Climate-Resilient Social Protection[1]

Climate change is expected to drive 35-122 million people into extreme poverty by 2030, not only by adversely affecting food security and agricultural productivity but also through more frequent and intense weather events. Innovations in social protection can support households in moving out of extreme poverty and coping with the risks of extreme weather events: (i) climate-resilient graduation programs persistently move households out of extreme poverty, generating benefits over three times their cost; (ii) weather-responsive cash transfers in advance of predictable disasters, such as floods, can address food security and boost resilience.

1. Climate-resilient graduation programs for households living in extreme poverty

1.1 Context

Climate change increases the vulnerability of people in extreme poverty. Nearly 700 million people live in extreme poverty. Climate change is expected to drive 35-122 million people into extreme poverty by 2030. Most of the poorest households in low- and middle-income countries are smallholder farmers—among the most vulnerable to disruptions caused by climate change, such as extreme weather events.

1.2 Climate-resilient graduation programs

Graduation programs are a multifaceted innovation designed to help poor households move persistently out of extreme poverty. They typically include 1) a one-off grant or interest-free asset transfer (typically livestock) to start small businesses 2) a regular food or cash transfer during the first year of the program 3) enterprise development training (typically in livestock, agriculture, but sometimes in non-farm activities); 4) hands-on coaching through high-frequency visits by program staff; 5) access to a savings account; 6) preventive healthcare

[1] This is a draft document that will be updated periodically until the publication of the Innovation Commission final report

services; and 7) community mobilization committees. In contrast to standard social protection programs that provide supplemental income to ensure minimum consumption levels, the graduation approach is designed to equip households with the skills and productive assets to increase earnings and start a virtuous cycle of savings and investment. Households graduate from the program by achieving economic and social advancement measured by predetermined graduation criteria over the 24 months of the program cycle. BRAC developed the approach in Bangladesh and it has since been implemented in several other countries.

1.3 Impact and cost-effectiveness

Graduation programs have persistent positive impacts on consumption, assets, and earnings. BRAC's graduation program in Bangladesh increased earnings by 21 percent and per-capita consumption by 11 percent four years after the asset transfer. Among villages that had been hit by a sustained drought, the graduation program protected households from incurring a 30 percent reduction in their assets, such as livestock.[2] After eleven years, for households above an initial wealth threshold, the program increased total productive assets by USD 542 and net earnings by USD 72, enough for these households to exit extreme poverty. Furthermore, the program significantly diversified income streams for ultra-poor households, transitioning from paid domestic work and agricultural labor to livestock rearing and land cultivation. Similar positive effects persisted ten years after a similar program implemented by Bandhan in India.

Graduation programs generate persistent benefits over three times their cost, but their cost-effectiveness can vary across settings. BRAC's graduation program in Bangladesh costs approximately 750 USD per household but generates benefits more than three times the cost.[3] Similar graduation programs implemented by other NGOs in Ethiopia, Ghana, Honduras, India, Pakistan, and Peru had benefits greater than their costs—with estimated benefit-to-cost ratios ranging from 1.3 in Ghana to 4.3 in India three years after the transfer—except in Honduras.[4] In Bangladesh and India, consumption gains persisted in measurements conducted seven and ten years after the asset transfer, respectively (1, 2). In Ethiopia, the benefits were

[2] Oriana Bandiera, email message to author, October 19, 2023.
[3] Benefits are measured in terms of consumption gains observed at the last round of data collection, and assumed to persist for 20 years.
[4] The benefit-to-cost ratio is calculated as the net present value of the benefits over the net present value of the program costs, discounted at a 5 percent annual rate. In Honduras, the program did not have apositive effect due to a disease killing the chickens transferred.

approximately equal to the cost of the program, as the consumption gains attenuated seven years after the transfer, unlike in Bangladesh.

While eliminating some components from graduation programs would reduce costs, there is reason to believe this may also reduce program effectiveness. For example, providing only the asset transfer or access to a savings account was not cost-effective in Ghana. The relatively large size of the asset transfer may also be important for program effectiveness. Balboni et al. (2022) have argued that the program may enable beneficiaries to move out of a poverty trap—a situation where households whose wealth is below a threshold would not have the means to make the investments needed to pursue more productive occupations, such as animal husbandry, to move persistently permanently out of poverty.

