OXFAM

Community-based Disaster Risk Management and Livelihoods Programme Effectiveness Review - Summary Report

Oxfam GB
Adaptation and Risk Reduction Outcome Indicator

June 2012

Executive Summary

Under Oxfam Great Britain's (OGB) Global Performance Framework (GPF), samples of sufficiently mature projects are being randomly selected each year and their effectiveness rigorously assessed. Pakistan's Community-based Disaster Risk Management and Livelihoods Programme was randomly selected for an Effectiveness Review under the adaptation and risk reduction (ARR) thematic area. The review focused on the work carried out by two of Oxfam's partner organisations – the Doaba Foundation and the Help Foundation – in Muzaffargarh and Rajanpur districts of Pakistan's Punjab Province. Over 21,700 people residing in 60 villages in these two districts are being reached through the programme. These people are exceptionally vulnerable to extreme flooding events, given that they reside directly on the floodplains of the Indus and Chenab rivers. And the overall aim of the programme is to reduce their vulnerability, particularly by reducing loss of life and assets and promoting livelihood resilience in times of extreme flooding.

To assess the effectiveness of the programme on reducing risk and promoting adaptive capacity, a quasi-experimental impact evaluation design was implemented. This involved administering surveys to representative samples of 341 households residing in 57 villages targeted by the programme and 400 other households residing in 63 similar villages in adjacent areas that were not. Propensity score matching (PSM) and multivariable regression (MVR) were subsequently used in the statistical analysis of the data to reduce bias in the comparisons made between the two groups. Two key areas of interest were investigated through this process: the extent the supported and unsupported households a) possess characteristics that are assumed important for successfully coping with and recovering from extreme flooding events, as well as adapting to emerging climatic trends and uncertainty; and b) were affected by the extreme floods that hit Pakistan in July to September 2010.

A number of large and positive differences were identified between the intervention and comparison households. Overall, the supported households scored more positively on most of the 'resilience' characteristics. There is also strong evidence that they experienced less asset loss during the 2010 floods. One particularly noteworthy finding is that the supported households were actually poorer in terms of asset ownership before the programme began but were found to be better off at the time of the assessment exercise. The respondents from the supported villages were also found to be more aware of their villages' disaster management plans and had participated more in disaster preparedness meetings. There is no indication, however, that the programme positively affected livelihood diversification and motivation among the supported households to pursue alternative livelihood strategies. Nevertheless, there is very strong evidence that the programme generated positive changes in terms of reducing flood-related risk.

Oxfam in general and the Pakistan country team and partners in particular are encouraged to consider the following as a follow-up to this effectiveness review:

- Review, document, and share the Doaba Foundation and Help Foundation's approaches to programme implementation and working with the participating villages.
- Explore possible reasons why the programme was unsuccessful in promoting livelihood diversification.
- Assess whether there are differences between the two partners in promoting awareness about climate change.
- Seek ways of integrating climate change adaptation measures into the programme more thoroughly.

Introduction and Purpose

Oxfam GB has put in place a <u>Global Performance Framework</u> (GPF) as part of its effort to better understand and communicate its effectiveness, as well as to enhance learning across the organisation. As part of this framework, modest samples of sufficiently mature projects (e.g. those closing during a given financial year) are being randomly selected each year and rigorously evaluated. One key focus is on the extent they have promoted change in relation to relevant OGB global outcome indicators.

The global outcome indicator for the adaptation and risk reduction (ARR) thematic area is based on the extent households emulate characteristics assumed important for recovering from shocks and adapting to emerging trends and uncertainty. This indicator is explained further below. The work that took place in Pakistan in December 2012 was part of an effort to capture data on this indicator. The programme randomly selected for the effectiveness review is entitled the Community-based Disaster Risk Management and Livelihoods Programme (PKNB44). Its overall aim is to reduce loss of life and assets and promote livelihood resilience in times of natural disasters in selected areas of four districts located in the provinces of Punjab, Sindh, and Baluchistan.

