

MRED-II: SUMMATIVE IMPACT & RESULTS



Managing Risk through Economic Development Phase-II in Nepal and Timor-Leste

AUGUST 2020



MRED Nepal Partners

IMPLEMENTING PARTNERS

Social Awareness and Development Society (SADA), Baitadi
Nepal Red Cross Society (NRCS), Kanchanpur District Chapter

Nepal Red Cross Society Kailali (NRCS), District Chapter
Integrated Development Society (IDeS), Dadeldhura

GOVERNMENT PARTNERS

11 Rural Municipality and Municipal Partners
Dairy Development Cooperation (DDC), Attariya Branch, Kailali
Department of Hydrology and Meteorology (DHM), Kathmandu
Ministry of Land Management, Agriculture and Cooperatives,
Kailali
Agriculture Knowledge Center

Ministry of Internal Affairs and Law, Kailali
Water Resource and Irrigation development division,
Mahendranagar-Kanchanpur
Mahakali Watershed Office Mahakali Large Reservoir,
Patan Baitadi
Agriculture Campus, Baitadi

PRIVATE SECTOR ACTORS

Mahakali Sugar Industry, Kanchanpur
Bhageshwar Sugar Industry, Kanchanpur
Khaptda Dairy Industry Pvt Ltd, Dhangadhi-Kailali Insurance
Company (Nepal ,NLG, Shikhar, National , Sidhartha)
Agroviet and Chilling Center

Micor-Finance (Kisan, Nirdhan Utthan, Forward, NMB,
Janutthan, Swabalamban)
Cooperative (Garib utthan, Bandevi Agriculture, Srijana
Chetana Sana Kisan, Siddhanath, Siddhabaijanath)
Saving and credit cooperative (Dogadakedar, Danphe
Kasturi Women)

CIVIL SOCIETY ACTORS

Ukhhu Utpadak Kishan Hakhit Samrakchan Samiti (Sugarcane
Farmers Association)

CDMCs Network-Dadeldhura

MRED Timor-Leste Partners

GOVERNMENT PARTNERS

Secretary of State for Civil Protection
of the Ministry of the Interior
National Disaster Management Directorate
National Disaster Operation Center
Ministry of Social Solidarity and Inclusion

Ministry of Agriculture and Fisheries
National Directorate of Meteorology and Geophysics of the
Ministry of Transportation
Municipalities of Dili, Ainaro, and Ermera
Suco Disaster Management Committees



RECOMMENDED CITATION: Craft, T., Tamang, C., Tamang, D., Bohara, D., Mandala, K., Stone, J. (2020). MRED-II Summative Impact and Results: Managing Risk through Economic Development in Nepal and Timor-Leste. Washington, D.C.: Mercy Corps.

Cover Photo
E. Millstein / 2018 Mercy Corps



District partners assess river bank erosion in Bichpatti. Photo credit: D. Bohara / 2018 Mercy Corps

About MRED-II

In the disaster-prone countries of Nepal and Timor-Leste, climate-related shocks and recurrent disasters cause loss of livelihoods and household assets in poor communities resulting in food insecurity and cyclical poverty. Life-saving disaster risk reduction (DRR) approaches have seen tremendous growth in the last decade, however, these efforts have had limited effect on mitigating the economic losses suffered by the poor when disaster strikes.

Mercy Corps' Managing Risk through Economic Development (MRED) program supports the most vulnerable households in smallholder farming communities to be more resilient to the adverse effects of climate change and natural disasters through a resilience approach that integrates DRR and livelihoods.

MRED supports community based DRR structures and capacities whilst strengthening livelihood resilience through an approach the program calls "nexus". Over the course of seven years of implementation, MRED has generated substantial experience and evidence to support the value of the nexus approach to build disaster-ready communities and strategies to work with government and private sector partners to sustain and scale program investments.

MRED-II: Managing Risk through Economic Development - Phase 2

MRED-II Goal: Disaster Resilient Communities

MRED-II Purpose: Enable vulnerable smallholder farming communities in Nepal and Timor-Leste to be more resilient to natural hazards and the adverse effects of climate change by facilitating improved solutions that empower smallholder farmers to build their economic and ecological resilience through a replicable, sustainable, and scalable model.

Timeframe: May 2016 to June 2020

Budget: \$5,581,698

Donor: Margaret A. Cargill Philanthropies

Implementing Countries: Nepal and Timor-Leste

IMPACT¹: **MRED communities are better prepared for disaster.²**

MRED-Nepal households reduced use of risky behaviors to respond to disaster by 25% (70% at baseline and 90% at endline said they never used negative coping strategies). This finding was reinforced by a post-shock study that found MRED households' average negative food Coping Strategies Index (CSI) was 3.35 points lower (better coping ability) than non-MRED households.

MRED Timor-Leste communities reported an 8% increase in confidence in their ability to cope with wind shocks, the most common type of disaster in target communities. Additionally, the average CSI score for MRED households decreased by 1.97 supporting that MRED households were both more confident to cope with disaster and relied less on risky behaviors in a crisis than before the program.

REACH: 227,152³ individuals are better able to cope with the effects of climate change and disaster as a result of MRED-II interventions. Partnerships with 139 institutions, such as local disaster management committees (DMCs) and village savings and loan associations (VSLAs) improve households' resilience capacities to assess and respond to risks and disasters.

1. Unless otherwise noted, the data in this report is from the MRED-II program baseline and endline studies and performance monitoring data.

2. Scanlan, J., Petryniak, O., Tamang, C. (2018). Testing the Added Value of Market Incentives on Disaster Risk Reduction in Western Nepal. Final Report. Portland, OR. Mercy Corps. <https://www.mercycorps.org/research-resources/testing-market-incentives-disaster-risk-Nepal>

3. MRED-II engaged 5,314 households in Nepal and 3,567 households in Timor-Leste through direct activities as well as 169,908 people representing the total population reach of EWS in Nepal for a total reach of the program based on average household sizes of 227,152.

Timeline of MRED Program

2013-15

MRED PHASE-I LAUNCHED in Nepal, Timor-Leste and Indonesia laid the foundation for MRED's integrated model and built key private sector and government partnerships which continue into Phase-II.

2016

MRED PHASE-II STARTS in Nepal and Timor-Leste.

2017

BRIGE Gender Assessment highlighted needs of women and girls that strengthened GESI initiative to support women's participation and empowerment in both countries through the launch of inter-household dialogue groups, working with the Women's Initiative Fund (WIF) which started from Phase I in Nepal.

MRED-N provided evidence for the addition of livelihoods to the 9 minimum characteristics of disaster-ready communities (established in 2011 by GoN in partnership with INGOs, NGOs, UN and the Red Cross movement as a part of standardization approach to disaster risk management in Nepal).

GoTL political impasse and depressed economy contributed to decreased state budgets for DRR and general demotivation by the central government to engage with DRR programming resulting in lack of response to wind disasters providing an opportunity for MRED to spearhead disaster response efforts.

Post-flood study in Nepal finds that MRED communities fared better in terms of having greater resilience capacities such as savings and access to early warning systems.

2018

Post-windstorm study in Timor-Leste supports investment in permagardening and savings interventions to promote resilience to windstorms.

Learning and collaboration visit to MRED-N by seven-member delegation from GoTL Ministry of Social Solidarity, Department of Hydrology and Climatology, and Directors of Ainaro & Ermera Municipalities with MRED-TL program team.

Post-flood study in Nepal finds that MRED communities fared better in terms of having greater resilience capacities such as savings and access to early warning systems.

MRED-TL began to facilitate meetings with municipal stakeholders and DMCs to share information and provide DRR training to Sucos and more focus on Contingency Planning.

MRED-TL began work on J-hook to test low-cost solutions to secure the roof of homes after increased frequency of windstorms resulted in 69% more homes damaged; this has seen initial market demand.

MRED-N partnered with the Ministry of Land Management, Agriculture and Cooperatives to strengthen market linkages for sugarcane nexus and scale up in riverbank areas.

2019

MRED-TL hired a gender team lead and rolled out gender-focused programming including HH dialogue curriculum and Change Agent training for successful couples to be able to talk to their peers about household decision making.

Local and provincial partnerships expanded nexus interventions in Nepal including \$100,000 and 416 ha of land from the Ministry of Agriculture to support sugarcane plantation expansion and \$62,000 combined from UNDP and GoN to support dairy expansion and increased access to ag extension services.

MC-N selected as District Lead Support Agency by District Disaster Management Committee in Kailai district to coordinate and lead DRR works at district level resulting in more opportunity to influence replication of the MRED model.

2020

MRED-TL responded to two major flooding events providing gap filling for GoTL disaster response capacity; MRED-TL provided food and conducted emergency response assessments.

MRED convened program learning workshops in Nepal and Timor-Leste to reflect on successes and identify improvements using program data.

MRED Endline Evaluation conducted by Causal Design.

