



Community members from Pokhara Ward in Nepal's Rukum District take part in an integration planning exercise. Photo Credit: Rebecca Radix for Mercy Corps, 2018.

PAHAL RESILIENCE IMPACT EVALUATION BRIEF

FEBRUARY, 2020

MAIN TAKEAWAYS

- All combinations of resilience interventions led to households with a greater reliance on positive coping mechanisms after they experienced a shock
 - Additionally, the households that received the whole PAHAL combination of interventions (or the “full integration” combination) reported feeling less vulnerable to future shocks than comparison households
 - The “full integration” approach might not be working for the most vulnerable households who suffer from extreme losses following a shock
 - It is unclear what capacities lead to these improved resilience outcomes

- **The combination of interventions that emphasized water activities led to the greatest resilience outcomes and proved to be the most cost-effective of all combinations of interventions**
 - Participation in the Water group led to the greatest number of positive resilience outcomes, was the most cost-effective per dollar spent on the PAHAL project, and the second most cost-effective combination from the perspective of the households, per dollar spent on their own preparation
 - The Water group has a high rate of return because incomes for this group are much higher than households that did not receive this combination of interventions
- **The combination of interventions that emphasized financial services activities has the greatest value for households, per dollar they spend on their own preparation**
 - This result is primarily due to households having significantly lower debt, and lower interest rates on that debt, than households that did not receive this combination
- **No combination had an impact on preventing or mitigating actual exposure to shocks and stresses**

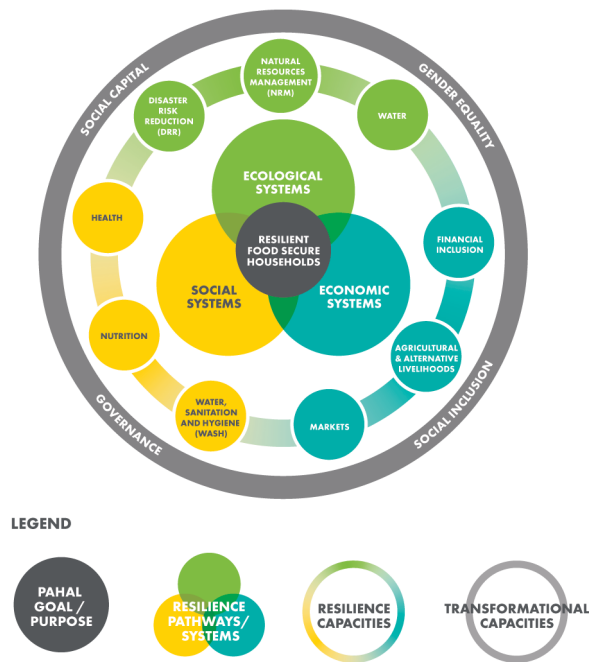
Introduction

Many people in Nepal, especially those living in the Middle Hill and Mountain regions, continue to struggle with food insecurity and poor nutrition despite progress Nepal has achieved in lowering its overall poverty rate. In the remote and rugged terrains of Nepal, persistent food insecurity is a result of complex, interlinked risks and vulnerabilities. The Promoting Agriculture, Health, and Alternative Livelihood (PAHAL) project worked in these areas to improve food security by strengthening livelihoods and increasing the capacity of vulnerable households to prevent, mitigate, adapt to, and recover from shocks and stresses in communities with deep poverty and high rates of malnutrition.



The PAHAL Theory of Change (TOC) stated that food security outcomes can only be achieved if individuals, households, and communities can effectively cope with and adapt to shocks and stresses that impede food security. PAHAL aimed to facilitate access to and control of a target set of resources (i.e., resilience capacities) to prepare for, cope with, and mitigate shocks and stresses over time. The TOC hypothesizes that if people and communities have improved access and control of resilience capacities and the ability to use them to more effectively manage risk, then they will employ a greater set of strategies to recover from existing shocks and stresses (absorptive resilience), mitigate the very presence or nature of shocks and stresses over time (adaptive resilience), and participate and receive support from an enabling environment to maximize access to and use of absorptive or adaptive capacities (transformative resilience). If men, women, boys, and girls absorb, adapt, and transform in the face of shocks and stresses, the TOC predicted they will be more food secure.

