ECONOMICS OF RESILIENCE TO DROUGHT
IN ETHIOPIA, KENYA AND SOMALIA

This report was prepared by Courtenay Cabot Venton for the USAID Center for Resilience
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Mark Lawrence at the Food Economy Group undertook the Household Economy Approach modelling for this work, which fundamentally underpins the findings presented here. Tanya Boudreau reviewed the final reports and models. Their dedication and attention to detail throughout this process has been exceptional, and provides the bedrock for the analysis presented here.

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ACRONYMS

BCR	Benefit to Cost Ratio
DFID	Department for International Development (UK)
HEA	Household Economy Approach
LPT	Livelihood Protection Threshold
MT	Metric Tons
USG	United States Government
WFP	World Food Programme

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1 INTRODUCTION

1.1 CONTEXT FOR THE STUDY

The Horn of Africa is dominated by arid and semi-arid lands (ASALs) - areas that are characterized by low and irregular rainfall as well as periodic droughts. The droughts can vary in intensity, but the region 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] In drought affected areas like the Horn of Africa, aid organizations have come to play a significant role in providing humanitarian response. While humanitarian aid can save lives, it has historically arrived late, well into the peak of a crisis.

There is increasing recognition that responding to these chronic and protracted crises with ongoing emergency aid is costly and unsustainable. 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. Further, there is a need to examine and articulate the economic case for investing more proactively in longer term measures up front, offset against the cost of humanitarian aid and losses.

1.2 AIM OF THE STUDY

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 study evaluates the economic case for early response and resilience building in Kenya, Ethiopia and Somalia. The full set of reports can be found here.

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 prices 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

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

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.

- **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.

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.[2] This series has bolstered that study in the following ways:

- The 2013 analysis looked at a high magnitude drought occurring once every five years, whereas this analysis has been able to use *actual* price, rainfall and production data for the 15 years to simulate the conditions between 2001 and 2016.

- The 2013 study measured avoided aid costs, whereas this study was able to also model avoided income and livestock losses, adding another significant component to measuring the full impact of the type of response.

- The 2013 study covered a smaller number of livelihood zones in two of the three countries covered here. The current study includes a wider range of livelihoods and, therefore, risk profiles and vulnerabilities.

1.3 STRUCTURE OF THIS REPORT

This report is structured as follows:

- Section 2 summarizes in brief the methodological approach to the study.

- Section 3 presents the findings from empirical evidence and modelling to estimate and compare the economic impact of a late humanitarian response, an early humanitarian response, and safety net and resilience building scenarios.

- Section 4 presents a discussion of the findings and policy implications.

This summary report is complemented by full reports for each of the three countries that explore the findings in detail. Each of these country reports is in turn supported by annexes that provide a review of relevant empirical evidence, as well as details on the modelling using the Household Economy Approach (HEA).

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[2] CABOT VENTON, C., ET AL (2013). THE ECONOMICS OF EARLY RESPONSE AND RESILIENCE." DFID, UK.

2 METHODOLOGY

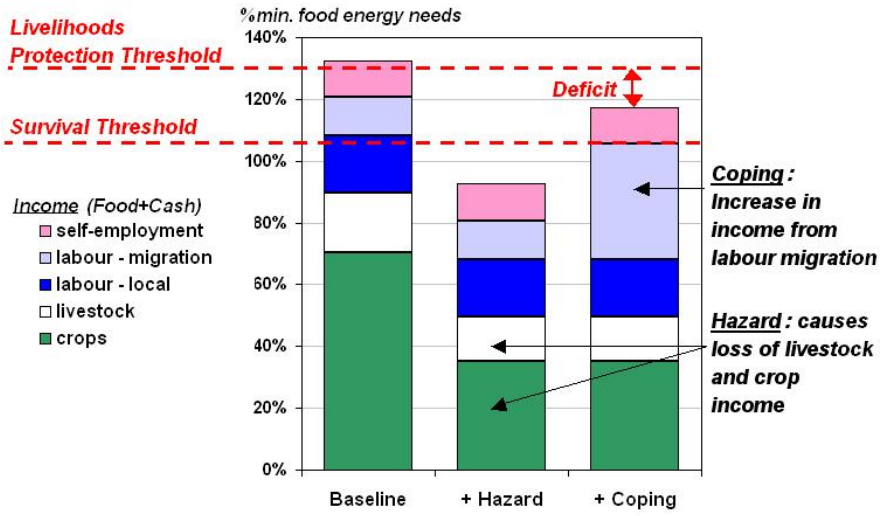
Measuring the effectiveness of resilience requires long time horizons to truly capture its cost-effectiveness. During this time, study design can be confounded by a wide range of factors. These and other methodological complexities prompted the use of statistical modeling to capture the economic returns of resilience building, estimated as reduced humanitarian assistance needs, and avoided household losses (income and livestock).