MRED PHASE-II ENDS

2020-22

MRED PHASE-III STARTS (April 2020) Implementing in Nepal, Timor-Leste and launched full operations in Indonesia to replicate the nexus model.

MRED Key Terms & Abbreviations

(N=Nepal; TL=Timor-Leste)

Aldeia	Community level in Timor-Leste
CDA	Community Development Agent
DMC	Disaster Management Committee
DRR	Disaster Risk Reduction
GoN	Government of Nepal
GoTL	Government of Timor-Leste
ICAP	Integrated Community Action Plan
IDEA	Integrated Disaster Economic Analysis
HH	Household
MC	Mercy Corps
MRED	Managing Risk through Economic Development
MSD	Market Systems Development
NRM	Natural Resource Management
PDRA	Participatory Disaster Risk Assessment
Suco	Village level in Timor-Leste
VSLA	Village Savings and Loans Association

NOTE: All currencies are in USD unless otherwise noted.



What is Nexus?

Nexus is MRED's risk-sensitive livelihoods approach to sustain program results through the development of market systems.

Key to the nexus approach is market systems development (MSD) of agricultural commodities that have economic growth and income earning potential while also supporting climate adaptation and disaster preparedness. Nexus value chains use climate smart agricultural practices supported by conventional structural mitigation and conservation measures to address environmental and climate induced risks. To sustain MRED beyond the program, nexus income generation incentivizes community members to engage and remain in DRR activities as well as helps them be better prepared for shocks and stresses and bounce back faster.

MRED's Resilience Approach to Disaster Risk Management

Conventional disaster risk reduction (DRR) approaches offer support for when disaster strikes, developing essential early warning systems and community-based disaster management committees (DMC) prepared to deploy in a crisis. However, these do little to mitigate the economic impacts of recurring climate disasters and slow-onset shocks endemic to vulnerable populations in places like Nepal and Timor-Leste. Recurrence of floods, drought, soil erosion, landslides, and windstorms keeps communities trapped in a repetitive cycle of disaster and recovery. **MRED's approach has adapted the traditional DRR model and coupled it with strengthened, risk-sensitive livelihoods and market components, resulting in reduced disaster-related losses and increased economic security.**

MRED's Key Objectives and Intervention Strategies

MRED strives to empower smallholder farmers to take ownership in building their own resilience through economic and ecological systems that support communities to manage shocks and stresses through a model that is replicable, sustainable, and scalable beyond project-supported periods. MRED's key objectives include:

Disaster Risk Reduction. Strengthen social capital and physical systems that enable community resilience to natural disasters and climate-induced hazards.

Risk-Sensitive Livelihoods. Market Systems Approach to improve livelihoods resilience for smallholder farmers.

Collaborate & Learn to Scale. Produce and disseminate research and learning to expand the impact of MRED's integrated approach to building resilience to natural hazards and climate change.

MRED's intervention strategies are illustrated in the Theory of Change model as interconnected components of the program that jointly build resilience capacities so that communities are better able to respond to, recover and mitigate climate disaster. The interventional strategies and illustrative activities are outlined on the following page.

Mercy Corps defines resilience as the capacity of communities in complex socio-ecological systems to learn, cope, adapt, and transform in the face of shocks and stresses.⁴



MRED Theory of Change

IF vulnerable smallholder farming communities in Nepal and Timor-Leste are supported by an inclusive enabling environment and able to access and utilize improved solutions to manage adverse effects of climate change and natural hazards, THROUGH public, private and civil society partnership THEN they will be empowered to use these solutions to build their ecological resilience and maintain or increase their wellbeing in the face of shocks and stress.

- Ultimate Goal
- △ Key Objectives
- △ Intervention Strategies
- △ Enabling Conditions

MRED's Integrated Approach to DRR and Livelihoods

Rooted in conventional DRR programming, MRED's approach to building disaster-resilient communities begins with training local disaster management committees (DMC) that lead on disaster preparedness, mitigation, and response linked to early warning systems (EWS). DMCs are linked to national and local DRR institutions as part of a multi-layered engagement of government at the local, municipal, district and national levels..

In partnership with national and local disaster management authorities, MRED has strengthened 99 DMCs (78 in Nepal, 21 in Timor-Leste) that reach 116 disaster prone communities.

⁴ For more see www.mercycorps.org/resilience

MRED Intervention Strategies

DISASTER RISK REDUCTION



Social Capital

Objective 1.1: Improved access to social capital that enhances household and community ability to cope with and adapt to a shock.

Activities included: Strengthened capacity of DMCs through meetings, trainings and linkages to government actors; facilitated Farmer Groups (FGs) to link with agriculture extension workers, agrovets, government departments, and market actors; conducted household dialogues that empower women's decision making and promote access to and control of resources and empowerment of vulnerable groups to actively and meaningfully engage and lead on community DRR planning and decision making.



Disaster Preparedness, Mitigation and Response

Objective 1.2: Improved capacity of communities to assess and address climate change risk and natural disasters.

Activities included: Conducted PDRA; trained DMCs and FGs on DRR strategies, collaborated on Contingency Planning through community action plans (ICAPs) and implemented ecological and bioengineering protective measures to address natural hazards, climate change, and ecological risks to livelihoods; Conducted community disaster response simulations.



Early Warning Systems

Objective 1.3: Individuals have access to functioning, effective Early Warning Systems (EWS), through application of technology, better information dissemination, and improved collaboration between government actors and DMCs.

Activities included: Developed and strengthened community-level EWS established in Timor-Leste and continued regional EWS improvements made in Nepal during MRED-I; established emergency preparedness fund with DMCs; trained community task force in receiving and interpreting early warning for response.

RISK-SENSITIVE LIVELIHOODS



Nexus Value Chains

Objective 2.1: Increase smallholder farmers' access to diverse market-based Nexus interventions.

Activities included: Conducted Integrated Disaster Economic Analysis (IDEA) to identify and test new nexus interventions; strengthened NRM with local FGs; Local "champion farmers" in Nepal and Community Development Agents (CDAs) in Timor-Leste scaled nexus interventions by training communities, demonstration plots and make market linkages.



Natural Resource Management

Objective 2.2: Build capacity of smallholder farmers on NRM techniques to support nexus interventions in response to commonly occurring shocks and stresses.

Activities included: Facilitated farmer training through local agrovets on land management and improved agricultural practices;

demonstrated Slope Agriculture Land Technology (SALT) and technologies for soil-conserving farming systems, such as hedgerows and bio-terracing; provided technical assistance for crop management.



Market Systems Linkages

Objective 2.3: Improved market linkages supported through collaboration with private sector and local government stakeholders so communities can make risk-mitigating livelihood investments (e.g. access to savings and loans, micro-insurance, and other input supplies and services).

Activities included: Conducted technical training for micro and small enterprises on business development, local value addition, and aggregation/collective sales; organized and supported VSLAs and cooperatives; promoted micro-insurance and agriculture lending through MFIs in Nepal; mobilized and strengthened farmers associations such as Sugarcane Farmers Association and Agricultural Cooperatives.

COLLABORATE & LEARN TO SCALE



Evidence

Objective 3.1: Share research and learning on the impact of MRED's integrated approach in supporting resilience for smallholder farming communities.

Activities included: Produced post-shock studies on nexus and shared learning of what types of interventions lead to better natural hazard and climate change specific livelihood resilience outcomes; used the Emergency Response & Preparedness Fund to measure the impacts of shocks and stresses, and analyze recovery capacities.



Replication and Scale

Objective 3.2: Cross-learning between staff of Nepal and Timor-Leste and project participants to learn about successful smallholder farming resilience strategies in the face of similar shocks and stresses.

Activities included: Conducted visits between Nepal and Timor-Leste program staff to share learning and best practices; held roundtable discussions with government, community and private sector partners and visits with community and household participants to demonstrate best practices or share successes and challenges to support wider replication.



Government and Private Actor Adoption

Objective 3.3: Shared best practice and advocated to government agencies and other actors to influence practices and policies related to integrated resilience building.

Activities included: Built government partnerships and alliances to strengthen DRR at local, regional and national levels including linked to DMCs, strengthened EWS, and influenced DRR authorities to sustain program efforts and facilitate scale and replication of good practices.

MRED works to enhance DRR capacities through integration of risk-sensitive livelihoods in nexus value chains. Nexus interventions are agricultural products and planting techniques chosen for their ability to simultaneously generate income for community members while also protecting their assets from erosion, flooding and other environmental hazards.

MRED supports nexus farmers through locally organized Farmer Groups (FGs) and Community Development Agents (CDAs) (in MRED-TL) to address key barriers that hinder vulnerable groups' participation in markets (e.g. access to finance through connections to village savings and loans associations (VSLAs)). Facilitating linkages between nexus farmers and local FGs to market systems actors supports functions like community distribution points, transportation to markets, and access to input suppliers. These linkages strengthen the nexus value chain helping to stabilize livelihoods during and after hazards and shocks.

