

Intersections

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In February 2022, the Intergovernmental Panel on Climate Change (IPCC) released a new report on climate change impacts, adaptation and vulnerability. The report paints a dire scientific outlook and projection of future life on a warming planet. Almost half of people on earth—up to 3.6 billion people—live in places where they are at high risk of harm from climate change (IPCC 2022). Some climate change impacts are unavoidable, even if we rapidly cut greenhouse gas emissions and limit warming of the earth’s atmosphere to 1.5 degrees Celsius above pre-industrial levels. Every increment of warming escalates the adverse impacts of climate change.

Articles in this issue of *Intersections* highlight communities around the world who have already experienced significant climate change impacts. MCC partners and the communities where they live and work face unpredictable rainfall patterns and more frequent dry periods that affect crop production and limit water resources. More intense rainfall and destructive tropical storms lead to flooding and landslides, increasing the risk of disaster. Climate change undermines food security, nutrition, livelihoods, health and the well-being of families with limited capacity and resources to cope with shocks and stressors. Climate change risks are becoming more complex and difficult to manage, with risks overlapping and amplifying each other. For example, drought and heatwaves made worse by climate change overlap and interact with wildfires, which in turn contribute to greenhouse gas emissions.

Climate change is also highly interconnected with issues related to conflict, gender inequality, racial injustice, disregard for the rights of Indigenous peoples and forced migration and displacement. Decreased access to natural resources such as water can exacerbate tension between different groups, while active conflict diminishes community resilience and ability to respond to climate change challenges. Non-dominant ethnic groups and racialized communities are disproportionately affected by climate change due to continued legacies of discrimination and systemic injustice. Women are disproportionately affected because of limited access to and control over resources and participation in decision-making, as well as fewer opportunities to engage in climate action.

The need for urgent action on climate change cannot be overstated. MCC is committed to addressing climate change as part of its organization-

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wide strategic directions. MCC works to address climate change through adaptation and mitigation efforts at multiple levels and through various avenues including: advocating for government action and finance for climate change mitigation and adaptation; strengthening public engagement on climate change; evaluating MCC’s own contribution to climate change; and supporting partners and communities as they reckon with climate change impacts.

Within its international program, MCC indirectly supports climate change adaptation through programming that reduces overall household and community vulnerability and improves well-being. These efforts include improved access to education and health services, improved nutrition, safe housing, access to water and sanitation and strengthened livelihoods. MCC-supported programming seeks to transform inequitable systems and structures that contribute to vulnerability and to address conflict and create a social environment conducive to adaptation efforts. Other programming seeks to address climate change directly by reducing greenhouse gas emissions or undertaking initiatives with the potential to increase carbon sequestration; working with individuals and communities particularly at risk of climate impacts to adapt or better cope with impacts; and reducing the occurrence or exposure of households and communities to climate-related hazards.

The complementary strategies of anticipation, absorption and adaptation present a framework for designing climate change adaptation programming:

- **Anticipatory** action can avoid upheaval from climate impacts. This includes preventing and preparing in advance for climate change-related hazards.
- **Absorptive** action enables communities to buffer climate-related shocks and stressors in the short-term without significant impact or disaster.
- **Adaptive** action means taking deliberate decisions to change behaviors, practices, lifestyles and livelihoods in light of evolving climate conditions.

In this issue of *Intersections*, the director of an MCC partner in Cambodia analyzes efforts to help communities absorb climate impacts through agricultural cooperatives for savings and loans and diversifying livelihoods, as well as building skills and knowledge for adaptive action through new cropping strategies and construction of ponds. An MCC partner in Honduras shares how strategies for improving agricultural production despite water stress can also help build resilience to hurricanes and drought.

Climate change is complex—there are no easy solutions for adaptation or mitigation. As the experience of Pastoral de la Tierra San Marcos in Guatemala highlights, sometimes adaptation efforts are not enough to cope with the severe changes already experienced by communities. In some cases, adaptation and mitigation measures are “false solutions” that exacerbate inequality or cause further harm to marginalized communities. As Ellen Cook and Kerry Saner-Harvey describe, large-scale hydropower development in Canada is an example of a climate mitigation measure that has immense implications for Indigenous and other communities and the natural world.

Additionally, adaptation and mitigation efforts are often disorganized and ineffective. Governments, businesses, individuals and organizations need to

collaborate and coordinate across all levels for effective action. Adaptation and mitigation initiatives need to be led by and in close collaboration with the marginalized and the most-affected, such as women, youth, Indigenous peoples and non-dominant ethnic and religious communities. Any adaptation efforts need to value and build upon traditional knowledge systems and ways of knowing. Organizations and individuals must reflect on how their beliefs and actions are influenced by colonial systems and worldviews that prioritize economic growth, extractive relationships with the natural world and a separation of humans from the natural environment.

Effective adaptation and mitigation will require greater investment, improved policies and political commitment, as well as inclusive governance and decision-making processes. As demonstrated by the Climate Resilient Villages approach in Nepal, multi-sectoral integrated programming that engages all levels of society—from households and communities to local government—is key to more effective and sustainable results.

The worldwide challenge of climate change calls MCC to take global action to reduce contributions to climate change and to join communities in advocating for and developing climate change adaptation and mitigation solutions. Climate change is an opportunity for MCC to stand together with affected communities in solidarity and to learn from the lived experience and knowledge of its partners. In faith, we collectively dare to envision a just and sustainable future and courageously act in the hopes of making this vision a reality.

Amy Martens is an MCC humanitarian assistance coordinator. She lives in Winnipeg.

The pitfalls of hydropower as a “clean” energy source and climate change mitigation strategy

Hydropower is frequently considered a “green” electricity source that is necessary for Canada to transition away from fossil fuel use. While there are various forms of hydro-electric generation, the preferred approach in Canada and in countries around the world continues to be large-scale, mega-dam projects. These multi-billion-dollar developments involve constructing concrete dams to block and divert the flow of rivers, raising the water level to create reservoirs that flood vast tracts of land. The return from these hydro-electric generating stations—often located far away from dense urban populations—is many megawatts of uninterrupted and renewable power without smokestacks or nuclear waste. Yet, hydro-electric development is not free from climate change impacts and has major adverse impacts on Indigenous nations, animals and plants.

In Manitoba, approximately 96 percent of electricity is sourced from 15 hydro-electric generating stations located mostly in the northern regions of the province. To amplify the output of these stations, the Churchill River was diverted, which massively reengineered and reversed the flow of the natural watershed. Indigenous communities living along hydro-affected waterways experience impacts most acutely. For nearly five decades, MCC Manitoba has worked alongside the Interchurch Council on Hydropower in advocating for



Intergovernmental Panel on Climate Change. *Climate Change 2022 Impacts, Adaptation and Vulnerability: Summary for Policymakers*. 2022. Available at: https://www.ipcc.ch/report/ar6/wg2/downloads/report/IPCC_AR6_WGII_SummaryForPolicymakers.pdf

Resources from climate scientist Katharine Hayhoe: <http://www.katharinehayhoe.com/faqs/>

Take action: For the Love of Creation, a faith-based initiative for climate justice: <https://fortheloveofcreation.ca/>

“ Humankind did not weave the web of life. We are merely strands in it. Whatever we do to our brothers and sisters in creation, we do to ourselves.