Given time and budget constraints, it proved impractical to carry out the assessment in all three areas of the country where this programme is being implemented. Consequently, a decision was made to focus on Punjab Province. In this province, two of OGB's partner organisations – the Doaba Foundation and the Help Foundation – implemented the programme in 60 villages located in two districts, Muzaffargarh and Rajanpur, along Pakistan's Indus and Chenab rivers.

Evaluation Approach

The Community-based Disaster Risk Management and Livelihoods Programme is attempting to reduce loss of life and assets and promote livelihood resilience during times of extreme flooding. From a rigorous impact evaluation perspective, the best way to evaluate such an intervention would have been to restrict its implementation to randomly selected geographical areas, leaving other sites for comparison purposes, i.e. as controls. This impact evaluation design is known as a clustered randomised control trial. If this design had been used, the impact of the programme could have been assessed by directly comparing the outcome indicators for households residing in the implementation and control sites. If all went well, the randomisation process would have made the households in the intervention and control sites comparable in every way, save their participation in the programme.

However, the programme was not implemented in randomly selected geographic areas; the sites the programme's activities were implemented in were purposively chosen. An alternative impact assessment design was consequently pursued. This design is referred to as a quasi-experiment because it attempts to "mimic" what a randomised control trial does by identifying comparison groups that similar to the supported groups, and then statistically controlling for any measured differences between them.
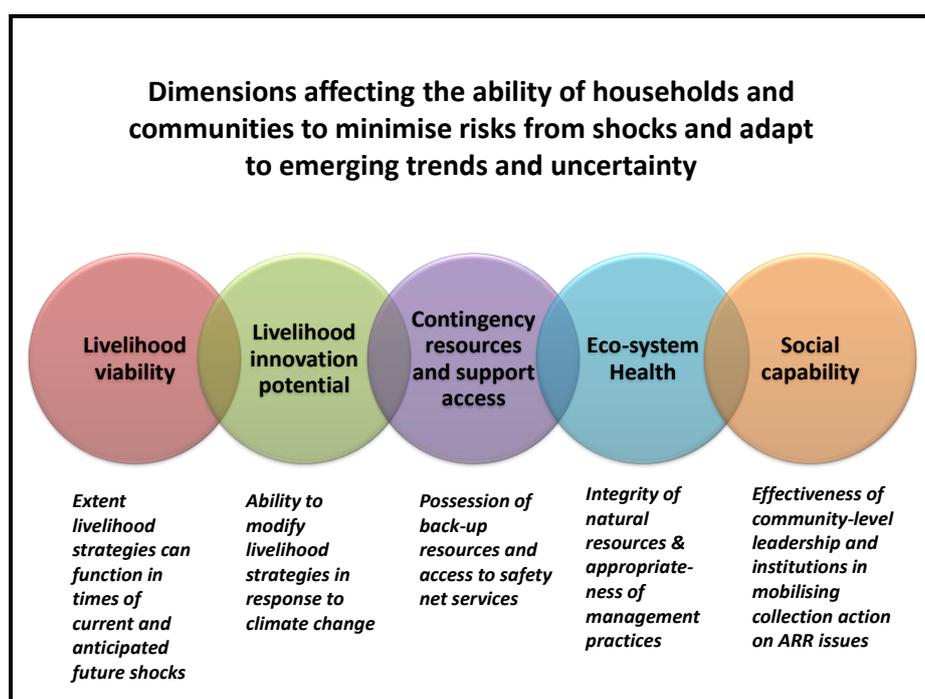

To implement the design, considerable time was spent mapping out areas in the districts where the Doaba Foundation and the Help Foundation implemented the programme's activities and where they did not. A total of

56 of the 60 villages where the programme was implemented were chosen for inclusion in the study. These villages were then matched with 64 similar villages from nearby locations, but outside the programme's catchment area. Questionnaires were subsequently administered by 16 trained enumerators to 341 and 400 randomly selected households from the intervention and comparison villages, respectively. During the statistical analysis of data obtained through the administration of these questionnaires, propensity score matching (PSM) and multi-variable regression (MVR) were used to control for measured differences between the households of the intervention and comparison villages.