Nexus Value Chains Support Resilience Program Integration

MRED's model is based on the intentional layering and sequencing of multi-sectoral interventions and the coordination of actors. MRED developed the Integrated Disaster Economic Analysis (IDEA)⁵ process to help provide clear understanding of the intersection of social, ecological and economic systems and identify appropriate nexus interventions for target communities that both mitigate risk and provide viable market-based opportunities. Built upon the Participatory Disaster Risk Assessment (PDRA), IDEA helps to analyze potential climate and disaster impacts, government policies, market opportunities, and to identify ecological conditions that could affect nexus opportunities.

Through the IDEA process, MRED identified these nexus approaches:



Planting sugarcane on erosion-prone riverbanks to prevent river cutting while increasing productivity of marginal lands and increases income. (Nepal)



Planting fodder species in marginal lands of hilly areas to mitigate landslides while also contributing as an input for the growth of the dairy sub-sector. (Nepal)



Planting legumes on hilly erosion-prone and low-fertility soils to mitigate erosion and increase fertility as well as for consumption and sale. (Timor-Leste)

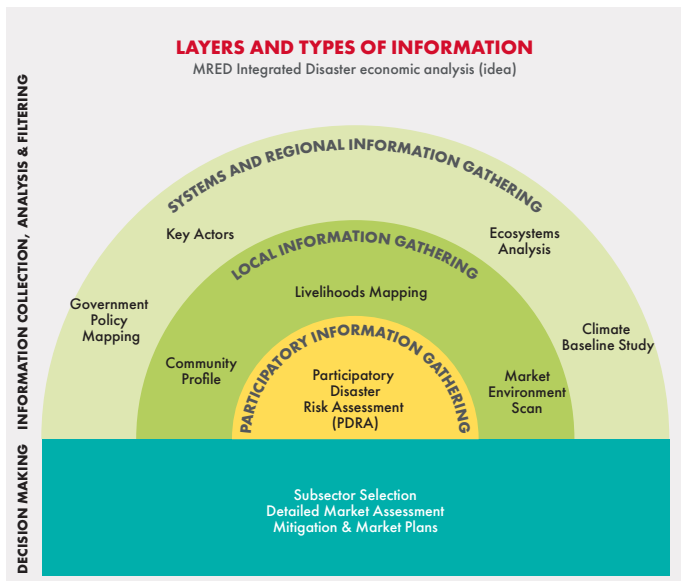


Planting fruits with SALT (sloping agricultural land technology) in hilly areas to mitigate landslides while also contributing as an income source. (Timor-Leste)



Agriculture activities including keyhole gardening and permagardens for land water management that support drought and slope stabilization while reducing water consumption. (Timor-Leste)

Through nexus interventions, MRED Nepal communities benefited from earnings totaling \$1,753,406 over 4-years.



Cover photo: E. Millstein / 2018 Mercy Corps

Gayadin Chaudhary is president of his local DMC. His community plants sugarcane - a nexus crop - along the river bank to deter flooding, reclaiming 40 hectares of land and providing a new income for the community.

⁵ Mercy Corps, (2013). IDEA Process Guide



Manmati Bohara grows fodder for her cattle, an indirect nexus, and the milk she sells provides her family a regular source of income. Photo credit: Ezra Millstein, 2018

Improved Female Participation and Representation

Intentional program design and interventions like the Women Initiative Fund (WIF) and household dialogue model have contributed to women’s engagement in program events and decision making structures.

In Nepal, **68% of women in DMCs and FGs report meaningful participation** (32% increase over baseline) and **54% women in leadership roles** (9% increase over baseline).

In Timor-Leste, **85% of female community members report meaningful participation in decision-making bodies at community level** (431% increase over baseline of 16%) and **54% of women in VSLAs held leadership positions**.

The Disaster-Ready Measurement Toolkit

An important step towards reaching MRED’s ultimate goal of disaster-resilient communities is the creation of the Disaster-Ready Measurement toolkit. The measure is based on nine minimum characteristics of a disaster-ready community determined by the Government of Nepal in partnership with INGOs, NGOs, UN and the Red Cross⁶ and adapted by MRED to include livelihoods. MRED estimates that communities need 3-5 years of support to fully achieve sustainable disaster resilience and thus “graduate” from the MRED program. Currently the scorecard is being piloted in Nepal and contextualized for application in Timor-Leste.

MRED Households With Nexus Cope Better With Flood Disaster

Following the devastating floods in August 2017 in Central and Western Nepal, MRED conducted a quasi-experimental evaluation⁷ which found that households that participated in MRED nexus interventions demonstrated improved resilience to the flooding events compared to non-MRED households.

- › **16% more had DRR plans than non-MRED communities**
- › **22% more likely to be fully confident in their ability to cope with future shocks and stresses than non-MRED households**
- › **20% higher rates of access to savings than non-MRED households.** MRED households reported higher levels of financial capacities prior to the 2017 flooding events indicating they were more equipped in key areas than non-MRED communities to respond to the disaster using positive coping mechanisms.

Households in MRED communities were nearly

2x more likely

to have received early warning information and to take appropriate actions than non-MRED households.



Low-cost bioengineering to mitigate future flooding, Nepal.

Photo credit: Staff / 2018 Mercy Corps

⁶ Oven, K.J., Sigdel, S., Rana, S., Wisner, B., Datta, A., Jones, S. and Densmore, A. (2017) Review of the Nine Minimum Characteristics of a Disaster Resilient Community in Nepal. Research Report. Durham University, UK.
⁷ Scantlan, J., Petryniak, O., Tamang, C. (2018). <https://www.mercycorps.org/research-resources/testing-market-incentives-disaster-risk-nepal>

MRED-II IMPACT: NEPAL

Nepal regularly experiences severe disasters including floods, riverbank degradation, landslides and soil erosion - each resulting in loss of life and property. Agriculture is the pillar of Nepal's economy and 74% of the population is engaged in agriculture, predominantly subsistence farming, which provides food and livelihoods accounting for 40% of GDP.

When disasters adversely affect agriculture this can lead to food insecurity and increased poverty. MRED Nepal has seen strong results from the nexus approach bolstering DRR and a potential for long-term sustainability through community, market and government linkages.



Map of Intervention Areas

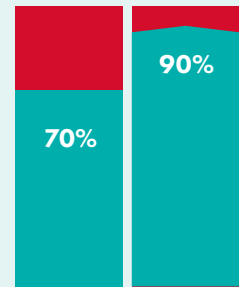
MRED was implemented in 4 districts in the Far-West region of Nepal.

REACH: 36,135⁸ people

LOCATION: Kailali, Kanchanpur, Dadeldhura and Baitadi districts

MRED Nepal Improved Community Resilience to Disaster

90% of MRED households said they never use negative coping to respond to disasters



84% of MRED households are confident in their ability to face future flood disasters



Increased confidence in ability to face future disasters.

(baseline 58%) and 62% are confident in their ability to face future river-cutting disasters (baseline 50%)⁹

MRED households resume income generation post-disaster



than at baseline.



88%

of MRED households did not migrate to find work due to disaster

a 13% decrease¹⁰ in migration in MRED communities indicating that they had access to coping resources and social capital in their community for food security.

⁸ MRED-II engaged 5,314 households in Nepal with an average size of 6.8 members based on endline sample for a total reach of 36,135.

⁹ This holds true for the most common types of disasters (flood and river cutting) however confidence decreased for wind disasters, which were uncommon prior to the program but increased in frequency during the program. This suggests that future iterations of MRED add additional focus to wind shock occurrence, mitigation and response given concerns raised by the community about their ability to respond to wind disasters.

¹⁰ Percentage of MRED households who answered they never "travel (migrate) to find work; unplanned or not"; baseline of 70.7% and Endline 88.3%

MRED-II Nepal Impact and Results

MRED has worked with 62 communities and 5,314 households across 4 districts to build stronger resilience capacities to manage future disasters. Additionally, 12 government and private sector stakeholders have replicated MRED’s nexus approach to support stronger, more resilient climate-sensitive livelihoods.

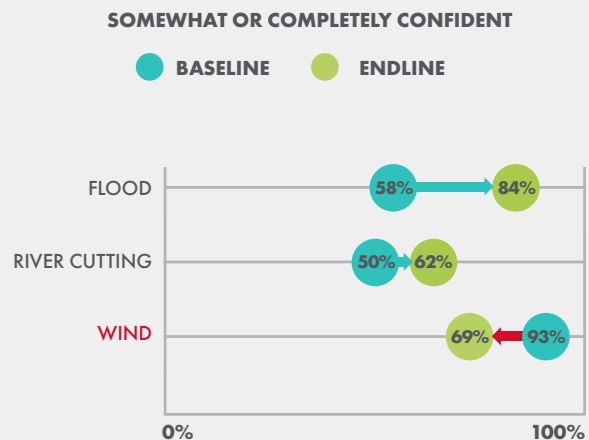
MRED-Nepal communities are better prepared for disaster.