A circular blue button with the text "Learn more" in white.

Sharma, Shailesh and John Waldman. "Potential Solar Replacement of Hydroelectricity to Reopen Rivers: Maine as a Case Example." *Fisheries Magazine* 46/8 (2021): 383–390. Available at: <https://doi.org/10.1002/fsh.10619>

Scherer, Laura and Stephan Pfister. "Hydropower's Biogenic Carbon Footprint." *PLoS ONE* 11/9 (2016): e0161947. Available at: <https://doi.org/10.1371/journal.pone.0161947>

"Site C Dam." *The Narwhal*. Available at: <https://thenarwhal.ca/topics/site-c-dam-bc/>

Watch: "For Love of a River: Two Stories of Loss and Longing." Interchurch Council on Hydropower. Available at: <https://hydrojustice.org/media-2/>

fair treatment of people and lands impacted by hydro-electric development in northern Manitoba.

Ellen Cook, co-chair of the Interchurch Council on Hydropower from Misapawistik (Grand Rapids) First Nation, and Kerry Saner-Harvey, MCC Manitoba Indigenous Neighbours program coordinator, discussed the impacts of hydro-power on communities in Manitoba and connections to climate change. The following is an edited version of their conversation.

Kerry: Your childhood home and community, Misapawistik (Grand Rapids) First Nation, was deeply impacted by the construction of the Grand Rapids generating station in the 1960s. As someone who has experienced first-hand the impact of large-scale hydro development and has spent many years now advocating on behalf of hydro-impacted communities, what is your perspective on the view that hydro is a climate-friendly energy source? What are the pitfalls of using hydro as a climate change mitigation strategy to reduce fossil fuel consumption in Canada?

Ellen: Indigenous people know that anything that is destructive to the environment is not good for Mother Earth in every sense. The depletion of birds, animals, fish and many other species due to hydro projects undoubtedly influences the whole world. Pouring concrete into our beautiful waterways to create dams, forever destroying the water, is extremely detrimental to the spawning and habitat of fish and the ecological balance. The old famous adage (sometimes attributed to Duwamish Chief Seattle) is a powerful statement and is fully accurate: "Humankind did not weave the web of life. We are merely strands in it. Whatever we do to our brothers and sisters in creation, we do to ourselves." We know that the flooding of land, especially without clearing brush and trees, has a negative impact on everything, including the climate. Decomposing trees and other matter in the flooded areas give off gases like any other living thing that is in the state of decay.

Kerry: We hear about the toxic levels of methylmercury invariably created from reservoir floodwaters. Methylmercury is known to contaminate fish and wildlife for many decades, exposing nearby communities to high levels of mercury. Less is spoken about the greenhouse gases also emitted from hydro development. One global study, which included the Grand Rapids reservoir, suggested that the greenhouse gas emissions from hydro-created reservoirs is far higher than previously assumed or conveyed, sometimes on par with coal-fired plants (Scherer & Pfister, 2016).

Ellen: Researchers found that hydropower reservoirs are emitting 1.3 percent of all human-produced greenhouse gases produced globally. To put this figure in context, that is more than all greenhouse gases produced in Canada annually. The latest study has found human-made reservoirs are producing far more greenhouse gases than previously believed, with most of those emissions in the form of methane, a potent climate-warming gas. More than one million dams exist around the world and thousands of hydro-electric dams are in the planning or building stages, including the controversial Site C dam in British Columbia's Peace River Valley, which will create an 83-kilometre-long reservoir in an agriculturally rich region of the province. (Narwhal, October 2016)

Kerry: As many partners of the Interchurch Council on Hydropower have shared with us, these hydro-electric projects often proceed without adequate consultation or legitimate consent by Indigenous communities. When

fishermen or hunters share concerns about the threats of hydro projects to their livelihoods and rights, they are largely ignored. What does social and energy justice mean in the context of hydro development?

Ellen: There is so much harm done to people and their livelihoods, with adverse social and economic effects for people in hydro-affected communities and on the natural world around them. My focus in working on energy justice is to speak on behalf of those whose voices are not heard by the people in the cities and towns so far removed from the actual destruction—nor by stubborn corporation executives and engineers who close their ears to these cries for justice. This includes the gendered impacts of hydro and other resource extraction, when primarily male workers are brought to camps near Indigenous communities and create insecurity for women and families. Bringing attention to the fact that hydro is not clean is an essential part of my work.

Climate change is an urgent challenge—Canada needs to move away from fossil fuels towards different energy sources. But it is difficult to say which is the better energy option because they are all destructive in some form. Geothermal, solar, wind and water energy sources each in their own way cause damage to the environment.

Kerry: One approach is to invest in options that have the least environmental impact, particularly on the climate, while yielding the most cost-benefit in energy. For example, a study of the Kennebec River in Maine estimated that the cost of removing 14 dams to open the way for fish species and replacing them with the equivalent production in photovoltaic solar energy is altogether less than the average construction of a new dam. (Sharma & Waldman, 2021) This certainly raises questions about the cost-effectiveness of large-scale hydro development. Yet, as you point out, all energy sources cause damage to the land and water to some degree. What are your suggestions for ensuring a transition away from fossil fuels does not cause further injustices?

Ellen: Damage to the earth damages us—our lifeways, food and economy. It hurts us spiritually, emotionally and even physically. It breaks my heart whenever I see one tree taken down by the flooding and ongoing water fluctuations from these dams. So, protecting the environment and truly listening to our knowledge is key to respecting Indigenous rights. We must limit the use of fossil fuels because I do not believe the oil producers will ever stop selling oil. It is too lucrative a business and is very competitive. We must use energy efficient appliances, limit electricity usage, use LED lights, limit use of plastic, recycle and avoid petroleum-based products. The damage to the environment when extracting oil from the tar sands and the amount of water polluted by extracting natural gas or oil through fracking is reprehensible. Carbon emissions from fossil fuels far outweigh the damage done by solar, wind and geothermal, which are sustainable forms of energy because they never get depleted. I recently heard that Reykjavik in Iceland uses geothermal to heat almost 100% of the buildings in the city. In order to minimize carbon emissions, I think there needs to be a combination of methods for energy rather than dependence on fossil fuels and hydroelectricity. Change must happen if we want to save the environment and stop injustice.

Ellen Cook is co-chair of the Interchurch Council on Hydropower and is from Misapawistik (Grand Rapids) First Nation in Manitoba. Kerry Saner-Harvey is MCC Manitoba Indigenous Neighbours program coordinator.

