ECONOMICS OF RESILIENCE TO DROUGHT IN ETHIOPIA, KENYA AND SOMALIA

EXECUTIVE SUMMARY

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1 INTRODUCTION

The Horn of Africa is no stranger to devastating conditions brought on by weather, conflict, government neglect or a combination of each. Between 1900 and 2011, more than 18 famine periods were registered in the region's history.[1] While humanitarian aid can save lives, it has historically arrived late, well into the peak of a crisis.

There is increasing recognition that investing in people's resilience – their ability to manage shocks and stresses without compromising their future well-being – is critical for reducing humanitarian assistance needs in complex and protracted crises. The evidence is strong that investing in risk reduction and resilience yields economic benefits greater than costs. The evidence on the extent to which investments in resilience reduce the impact of a drought on humanitarian liabilities is, to date, less clear.

The aim of this study is to investigate and quantify the impact of an early humanitarian response and resilience building on humanitarian outcomes, both in terms of cost savings, as well as the avoided losses that can result from a more proactive response.

This synthesis report highlights key findings from three case studies in Kenya, Ethiopia and Somalia on the economics of early humanitarian response and resilience building on humanitarian outcomes. The full set of reports can be found here.

2 METHODOLOGY

The study investigates the evidence for four broad scenarios. The late humanitarian response scenario is the counterfactual. The early response, safety net, and resilience scenarios build on each other from one scenario to the next, layering in additional changes with each scenario:

- **LATE HUMANITARIAN RESPONSE (COUNTERFACTUAL):** This scenario estimates the cost of response and associated losses of a humanitarian response that arrives after negative coping strategies have been employed and after prices of food and other items have begun to destabilize.
- **EARLY HUMANITARIAN RESPONSE:** This scenario estimates the cost of response, as well as the reduction in humanitarian need and avoided losses, as a result of an earlier response. This response is assumed to occur before negative coping strategies have been employed, and before prices of food and other items have destabilized, thereby reducing household deficits and avoiding some income and livestock losses.
- **SAFETY NET:** This scenario integrates a safety net transfer into the early humanitarian response scenario. An increase in income, equivalent to the value of existing safety net transfers in each country, is provided to all very poor and poor households in every year of the model. Combined with the effects of the early response, this transfer can be used to fill household deficits and reduce income and livestock losses even further.

[1] HTTP://WWW.GLOBALHUMANITARIANASSISTANCE.ORG/WP-CONTENT/UPLOADS/2011/07/GHA-FOOD-SECURITY-HORN-AFRICA-JULY-20111.PDF

- **RESILIENCE:** This scenario incorporates an additional increase in household income, on top of the safety net transfer, as a result of resilience building. This scenario is defined by the outcome – namely an increase in income - as a result of investment in resilience building; it does not specify the activities that lead to this change, or the resilience capacities (i.e. sources of resilience) that enable this outcome to be sustained over time in the face of shocks and stresses.

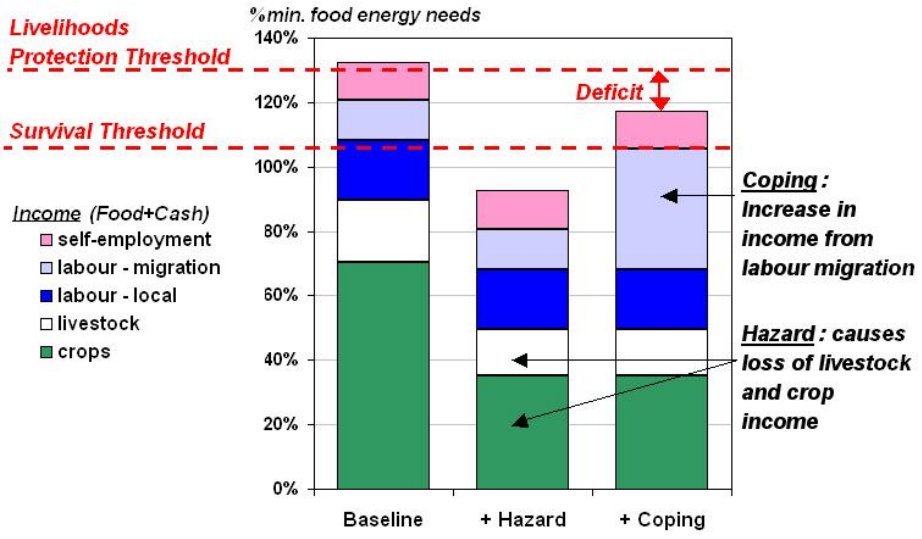
Measuring the effectiveness of resilience requires long time horizons to truly capture its cost-effectiveness. During this time, study design can be confounded by a wide range of factors. These and other methodological complexities prompted the use of statistical modeling to capture the economic returns of resilience building, estimated as reduced humanitarian assistance needs, and avoided household losses (income and livestock). Specifically, this analysis used the Household Economy Approach (HEA)—backed up by available empirical evidence to substantiate assumptions throughout the modeling process—to model the potential impact of different response scenarios over 15 years. HEA modeling is dynamic, allowing impacts in one year to carry forward into subsequent years, and gives a nuanced understanding of how different drought responses may affect humanitarian need over time as a result. The difference between the total household income and the livelihoods protection threshold represents the deficit that is required to meet basic household needs (see Box E1).