Outcomes Evaluated

As part of OGB's Global Performance Framework, efforts are being undertaken to develop an innovative approach to measuring the resilience of households to disasters and their ability to adapt to climate change. This approach involves capturing data on various household and community characteristics falling under five interrelated dimensions:

Dimensions affecting the ability of households and communities to minimise risks from shocks and adapt to emerging trends and uncertainty

Livelihood viability	Livelihood innovation potential	Contingency resources and support access	Eco-system Health	Social capability
Extent livelihood strategies can function in times of current and anticipated future shocks	*Ability to modify livelihood strategies in response to climate change*	*Possession of back-up resources and access to safety net services*	*Integrity of natural resources & appropriateness of management practices*	*Effectiveness of community-level leadership and institutions in mobilising collection action on ARR issues*

Consequently, a key aim of the study was to assess whether the households residing in the intervention villages emulate these characteristics to a greater extent than households in the comparison villages. Evidence of this would give us confidence that the programme is successfully building resilience. The review, therefore, investigated what evidence there is that the programme affected the characteristics, both in aggregate and by dimension and specific characteristic.

Moreover, given the extreme flooding event that hit Pakistan in July to September 2010, there was also interest in exploring how the households in both the intervention and comparison villages were affected. In particular, if the programme had successfully prepared the households in the intervention villages for such an event by this time, we would expect they would have a) received greater advanced warning of the imminent floods and b) experienced less asset loss than those in the comparison villages. Moreover, if the support had actually helped them to become more resilient, we may even expect them to be better off in relation to household food security and socio-economic status as well.

Impact Assessment Summary Table

The following summary table provides a snapshot of the key findings of the effectiveness review. A short narrative description related to each outcome then follows to unpack each key finding. A separate more technical report is also available, which provides a more detailed and technical description of the evaluation design, process, and results. The table below summarises the extent to which there is evidence that the campaign realised its targeted outcomes in the form of a simple five-point 'traffic light' system. The key to the right presents what the various traffic lights represent.

G	**Evidence supporting large impact**
G A	**Evidence supporting more modest impact**
A	**Evidence of large impact, but only for specific sub-groups/measures**
A R	**Evidence of modest impact, but only for specific sub-groups/measures**
R	**No evidence of impact**

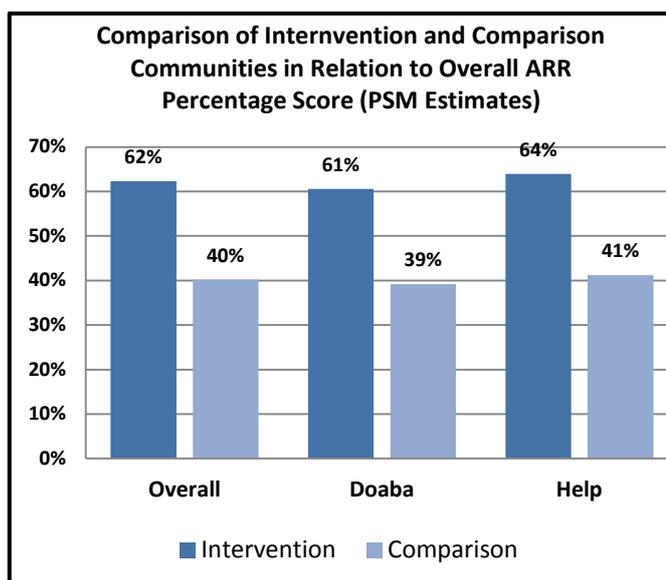| Outcome/Impact	Rating	Short Commentary
Outcome 1 – OGB global ARR outcome indicator	**G**	Strong evidence that the programme affected the majority of the 'resilience' characteristics in all four dimensions assessed.
Outcome 2 – Increased advanced warning before onset of extreme flooding	**G**	Households in the intervention villages received, on average, about two days of advance warning, against an average of one day for households in the comparison sites.
Outcome 3 – Reduced loss of assets in times of extreme flooding	**G**	Households in the intervention villages reported losing less livestock, grain, and equipment/tools than households in the comparison villages.
Outcome 4 –Ability to meet household needs in times of extreme flooding	**G**	The intervention households were poorer in 2008 than the comparison households, but they are now relatively richer and reported being in a better position to meet household needs.