Households who said they were ‘completely’ confident in their ability to cope with floods rose 25 percentage points (16% at baseline to 41% at endline).

MRED communities had increased HH level DRR capacities at endline indicating increased resilience. This suggests that when disaster strikes MRED communities feel they are better prepared.

Households had no preparation for the sudden onset wind disaster in the hilly Terai region, which had not occurred for 80 years, leading to the reduced confidence to cope with wind disasters. In the future, the program should give attention to wind disaster preparation and climate implications.¹¹

MRED households increased confidence in their ability to cope with disasters, except in the case of sudden onset wind disasters.

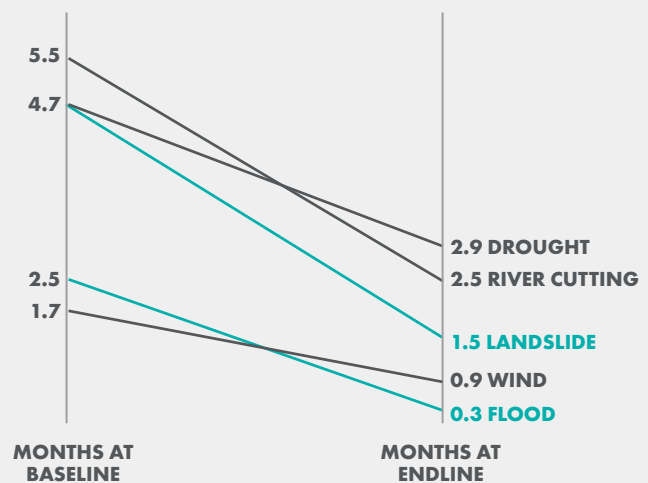


MRED households improved livelihood recovery times for all types of disasters.

Households recover income impacted by landslides 3.2 months quicker and from floods 2.2 months faster than at baseline. Additional research should more closely examine the effect of nexus and DRR specific activities on recovery.

Average time income generating activities are disrupted by a shock (in months)

Landslide and flood shocks saw the most improved livelihood recovery times



¹¹ Households reporting no or little confidence in ability to cope with wind shocks rose from 6.6% in the baseline to 31.2% in the endline.

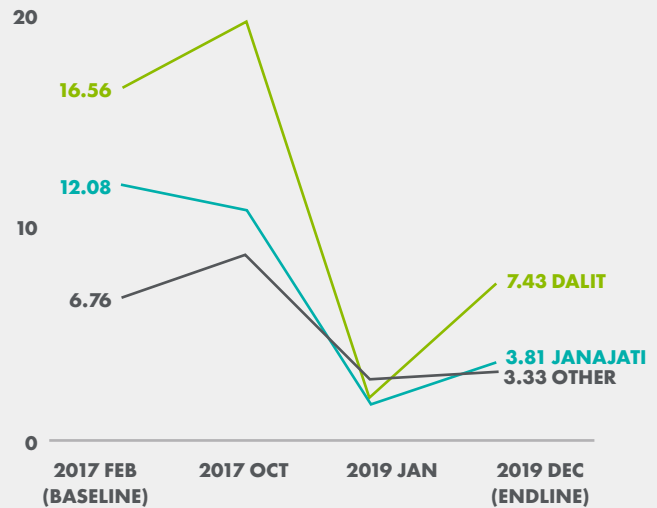
Use of risky behaviors reduced across all caste groups according to the Coping Strategies Index (CSI).¹²

Households who participated in MRED Nepal interventions reported lower rates of reliance on negative food coping strategies after the 2017 flooding events than non-MRED households, average negative food CSI was 3.35 points lower than non-MRED households.¹³ A reduction in CSI indicates that families are better able to positively cope in times of food insecurity.

Overall, from baseline to endline, MRED households relied on fewer negative coping strategies such as

- › 33% more said they never had to borrow money from family or friends to buy food¹⁴
- › 40% more said they never purchased food on credit¹³
- › 35% more said they never had to reduce adult food¹⁵ consumption so children could eat more¹⁶

MRED households decreased their use of negative coping strategies despite facing disasters (Coping Strategies Score, out of 100)



In Nepal, caste groups are closely associated with social classes, where Dalits are considered as untouchables, Others (Brahmin & Chhetris) as so-called higher caste, and Janajatis are indigenous marginalized caste groups.

A post-flood survey revealed that marginalized groups were not able to achieve the same positive outcomes as more privileged groups in MRED target areas, suggesting social inequalities may have a large influence on outcomes. This stressed the stark difference that existed between the HHs based on their caste groups alone, similar to the baseline findings. The final round of survey and endline findings not only showed decrease in those CSI values indicating decreased use of negative coping strategies for all the caste groups, but also substantial decrease in the gap that existed among these communities from baseline to endline indicating improved social inclusion work within the program lifetime.



Simulations for first aid and rescue with MRED trained Task Force members.

Photo credit: Mercy Corps 2020

¹² The Coping Strategies Index (CSI) is a measure of negative food coping strategies in the face of a stress or shock; the things that people do when they cannot access enough food. The CSI is calibrated for a maximum possible value of 100 where a zero value indicates high food security and a value of 100 indicates extreme food insecurity.
¹³ Scantlan, J., Petryniak, O., Tamang, C. (2018).
¹⁴ Percentage of MRED households who answered they never "Borrow money from family or friends" in response to food insecurity; baseline 59.5% and endline 83.1%
¹⁵ Percentage of MRED households who answered they never "Purchase food on credit (from trader using a loan)"; baseline 51.3% and endline 77.2%
¹⁶ Percentage of MRED households who answered they never "Reduce adult consumption so children can eat more"; baseline 67%, endline 95%

DISASTER RISK REDUCTION

MRED strengthened social capital and physical systems to enable community resilience to natural disasters and climate-induced hazards. Participation in nexus livelihoods supports communities to gain confidence in their ability to respond to and recover from disasters.



67% of the endline respondents believed that the government agencies e.g. Agriculture Development Office, Livestock Development Office, Municipality Administration, work to solve problems and meet needs of people in the community.

- **137** community level groups are linked to 19 governments and 33 private institutions.
- **70%** believe that their community groups are able to influence the Government departments to help with livelihoods.
- **All 62** MRED communities have Emergency Management Funds (EMF) at the community level and 72% of households reported having EMF prior to the monsoon during 2017 post flood survey.



84% of MRED households are confident they can cope with future disasters (a 100% improvement from program baseline).

- **100%** of MRED communities have adopted or improved key resilience capacities including disaster structures, preparedness, and response plans that reflect gender and caste sensitive risks.
- **1,813** individuals are prepared to be first responders to disasters in their community, with a 93% retention rate over 4 years.
- **145** community disaster simulation drills were conducted including 26 drills independently conducted by communities with their own resources.
- **116** small scale structural mitigation activities implemented, leveraging \$384,708 from the government and an equivalent of \$161,710 from community contributions. 981 hectares of land has been protected through use of structural mitigation measures.
- **70%** of households are collaborating with other community members on structural mitigation; also 83% have expressed that they would participate in the future.
- **99%** are somewhat to fully confident on bioengineering interventions and low cost structural mitigation techniques.



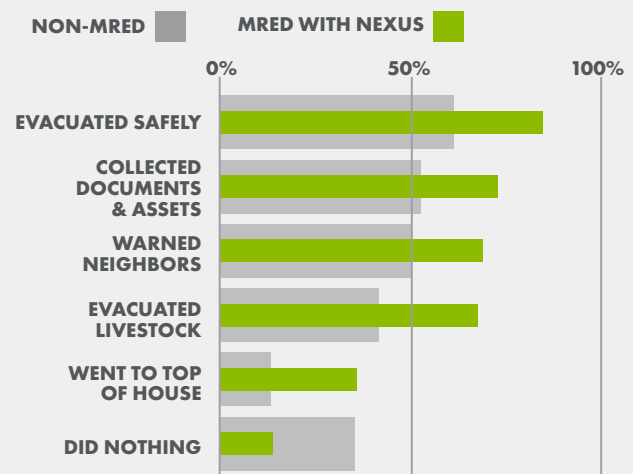
178,336 people¹⁷ have increased access to more effective flood Early Warning Systems through MRED's work with government disaster management actors to update technology, improve information sharing, and build stronger linkages between government actors and community DMCs.

- **77%** of people reported receiving EWS messages (a 15% improvement) and 99.6% people were confident of the EWS message received.

MRED Households Took Action in Response to EWS in Flooding Disaster

A post-shock evaluation found that MRED households had higher levels of capacities important for disaster preparedness and were able to use these capacities at higher levels to respond to the 2017 floods than non-MRED households (see chart below). Additionally this supports that established EWS in MRED communities were able to provide necessary information when communities were faced with floods. With EWS information 84% of MRED families evacuated the flooding compared to only 63% of non-MRED families.¹⁸ 32% of non-MRED families did nothing in response to EWS as opposed to only 13% of MRED households.