FIGURE 1: PAHAL'S RESILIENCE INTEGRATION FRAMEWORK



PAHAL began in 2014 and was completed early in 2020. At the time of data collection in 2018 and 2019, PAHAL was moving towards “full integration” of a multi-sectoral approach that weaves all activity components together to reinforce and increase their combined impacts. This approach purposefully layers and integrates program interventions to build resilience capacities. For example, ecological system interventions improve access to water, which are then layered with economic system interventions that increase access to productive loans and a robust agricultural input system, allowing individuals to apply their increased capacity on climate-sensitive techniques for effective agriculture production leading to improved food access and availability. This “full integration” approach attempts to tackle the ecosystem and institutional levels of resilience in addition to more singular food security approaches at the household level.

MEASURES OF RESILIENCE

Use of resilience strategies (e.g. engaging in positive financial activities that reduces risk, linked to a financial cooperative, cultivating social networks, use of disaster risk reduction practices)

Types of shocks experienced (e.g. landslide, flood) and losses as a result of the shock (e.g. destroyed crops, inability to work, loss of equipment)

Use of positive coping strategies (e.g. ability to rely on local government, increased participation in natural resource management, etc.)

Use of negative coping strategies (e.g. interrupted schooling, forced migration)

Confidence in recovery from future shocks (perceived household shock exposure and vulnerability)

Short-term food security indices (e.g. Coping Strategies Index – a measure of negative food coping strategies, Food Consumption Score – a measure of dietary diversity and sufficiency)

Causal Design partnered with Mercy Corps to evaluate the impact of the PAHAL’s program approach, as well as examine if their “full integration” intervention approach leads to greater food security outcomes than a traditional food security approach that relies on promoting only agricultural productivity, Water, Sanitation, and Hygiene (WASH), and nutrition. Additionally, this evaluation also examined if some sub-set of interventions are also effective, perhaps to consider as a cost-effective alternative to PAHAL’s “full integration” approach that relies on layering many sectoral interventions. The key outcomes of interest were resilience outcomes such as improved use of positive coping strategies in response to a shock, reduced severity and frequency of shocks, reduced feelings of vulnerability to future shocks, as well as improved short-term food security measures.

Limitations to the Evaluation

Unable to Create Pure Treatment and Comparison Groups

It is important to note that PAHAL administered a wide range of all interventions across the majority of its communities. Because of this, it was not possible to identify pure treatment and comparison groups. This limited the evaluation in two ways. Firstly, there was no “pure” comparison group of communities that did not receive PAHAL interventions. Instead, the comparison group are PAHAL participants that primarily received agriculture, WASH, and nutrition interventions and the treatment group received additional interventions on top of this basic package. As a result, the impact evaluation results are not specifically about the efficacy of PAHAL itself, but of the added value of the integrated resilience approaches verses focusing solely on a food security approach alone. Qualitative data was used to examine the impact of the entire PAHAL project.

Secondly, there was difficulty in identifying clean treatment and comparison groups due to the large overlap and variety in interventions in the target areas. The solution to this was to identify treatment communities that had received relatively high amounts of PAHAL interventions of interest and had certain key program outputs (e.g., the presence of financial literacy training in the Financial Services model). Similarly, comparison groups are those that did not meet that criteria. This means, for example, that there were households who had high levels of financial literacy treatments and appeared in both the treatment and comparison group for the impact model analyzing the “full integration” group. *As a result, this suggests that this evaluation is an underestimation of the impact of PAHAL resilience programming.*

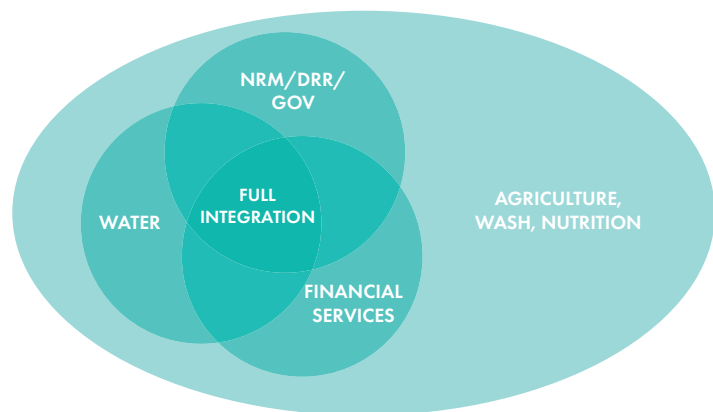
Unable to Capture Immediate Impact of Interventions