Impact Assessment Findings

Outcome 1 – Oxfam GB's global adaptation and risk reduction (ARR) indicator **G**

Information was obtained through the administration of the questionnaire on 15 household characteristics assumed important for reducing risk and adapting to emerging trends and uncertainty. Each household was assigned a score for each characteristic based on their responses to the questionnaire. The better the household was assessed to be in relation to the characteristic in question, the higher the score it was given and vice-versa the worse it was assessed to be. These scores were then added together and divided into the total possible score, thereby, creating a percentage score. The particular score, then, reveals how well the households fair in relation to the characteristics overall.

As revealed in the graph below, large and highly statistically significant differences were found in favour of the intervention villages in relation to this overall score (p-value <0.001). The results were further found to be highly robust to bias; unobserved bias would need to be approximately 20 times

more prevalent among the intervention group is order to render the results statistically insignificant.

Comparing the intervention and comparison households in the relation to the overall characteristic score gives an indication of how the programme performed overall. However, this overall score does not show which particular areas the programme generated impact and those in which it did not. Consequently, the data were analysed separately by dimension and by specific characteristic. The intervention communities obtained higher scores for each of the four dimensions assessed and for 10 out of the 15 specific characteristics (See table below).

Comparison of Internvention and Comparison Communities in Relation to Overall ARR Percentage Score (PSM Estimates)

	Overall	Doaba	Help
Intervention	62%	61%	64%
Comparison	40%	39%	41%

There are only two characteristics where no difference between the intervention and comparison groups was found for either of the two partners – livelihood diversification and motivation to pursue alternative livelihood strategies.

Specific ARR Characteristics Used for Pakistan's Community-based Disaster Risk Management and Livelihoods Programme

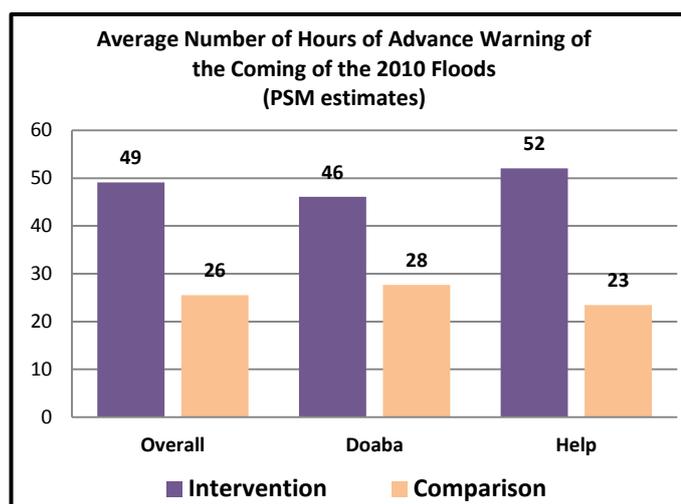| Dimension	Characteristic
Livelihood Viability	• Livelihood diversification • Access to seasonal forecast information** • Flood preparedness information** • Resilience of household structures*
Livelihood Innovation Potential	• Motivation for alternative livelihoods • Attitudes about climate change* • Credit access** • Access to climate trend information** • Farming extension support** • Access to marketing information** • Access to livelihood innovation support**
Access to Contingency Resources & Support	• Social support system** • Contingency resources, e.g. savings*
Social Capability	• Knowledge of village disaster management plan** • Participation in flood preparation meetings**