Box E1: Summary of HEA

HEA is a livelihoods-based framework for analyzing the way people obtain access to the things they need to survive and prosper. It was designed to help determine people's food and non-food needs, and identify appropriate means of assistance, whether related to short-term emergency needs or longer term development program planning and policy changes. Three types of data are combined – information on baseline access to food and income, information on the hazard, and information on household level coping strategies. HEA Scenario Analysis compares conditions in the reference year to conditions in the current or modeled year, and assesses the impact of such changes on households' ability to meet a set of defined minimum survival and livelihoods protection requirements.

http://www.heawebsite.org/about-household-economy-approach.

An example of HEA Outcome Analysis



The specific economic model developed for this series leveraged HEA modeling to predict household food deficits, income and livestock value, under each of the four scenarios outlined above. This was then combined with data on the cost of response, as well as evidence on the impact of different types of safety net and resilience building interventions, to create an economic model that can estimate the net cost of each of the four scenarios. The HEA model used actual rainfall and price data (adjusted for inflation) from 2000 to 2015 and was conducted for livelihood zones where baseline data had been collected. The total number of livelihood zones and number of people considered in the model are summarized in Table 1.

TABLE 1: SUMMARY OF HEA MODELING				
COUNTRY	REGION	BASELINE YEARS	NUMBER OF LIVELIHOOD ZONES MODELED	NUMBER OF PEOPLE
Kenya	Turkana	2015/16	4	796,565
	North East (Wajir, Mandera, Garissa)	2006/07 2011/12	7	2,150,894
Ethiopia	Somali	2013/14	17	5,358,995
	Tigray	2014/15	13	3,319,329
Somalia	North, Central, South livelihood zones	Mixed[2]	13	3,371,470
TOTAL			**54**	**14,997,253**

The HEA model provided the following output by year, livelihood zone, and wealth group:

- Number of people with a food deficit and therefore in need of humanitarian assistance;
- The magnitude of the food deficit measured in Metric Tons (MT); and
- The total income and livestock value for the population modeled.

These data were then used to estimate the number of people in need, the size of that need, and how this deficit changes when the model considers different types of response. In the case of resilience, the model considered a scenario where a safety net transfer is complemented by investments that increase household income by a set amount. The model does not specify or estimate the cost effectiveness of different types of activities, but rather estimates the overall cost of implementing each of the four scenarios. Data were then built into an economic model where costs and avoided losses/benefits were modeled over 15 years at a discount rate of 10% to estimate the net present cost of each of the four scenarios described above. If a discount rate were not applied, the figures presented here would be substantially higher.

The current series builds on a study commissioned by the UK Department for International Development (DFID) in 2013 that evaluated the Economics of Early Response and Resilience in five countries.[3] This series has bolstered that study by expanding the analysis to model the last 15 years using actual price, rainfall and production data, and by incorporating modeling of changes in income and livestock value to measure avoided losses.

2 BASELINES FOR SOMALIA HAVE BEEN CONDUCTED ACROSS A RANGE OF YEARS, INCLUDING 2006/07, 2009/10, 2010/11, 2013/14, 2014/15, 2015/16.

3 CABOT VENTON, C., ET AL (2013). THE ECONOMIC OF EARLY RESPONSE AND RESILIENCE." DFID, UK.

3 COST COMPARISON OF DROUGHT RESPONSE

This section summarizes the aggregate findings across Kenya, Ethiopia and Somalia, representing 53 livelihood zones and 15 million people. Across each of the three countries analyzed, the modeled population represents approximately one-half to one-third of the total population considered to be chronically food insecure, and therefore the savings articulated in this study could increase by a magnitude of two to three if extrapolated to all of the food insecure population.