Nexus households reported responding to early warning information by evacuating to a safe place with their family 21% more often than non-nexus households.



¹⁷ Represents the total population in the watershed areas where the EWS has been improved.



Women's Initiative Fund meeting in Nepal Photo credit: Mercy Corps



Promoting Climate Sensitive Agriculture (CSA) practices through Farmer Field Schools

Mercy Corps' 2019 study on climatic extremes uncovered changes in frequency and intensity of extreme climate events in Nepal with immediate and intense impacts. Farmer Field Schools (FFS) and Women Initiative Fund (WIF) groups formed under MRED were the vehicle to reach rural farmers with this new information, discuss potential climate impacts, and explore climate adaptations with experts. Connections to local experts such as agrovet, technicians from Agriculture Service Centers, District Agriculture Development Office and District Livestock Development Office officials, private sector agriculture technicians and lead farmers, provided local farmers built participants linking social capital.

1,632 farmers participated in 59 Farmer Field Schools

1,064 female farmers participated in 48 Women Initiative Fund (WIF) groups

RISK-SENSITIVE LIVELIHOODS

Smallholder farmers have improved livelihood resilience to natural hazards and climate change



4,432 farmers benefited from diverse market-based nexus interventions which have become a good source of income, and equally effective in reducing disaster risk. In addition,

nexus interventions were found to generate local economic opportunity that has contributed to retraining 98% of trained Task Force members over four years.



328% increase in average household sugarcane revenue from \$624.92 at baseline to \$2674.83 at the endline; participation in nexus MRED communities rose from 8% baseline to 20% endline reaching 33 communities and protecting 873 hectares of riverbed.¹⁸



171% increase in milk revenue MRED interventions helped make market linkages and quadruple milk collection centers in target areas so farmers are more readily able to sell. The introduction of improved breeds has also contributed to the increased income.



MRED households participating in nexus reported higher community-level resources and strategies important for reducing the causes of natural hazards including 23% greater familiarity with improved agricultural techniques than non-nexus households.

- Partnership with 25 governments and 33 private actors to strengthen nexus value chain.
- Champion farmer approach reached 70 farmers through 177 demonstration plots, promoting wider replication of climate sensitive agriculture practices.
- 98% of households reported having access to agriculture inputs from the market.



Photo credit: Dipendra Bohara, MRED Staff

Livestock Insurance

A key risk transfer mechanism was the introduction of crop and livestock insurance through training village agents who could reach remote communities. Under MRED, 720 cattle were insured in Nepal's hilly areas, so that when 32 insured cattle died, farmers were able to receive \$15,314 (Rs. 1,828,400) from insurance companies to sustain their livelihoods.

¹⁸ Mercy Corps, (2020). Trends and impacts of climate change in Far-West and effectiveness of Farmers' Field School approach to climate change coping and adaptation. <https://drive.google.com/file/d/12ZXkR8U4FZyoN7p4dkumB4Z4EMiW2dg/view>

- In addition to champion farmers, 6,015 farmers were trained on nexus which was jointly facilitated by the MRED technical team, government agricultural department, and private actors, and Agrovet.

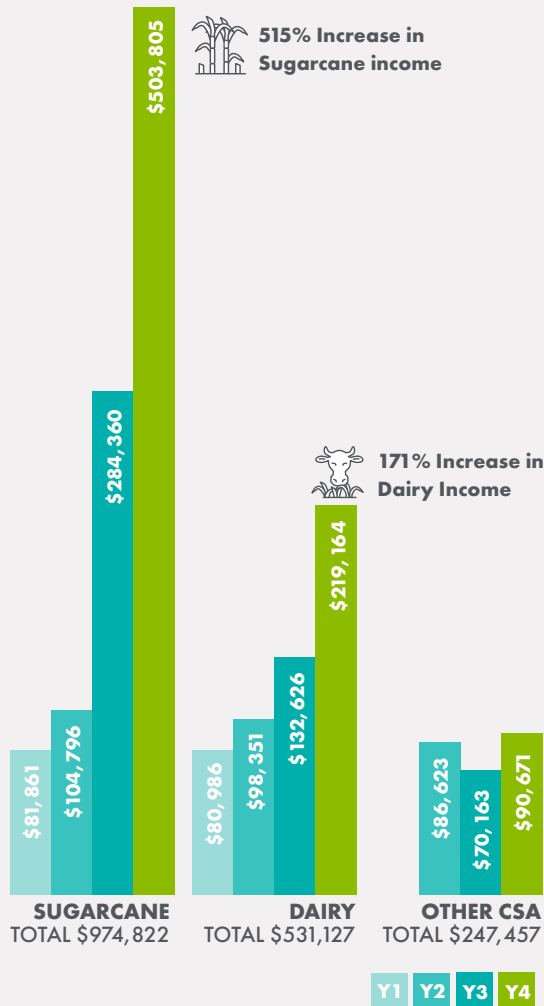


60% of farmers reported social and economic benefits from increased market access through nexus interventions and the application of risk-mitigating, agriculture practices.

- **4,008** households participated in at least one NRM mitigation actions, to respond to disasters, such as bamboo planting, terracing, vetiver grass on hillsides and landslide areas, and tree planting resulting in 1,998 hectares of land protected or under improved land management practices

Nexus Income Grew in All Sectors

\$1,753,406 total income earned through nexus value chains over the life of the MRED-II project including other climate-sensitive agriculture income streams from fodder, WIF, champion farmers, and riverbed vegetable farming.



Gender Equity and Social Inclusion

In 2014, during Phase 1, MRED started a Women’s Initiative Fund (WIF) in Nepal with the aim to improve women’s participation in program activities and increase their meaningful participation in decision making structures, such as Disaster Management Committees and Farmer Groups. The WIF was targeted at women farmer groups to promote Nexus or Climate-Sensitive Agriculture Practices which would encourage women to organize and make more decisions, while engaging in income-generating agricultural activities. Gender integration was not limited to gender-focused interventions but required a greater understanding of the household gender dynamics that limit women’s mobility and engagement.

Achievements included:

Participation: 1,064 female farmers participated in 48 Women Initiative Fund (WIF) groups.

Family Dialogue: 971 HHs participated in family dialogue training.

Leadership: 68% of women in DMCs and FGs reported meaningful participation (32% increase from baseline) and 54% of women reported serving in leadership roles (9% increase over baseline).

Coping Strategies: 96.6% of households never had to reduce female consumption so males could eat more.

Social capital: In Nepal, male and female headed households had almost similar social capital index scores at endline, indicating both had improved social capital.

Access to Finance: A gap of 5% between male and female headed households’ access to finance during baseline was reduced. At endline, female headed households had 1% higher score.

Access to Markets: In Nepal, Female headed households had slightly higher access to markets than male headed households (At endline 97%-Female, 94%-Male).

Disaster Management Committee (DMC): In Nepal, 87% of female headed households reported awareness of the DMC in the community, an improvement from 72.5% at baseline.

Household Disaster Plan: 49% of female households reported having a household disaster plan. The gap of 9% between men and women during the baseline reduced to 2% at the endline.

Early Warning System: 72% of female headed households reported receiving an Early Warning System (EWS) message at the endline. The gap of 13% between men and women at baseline was reduced to 5% in the endline.

COLLABORATE & LEARN TO SCALE



Mercy Corps is considered a key technical partner for DRR by GoN and NGOs from the to the local level, evidenced by joint formal agreement and numerous requests for collaboration and technical support. Additionally, MRED communities are recognized as learning opportunities regarding the nexus approach, the integrated model, Early Warning Systems, low-cost bioengineering techniques, and emergency preparedness and response planning.



For every \$1 investment by MRED, \$4 were invested in DRR and nexus programming by government, community and private sector partners.

\$1,302,470 has been invested by MRED partners in DRR and nexus activities which is 4x more than MRED-II's total program investment of \$354,235²⁰ over 4 years.

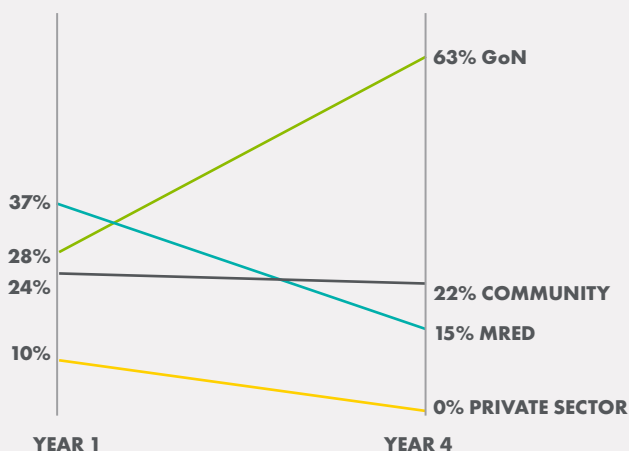
MRED leveraged outside investment in DRR interventions including \$384,708 from GoN and \$161,710 from community partners which helped to build 106 disaster mitigation structures that have protected 1,998 ha of land. **70% DRR funding came from government and local community investment as GoN investment in DRR increased and MRED remained constant throughout the program.** DRR investments contributed to bioengineering and NRM practices which supported the ability for nexus livelihoods to be established in areas, such as sugarcane plantations along riverbanks providing erosion control.