**Difference statistically significant for both partners
*Difference only statistically significant for one partner

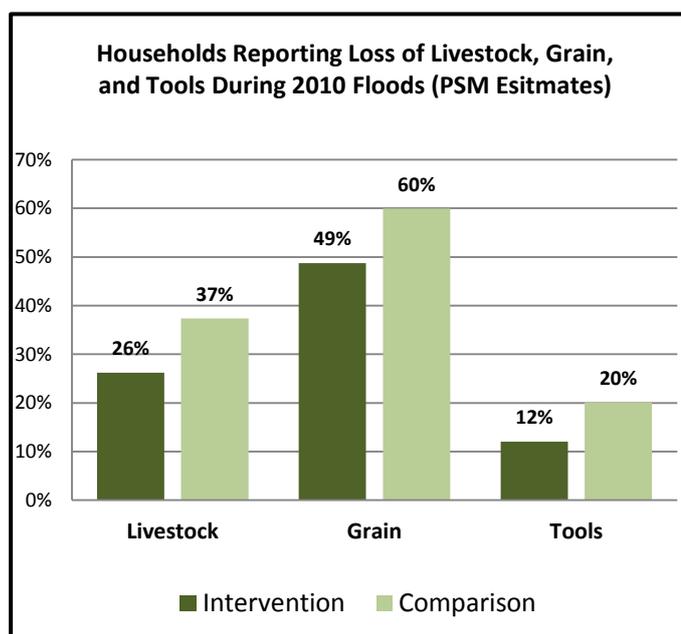## Outcome 2 – Increased advanced warning before onset of extreme flooding   **G**

The respondents were asked about the number of hours of advanced warning they received before the 2010 floods struck their local area. As indicated in the graph to the right, the intervention households received, on average, about two days advanced warning, while this was only about one day for households in the comparison villages. The intervention households therefore had more time to prepare, including evacuating of themselves and their assets from the local area. This may be a key reason for the other noteworthy differences that were found between the intervention and comparison households.

Average Number of Hours of Advance Warning of the Coming of the 2010 Floods (PSM estimates)

Category	Intervention	Comparison
Overall	49	26
Doaba	46	28
Help	52	23

Outcome 3 – Reduced loss of assets in times of extreme flooding   **G**

The respondents were also asked whether they lost any livestock, grain, and tools during the 2010 floods. Given the extreme nature of the flooding, we would expect significant losses to be reported by households in both the intervention and comparison villages. However, if the programme was successful in helping the supported villages to prepare for events such as these, we would also expect households in the intervention villages to report losing less, at least on average. And this is precisely what the findings of the effectiveness review found: The intervention villages, on average, reported losing less livestock, grain, and tools during the 2010 floods. However, when the results are disaggregated by partner, the effect estimates are only statistically significant for the Help Foundation.

Households Reporting Loss of Livestock, Grain, and Tools During 2010 Floods (PSM Esitmates)

Category	Intervention	Comparison
Livestock	26%	37%
Grain	49%	60%
Tools	12%	20%

Outcome 4 – Ability to meet household needs in times of extreme flooding   **G**

It is also of interest to examine whether the programme positively affected the households in the intervention villages in relation to other measures of welfare. To this end, the respondents were also asked questions about their ability to meet household needs, household food security, and their

ownership of assets (the latter being a reliable way of measuring relative household wealth status). For the perceived ability to meet household needs indicator, the respondents were asked the following:

Which of the following statements best reflects your household's ability to meet its basic needs over the past 12 months?
1. "Doing well: able to meet household needs by your own efforts, and making some extra for stores, savings, and investment."
2. "Doing just OK/breaking even: Able to meet household needs but with nothing extra to save or invest."
3. "Struggling: Managing to meet household needs, but depleting productive assets and/or sometimes receiving support."
4. "Unable to meet household needs by your own efforts: dependent on support from relatives living outside of your household or the community, government and/or some other organisation – could not survive without this outside support."

Interestingly, 76 percent of the respondents from both the intervention and comparison villages reported being in a position to at least meet basic household needs. However, following propensity score matching, a statistically significant difference between the two groups was identified: 81 percent for the intervention households compared with 71 percent for comparison households (p-value < 0.01). The Household Food Insecurity Access Scale (HFIAS) was also integrated into the questionnaire that was administered. However, the majority of the respondents (75 percent) reported having no problems with household food security, and no differences between the intervention and comparison villages were found in relation to those who did.

Data were additionally collected on household asset ownership as a measure of household wealth status. The particular basket of assets included those listed in the table below. For each item, the respondent was first asked whether their household owned it currently and also whether they did so in the programme's baseline period. Principal component analysis (PCA) was then used to draw out variation among all the households in changes in asset ownership over the programme's lifespan. The intervention and comparison households were then compared in relation to the changes. The results reveal that the intervention households fared better: They experienced greater gains in household asset ownership over time (p-value < 0.001).