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Climate justice in Canada and the United States

Boothe, Paul and Félix-A. Boudreault. “By the Numbers: Canadian GhG Emissions.” 2016. Lawrence National Centre for Policy and Management, Ivey Business School at Western University. Available at: <https://www.ivey.uwo.ca/media/2112500/4462-ghg-emissions-report-v03f.pdf>

Canadian Foodgrains Bank, “International Climate Finance Consultation Submission” August 28, 2020. Available at: <https://foodgrainsbank.ca/resources/climate-finance-submission/>

Dominish, E., N. Florin and S. Teske. “Responsible Minerals Sourcing for Renewable Energy.” Report prepared for Earthworks by the Institute for Sustainable Futures, University of Technology Sydney. 2019. Available at: earthworks.org/publications/responsible-minerals-sourcing-for-renewable-energy/

Government of Canada. “Canada’s International Climate Finance.” 2022. Available at: <https://www.canada.ca/en/services/environment/weather/climatechange/canada-international-action/climate-finance.html>

Government of Canada. “Canada’s Enhanced Nationally Determined Contribution.” Available at: <https://www.canada.ca/en/environment-climate-change/news/2021/04/canadas-enhanced-nationally-determined-contribution.html>

Climate change is a justice issue! Climate change affects families around the world, including in Canada and the United States, and has a disproportionate impact on those who are most vulnerable and least able to cope. As two of the world’s largest greenhouse gas (GHG) emitters, Canada and the U.S. have a moral obligation not only to reduce our own emissions, but also to actively support countries with historically lower GHG emissions that are disproportionately impacted by climate change today.

Adaptation and mitigation strategies, though urgently needed, can sometimes exacerbate existing inequalities or even cause direct harm to communities. When such strategies involve the mining of critical minerals for renewable energy components, for example, policymakers must consider how to prevent further damage and oppression.

MCC in Canada and the U.S. engages in advocacy to support the reduction of greenhouse gas emissions, to hold governments accountable to global climate agreements and to ensure that domestic reduction policies are employed equitably and do not cause additional harm.

Climate justice in Canada: fair-share contributions to global solutions

While climate change is a global reality, its impacts are not borne equally. For example, the African continent represents one of the regions of the world that is the least responsible for the current climate crisis but experiences climate change impacts more severely. Historically, Africa has contributed the least greenhouse gas emissions of any region and even today contributes less than 4% of global emissions while representing 17% of the global population. (Kabukuru, 2022) Despite this reality, many African nations are committed to climate action and are putting great efforts into curbing emissions. (UN Climate Change News, 2020) In contrast, Canada contributes about 1.6% of global emissions, while representing less than 0.5% of the global population. (Boothe and Boudreault, 2016) African nations are carrying more of the burden of climate action than their fair share.

The Canadian government has made international commitments to support countries in Africa and around the world that are disproportionately impacted by climate change. Over the last year, Canada has signaled the prioritization of climate action by enhancing previous commitments and setting stronger targets. In June 2021, Canada doubled its previous international climate finance commitment (2015-2021) from CAD\$2.65 billion to 5.3 billion, while in July 2021, Canada enhanced its Paris Agreement emission reduction targets. The new climate finance commitment aims to support middle- to low-income countries already affected by climate change, promising 40% of climate finance for adaptation initiatives (an increase from 30% previously). (Government of Canada, 2022) Canada’s emission reduction targets under the Paris Agreement now call for a 40-45% decrease in GHG emissions (previously 30% reduction) below 2005 levels by 2030. (Government of Canada, 2021)

While Canada’s stronger climate commitments are encouraging, climate justice advocates continue to question whether Canada’s climate actions are fair, equitable and aimed at dismantling systems of oppression that uphold

unjust structures. Canada’s previous climate finance commitment allocated 68% of the total commitment to loans as opposed to grants, a practice that seems to continue in the new climate finance commitments through 2025 (Oxfam, 2021; Canadian Foodgrains Bank, 2020). The use of loans in climate finance forces poorer nations that are disproportionately impacted by climate change and less responsible for its origin further into debt (Oxfam, 2020). Giving loans to countries with significantly lower per capita emissions who are suffering disproportionately from climate impacts cannot be considered as Canada doing its fair share. Similarly, Canada’s emission reduction targets to meet its Paris Agreement commitments do not include global fair-share contributions. Considering Canada’s large historical emissions and relative ability to take climate action, reduction targets would need to be at least 60% to go beyond current Canadian targets, meeting its moral obligations to contribute to global reductions.

Canada’s international climate action is moving in the right direction, but more fair and equitable policies are needed for climate justice. Canada has a moral obligation to share the burden of climate change impacts by not only meeting its own emissions reduction targets, but also forwarding fair-share contributions through international climate finance mechanisms.

Climate justice in the United States: clean energy, dirty mining

Though renewable energy is touted as a key method for lowering greenhouse gas emissions in the U.S., the minerals needed for renewable energy components—such as cobalt, nickel, lithium and rare earths—are often extracted in ways that exploit workers and damage the environment. Mining for these metals, known as “critical minerals,” is expected to increase dramatically in coming years due to increased demand for the components needed for batteries, solar panels, wind turbines and other renewable energy technologies.

Countries where mining for critical minerals is expected to increase significantly in the near-term

COBALT	NICKEL	LITHIUM	RARE EARTHS
Australia	Zambia	Argentina	Australia
Canada		Australia	Canada
DR Congo		Bolivia	Greenland
Indonesia		Chile	Malawi
United States		Canada	South Africa
Panama		Mexico	Uganda
Vietnam		Serbia	
		United States	

Source: Earthworks (2019)

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“ Climate justice advocates continue to question whether Canada’s climate actions are fair, equitable and aimed at dismantling systems of oppression that uphold unjust structures.”

“ As we push toward a 100% renewable energy era in response to climate change, it is vitally important not to repeat the human rights abuses and environmental damage of the fossil fuel era.”

Indigenous Environmental Network and Climate Justice Alliance. “Carbon Pricing: A Critical Perspective for Community Resistance.” 2017. Available at: co2colonialism.org

Kabukuru, Wanjohi, “UN: Africa, Already Suffering from Warming, Will See Worse.” Associated Press. March 2, 2022. Available at: <https://apnews.com/article/climate-change-impacts-africa-f3ce8833ec7620d4d7fbca014981bf63>

Oxfam Canada. “Poorer Nations Expected to Face up to \$75 Billion Shortfall in Climate Finance.” September 19, 2021). Available at: <https://www.oxfam.ca/news/poorer-nations-expected-to-face-up-to-75-billion-shortfall-in-climate-finance-oxfam/>

Oxfam International, “OECD Report Confirms Far Too Much Climate Finance Given as Loans that Force Poorer Nations into Debt.” November 6, 2020. Available at: <https://www.oxfam.org/en/press-releases/oecd-report-confirms-far-too-much-climate-finance-given-loans-force-poorer-nations>

United Nations Climate Change News. “Climate Change is an Increasing Threat to Africa.” October 27, 2020. Available at: <https://unfccc.int/news/climate-change-is-an-increasing-threat-to-africa>

The negative impacts of mining on communities where mines are located are significant and include contamination of water and soil, serious human health impacts and displacement. In the U.S., opposition to a planned mine at Oak Flat in Arizona has met steep resistance. Mining in Oak Flat would not only pose environmental and human health hazards but would also destroy a sacred site for Western Apache Indigenous tribes.