Nexus interventions expanded in Nepal with cost contributions from government, private sector, and community in nexus and DRR. Partner investments in sugarcane plantations on flood-prone river banks enabled communities to gain income diversity and increase productivity of barren lands.

Nexus sustainability outlook is strong with 87% of total nexus investment from partners (\$839, 119 out of \$961,813)

Government investment increased significantly

Over the course of the four-year project MRED developed partnerships with the GoN ministries leading to 125% increase in investment in DRR and nexus interventions.



including GoN and private sector actors totaling \$455,530 and \$269,759 respectively, as well as emerging support from community partners in year 4 of \$113,830.



Research and learning around the impact of an integrated systems approach in supporting resilience for smallholder farming communities is widely shared. 8 research and learning

products including case studies, an EWS application manual, River Shifting research, MRED documentary film, the post-shock evaluation study of Nepal's 2017 floods¹⁹ and other resources have been developed and disseminated to increase knowledge sharing and learning related to MRED's innovative, integrated approach to disaster resilience-building.²⁰

Publications that have highlighted MRED's work and research include USAID Center for Resilience, Global Resilience Partnership, Sustainability Magazine, BRACED, and others.



17 communities outside MRED target areas have replicated or expanded piloted mitigation projects with their own resources.

MRED's nexus activities are being adopted by neighboring communities through their own resources, demonstrating that the approach can be replicated and scaled up. Examples include government and private sector actors, such as Bhageshwar Sugar mill who adopted digital sugarcane area mapping technology introduced by MRED. Gharelu Chilling Center started using the account-keeping systems independently. Mahakali Municipality started bioengineering investments, and Aalital Ward-5 adopted the MRED model for cow subsidy mobilization.

¹⁹ Scanlan, J., Petryniak, O., Tamang, C. (2018).

²⁰ These and further information about MRED is available at <https://sites.google.com/mercycorps.org/mred-ii/home>

MRED-II IMPACT: TIMOR-LESTE

In Timor-Leste, one of the most food insecure countries in the world, more than 80% of the population relies on agriculture for both food and income. The hilly topography and increasing climate related hazards, make it particularly susceptible to slow-onset disasters like soil erosion, and declining soil fertility, and exacerbated by deforestation. Increased temperatures, incidents of windstorms, and decreased rainfall during the dry season are a few primary anticipated effects of climate change, all of which will increase the frequency and severity of disasters, all of which contribute significantly to crop loss, crop productivity decline, and an increase in food scarcity. Wind shocks often also result in damages to homes, whereas droughts lead to loss of potable and productive water.



MRED Timor-Leste improved community resilience to disaster

89% of households in MRED communities are confident in their ability to cope with wind shocks

Households applying MRED-promoted agricultural techniques resume income generating **2 weeks** faster after a wind shock than non-MRED.

2 point decrease in average CSI score demonstrating that **despite frequent disasters, MRED households are less reliant on risky behaviors in a crisis** than before the program

71% more MRED households reported they **never resorted to risky behaviors in response to disasters**, a 6% positive improvement from baseline.²³

21 The Coping Strategies Index (CSI) is a measure of negative food coping strategies in the face of a stress or shock; the things that people do when they cannot access enough food. The CSI is calibrated for a maximum possible value of 100 where a zero value indicates high food security and a value of 100 indicates extreme food insecurity.
 22 MRED-II engaged 3,567 direct beneficiaries with an average household size of 7.6 members based on online sample for a total reach of 27,109.

MRED-II Timor-Leste Impact and Results

MRED’s work in Timor-Leste spanned **35 communities across 3 districts** to build up resilience capacities to manage future disasters.

MRED households reduced use of risky behaviors by 2 points on the coping strategies index (CSI) (baseline of 15.7 to endline of 13.7) despite an increase in disasters.²⁴ While this is a small change, it is statistically significant and suggests that MRED households are seeing a shift towards more food security in the face of disaster.

Households who practiced MRED nexus and climate-sensitive gardening resumed income-generating activities after a wind shock half a month more quickly than non-MRED. By the end of the program 72% of people were participating in nexus interventions (including permagardens, which had a 22% increase). Though nexus permagardens have not yet resulted in significant income generation, they have shown to support less risky behaviors and recovery after a disaster.

MRED-TL communities reported a 15% increase in confidence in their ability to cope with wind shocks. A post-windstorm study found that district level DMCs helped MRED households (61%) feel more confident in their ability to respond to a windstorm (up from 53% before the windstorm). Also, MRED households that participated in permagardening were 9% more likely to feel fully confident that they can face shocks and stresses in the future and had better food security than MRED households who did not participate in permagardening (average decrease of 4.6 points in negative coping strategies index score). These findings support that MRED is building capacities to help families through disasters.

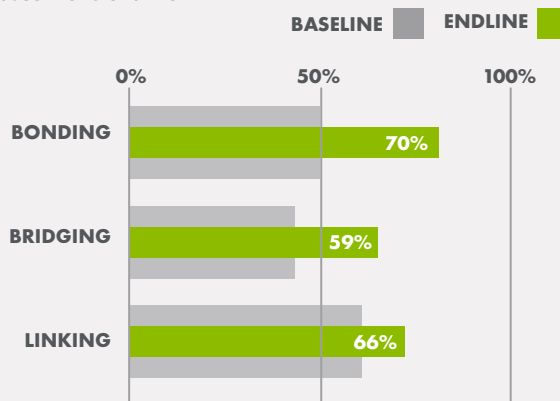
DISASTER RISK REDUCTION

MRED strengthened social capital and physical systems to enable community resilience to natural disasters and climate-induced hazards. Together with participation in nexus livelihoods, communities gained confidence in their ability to respond to and recover from disasters.²³

20% increase in bonding social capital that supports a household’s ability to cope with and adapt to hazards. 78 community level groups are linked to 24 government institutions and 27 private actors.

- **64%** of community members believe that the government agencies work to solve problems and meet needs of people in the community.
- **61%** believe that their community groups are able to influence government departments to help with livelihoods.
- **267%** increase in MRED households who received humanitarian assistance to cope with shocks (baseline 9%, endline 33%). Households who received humanitarian assistance for wind shocks had significantly higher confidence in their ability to cope with future wind shocks than those who did not. MRED worked with the GoTL to increase access to humanitarian assistance after wind and flood shocks
- **67%** of community members agree that their DMC works to solve their problems and meet needs of people.
- **95%** of households never had to reduce female consumption so males could eat more.

All three types of Social Capital increased from baseline to endline



²³ It is important to note that for the endline evaluation there is no comparison group to aid in understanding the broader dynamics outside of the program area. The baseline survey included members in MRED communities who were not necessarily going to become MRED participants; thus, to increase representation of MRED participants at the endline the team used a purposive sampling approach, or sampling method which targeted only participants in the MRED program. Therefore, findings could be due to surveying two different samples from baseline to endline and not due to changes in the actual populations change in outcomes.

89% of MRED households are confident they can cope with future disasters. Community-level Contingency Planning in Timor-Leste linked 100% of MRED communities to Suco DMC and task force groups and resulted in disaster response plans.

- Mercy Corps was the first organization to roll out Contingency Planning workshops with simulations at the community level.
- Mercy Corps hosted workshops in 17 Sucos and 34 Aldeias, allowing communities to create action plans for anticipated risks, and then conducted drills to operationalize those plans.

Other achievements:

- **28** small scale structural mitigation activities protecting a total of 181.6 hectares of land.
- **70%** of households are collaborating with other community members on structural mitigation and 77% say they would do so in the future.
- **93%** of households are somewhat to fully confident about bioengineering interventions and low-cost structural mitigation techniques.



Photo credit: Ali Saikal for Mercy Corps 2020

Community Implements Bioengineering to Stabilize School Facilities

MRED supported community members from Mauchiga, a village in the district of Ainaro, to secure a hillside school from collapsing. They planted vetiver, king grass and pine tree seedlings in a bioengineering effort to support slope stabilization. However, the community quickly saw that unrestricted livestock grazing was destroying the seedlings. They responded by fencing the area, working through the Suco DMC, which oversees the DRR task force, and MRED to replace the seedlings with less expensive local varieties that will also benefit the local economy, minimise logistics, reduce plant deaths by using native plants as well as support expanded slope stabilization efforts.