Additionally, the impact evaluation collected data during a period that coincides with a significant down-sizing of PAHAL into a limited number of communities. Except where the “full integration” approach was implemented, data was collected in communities where PAHAL had already completed all interventions. This means the results for these communities primarily examine if households continued to *increase* their access to capacities and the use of resilience strategies after project support ended, rather than the impact of the initial interventions. *As a result, this evaluation is a better measure of whether resilience behaviors continue to change over time after the initial impact of PAHAL.*

Evaluation Methodology

The PAHAL impact evaluation used a mixed-methods approach to collect and analyze data on program participants between June 2018 and July 2019. This included a recurrent monitoring survey of the same 1,350 households over three rounds, 12 focus group discussions (FGDs), three sets of in-depth interviews (IDIs) with the same eight individuals over time who live in the “full integration” communities, and use of PAHAL’s existing monitoring and administrative datasets. This robust dataset was used to inform the three evaluation questions listed below.

FIGURE 2: VENN DIAGRAM DEPICTING THE FOUR TREATMENT GROUPS AND THE COMPARISON GROUP



Approach to Evaluation Question 1: To what extent have program interventions directly contributed to resilience outcomes for vulnerable populations, or the ability of households to better cope with and recover from difficult seasons and/or shocks and stresses?

Methods highlights:

- › Matched “full integration” treatment households with comparison households that only received a limited number of PAHAL interventions in agriculture, WASH, and nutrition using recurrent monitoring survey data.
- › Used a difference-in-difference analysis technique to understand the impact of additional resilience programming beyond a more traditional food security approach.
- › Supplemented quantitative analysis with IDIs to capture participant’s experience interacting with PAHAL programming, how it may have influenced their access to resilience capacities promoted by the project and how this may have shaped their resilience strategies over time.

Approach to Evaluation Question 2: Which combinations of interventions have the greatest effect on resilience outcomes?

Methods highlights:

- › Identified four combinations of *additional* resilience interventions beyond the PAHAL combination of agriculture, WASH, and nutrition interventions:
 - › (1) “Full integration” group: received additional water, natural resource management (NRM), governance, disaster risk reduction (DRR), and financial services.¹
 - › (2) Water group: received additional water interventions focused on improving access to safer and more reliable water sources.
 - › (3) Financial Services group: received additional financial services interventions and a 26-day financial literacy training.
 - › (4) NRM/DRR/GOV group: received additional interventions to improve NRM, DRR, and governance.
- › Compared the impact of all four combinations of interventions in promoting increased access to key resilience capacities, improved resilience and coping strategies, and food security outcomes.
- › Used FDGs to unpack quantitative findings from previous rounds.

Approach to Evaluation Question 3: What was the cost value of investments relative to resilience outcomes (what has the greatest impact per dollar spent)?

Methods highlights:

- › A cost-benefit analysis (CBA) models the TOC for all four combinations of interventions examined in Evaluation Question 2, and brings in evidence on the impact each combination of interventions might have had on outcomes (e.g., improved incomes).

¹ It is important to remember that during data collection, only the “full integration” group had ongoing interventions, whereas the other groups had already been transitioned away from PAHAL assistance for the most part.

- › Benefits are compared to costs associated with achieving these impacts such as PAHAL project costs, costs that were contributed by the government, and household investment costs such as time and money spent on program activities (e.g., community group meetings).
- › Assesses which combination of interventions has the greatest value for PAHAL households and the greatest value for the investment spent using donor funding.

Evaluation Key Findings

› **Results for Evaluation Question 1:** To what extent have program interventions directly contributed to resilience outcomes for vulnerable populations, or the ability of households to better cope and recover from difficult seasons and/or shocks and stresses?