The Democratic Republic of the Congo is a major cobalt producer. The area surrounding the cobalt mines in southern DR Congo is one of the most highly polluted places in the world. About 20% of the cobalt in DR Congo is mined by small-scale and artisanal (non-mechanized) miners with hazardous conditions for workers. More than a quarter of these workers, researchers estimate, are children under the age of 15.

Better recycling and responsible sourcing of critical minerals are policy solutions that could reduce the impact of mining on communities in the U.S. and globally. Though recycling has significant potential to reduce the demand for new mining, it must be done carefully lest it cause additional pollution and harmful human health effects in the countries where recycling takes place. Responsible sourcing involves using verified certification programs to ensure renewable energy components are made without harming people or the environment at all stages of the supply chain.

The auto industry is particularly responsive to public pressure due to brand visibility. With the increase in demand for electric cars, if U.S. car manufacturers required responsible sourcing it could push many mines to adopt more sustainable practices and could have positive ripple effects for other industries.

Policy solutions must also address the economic benefits of mining to local communities. For example, when coal mines close in the Appalachia region of the U.S., communities dependent on the mines for employment suffer severe economic consequences. Similarly, for countries like DR Congo, policy approaches must consider that mining provides a stable income that helps Congolese families meet basic needs. In the U.S., policy proposals seek to address this reality by providing economic investment to help communities transition to more sustainable livelihoods. For example, an infrastructure bill signed into law in 2021 included \$11 billion for abandoned mine land reclamation and \$1 billion in economic development assistance through the Appalachian Regional Commission, including \$100 million for broadband internet expansion.

As we push toward a 100% renewable energy era in response to climate change, it is vitally important not to repeat the human rights abuses and environmental damage of the fossil fuel era. Canadian and U.S. climate policies must not only take into consideration domestic emissions, environmental concerns and human rights, but also invest in global solutions ensuring fair and equitable support for climate adaptation and mitigation programs.

Leona Lortie is public engagement and advocacy manager for the MCC Canada Peace and Justice Office. Tammy Alexander is director of MCC U.S. National Peace and Justice Ministries.

Strategies for climate change adaptation in Honduras

Social Development Committee (CODESO) is the non-profit Christian development organization of the Evangelical Brethren in Christ Church in Honduras. CODESO works in coordination with community-based organizations, farming groups, water management boards and local development committees in the municipalities of Orocuina in the Department of Choluteca and Liure in the Department of El Paraíso.

The southern zone of Honduras is in a complex web of multiple threats due to the effects of climate change, namely prolonged drought. The negative impacts of the frequent prolonged droughts directly affect the most vulnerable families. People in these communities depend on rain for crop harvests, as water sources are increasingly scarce and are often not enough for household use, much less for irrigation. In the last three years, even the Choluteca River, the primary river in the area, has reduced dramatically. Within this context, CODESO has promoted a series of helpful practices, including:

- Reduction of chemical fertilizer use
- Small-holder farmer conservation agriculture
- Propagation of crop diversity resilient to climate variability
- Reduction of agriculture in forested areas
- Establishment of green properties throughout communities.

Taken together, these initiatives aim to improve the livelihoods of 406 families in Orocuina and Liure. CODESO first began experimenting with conservation agriculture for small-holder farmers in 2013, when MCC was promoting a pilot project in the region. Motivated by the increasingly limited results from conventional agriculture methods, CODESO introduced conservation agriculture (CA) principles and practices with farmers in the communities where it operated. Initially, CODESO promoted CA methods as a carefully measured technique: digging planting stations, applying manure before planting, using ground cover to conserve moisture and alternating planting of beans and corn. As time continued, farmers adapted CA principles and eliminated the most time-intensive techniques. For example, now farmers are less concerned with maintaining strict spacing in their planting and they use manure that is aged a year, rather than bringing it directly from a corral. Maintaining the most important CA principles, farmers continue to report its benefits.

CODESO is also proud of its work in promoting green properties. Between 2010 and 2015, CODESO supported the planting of over 5,000 fruit and wood trees. This planting has contributed to increased variety in families' diets and has an environmental benefit for the area.

In recent years, CODESO has helped farmers improve the quantity and quality of family agricultural production, so that families produce enough for their subsistence and a surplus. The surplus is incorporated into community seed banks that can assist other families, improving community food security. In a community seed bank, group members store their grain collectively. As the amount of stored grain increases, CODESO provides storage barrels at a reduced cost with the goal that each participant has grain stored in their home. Together, they calculate how much they will use during the year. Through participation in the seed bank, some families have stored enough



When hurricanes Eta and Iota hit Honduras in November 2020, families with storage barrels were in a more stable food security situation than those without.”

Farmer Jose La Paz Castillo working in his field in Honduras in March 2022. Castillo participates in a food-for-work project organized by the Social Development Committee (CODESO), through which he has built 177 meters of erosion barriers. (MCC photo/Ring Connection)



corn to last them two years. When hurricanes Eta and Iota hit Honduras in November 2020, families with storage barrels were in a more stable food security situation than those without, and CODESO did not need to include corn in their hurricane response food assistance.

Since 2020, CODESO has worked more intentionally in supporting new local development committees in each community where it operates. CODESO sensed a need to put more ownership in the hands of the communities themselves. Local development committees run a savings and loans group, manage the seed banks, support women's groups and stores, and coordinate with CODESO on a variety of projects, such as disaster response, water access and field erosion barrier construction. Representatives from each committee come together in a regional committee for food security, currently representing 24 local committees of the municipalities of Orocuina and Liure. The regional committee now has its own legal status and can advocate on behalf of the area to receive and manage government resources. As the regional food security committee is relatively new, CODESO considers it important to continue to strengthen this group to become a model for food security management and resilience in the face of the adversities generated by climate change, in addition to organizing and giving voice to communities in the medium term.

“ CODESO sensed a need to put more ownership in the hands of the communities themselves.”

CODESO provides technical support in the application of small-holder farmer conservation agriculture methodology, administration and management of the resources available in community grain banks and monitoring the progress of local development committees.

The scale of the challenges that face Orocuina and Liure are great: farmers in both municipalities are still highly vulnerable and prone to setbacks and natural disasters. CODESO recently experienced the great disappointment of a forest fire burning some 35 hectares around the community of Los Hornos, where they had worked intentionally to preserve the natural resources together with the families there. Access to water continues to be increasingly difficult for some communities. CODESO is motivated by the social responsibility of the church and the opportunity to serve in these communities and continues to seek to network with government and other actors to make a difference within their context, which continues to be vulnerable to the effects of climate change.