43% of households in MRED communities received early warning communications, an increase of 378% over baseline (9%). In addition, 99.6% reported confidence in the EWS message.

- MRED-TL set up 18 community based siren systems to signal early warning.



With no end-to-end national EWS in Timor-Leste, Mercy Corps and MRED have partnered with the GoTL, UNDP, and Similie (a private sector provider) to develop an automated pilot hazard monitoring system and establish thresholds for disaster risks. MRED-TL continues to make progress convening stakeholders to move towards the adoption of a shared EWS and the expansion of MRED to Indonesia will foster collaboration with the Indonesian Agency for Meteorology and Geophysics through Yayasan Mercy Corps Indonesia (YMCI).

69% of MRED households support cooperation in common development goals (33% at baseline), reinforcing the community’s intention to work together towards climate change adaptation efforts. In MRED communities: 3,567 people were supported to cope with the effects of climate change and disaster

RISK-SENSITIVE LIVELIHOODS

Smallholder farmers have improved livelihood resilience to natural hazards and climate change



2,178 farmers engaged in nexus disaster- or climate-sensitive livelihood interventions including permagardens (PGs) and keyhole gardens (KHGs) that serve to bolster food security for vulnerable families while supplementing their income.

73% of MRED participants engaged with legumes and permagarden interventions, a 43% increase over the baseline of 51%.



962 households piloted legumes to increase soil fertility and mitigate erosion while also providing for household consumption and sale. MRED promoted diversifying legumes varieties including red beans, peanuts, white beans, and long beans due to links with market opportunities in Dili.



Legume farm

Photo credit: Mercy Corps Timor-Leste

Community members have established:



72 Keyhole Gardens (KHGs) Primarily for household consumption, KHGs are a climate smart agriculture technique. KHGs utilize greywater to support long dry seasons and limited water access.



1,070 Permagardens (PGs) A larger scale version of KHG, Permagardens (PGs) improve soil quality and have the potential for income generation while also supporting family nutrition. Using a combination

of permaculture and bio-intensive agriculture PGs improve the productivity of small plots of land (primarily by growing legumes and vegetables).



65% of participants use improved agricultural techniques MRED has made progress in mitigation and bioengineering projects to support NRM in all target communities.



Photo credit: Ali Saikal for Mercy Corps 2020

Champion Farmer Spotlight

Mr. Babo is a nexus leader helping his community to improve soil fertility, reduce vulnerability to climate-related disasters, and increase incomes.

Through his involvement with nexus activities, Mr. Babo learned to diversify the crops he planted, starting with a variety of peanuts, green beans, tomatoes, eggplant, and banana trees. He has one hectare of land where he now harvests 320 kg of crops per year 35kg of beans, 175kg of peanuts, 100kg of bok choy, and 15kg of eggplant - earning a \$242.50 annual profit. Though this is far from enough for Mr. Babo's family to thrive, the increase has already made a significant impact on quality of life for his family.

Mr. Babo has established 3 farmer groups and a VSLA through which he provides basic training on diversifying crops, techniques for planting different trees and vegetables, and financial training so farmers can start saving their earnings. He has also helped set up a Suco DMC to help better prepare his community for natural disaster emergencies.

182 hectares are now benefiting from improved agricultural practices that generated \$31,628 in income for farmers.

2,178 nexus farmers used at least one NRM mitigation practice to respond to disasters (e.g. bioengineering, land / watershed / coastal management, etc.)



79% of households reported year round access to markets Market linkages support risk-mitigating livelihood and MRED-TL heavily invests in the CDA model (see box) to connect local farmers to markets and financial services.

- > **60%** of farmers have access to financial services (savings and agricultural credit) through VSLA groups at community level.
- > **79%** of farmers have access to improved inputs; Community Development Agents facilitated linkages between the farmers and market actors.
- > **94%** farmers have market access for female heads of households which is a 17.5% increase over the baseline.

J-Hook Nexus Innovation

Over 200 houses were selected to launch a J-Hook pilot to introduce new technology to TL as a non-agricultural nexus intervention. The J-Hook is a low-cost disaster mitigation technology that anchors the roof to a house's support beams to secure the roof during windstorms. Initial market studies and qualitative research indicate high demand for J-Hooks as wind is the most common shock for the target areas. J-Hook supplies have been delayed due to COVID-19, however when they are available, CDAs will continue to support their rollout in target communities in MRED phase III.



Photo credit: Ali Saikal for Mercy Corps 2020

This innovation is critical because:

- Wind-shock affected households were significantly more likely to use negative coping strategies
- Wind shocks impacted income generation for 1 month
- Wind shock-related humanitarian assistance quadrupled from baseline to endline

MRED-TL Promotes Nexus through Community Development Agents

MRED-TL approach to nexus relies heavily on the Community Development Agents (CDAs) business model. CDAs are entrepreneurs receiving initial launch support that transitions to be commission or fee-based service providers for remote villages last-mile agricultural services. MRED believes that local farmers' needs can be best served by a single, multi-market agent. Local agents are trained on agriculture technologies to transfer technical skills to Farmer Groups through VSLAs and connect the community to needed services to build market linkages.

27 CDAs (7 female/20 male) contributed to farmer adoption of nexus practices.

› **Formed and supported 64 VSLAs.** CDAs formed interested farmers into 64 VSLAs, which also serve as Farmer Groups to offer financial training services to farmers and build disaster response networks. These VSLAs/Farmers groups then became the targeted clients for CDA services.

› **Facilitated linkages to 20 market actors for agricultural inputs and services.** For example, CDAs made connections to agro-input suppliers in Dili to sell seeds to farmers at affordable rates.

› **Introduced new and improved farming practices through 83 permagarden demonstration plots.** CDAs also provided technical and business advice through point-of-sale and at VSLA meetings.

As nexus activities expand, CDAs will aggregate and coordinate sales by farmers to enable them to sell to larger markets. Based on MRED's experience the CDAs will increase their role in aggregation of nexus crops and linking to sellers markets in MRED phase III.

COLLABORATE & LEARN TO SCALE



MRED is recognised as a DRR leader by the GoTL and other NGOs The MRED program actively influences disaster management policy and planning at multiple levels in Timor-Leste.

› **Suco level: MRED-TL led 56 quarterly meetings for Suco DMCs and Task Forces with 356 attendees.**

› **National level: MRED-TL is an active member of the national community-based disaster risk management working group²⁴** allowing the program to stay abreast of ongoing policy and practice developments, share research and learning, and to coordinate with other departments and programs.

Despite external challenges, MRED-TL has forged ahead to build substantial relationships with the GoTL and has become a DRR leader among peers.

In partnership with the GoTL, the MRED team is able to respond to disasters within 24 hours to meet people's needs compared to a 2-week response time by the government. The GoTL called on MRED to support the 2019 flood in Dili. Within 24 hours, MRED, together with GoTL had begun to evacuate 200 affected households, provide food items, and conduct a rapid assessment. The MRED team has played a key role in helping the government mobilize to collect data and provided integral emergency response funding to address immediate needs while other funding sources were identified.



MRED-TL has conducted 6 research initiatives at the national and Suco level to further knowledge of Timor-Leste's climate-related hazards. MRED-TL has also conducted:

› Joint research project with the Ministry of Agriculture and Fisheries and the soil department on the use of vetivers to mitigate landslides,

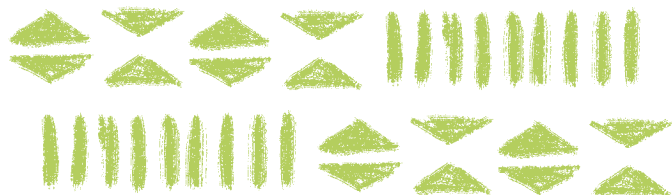
› Windstorm research following wind disasters in Ainaro to better understand the resilience impacts of MRED interventions, and

› 5 officials from Timor-Leste visited Nepal for cross learning about EWS and NEXUS activities.



Setting the stage for replication, MRED-TL hosted cross-learning events with peer agencies to share research supporting MRED's nexus interventions to build resilience to disasters.

- 5 community level cross visits were organized to promote cross learning between the communities and MRED-TL collaborated with GoTL to rollout of Timor-Leste's first community-level Contingency Planning and shared plan with peer organizations.



²⁴ Working group attended by senior officials from diverse government and NGO agencies including Civil Protection, the National Directorate of Disaster Management, the National Disaster Operations Center, International Organization for Migration, Red Cross Timor-Leste (CVTL), Oxfam, World Food Program, Food and Agriculture Organization, United Nations Development Program, Care, and Plan International.