Findings that Align with PAHAL TOC

When comparing households who received the PAHAL “full integration” set of interventions to PAHAL households that received interventions focused in agriculture, WASH, and nutrition, **it is clear that the “full integration” approach to resilience led to a considerable improvement in households’ ability to manage shocks.** “Full integration” households demonstrate:

- › A deeper reliance on positive coping mechanisms following shocks;
- › Feeling less vulnerable to future shocks than comparison households;
- › Confidence in their ability to access government services (they are nearly three times as likely to express confidence in the government services than comparison households); and
- › An increased ability to access natural resource management resources.²

Mixed Findings

- › According to the PAHAL TOC, access and use of capacities promoted by the program enables households to recover from current shocks and stresses and mitigate the effects of or exposure to shocks and stresses in the future. Despite the “full integration” group showing a deeper reliance on positive coping mechanisms and feeling less vulnerable to shocks, the impact analysis found limited or mixed evidence on households’ access to capacities among the full integration (or any) intervention group.
 - › A possible explanation for why the evaluation could not detect change in access to capacities among PAHAL participants may be because many of the interventions targeting these capacities were completed before the evaluation data was collected. It is likely that any change to accessing these capacities would have happened prior to the evaluation (and have limited behavioral change thereafter).
 - › Another explanation may be related to PAHAL’s approach, which promoted access to an eco-system of capacities, to allow households to choose the one that works best in the situation they are facing. This means that households are not necessarily choosing one way to cope with a shock, but choosing among a number of capacities that are available to them.

² The result was observed during half of the data collection period.

- › Despite lack of evidence from the impact analysis, qualitative interviews suggested that PAHAL agricultural training, water interventions, and financial literacy training had the largest impact on household behavior.

Findings that do not Align with PAHAL TOC

A small number of households in the PAHAL “full integration” communities:

- › Use more negative coping strategies following a shock over time vis-à-vis PAHAL households that only receive agriculture, WASH, and nutrition interventions.
- › This could suggest that PAHAL’s “full integration” resilience approach helps the majority of households, on average, to cope with shocks by relying more deeply on positive coping strategies, but it might not be working for the most vulnerable households who suffer from extreme losses following a shock.
- › Increased their usage of short-term negative food coping strategies.
 - › When the two most extreme households are removed from the dataset, there is no statistically significant difference between the PAHAL “full integration” resilience approach and the PAHAL agriculture, WASH, and nutrition interventions.
 - › Households reported during the IDIs that they increased their agricultural production due to improved farming techniques from PAHAL, including in their kitchen gardens, and saw increases in their agricultural incomes, both of which are important drivers of increased food security.
 - › Overall, all PAHAL households do not demonstrate food insecurity, as measured by the Food Consumption Score, and very low usage of negative food coping strategies since the beginning of the evaluation data collection.

The impact analysis found **no evidence that**:

- › PAHAL “full integration” programming had any impact on the number of shocks households experienced or their losses following these shocks compared to the PAHAL households that had agriculture, WASH, and nutrition interventions.
- › We would expect to see reductions in shocks experienced and losses from shocks because PAHAL worked to directly mitigate the impact of certain shocks by, for example, promoting bio-engineering and natural resource management efforts aimed at reducing flooding and landslides.

› Results for Evaluation Question 2: Which combinations of interventions have the greatest effect on resilience outcomes?

Findings that Align with PAHAL TOC

Overall, there were statistically significant and large impacts among all four combinations of interventions and households relying much more on positive resilience responses. **Households in the Water and “full integration” groups seem to be associated with the greatest number of beneficial resilience outcomes.** Compared to the basic package of agriculture, WASH, and nutrition, households in these groups:

- › Rely more on positive coping strategies (“full integration” increased their reliance on positive coping

strategies more than any other combination of interventions).

- › Report feeling less vulnerable or exposed to future shocks (Water group had the largest effect on this outcome).

In addition, households in the Water group have:

- › Improved their ability to cope and recover from actual shocks by relying less on negative coping strategies.
- › Higher Food Consumption Scores over time, indicating that households have improved dietary diversity and sufficiency that is linked to PAHAL's programs aimed to improve access to safe and reliable water sources.

Findings that do not Align with PAHAL TOC

The Water group is associated with a reduced Coping Strategies Index – driven by two households – which is a measure of a higher usage of negative food coping strategies over a short-term period.

Three combinations of interventions – Financial Services, NRM/DRR/GOV, and the “full integration” groups – All led to worsening outcomes related to households' ability to cope with and recover from shocks (which is a measure of negative coping strategies and household hunger as well as actual shock exposure). Given that very few households in the entire PAHAL sample (just over 11 percent of all households in the last round of data collection) rely on negative coping strategies, this outcome is driven by a small sub- population who may be among the most vulnerable households.

No combination of PAHAL interventions is linked to any impact on the ability of households to prevent or mitigate their actual exposure to shocks experienced over three rounds of data collection.