Adolfo Nuñez is director of CODESO, an MCC partner based in Orocuina, Honduras.

Climate change adaptation in the Central American Dry Corridor

The Central American Dry Corridor is a strip of land 1,600 km long that stretches from the west of Guatemala into the northwest of Costa Rica. This territory is extremely vulnerable to climate change impacts such as extensive drought and intense rainfall. Most farmers who live in the Dry Corridor face extreme climate phenomena that negatively impact their health, economy and means of crop production.

Since 2012, Pastoral de la Tierra San Marcos (PTSM), an MCC partner in Guatemala, has kickstarted a climate change mitigation and adaptation program in the communities of the Dry Corridor in the municipality of San Miguel Ixtahuacán in the department of San Marcos. The program is focused on agroecology and prioritizes soil conservation, crop diversification, rainwater collection and production of organic fertilizers.


PTSM has worked with the inhabitants of Caserío Mushnan and Aldea El Zapote in San Miguel Ixtahuacán for more than nine years. These communities confront drought, deforestation and excessive coffee planting that has dried up water springs, rivers and creeks. Furthermore, the water from the biggest source in the area, River Cuilco, is unsuitable for irrigation or human consumption due to heavy metal pollution caused by mining activities of foreign companies that operate in the area.

Although the coffee plantations are the largest source of income for both communities, the excessive planting of coffee has become one of the greatest threats in efforts to mitigate the effects of the Dry Corridor. The commercialization of coffee incentivizes landowners to deforest their lands and replace trees with coffee plants. Coffee requires heavy irrigation, fertilizer and constant pesticide application. Water springs are privatized and directed into irrigation channels for coffee production—any remaining water sources, like small creeks, become contaminated with agro-chemicals. Furthermore, the coffee producers who live in other municipalities or departments seize the majority of productive fields, leaving local community members with little access to water and arable land. This forces community members to make a living harvesting coffee, a seasonal job that pays very little. A coffee harvester earns an average of \$10 a day during the harvesting season which lasts approximately four months.

The few inhabitants who have access to land face the climatic phenomena of the Dry Corridor. As a result of the drought and intense rainfall, the farmers of Caserío Mushnan and Aldea El Zapote must find ways to grow crops in arid, rocky soil lacking in essential minerals and nutrients. This directly affects these communities' food security, since their food and economy depend on the ability of their fields to provide grains, vegetables and fruits.

These are some of the barriers that impede the people who live in the agricultural zones of the Dry Corridor from reaching their goals of a dignified life. Some families have been forced to migrate out of these municipalities into urban areas or other communities with better access to water and cultivatable terrain.

Pastoral de la Tierra San Marcos has promoted agroecology as the method to mitigate the effects of the Dry Corridor in Caserío Mushnan and Aldea

 **Most farmers who live in the Dry Corridor face extreme climate phenomena that negatively impact their health, economy and means of crop production.”**

 **As long as the planet is being abused in such a way that accelerates climate change, the consequences for the poorest inhabitants of the Central American Dry Corridor will be irreversible.”**



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Watson, Katy. "Guatemala Families Struggle for Food in Central American Drought." BBC News. October 19, 2015. Available at: <https://www.bbc.com/news/world-latin-america-34416771>

Watch: "The Dry Corridor of Guatemala." Catholic Relief Services. March 16, 2016. Available at: https://www.youtube.com/watch?v=zNliCJP_EIE

El Zapote. The organization has used an agroecological lens to teach people to conserve and improve their soils, diversify the forest and crops in the area, improve shelters for livestock, build wells to collect rainwater and create agroecological plots to promote food security.

Before PTSM joined these communities, most families depended on corn, beans and coffee crops. Today, about 21 families have learned to diversify their plots with fruit trees like oranges, lemons, limes and grapefruit. The families have also introduced different species of drought-tolerant hard squashes (ayote), practice food dehydration techniques to store and consume produce during times outside of harvest seasons and created plots for growing vegetables and medicinal plants. Families use the medicinal plants in a system of preventative holistic and alternative health that seeks to care for people and domestic animals.

Poor soil fertility can be countered with the use of organic fertilizers. Given that some community members have domestic animals on their land, the PTSM technical team introduced a system of improved shelters to take advantage of livestock manure and trained coffee producers to use the leftover pulp from processing coffee seeds as organic fertilizer. This system eliminated the need for agrochemical fertilizers that pollute the soil and water sources.

Although growing coffee has been one of the drivers of deforestation in these communities, we cannot ignore that it is currently the greatest source of income for the local inhabitants. For this reason, PTSM and local agroecological promoters have started tree nurseries with the goal of introducing drought-resistant trees to provide shade for the coffee plantations and reforest the watershed recharge areas. This approach is a compromise between strengthening the local economy and halting the effects of deforestation.

Among the efforts to alleviate water shortages during the dry season, PTSM and other organizations working in the area have implemented rainwater harvesting wells through geomembrane systems. To date, three families have benefited from these wells, which are valued at approximately \$1,000 each. Although these wells allow families to make use of water that would otherwise have been wasted, the rainfall over the Dry Corridor in the winter season is insufficient to fill them. Studies conducted by PTSM indicate that in the past five years, the area experiences 17 days of effective rain per year. During those 17 days, it has only rained for approximately two hours daily. The wells installed at these homes have only been able to collect enough water to irrigate small agroecological lots for three out of nearly six months of drought. In addition, each well requires a significant investment that is unsustainable for the local economy.

Agroecology has taught us to adapt growing systems and to take advantage of the earth and water to mitigate some of the problems related to climate change in the Dry Corridor. Nevertheless, the technicians at PTSM believe that agroecology can only solve a small part of the problems that the inhabitants of communities like Caserío Mushnan and Aldea El Zapote face. The effects of climate change, which include extensive periods of drought, rain, intense winds and increased heat, combined with deforestation and over-planting of coffee, will continue to destroy water sources and erode soils that are already highly infertile. Such conditions will force members of these communities to migrate or depend on unsustainable investments of thousands of dollars to survive in the area. As long as the planet is being abused in such a way that accelerates

climate change, the consequences for the poorest inhabitants of the Central American Dry Corridor will be irreversible.

Jose Ricardo Salinas Reyes is the social communications facilitator with the Diocese of San Marcos as part of MCC's Seed program in Guatemala/El Salvador. He is originally from Tegucigalpa, Honduras. Rony Aguilar and Marco Antonio Roblero are agroecology technicians with Pastoral de la Tierra.

Promoting climate change resilient livelihoods in Cambodia's Mesang district

Located in southeast Cambodia, rural Prey Veng is the third largest province in the Kingdom by population size. Eighteen percent of the population lives below the poverty line of US\$2.69 a day. In Mesang district, more than 97% of the population relies on the seasonal rice crop as their primary source of income. Secondary income sources include vegetable farming, raising livestock, engaging in day labor and operating small businesses.

