of knowledge can strengthen relationships, build rural communities' trust in official institutions, and enhance national capacities to develop locally driven solutions to climate change and biodiversity loss, thereby reducing dependency on external aid.

IOM has begun constructing the main Climate Resilience and Peacebuilding Hub at City University of Mogadishu, using sustainable construction materials such as mud bricks. City University Hub will serve as the central training and demonstration site. Two pilot community hubs are planned in Balcad and Jowhar (see figure 3); these will be managed by existing local institutions such as farmer and agropastoral cooperatives (see figure 2).[48] The goal is to connect farmers with each other and with urban knowledge centres through City University Hub, facilitating the rural to urban flow of solutions and knowledge on the preservation of indigenous seeds.

A key aspect of the hubs is the active participation and empowerment of women. Recognizing their role as mediators and custodians of indigenous knowledge and seeds, IOM aims to support women to act as 'seed ambassadors' through the hubs, facilitating them to share knowledge with members of their communities on climate resilience, environmental restoration and peacebuilding.[49]

While IOM aims to build networks and local capacity to scale up regenerative agriculture beyond the intervention period, the success of the Climate Resilience and Peacebuilding Hubs will depend on how effectively farmers adopt regenerative agriculture practices and how widely they are applied. A

[48] IOM staff (note 44).

[49] IOM staff (note 44); and IOM, 'Climate Resilience and Peacebuilding Hub(s) / Seedbank and Seed Networks', Unpublished project document, [n.d.].

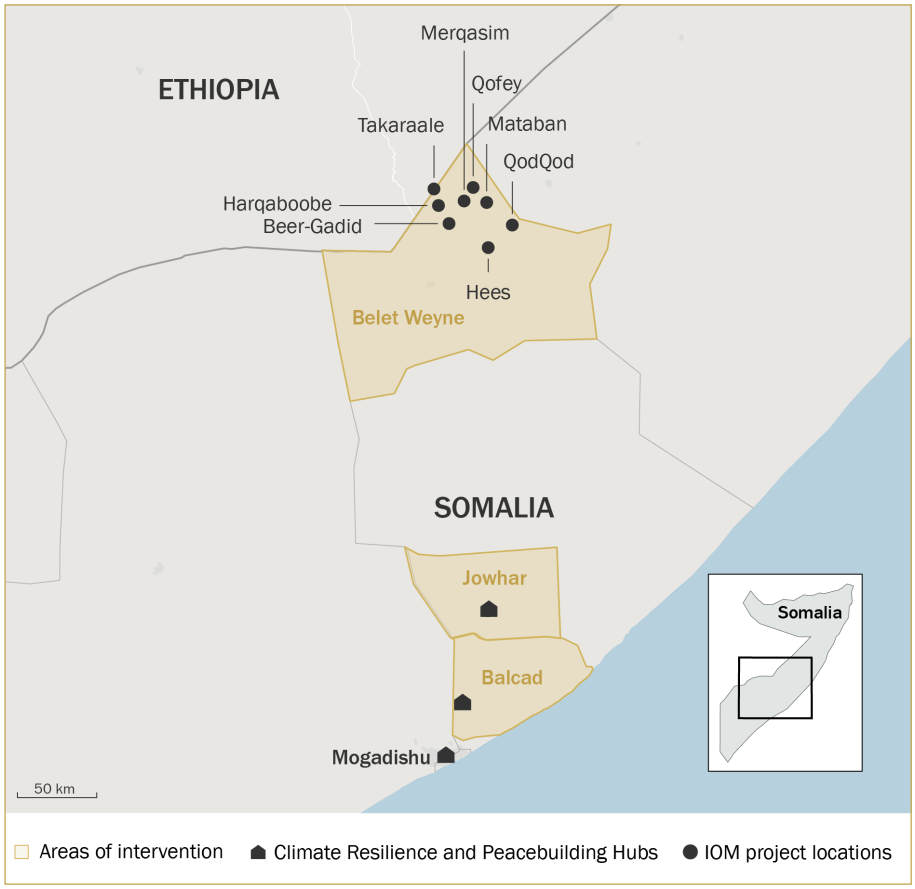

Figure 3. Locations of the International Organization for Migration's pilot community Climate Resilience and Peacebuilding Hubs, south-central Somalia

IOM = International Organization for Migration.

Source: IOM Somalia, 2024.

key challenge relating to the intended outcomes of the hubs lies in ensuring that the benefits of knowledge exchange and increased information flow are socially inclusive and accessible by the broader population in Hirshabelle, including both rural and urban communities.

IV. Recommendations

The adverse effects of climate change in Somalia have disproportionately affected agricultural and pastoralist livelihoods. With their coping capacities limited, people have resorted to negative practices that contribute to environmental degradation and heighten the risk of conflicts arising over natural resources. The IOM environmental peacebuilding approach seeks to address the linkages between climate change, environmental degradation and local-level conflict. Regenerative agriculture—as an entry point to restoring the environment, building resilience to climate change and improving relationships of trust between groups—is a key component of this approach. Several recommendations for donors and implementing organizations emerge from the IOM approach to using regenerative agriculture as a tool for environmental peacebuilding in south-central Somalia.

Support long-term learning through monitoring and evaluation of environmental and peacebuilding indicators

While the IOM approach to regenerative agriculture supported the rehabilitation of 12 pilot farms, its potential for broad uptake leading to a healthier environment and a reduced incidence of conflict can best be assessed through long-term monitoring, evaluation and learning. Donors who fund environmental peacebuilding initiatives should collaborate with implementing partners to design projects with in-built mechanisms for capturing long-term outcomes relating to the environment and relationships between competing groups.

Invest in research to better understand how regenerative agriculture can support women

Regenerative agriculture can help address structural inequalities in the agriculture sector by reducing farmers' reliance on costly external inputs—and by improving livelihood security and resilience, it can also empower marginalized groups. The IOM environmental peacebuilding approach emphasizes the potential for women to play a more significant role in rural communities through participation in natural resource management, including the management of seed banks. Donors should invest in research exploring how environmental peacebuilding can support women's empowerment in fragile and conflict-affected contexts.

Design environmental peacebuilding approaches that invest in local knowledge institutions

The IOM Climate Resilience and Peacebuilding Hubs indicate that pilot projects in regenerative agriculture can feed into broader environmental peacebuilding initiatives, including those based on knowledge generation and exchange. These efforts support community ownership of adaptation and resilience initiatives and strengthen local capacities for collective action beyond the project implementation phase. Organizations that implement environmental peacebuilding initiatives in fragile and conflict-affected areas should contribute to democratizing access to knowledge in communities that are vulnerable to the effects of climate change.

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Funded by the European Union

DOI: https://doi.org/10.55163/TASY8060