1.4 Potential for further improvement

Impact evaluations could be conducted for new components added to graduation programs to increase climate resilience amongst ultra-poor households. BRAC designed new components such as coaching for climate-resilient asset development and diversification (through, for example, alternative fodder production and management, infectious disease prevention in livestock, multilayer vegetable production, and alternate wetting and drying for rice production). Additionally, to protect against climate-driven risk, BRAC is adding an insurance component in which participants receive conditional loans or grants in response to climate disasters such as floods. It would be useful to test these additional components to assess their incremental impact.

1.5 Potential for scale

Climate-resilient graduation programs could be further scaled up in Bangladesh, as well as in other contexts with climate challenges where they have been found to be successful. BRAC has already scaled up the graduation program to reach over 2.1 million households in Bangladesh, as well as an additional 1.1 million households in 14 other countries. BRAC is partnering with governments to scale the graduation approach and aims to reach 4.6 million more households by 2026. To date, BRAC has worked with government partners to adapt the graduation program to the local context and integrate it into national social protection programs, including in Bangladesh, India, Kenya, Lesotho, Pakistan, The Philippines, Rwanda, Tunisia, South Africa, and Zambia. In India, the Bihar government has implemented the largest

government-led graduation program, with technical support provided by Bandhan, aiming to reach approximately 200,000 households by 2024.

1.6 Potential path forward

Additional funds could scale up climate-resilient graduation programs in countries where they have been most cost-effective, like Bangladesh and India, and expand them to other climate-vulnerable countries with high poverty rates. In new settings, it would be advantageous to start at a modest scale, and rigorously evaluate the program's impact to inform how to allocate additional resources. In Bangladesh, a program cycle lasts 24 months and costs approximately USD 750 per household, for an implementer like BRAC, whereas elsewhere, the program cycle could last up to 30 months and would cost more (USD 1200-1800 per household) to adapt the program to different contexts.[5] On average, the direct transfers (assets and cash) account for about a third of the program costs, whereas the other components (such as training, coaching, and financial inclusion) account for about half of the program costs, with the remainder accounted for by indirect operational and initial setup costs.

USD 41-289 million over seven years could support BRAC's climate-resilient graduation program to reach 36,000-300,000 households in five countries; with several options to reallocate resources across countries. An initial investment of USD 14-102 million could reach a cohort of 12,000 to 100,000 households in five countries over two to three years (Bangladesh, Liberia, Sierra Leone, Tanzania, and Uganda) highly vulnerable to extreme weather events and where the graduation model can be replicated. In Bangladesh, USD 4-56 million could provide the graduation program to 5,000-75,000 new households. An additional 10 percent of this component of the investment could fund the costs of testing the effectiveness of the novel climate-resilient components in Bangladesh. USD 9 to 37 million could reach a cohort of 1,750 to 5,000 households per country in Liberia, Sierra Leone, and Tanzania, as well as 1,750 to 10,000 households in Uganda. An additional 10 percent of this component of the

[5] A program cycle includes: in a first phase, a three-month inception period during which geographical selection, office setup, finalizing participant selection guidelines, staffing, and staff training take place; in the second phase, activities such as targeting, cash and asset transfer and enterprise development training, are generally completed within the first six to eight months of the cycle (depending on the needs, cash transfers are extended over a year or more); in a third phase, all activities related to financial inclusion and hands-on coaching run simultaneously until the end of the program cycle.

investment per country could be used to evaluate impacts to inform further scale-up decisions.[6] Investing more would enable the enrollment of more households in the same countries, costing an additional USD 13 to 93 million per cohort of 12,000 to 100,000 households across five countries (as described in Table 1).

2. Anticipatory cash transfers ahead of extreme weather events

2.1 Context

Climate change is accelerating the frequency and intensity of floods and other natural disasters, disproportionately affecting the most vulnerable. The frequency of natural disasters has increased fivefold in the past 50 years, causing losses of USD 3.6 trillion globally. Floods are the most frequent type of natural disaster, and their frequency and intensity are expected to increase with climate change. Of the 1.8 billion people living in areas at risk of extreme flooding approximately 90 percent are in low- and middle-income countries; four out of ten people exposed to flood risk live in extreme-to-moderate poverty.