The people of Mesang district are already experiencing the adverse impacts of climate change. Climate change has disrupted seasonal weather patterns, causing the length of the dry season to increase and intensifying the previously stable monsoon rains of the rainy season. Monsoon rains have become unpredictable in timing, rainfall amounts and geographic scope—some areas in Mesang may receive no rain at all, causing drought, while other areas may receive intensive rainfall, generating destructive floods. The ambient heat has increased, severely affecting the environment, biodiversity, human health, agricultural production and the economy.

Through support from MCC's account at the Canadian Foodgrains Bank (CFGFB), the Organization to Develop Our Villages (ODOV) has been working in 90 villages to promote climate change resilient farming techniques since 2019. ODOV has a community integrated development approach that works holistically to enhance food security, livelihoods and gender equality of vulnerable households. Through technical training provided by ODOV project staff, 1,710 poor farmers (1,037 who are women) are practicing climate resilient household food production activities such as raising chickens, raising fish and growing vegetables. A total of 6,885 farmers plus their family members benefit from nutritious food for daily consumption and the opportunity to earn extra income to support their family by selling surplus products.

Climate change vulnerability in Mesang district: Mesang district is highly vulnerable to climate change because most of its population is dependent on rice production that relies on regular seasonal rainfall and flooding. Over the last five years, 10,149 households were harmed by floods and drought in Mesang district alone. In 2021, 2,252 households lost 50 to 70 percent of their rice crop to drought and flooding. Farmers lost income from rice cultivation and fell into debt to pay for fertilizers, seeds, equipment rentals and other expenses. The intensive rainfall and drought also affected vegetable farming productions, with many plants dying from too little or too much water.

“As climate change has destabilized seasonal rains, farmers have turned to pumping irrigation water from the groundwater table, accelerating the depletion of underground water as recharge falls far behind demand. The government of Cambodia has issued a warning to rice farmers across Cambodia to cultivate only one rice crop during the dry season.”

“ The severity of climate change in Mesang has caused extreme livelihood vulnerability.”

As the ambient temperature continues to increase, irrigation canals and natural lakes have become shallow or have dried up completely. Traditionally, many poor households relied on catching fish from the canals and natural lakes to supplement their diet and income. Farmers complain that they cannot catch wild fish as they could before.

Higher temperatures have also affected farmer’s livestock production. Changes to temperature and rainfall are known to affect the distribution, timing and intensity of livestock diseases. Farmers report that pigs and poultry have suffered from an explosion of diseases. In 2021, a new disease spread among cattle locally referred to as “Lumpy Skin Disease.” Most farmers’ cattle had this novel infection, resulting in some livestock deaths and significant treatment costs.

The severity of climate change in Mesang has caused extreme livelihood vulnerability. Farmers borrow money for food, agricultural supplies, medical expenses or household needs. Many men are forced to migrate outside the district to seek jobs to earn income to repay their debts and support their families. In some households, children have dropped out of school and migrated to work in factories or construction. The burden on women has increased as they are left behind to manage both domestic and agricultural activities. Women perform the triple roles of productive work, reproductive work and community work, presenting an obstacle for obtaining opportunities for self-development. Some communities have experienced an increase in domestic violence due to worsened living conditions.

ODOV’s approach to address livelihoods vulnerable to climate change: One of the most persistent challenges for farmers is inadequate access to water during the dry season. As climate change has destabilized seasonal rains, farmers have turned to pumping irrigation water from the groundwater table, accelerating the depletion of underground water as recharge falls far behind demand. The government of Cambodia has issued a warning to rice farmers across Cambodia to cultivate only one rice crop during the dry season.

ODOV supported farmers to dig fishponds that store rainwater to support livestock and vegetable gardens during the dry season and provide space for fish production. This was a successful adaptation technique that helped people adapt to climate impacts. When farmers have access to water for irrigation, they can produce food year-round. ODOV trained farmers on fish raising techniques, including pond preparation using lime, green manure and compost to improve water quality, producing natural fish feed and planting grasses along the banks of the pond to prevent soil erosion. The fishpond model promoted by ODOV also includes growing a trellis of wax gourd or sponge gourd to cover over the fishpond or growing duck weed to reduce pond water evaporation.

ODOV also supported communities adapt to climate change by helping them establish Agriculture Cooperatives (ACs). The ACs sell shares to members and also hold savings for their members. ACs can use this capital to start

Chhin Ya and her husband Yet Kheng, subsistence farmers in rural Mesang district in Cambodia, show the fish grown in a pond behind their house in February 2022. The fishpond was designed and built through a project conducted by MCC partner Organization to Develop our Villages (ODOV) and funded through MCC’s account at the Canadian Foodgrains Bank (CFGB). (Tes Sopheat/ODOV)



cooperative businesses such as supplying agriculture inputs to its members. The ACs also provide loans to their members for agricultural purposes or income generation activities.

In the ODOV project, farmers also received training on climate resilient vegetable production, including techniques such as proper fencing, compost making, mulching vegetable beds, mechanical methods to control pests, land preparation during the rainy season and the dry season, inter-cropping, crop rotation and crop diversification. These techniques do not cost additional money as farmers are able to use their local resources.

ODOV also trained farmers on chicken production techniques to adapt to higher temperatures and increased risk of disease due to climate change. This included training on preparation of chicken shelters, hygiene surrounding chicken shelters, proper feeding (diverse food preparation) and chicken vaccination. Traditional poultry medicines that use available local resources were also introduced, such as soaking water with bark and leaves of the neem tree, lemongrass or a mixture of garlic, ginger and sugar. This method helps maintain chicken health by reducing body temperature. ODOV also recommends that farmers grow trees and trellises surrounding the chicken enclosure in order to provide shade. In rural Cambodia, poultry vaccines are difficult to source locally and are expensive. ODOV continues to look for affordable local sources of poultry vaccines.

ODOV also works to address gender imbalance and provides opportunities for women's empowerment. Women are encouraged through the ODOV project to hold important roles in community leadership. For instance, women members of local agricultural cooperatives manage record keeping and business inventory and facilitate community meetings. Some women have started small businesses by collecting agriculture production from local producers to sell. As women earn their own income, they have more rights in decision making and greater access and control over resources.

Farmers reported difficulty adopting some adaptation techniques such as drip irrigation, cover crops, green manure and chicken vaccination. Drip irrigation for home gardens and planting cover crops were not as successful as other techniques because they have high start-up costs for equipment which were too expensive for small farmers. Cover crops and green manure failed to capture farmers' interest because they want to maximize the use of their limited land and do not want to risk growing new crops like beans. The most challenging adaptation technique was chicken vaccination—the vaccines are expensive, not available in the local market and difficult to administer. Most farmers instead choose to take the risk of raising chickens without vaccinations.