Three estimates of net cost are provided for each of the scenarios. *Total Net Cost* sums together the cost of humanitarian response and the cost of programming (e.g. safety net and resilience). The *Total Net Cost Adjusted* adjusts for the transfer amount that is surplus to the household deficit, to account for the fact that this amount is not only a cost to a donor, but also a benefit for those households. The *Total Net Cost with Benefits* sums together the costs of humanitarian aid, cost of programming, as well as the increase in income and livestock value that is protected as a result of a more proactive response.

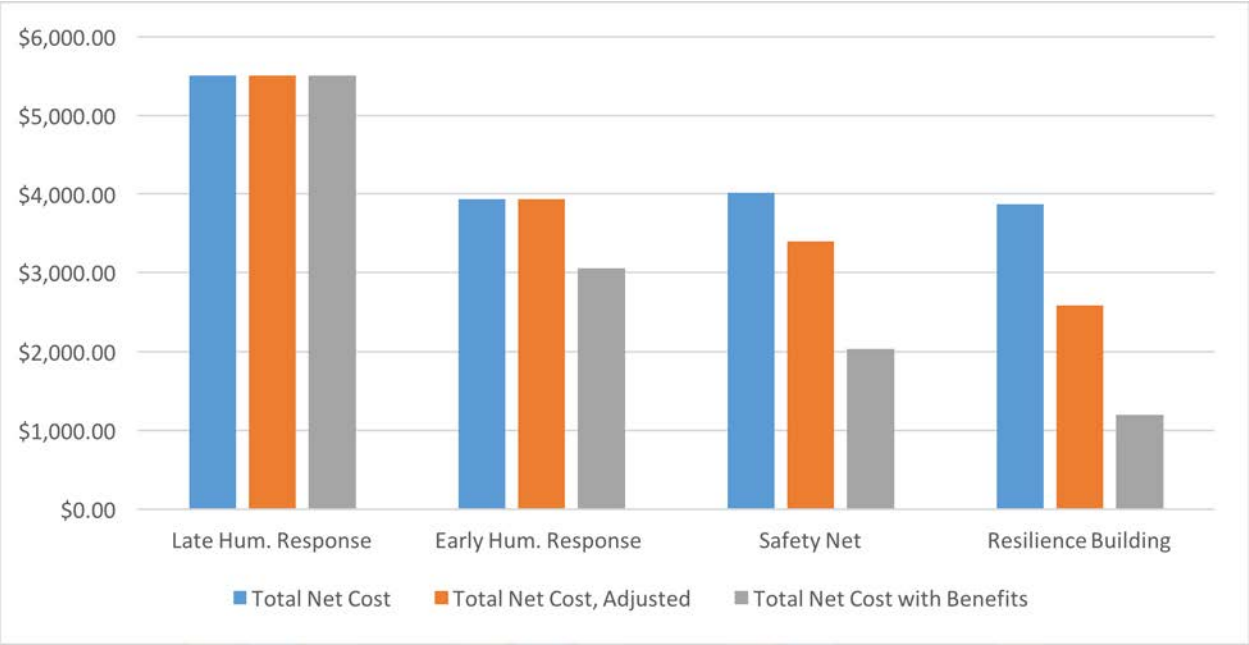
- An early humanitarian response saves US$1.6 billion in humanitarian aid costs over 15 years in comparison to a late humanitarian response. When avoided losses are incorporated, **an early humanitarian response saves US$2.5 billion, or an average of US$163 million per year.**

- Safety net programming saves an estimated US$1.5 billion in humanitarian aid costs over 15 years over the cost of a late response. When this figure is adjusted to account for the benefits of the transfer beyond filling the food deficit, a safety net scenario saves US$2.1 billion over the cost of a late response. **When avoided losses are incorporated, a safety net transfer could save US$3.5 billion, or an average of US$231 million per year.**

- A resilience-building scenario reduces the net cost of humanitarian response by US$1.6 billion over 15 years over the cost of a late response. When this figure is adjusted to account for the benefits of the transfer beyond filling the food deficit, a resilience building scenario saves US$2.9 billion over the cost of a late response. When avoided losses are incorporated, **a resilience building scenario could save US$4.3 billion, or an average of US$287 million per year.**

When intervention costs are offset against avoided humanitarian aid costs, the ratio of benefits to costs ranges from 1.8 to 2.7. In other words, for every US$1 spent on safety net, or resilience programming, between US$1.8 and US$2.7 in aid costs are offset (respectively). When avoided losses are incorporated, the ratios are much higher; **every US$1 spent on safety net/resilience programming results in net benefits of between US$2.3 and US$3.3 depending on the context.**