2.2. Weather-responsive anticipatory cash transfers

Weather-responsive anticipatory cash transfers leverage forecasting models, remote sensing, and mobile banking to deliver cash to households ahead of climate-related disasters, such as floods. This allows households to respond to disasters in advance (for example, by moving themselves and movable assets to safety), rather than relying on ex-post humanitarian assistance. Several organizations have piloted flood-responsive anticipatory cash transfers, such as the World Food Program in Bangladesh or GiveDirectly in Mozambique and Nigeria.

2.3 Impact and cost-effectiveness

Weather-responsive anticipatory cash transfers can support households preparing for and adapting to floods, increasing their resilience. Cash transfers are a cost-effective

[6] These estimates are from BRAC but a funder could solicit proposals from multiple potential implementers.

intervention to improve food security and enhance livelihood resilience in humanitarian settings, though traditional ex-post-disaster responses tend to be slow at reaching households in a crisis. Growing evidence suggests that anticipatory cash transfers ahead of floods are faster and can boost food security and resilience more cost-effectively than ex-post assistance. Households in Nigeria that received transfers from the International Rescue Committee before a flood were less likely to resort to harmful coping strategies, such as missing meals, compared to similar households that received the transfer after a flood. In Bangladesh, the World Food Program used data-driven forecasting to send cash transfers to households about to experience severe flooding. A non-experimental study estimated that households that received the transfer before a flood hit were 36 percent less likely to go a day without eating and more likely to evacuate household members and livestock than comparable households who did not receive the cash transfer.[7]

2.4 Potential for further improvement

Recent advances in technology can be deployed to rapidly scale up weather-responsive anticipatory cash transfers and reach the households most likely to benefit. New technologies can produce higher-accuracy forecasts—such as where and when floods would occur, better target beneficiaries using remote sensing, and send transfers more rapidly through mobile money. Further investments are needed to adapt these technologies to different contexts.

Improvements in physical and institutional infrastructure could enable further expansion of anticipatory weather-responsive cash transfers. Donors could set up a flexible pre-financed payment system to guarantee financing ahead of extreme weather events. Data-sharing partnerships with telecom operators and/or integration with government social registries could increase the speed up and reduce the costs of targeting and of transfer delivery. In some places, expanding mobile access and connectivity may be needed. One strategy for developing this infrastructure would be for the early phase of the scale-up process, including creating and testing the necessary infrastructure for large-scale anticipatory cash transfers to be led by an organization with experience in targeting and enrollment technology, remote sensing,

[7]Households were sampled from a list of past WFP recipients. Sampled households received the transfer if they had active mobile money accounts with a specific provider during a verification call a few days before the flood peaked and compared to households which had inaccurate or inactive accounts with the same provider.

and data science, as well as the ability to establish partnerships, such as data use agreements with telecom companies and government regulators. These novel delivery systems could eventually be integrated into existing safety net programming.

2.5 Potential for scale

Several organizations that plan to scale up anticipatory responses to extreme weather events could be scaling partners. Many international organizations (such as the UN Office for the Coordination of Humanitarian Affairs, World Food Programme, and other NGOs like GiveDirectly) plan to expand weather-responsive anticipatory assistance programs that include cash transfers. Pilots of weather-responsive anticipatory programs have been implemented in over 60 countries since 2014, but have yet to reach large scale (beyond 30,000 recipients at once), partly due to lack of sufficient funding.

2.6 Potential path forward

USD 39-190 million over five years could reach up to 100,000-500,000 people at risk of floods and improve the technologies to further scale up weather-responsive anticipatory cash transfers. This investment aims to reach up to 100,000 to 500,000 recipients in up to four countries (Bangladesh, Malawi, Mozambique, and Nigeria) that have the highest exposure to flood risks and the highest share of the population living in extreme poverty.[8] USD 1 million could be used in the first year to analyze existing data and assess the potential of emerging technologies. Concurrently partnerships and data-sharing agreements could be formed with telecom companies and governments, research conducted to operationalize improved targeting systems, and context-specific flood risk models enhanced (costing on average USD 0.4-2 million per country). In the subsequent two to three years, USD 40-160 million would fund weather-responsive anticipatory cash transfers for 100,000 to 500,000 recipients across the four countries, depending on the realizations of extreme weather events. Countries could be phased in gradually, starting from those with the largest population exposed to flood risk (Bangladesh and Nigeria), and implementation in subsequent countries could be adapted based on lessons learned from previous implementations. The geographical distribution of recipients across those four countries would depend on where extreme weather events occurred in practice, so the