Providing farmers with knowledge of climate change adaptation techniques is crucial to help farmers be more resilient in the face of drought. Farmers have applied the knowledge they have gained to increase household food production. Farmers have accessed nutritious food for daily consumption and have additional income from selling the surplus food produced. Furthermore, farmers become more resilient when they have access to agricultural inputs such as seeds, fertilizers, farming equipment and loans through services provided by Agriculture Cooperatives.

Tes Sopheat is executive director of Organization to Develop Our Villages (ODOV) in Cambodia.

“ Providing farmers with knowledge of climate change adaptation techniques is crucial to help farmers be more resilient in the face of drought.”

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CRV is a comprehensive approach customized for rural areas that fosters sustainable development and equips communities with tools to improve their adaptability to the effects of climate change."

Climate Resilient Villages: responding to local climate risks in Nepal

Nepal is one of the most vulnerable countries facing severe climate change impacts because of its geography and socio-economic conditions. Nepal is ranked among the top ten countries most affected by climate-related extreme weather events over the last two decades. (Eckstein, Kunzel and Schafer, 2021) The rural Nepalese people are highly prone to climatic risk because of poverty, natural resource-based livelihoods, caste-based discrimination, increasing climate-induced disasters and lack of access to efficient technologies and technical services. Rural households are additionally vulnerable to climatic risks due to being deprived of basic infrastructure and services such as health facilities, electricity, transportation and access to markets, higher education and job opportunities. All sectors are affected by climate change, including agriculture and water resources, which negatively impact the livelihoods of marginalized rural communities and small-holder farmers. Moreover, caste- and gender-based discrimination in these communities have made people from the Dalit caste and women in the communities more vulnerable because of their limited access to resources and services. Exclusion from decision making further weakens their capacity to respond to climate change impacts.

The Nepal government has formulated policies and programs to deal with climate change impacts at the national level, but at the grassroots level implementation is weak because of lack of knowledge and capacity of local governments. Therefore, communities are not getting the expected benefits of these national policies. Recognizing this fact, the Group of Helping Hands (SAHAS) Nepal started climate change adaptation projects in 2014 in different parts of the country. SAHAS has carried out 16 climate change-related projects, with livelihood support as a main component.

In their initial projects, SAHAS introduced small-holder farmers to Climate Resilient Agriculture Technologies and Practices (CRATPs). CRATPs were identified, tested and then scaled up in locally appropriate contexts. Impact on food security, adaptation and mitigation were basic criteria for testing, along with consideration of gender equality and social inclusion (GESI). Various CRATPs were rolled out to address climate change adaptation, mitigation and disaster risk reduction. Technologies like rainwater and excess water harvesting, wastewater collection ponds, farm ponds, micro-irrigation canals, drip and/or sprinkle irrigation, drought-tolerant crop varieties and soil and nutrient management contributed to efficient use and management of available water and other natural resources. Technologies such as improved cooking stoves, biogas and solar lighting were introduced to help with energy conservation in the targeted communities. Practices such as farmyard manure management, vermi-composting, green manure, mulching, bio-pesticides and integrated pest management, legume farming, crop-rotation, agroforestry, conservation tillage and sloping agriculture land technology were used to manage pests and plan crop nutrients, in turn contributing to reduced carbon emissions.

Community response to those new climate resilient practices was excellent in terms of enhancing food security, climate change adaptation and contributing to gender equity. However, the sustainability of technology adoption was limited after projects were phased out. Continued implementation of CRATPs was difficult due to lack of technical skills and

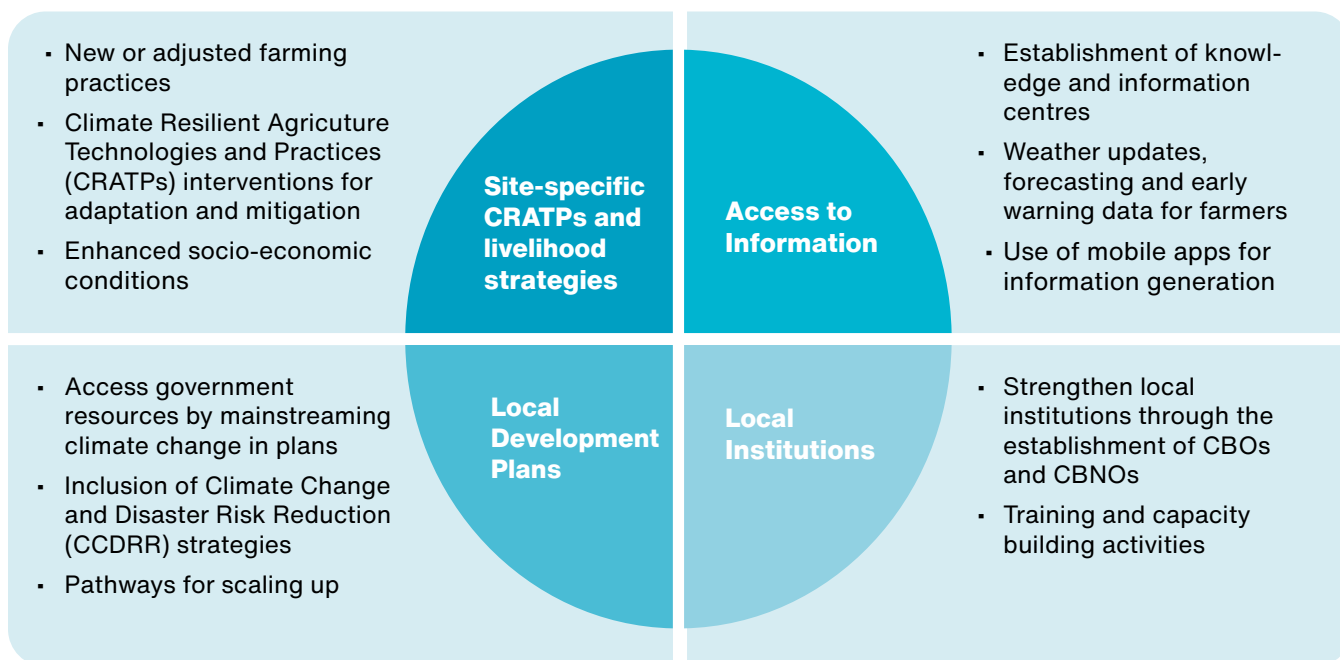


Figure 1: Components of Climate Resilient Village (CRV) adopted by SAHAS Nepal

availability of financing in the communities. Support for farmer innovation, which is necessary for the development and adoption of new CRATPs, was also lacking. After realizing this, SAHAS initiated an integrated approach called Climate Resilient Village (CRV) to link climate change responses with Community-Based Network Organizations (CBNOs) for sustainability of project supported interventions (see Figure 1). The goal of the CRV approach is to build community resilience against future climate shocks and disasters. This approach consists of four integrated approaches as shown in Figure 1.