Figure E1: Total Net Cost of Response, Kenya, Ethiopia and Somalia, US$ Million



4 DISCUSSION AND POLICY IMPLICATIONS

The overall and country-specific findings unequivocally show the economic benefits of resilience and early action investments:

- Investing in resilience to drought is significantly more cost effective than providing ongoing humanitarian assistance, generating net savings of approximately US$287 million per year over a 15-year period. Strengthening resilience through an increase in household income ranging between US$365 and US$450 per household per year[4] is far more cost effective than meeting household needs through emergency response. Of the US$287 million that could be saved per year, US$109 million, or 38 percent, is direct cost savings to donors and government through reduced humanitarian liability. When the figures are adjusted for the income transfer that is surplus to household deficits, humanitarian assistance savings increase to US$194 million, or 68 percent of the total, with the remaining US$92 million, or 32 percent, representing avoided livestock and income losses at a household level. This increase in income is comprised of both the safety net transfer as well as the outcome of investment in resilience building. As vulnerable households are able to engage in more productive activities, the cost of delivering this change in income will decrease.

- The U.S. Government (USG) could have saved US$1.6 billion over the last 15 years on its humanitarian aid spend in these three countries, a savings of 30 percent. When this figure is adjusted to account for the benefits of the transfer beyond filling the food deficit, the USG could

[4] THE INCREASE IS PRESENTED AS A RANGE AS IT DIFFERS BY COUNTRY, DEPENDING ON THE ACTUAL SAFETY NET TRANSFER AMOUNTS IN EACH COUNTRY.

have saved US$2.9 billion. Incorporating the avoided losses to households, the model estimates net savings of US$4.2 billion.

- It is critical that safety net and resilience building measures are complemented by mechanisms to ensure an early humanitarian response when there are spikes in need. Early response can save more than $100 million per year in costs alone; these cost savings will be critical to release funding that can be used for greater investment in resilience.

- There is not a clear or definitive measure for when an early response needs to be triggered, however modeling suggests the need for early response triggers that are based on a comprehensive seasonal assessment that takes into account the specific production and marketing factors that affect household livelihood systems in each livelihood zone.

- While these findings clearly indicate that investing in resilience (through a combination of safety nets and improvements to household income) saves money and should be the priority, this does not suggest that an emergency response is not needed. In fact, the modeling includes the cost of responding with humanitarian aid to spikes in need that push people beyond their ability to cope on their own. Furthermore, the model assumes that any humanitarian aid still required is provided as part of an early response, and therefore these gains are also part of the estimates provided above.

The following implications flow from these findings.

Reducing humanitarian need requires a mix of both consumption support and productive activities. The model clearly indicates that many of the areas require consumption support – and this is precisely what a safety net program is designed to do and provides the basis for a strong graduation model. It is also clear from the HEA data that income beyond a safety net transfer is required as part of a package of support to productive activities to allow households to have enough to save and build up a reserve to withstand future shocks. The findings also suggest that greater inputs are likely required to progress households from requiring regular and consistent external support, to a position where households have enough resources to replace the safety net with their own income in order to manage shocks and stresses themselves.

In some cases, a sufficient upfront investment can create a context in which households can begin to replace the safety net with their own income after a certain number of years. In this context, investment in 'good' years is critical as it allows households to build up enough income to offset losses in in 'bad' years. By contrast, the same upfront investment in a chronically poor context requires an ongoing safety net for a much longer period of time. These findings raise some tough questions around what 'building resilience' might look like for different populations, given the scale of investment required.

Investments in resilience may not be reflected in directly measurable improvements to household welfare, but rather averted declines in well-being. In other words, they may manifest in the 'disaster that never happened'. In Tigray, Ethiopia, investments in agricultural production have significantly and cost effectively mitigated a slide into deeper food insecurity. A comparison of HEA baselines in 2006 and 2016 in Tigray reveals that a great deal has changed for the better, including notable increases in crop production, markets and roads, for example. However,

population growth and resulting decreases in land holdings have meant that household access to food and cash income has not increased despite these improvements. The model estimates investment in agricultural production has saved aid costs alone of US$1,527 per household.

Investment in shock responsive and adaptive management approaches that can respond to the particular context and changing circumstances of households should help to realize outcomes most effectively. Individual actions rarely build resilience in a sustained manner. The analysis presented here relies on assumptions around how different types of response will affect factors such as prices, investment in inputs, and coping strategies. Delivering these gains will require investment at scale, building the systems to ensure that these gains are realized. Shock responsive programming will be critical to ensure increases in assistance when a crisis is imminent. A greater focus on adaptive management and community driven approaches, rather than focusing on specific packages of interventions, will be essential.