[8] The investment focuses on sudden-onset disasters such as floods, but it could apply to other climate-related extreme events, such as droughts.

investment could remain adaptable based on forecasting, rolling out transfers in countries where severe floods are expected to occur first. About 75 percent of this component of the investment would fund direct transfers of USD 250 per person; an additional USD 83 per person (approximately a quarter of the value of the transfer) would cover operational costs for targeting and delivery. Concurrently, approximately USD 2 million per country would fund country-specific monitoring and impact evaluations, and an additional USD 0.25-1.2 million per country on average would fund training for local stakeholders on implementing weather-responsive anticipatory transfers. Additional funding (approximately USD 1 million) could establish a global scaling strategy and knowledge-sharing.[9]

[9] These estimates are from GiveDirectly but a funder could solicit proposals from multiple potential implementers.

Table 1. Estimated range of costs for climate-resilient graduation programs

Lower range

	Cohort 1 (# of households)	Cohort 2 (# of households)	Cohort 3 (# of households)	Cost per household (USD)	Cohort 1 Cost (million USD)	Cohort 2 Cost (million USD)	Cohort 3 Cost (million USD)	Evaluation costs (million USD)	Total (million USD)
Bangladesh	5,000	5,000	5,000	750	3.8	3.8	3.8	0.4	12.0
Liberia	1,750	1,750	1,750	1,800	3.2	3.2	3.2	0.3	9.8
Sierra Leone	1,750	1,750	1,750	1,700	2.0	2.0	2.0	0.2	6.0
Tanzania	1,750	1,750	1,750	1,500	2.0	2.0	2.0	0.2	7.0
Uganda	1,750	1,750	1,750	1,200	2.1	2.1	2.1	0.2	7.0
Total	**12,000**	**12,000**	**12,000**		**13.0**	**13.0**	**13.0**	**1.3**	**41.8**

Upper range

	Cohort 1 (# of households)	Cohort 2 (# of households)	Cohort 3 (# of households)	Cost per household (USD)	Cohort 1 Cost (million USD)	Cohort 2 Cost (million USD)	Cohort 3 Cost (million USD)	Evaluation costs (million USD)	Total (million USD)
Bangladesh	75,000	75,000	75,000	750	56.3	56.3	56.3	5.6	174.4
Liberia	5,000	5,000	5,000	1,800	9.0	9.0	9.0	0.9	27.9
Sierra Leone	5,000	5,000	5,000	1,700	8.5	8.5	8.5	0.9	26.4
Tanzania	5,000	5,000	5,000	1,500	7.5	7.5	7.5	0.8	23.3
Uganda	10,000	10,000	10,000	1,200	12.0	12.0	12.0	1.2	37.2
Total	**100,000**	**100,000**	**100,000**		**93.3**	**93.3**	**93.3**	**9.3**	**289.1**

Table 2. Estimated costs of an investment in anticipatory weather-responsive cash transfers.

Lower range

	Recipients reached	Transfer sent to recipient (USD)	Operational costs per transfer (USD)	Transfer costs, (million USD)	Program setup (million USD)	Research and evaluation costs (million USD)	Coordination and training of local stakeholders (million USD)	Total (million USD)
Landscaping and initial R&D								1
Bangladesh	40,000	250	83	13.3	0.7	0.7	0.4	15.1
Nigeria	40,000	250	83	13.3	0.7	0.7	0.4	15.1
Malawi	10,000	250	83	3.3	0.2	0.2	0.1	3.8
Mozambique	10,000	250	83	3.3	0.2	0.2	0.1	3.8
Knoweldge sharing for further scaling								1
Total	100,000			33.3	1.7	1.7	1.0	**39.6**

Upper range

	Recipients reached	Transfer sent to recipient (USD)	Operational costs per transfer (USD)	Transfer costs, (million USD)	Program setup (million USD)	Research and evaluation costs (million USD)	Coordination and training of local stakeholders (million USD)	Total (million USD)
Landscaping and initial R&D								1
Bangladesh	200,000	250	83	66.6	3.3	3.3	2.0	75.3
Nigeria	200,000	250	83	66.6	3.3	3.3	2.0	75.3
Malawi	50,000	250	83	16.7	0.8	0.8	0.5	18.8
Mozambique	50,000	250	83	16.7	0.8	0.8	0.5	18.8
Knoweldge sharing for further scaling								1
Total	500,000			166.5	8.3	8.3	5.0	**190.1**