› **Results for Evaluation Question 3:** What was the cost value of investments relative to resilience outcomes?

Findings that Align with PAHAL TOC

The CBA considered two perspectives over a 10-year period: the first of which analyzed which combinations of interventions led to the greatest improvement in *household* incomes, considering the costs spent by the households themselves to achieve these improvements (including time spent in trainings and adopting improved resilience strategies). This analysis suggests that:

- › **Financial Services interventions have the highest return on the investments made by the households themselves, resulting in \$878.09 more income than PAHAL agriculture, WASH and nutrition interventions.**³ Households in all treatment groups are expected to see their net incomes increase over a 10-year time period;
- › The largest financial impact at the household level is seen by (in order) Financial Services, Water, NRM/DRR/GOV, and “full integration” households.

3 Over a 10-year period.

CBA Results	Water	Financial Services	NRM/DRR/GOV	“Full Integration”
Net Present Value (NPV), per household ⁴	\$657.81	\$878.09	\$552.47	\$448.43

The second perspective considers whether these household benefits are worth the investments made by PAHAL and local government counterparts. This is the key analysis for donors when considering how to spend their limited funds. **The Water intervention has the greatest value for the investments made by PAHAL and its partners, generating \$786.37 in additional value per household compared to investments in agriculture, WASH, and nutrition only.** Water interventions are followed by the Financial Services and “full integration” interventions in having positive economic impacts for every dollar spent on these activity components. This means that for the cost of these program interventions, Water interventions achieved the most in terms of increasing household income and reduced time and other costs associated with accessing key resilience resources (in case of Water, this meant reducing the time it takes to collect water from an unimproved water resource).

CBA Results	Water	Financial Services	NRM/DRR/GOV	“Full Integration”
Economic Net Present Value (NPV) per household ⁵	\$786.37	\$674.72	-\$192.77	\$274.38

Findings that do not Align with PAHAL ToC

On the other hand, the NRM/DRR/GOV interventions led to decreased economic benefit, meaning that the cost for these interventions exceed the benefits (such as, increased access to forest resources, reduced time to collect forest resources, and increased agricultural productivity). On this basis alone, one would conclude that the NRM/DRR/GOV intervention does not lead to cost value and should only be considered in combination with other interventions. However, it should be noted that the impact data was collected over the course of one year and it could be that the NRM/DRR/GOV interventions might have more sustainable outcomes over the period of 10 years due to the transformative nature of these interventions.

Considerations for Future Programming

Future programming should invest in integrated resilience approaches that address multiple and interrelated pathways to building resilience. The evaluation results showed that combining water, financial services, and DRR/NRM/GOV interventions with food security programming leads to greater resilience at the household level.

Future programming should spend time at the design and start-up phase understanding how different groups are vulnerable to shocks and stresses and tailor interventions based on vulnerability. A separate and targeted approach might be necessary for the most vulnerable

⁴ Discounted at 17.5 percent.
⁵ Discounted at 12 percent.

groups. PAHAL targeted vulnerable households within their implementation areas based on findings from their Strategic Resilience Assessment (STRESS) process. However, evaluation results showed some evidence that the most vulnerable households may not have benefitted as much as the average PAHAL participant.

Focusing on water interventions (in contexts where this is appropriate) is cost-effective and could lead to an impact on other measures of resilience and food security. Water interventions had the highest number of improved resilience outcomes *overall* and water proved to be the most cost-effective combination of all interventions. Appropriate water management is essential to helping households navigate increased water scarcity, manage flood-drought cycles, and ensure a healthy natural resource base supports agriculture even in low rainfall and dry seasons. Water scarcity continues to be a serious constraint to achieving resilient, sustainable food security across PAHAL program districts and the evidence from this evaluation suggest that alleviating this constraint leads to high returns on resilience.

Future evaluations would benefit from a longer time-frame to understand the sustainability of integrated interventions and the long-term effects on vulnerable populations. Many of PAHAL's interventions include more transformative elements aimed at improving the enabling environment for long-term resilience of communities, households, and individuals. In particular, PAHAL shifted its focus specifically to promoting good governance and building social capital in integrated communities in the last two years of the program to facilitate handover to government partners and promote the sustainability of its interventions. Measuring the full impact of these transformative intervention approaches requires a longer time-frame or the ability to follow-up with subsequent evaluations.

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