List of Assets Used to Construct Household Asset Index

1. Electricity	16. Hand pump well	31. Gas stove
2. Lamps (electric, paraffin, etc.)	17. Tube well	32. Fodder cutter
3. Televisions	18. Peter engine	33. Seed bank
4. Radio	19. Tractor	34. Gold jewellery
5. Cassette/CD player	20. Tractor wagon	35. Home respondent lives in
6. DVD/video player	21. Sewing machine	36. Agricultural land
7. Table	22. Electric fan	37. Fuel used for cooking
8. Iron	23. Refrigerators/freezer	38. Toilet facility type
9. Bed	24. Plough (plow)	39. Material used for HH floor
10. Mattress	25. Ox/horse/ donkey/bull cart	40. Material used for HH walls
11. Telephones or mobile phone	26. Buffalo/bull	41. Material used for HH roof
12. Bicycle	27. Cow	42. Number of rooms in HH
13. Motorcycle/motor scooter	28. Goat/sheep	43. Acres of land used for farming
14. Wheel borrow	29. Donkey/horse	
15. Car, truck/other motor vehicle	30. Milling machine	

Complementary analyses were further carried out to identify the key assets that influenced these results. The intervention households, in particular, gained more in relation to the ownership of particular farm assets (ploughs, fodder cutters, wheel borrows, and grain banks), livestock (cattle,

goats, donkeys, and buffalo), and household items (radios, mattresses/beds, flash lights, and sewing machines, as well as improved toilets and roofing material). They also managed to cultivate more land over time.

Programme Learning Considerations

The Community-based Disaster Risk Management and Livelihoods Programme clearly represents a success story for Oxfam GB in general and the Doaba Foundation and the Help Foundation in particular. Not only did the supported households score significantly higher on most of the 'resilience' characteristics that were assessed, but also there is evidence that they were less affected by the 2010 floods that hit Pakistan in July to September 2010. There are a number of important programme learning considerations here that Oxfam and the partners are encouraged to reflect on:

- **Review and document the Doaba Foundation and Help Foundation's approaches to programme implementation in general and working with the participating villages in particular.**
It is likely that the success of the Community-based Disaster Risk Management and Livelihoods Programme was dependent on more than simply the nature of the various activities that were implemented. It is suspected that much of the success boils down to how the partner field staff are carrying these activities out and engaging with the communities. How does their particular approach to programme implementation and working with the participating villages differ from other partners? Is there anything that is unique and stands out? What makes this programme different from other Oxfam disaster risk reduction initiatives carried out in Pakistan and elsewhere? What can others learn about the approaches undertaken by the Doaba Foundation and Help Foundation?

- **Explore possible reasons why the programme was unsuccessful in promoting livelihood diversification**
There is no evidence that the programme increased the number of livelihood activities upon which the households in the intervention villages depend. What are the likely explanations for this? Given that livelihood diversification is an important component of resilience, it is worth holding focus group discussions and in-depth interviews with the programme beneficiaries to explore why this was the case. What prevented the households from pursuing alternative livelihood strategies? Are they really interested in doing so? Are there viable alternatives that can be realistically pursued?

- **Assess whether there are differences between the two partners in promoting awareness about climate change**
The Help Foundation appears to have done better in promoting more positive attitudes and knowledge about climate change. Did they carry out any activities that were different from the Doaba Foundation? What possible reasons could there be for this difference? If there are differences in approaches, it would be worth replicating the Help Foundation's approaches in the Doaba Foundation's programme catchment area.

- **Seek ways of integrating climate change adaptation measures into the programme more thoroughly**
The Community-based Disaster Risk Management and Livelihoods Programme was not explicitly designed to address issues relating to climate change adaption. However, there is evidence that it has positively affected many characteristics assumed to be important for placing the supported households in a better position to adapt to emerging climatic trends and uncertainty. That being said, there is certainly more scope for strengthening and expanding this work. If there is interest in doing this, it is recommended that this be carefully researched and thought through. This would inevitably involve ascertaining the likely climate change scenarios to which the targeted populations will be subjected in the future, and then ensuring that any livelihood diversification and other forms of support takes this into account.