The Climate Resilient Village (CRV) approach provides support for individuals, local institutions and entire communities. Small-holder farmers have access to new or improved farming practices, as well as the use of CRATPs for adaptation and mitigation. Furthermore, access to information can assist farmers with weather forecasting to protect their lives and improve crop production. Local development plans include resources for climate change adaptation and mitigation activities, as well as inclusion of climate change and disaster risk reduction strategies. Additionally, financing for climate change adaptation is accessed through the local government and financing agencies such as NGOs (international and national), private sector businesses and development corporations. Local institutions are supported through the establishment of Community-Based Organisations (CBOs) and networks to manage and lead implementation of the CRV approach. Establishing these CBOs and networks locally allows them to sustainably influence local government authorities to provide continued support for climate change programs.

The Climate Resilient Village approach has been successful in combining global knowledge with local action to help small-holder farmers sustainably produce more food while curbing greenhouse gas emissions and increasing resilience to the impacts of climate change and climate-related disasters. In CRVs, farmers and agriculture technicians test and implement portfolios of CRATPs, which are combined to make the best use of local resources and knowledge and skills of small-holder farmers. CBOs and CBNOs

“ The Climate Resilient Village approach has been successful in combining global knowledge with local action to help small-holder farmers sustainably produce more food while curbing greenhouse gas emissions and increasing resilience to the impacts of climate change and climate-related disasters.”



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have continued promoting CRATPs by leveraging resources from the local government and successfully integrating climate change programs into the local government plans. In 2020, eight CRVs from SAHAS’s project areas leveraged NPR 3.24 million (US\$26,350) for climate change action from local government and agencies. The number of climate change action plans has increased and stakeholder interest in the CRV approach has also increased. Due to the integrated CRV approach and the engagement of multiple stakeholders during implementation, policymakers have increased budgets for climate change adaptation and disaster risk reduction programs. Areas beyond the project sites also benefit as the CRV approach is adapted by surrounding communities.

CRV is a comprehensive approach customized for rural areas that fosters sustainable development and equips communities with tools to improve community adaptation to the effects of climate change. SAHAS, in collaboration with local government departments, is expanding its projects to additional villages. The scope of CRV is also expanding from the village to the municipality level in some cases. The components of the CRV are updated regularly and customized for site-specific conditions and contexts. In the medium- to long-term, the CRV approach has shown significant potential to increase resilience of agricultural production systems and food security to climate change impacts.

Raju Jati is climate change and disaster risk reduction coordinator and Surendra Kumar Shrestha is executive director with SAHAS in Nepal.

The intersection of gender equality with climate change adaptation and mitigation in Zimbabwe

Many organizations across the global South are mobilizing to respond to the worldwide call to secure a carbon neutral future by mid-century and keep temperatures below a 1.5°C increase from pre-industrial levels. (Lennard, 2016) Score Against Poverty (SCORE) strives to curb climate shocks and increase the resilience of communities. SCORE empowers communities with climate education through bottom-up approaches, giving community members the power and knowledge to protect themselves from climate stress. On the climate change mitigation side, SCORE works to reduce greenhouse gas emissions through sustainable reforestation measures and clean energy technologies, including clean cookstoves and bio-digesters which turn manure and other organic waste into biogas for lighting and cooking.

Mwenezi district, located in the drought-stricken part of Zimbabwe, has been adversely affected by climate change. People are migrating to areas that receive good rains, soil erosion and degraded lands cause land disputes, and high temperatures and heat waves affect public health. Women and girls are especially hard hit by climate change. Women and girls play a pivotal role in supporting food security for their household and communities by carrying out housework, caring for children and the sick, processing and cooking food, and collecting water and fuel. Water, food and fuel are in short supply due to climate change, making the lives of women difficult.

In response to these challenges, SCORE has embarked on an initiative to pilot clean energy solutions for climate change mitigation, to increase the resilience of communities to climate shocks and to promote gender equity.

SCORE believes that the climate crisis cannot be tackled without accounting for gender-specific needs, concerns and capacities, which is why women are at the forefront of SCORE's activities. For instance, a Women Coalition for Climate Change (WCCCN) was formed in the district to promote action to address the climate crisis and increase participation and leadership of women for gender-responsive climate change adaptation and advocacy strategies. WCCCN empowers women with leadership and other vital skills necessary for community development.


SCORE also works to create clean energy entrepreneurship opportunities for women. Examples include the promotion of gardening using solar powered irrigation so that women can then sell vegetables or the use of solar energy for cell-phone charging, refrigeration and lighting shops.


Through the SCORE clean energy project, women have significantly improved their well-being along with that of their families and communities. Women and girls are often tasked with firewood collection, exposing them to sexual and gender-based violence as they often walk long distances in search of firewood. Improved cooking stoves and biogas digesters introduced by SCORE reduce the amount of firewood needed, curbing deforestation and the demand on women and girls. Clean cooking stoves are improving the lives of women as they no longer toil in smoky kitchens with unclean energy sources which are inefficient and hazardous to their health. As a result, women and girls have more time to focus on productive activities leading to their empowerment. Reducing the domestic burden of girls and young women increases school attendance, ultimately contributing to increased labour market outcomes of future cohorts of women in the district. Of the women participating in the SCORE clean energy project, 90% responded that the initiative has boosted their confidence because they now earn income, giving them greater power and control in household decisions.

SCORE also addresses the safety and protection of women and girls in Mwenezi through solar-powered lighting in public places at night to reduce and prevent rape and assault experienced by women when using outdoor latrines. A solar energy system at the local secondary school provides light for studying and powers printers and computers, encouraging pupils to attend evening study sessions and improving educational outcomes.

The introduction of new technologies comes with the danger that adoption will not last, as communities revert to their old way of life once project interventions end. SCORE closely monitors the long-term adoption of new clean energy technologies, going beyond measuring initial uptake rate. Any newly introduced clean energy technologies must have value to the community for sustainable adoption and usage. Renewable energy technologies provide clean, reliable and cost-effective energy sources for essential services in rural communities. Sustainable adoption of clean energy technologies is critical for economic recovery, energy security and strengthened climate resilience of communities in Mwenezi district, while also reducing greenhouse gas emissions and empowering women.

Tariro Cynthia Mutsindikwa is a clean energy officer with Score Against Poverty in Mwenezi, Zimbabwe.

 **The climate crisis cannot be tackled without accounting for gender-specific needs, concerns and capacities.”**

 **Improved cooking stoves and biogas digesters introduced by SCORE reduce the amount of firewood needed, curbing deforestation and the demand on women and girls.**



In 2017, Crisanta Aguilar peers out from among her orange trees near Zapote, Guatemala. MCC partner Pastoral de la Tierra supports permaculture work in Zapote to provide alternative livelihoods and community organizing spaces. Part of that work includes climate change adaptation and recovery of Indigenous Maya Mam agricultural traditions and medicinal plants. (MCC photo/Anna Vogt)

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