Opportunities and Considerations for Future Programming

Programming approaches and interventions

NEXUS PRODUCTS AND VALUE CHAIN DEVELOPMENT

- › **Identification of nexus crops requires a detailed market and risk assessment** of potential crops/commodities including a detailed identification of market constraints and opportunities. Assessments should map key actors and incentives for engagement and investment in nexus products.
- › **Leverage evidence and data on market potential to incentivize stakeholder engagement.** Incentive structures and motivations amongst multiple stakeholders need to be developed to ensure continued engagement for ongoing development of nexus value chains. This can be pursued through joint workshops to prioritize nexus value chains with the most potential, and influencing the local and regional government to support market expansion.
- › **Stakeholders should be engaged from initial design stages** and throughout the development of nexus value chains, including businesses, local government departments and communities. Facilitated coordination amongst stakeholders can support development of common vision and goals and a comprehensive joint action plan.

COMMUNITY BASED DISASTER RISK MANAGEMENT

- › **Invest in multi-hazard vulnerability assessments and planning including climate change adaptation.** Anticipate all potential hazards and what capacities vulnerable communities will need to respond and recover to them. Disaster plans at all levels should be regularly updated to reflect emerging and new climate forecasts and risk information.
- › **Risk assessments should utilize data from scientific sources and participatory assessments.** It is recommended that planners utilize historical weather station data and climate forecasts and projections of return periods for extreme weather events as well as locally generated and available information where possible.
- › **Community action plan development and intervention prioritization should ensure that the most vulnerable groups** are represented and meaningfully engaged in prioritization of interventions that will benefit those groups (See GESI below). The community action plans must be locally led and owned and be adaptable so that communities can lead the revision and updating of plans based on any new risk information. Build skills within communities and institutions to update plans and seek new resources.

- › **Ensure Early Warning systems are targeted to reach the most vulnerable.** National level end-to-end EWS owned and resourced by the central and regional government should ensure that timely, accurate information is communicated down to communities. Messages need to be accessible to all community members. **There is also significant value in maintaining traditional community based early warning systems** to ensure built-in redundancy in case of any technology breakdown or breaks in communications systems of formal EWS.
- › **Strengthen social capital.** MRED demonstrated how linking social capital has improved access to humanitarian aid for disaster areas and ensures that aid reaches the most vulnerable, and improved coordination between communities and government. Facilitating development of linking social capital requires building relationships and trusts between project participants and can include such actions as comprehensive sensitization of all actors, strengthening community knowledge of government actors and processes, facilitating meetings between community, government, and business stakeholders, cross-learning visits, and developing community skills to articulate need, create plans, and present them for support.

› **Support systems to enable financial services.**

Work with local institutions to ensure access to financial services includes products for low-income households, especially female-headed households so that they are able to access financial resources to invest in risk-sensitive livelihoods and assets and support financial literacy of community members. Informal mechanisms such as savings and loans groups can also be impactful.

Gender Equity and Social Inclusion

DESIGN

- › **Need for comprehensive gender assessments** to analyze differential vulnerability within communities. A deep local context analysis is required in each community to understand local gender and social dynamics. This analysis should complement community risk assessments to give a comprehensive picture of GESI dynamics that drive vulnerabilities.
- › **Mainstreaming of GESI approaches and tools into project design, planning and management.** Compared to applying distinct, parallel GESI interventions, a

mainstreaming approach has proven more successful in getting buy-in of GESI and improving application of approaches.

- › **Clearly articulate gender goals and integration needs in the theory of change** to prioritize GESI and set expectations of what can be achieved within the project. The Theory of Change should clearly demonstrate how improved GESI integration is tied to wellbeing outcomes and help to establish expectations for the program.
- › **Ensure commitment of all implementing partners to achieving GESI by strengthening GESI knowledge and awareness:** Actions can include establishing GESI expertise at all levels (staff, leadership and board levels) and GESI policies in all partners whilst sensitizing partners to Theory of Change and gender integrated goals.
- › **Empower marginalized groups and remove barriers to enable participation and decision making:** Equip women and marginalized groups with skills on public speaking, negotiation, and leadership to support their effective participation in project activities and on community decision making bodies. Community leaders should take strategic steps to include and engage marginalized groups.
- › **Layer GESI messaging into wider program interventions:** Streamlining financial literacy, family dialogue and business literacy in a joint package promises to better support GESI mainstreaming. This requires customized curriculum and capacity building of facilitators.
- › **Tailor interventions for the most vulnerable:** Resilience programs must use GESI assessments to identify and remove barriers to participation in each activity and adjust activities to target the most vulnerable.

Monitoring and Evaluation

- › **Establish a clear Theory of Change and expected pathway of changes** (resilience pathways) highlighting expected changes, potential risks and disturbances, and resilience capacities required to manage those risks. This helps the program to select indicators that track intermediate outcomes and success, and highlights the 'story' of the pathway to achieving impact that the MERL framework will support.

SUSTAINABILITY

- › **Consider local ownership and handover from project inception.** Efforts to strengthen sustainability can be reinforced through consideration of who will be responsible for continued planning, management and maintenance of program interventions and what resources will be available to support them. Strengthened social capital as highlighted above will be critical for embedding ownership and creating relationship and linkage to external resources for communities.

- › **Prioritize indicators to maintain effectiveness of MERL teams:** To manage data collection requirements and focus on utilization, prioritize indicators that help to tell the story identified in the resilience pathways to manage associated data collection requirements, and indicators useful to determine progress and support adaptive decision making .
- › **Integrate GESI into M&E at program inception.** GESI should be embedded into program design and indicators should be disaggregated and regularly reviewed to ensure vulnerable populations are meaningfully participating.

Sustainability, Scale and Transformation

SYSTEMS APPROACH

- › **Systems strengthening takes time but pays off:** Working across multiple systems components requires time and resources to pilot and test approaches to identify and strengthen enabling conditions, and that can detract from project impact figures and targets. Donor understanding and patience is required to operate projects that are less impact focused and more oriented around building foundational systems that will support longer term catalytic change (see below).
- › **Intentional sequencing, layering and integration of activities lead to a more robust package of activities contributing to greater impact** of interventions, improved ownership of communities and sustainability. Integrated resilience, such as MRED's combination of community-based DRR and income-generating initiatives, helps to deliver effective program interventions while building trust, and promoting ownership.

CATALYZING CHANGE BEYOND THE PROJECT - SCALE AND REPLICATION.

- › **Support development of local capacities and build relationships beyond project partners to encourage wider visibility, influence and uptake of approaches.** Spend time to understand national policies and investment strategies related to DRR and ensure that program interventions are aligned and that there is intentional localization of capacities, resources to continue planning and mitigating disaster risks into the future in and beyond project target geographies.
- › **Use good-enough tools and approaches that are replicable and sustainable.** Localization of interventions additionally requires a simplified model and local skills to manage and operate program interventions and approaches. Whilst the trend is to design highly robust technical interventions, program implementers need to be able to hand over user-friendly tools and approaches that are 'good enough' to achieve a sufficient level of disaster resilience, but not overly complicated that they can not be sustained or replicated.



Child rests after collecting water in the central highlands of Timor-Leste where his village has benefited from the MRED program. Photo credit: E. Millstein for Mercy Corps

Conclusion

Over the seven years of MRED's implementation in Nepal and Timor-Leste, the program has generated substantial experience and evidence that has enhanced its implementation, but also helped the development and humanitarian aid sector to better understand the value of the integrated programming combining community-based DRR capacities and livelihood resilience. The nexus approach has proven successful in incentivizing households and communities to engage consistently in local DRR work that benefits the livelihoods of participants. MRED, as well as Mercy Corps, is a go-to partner for the governments of both Nepal and Timor-Leste on sustainable approaches to DRR. The program has built a strong reputation for technical expertise on areas of disaster preparedness, contingency planning, early warning systems and low-cost bioengineering technologies.

MRED has developed evidence for conditions for replication of the nexus approach, tools to measure essential characteristics of disaster-ready communities, and strategies to work with governments and private sector partners to sustain and scale program investments. Today the investments of MRED have been leveraged in Nepal by government, private sector and community partners to expand the integrated DRR and nexus model. These partnerships ensure the program's interventions will continue to reach vulnerable communities to access market systems for agricultural commodities that secure their livelihoods as well as support climate adaptation and disaster preparedness. In Timor-Leste, the MRED program

has established a trusting partnership with the government to influence the development of end-to-end EWS and DRR measures at the national level, while ensuring that the most vulnerable community members are reached. By implementing in the differing contexts of Nepal and Timor-Leste, MRED has shown the adaptability of the model to fit the needs of various disaster prone areas and is now being replicated in Indonesia as well. The benefits of MRED's nexus approach promise to reach many more communities and countries as the program is scaled and replicated.

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About Mercy Corps

Mercy Corps is a leading global organization powered by the belief that a better world is possible. In disaster, in hardship, in more than 40 countries around the world, we partner to put bold solutions into action — helping people triumph over adversity and build stronger communities from within. Now, and for the future.



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