Specifically, this analysis used the Household Economy Analysis (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 1).

Box 1: Summary of Household Economy Analysis

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 modelled 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 modelling 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 modeled. The HEA model used actual rainfall and price data (adjusted for inflation) from 2000 to 2015 and was conducted for 54 livelihood zones in Kenya, Ethiopia and Somalia, 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 MODELLING

COUNTRY	REGION	BASELINE YEARS	NUMBER OF LIVELIHOOD ZONES MODELLED	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[3]	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 value of livestock holdings for the population modelled.

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.

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

These data were then built into a 15-year economic model that uses data on the cost of humanitarian response under each of the four scenarios; the cost of implementing safety nets in each country; and data on the costs and benefits of implementing measures to build resilience in each country.

These costs and avoided losses/benefits were modelled over 15 years at a discount rate of 10% to estimate the net present cost of each of the four scenarios described above. Discounting is used to reduce the value of a stream of costs and benefits over time, back to their present value to allow comparability, particularly where a large up-front investment cost may be required that yields benefits over many years to come. However, in this specific model, costs and benefits are distributed proportionally across time. If a discount rate were not applied to the model, the difference in magnitude between scenarios would be similar, but the absolute net cost of each scenario would be significantly higher, and this is important to keep in mind when applying the results.

2.1 LIMITATIONS TO THE ANALYSIS

Conservative assumptions have been used to ensure that the findings are representative but do not overstate resilience benefits. Therefore, it is likely that any changes to the assumptions will only strengthen the case for early investment and resilience building. Despite this, the following limitations should be considered when reviewing the findings:

- The model does not account for population growth. Rather, it estimates the deficit for the full population based on 2015/2016 population figures from the baseline data. In reality, many of the areas modelled have seen high levels of population growth, hence the total amount of net savings would increase as population increases.

- All analysis is based on actual price and rainfall data for the past 15 years. Studies indicate that drought frequency and intensity is increasing as a result of climate change and other factors, and therefore it is possible that the deficits estimated here will worsen over time.

- Investments in resilience may grow in their impact over time, and some of this can be invested so that the income in the next year may have increased slightly, and so on. Equally, in drought years it is likely that any income gains may decline. The model presents a constant increase in income per household in each year of the model and does not account for any growth in that income.

- The analysis presented was able to account for the cost of meeting people's immediate needs, as well as the impact on household income and livestock (measured as 'avoided losses'). However, evidence globally is clear that investing in the types of activities that can allow people to cope in crisis times can also bring much wider gains in 'normal' times, and these gains would substantially increase the economic case for a proactive investment.

3 COST COMPARISON OF DROUGHT RESPONSE

3.1 FINDINGS

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 modelled 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.

Four estimates are presented for each of the four scenarios:

- **Total Net Cost**: This estimate sums together the cost of humanitarian response and the cost of programming (e.g. safety net and resilience) for each of the scenarios. In this estimate, a uniform increase in income is assumed for all very poor and poor households (safety net and resilience scenarios). As a result, in many cases the transfer amount is more than households require to fill their food deficit, and therefore this scenario can look more expensive, but is the more accurate representation of the full cost to donors. This figure represents the total net cost over 15 years.

- **Total Net Cost, adjusted**: This estimate adjusts for the transfer amount that is additional to household deficits. The surplus income that arises as a result of the safety net and resilience building interventions is added in as a benefit, to account for the fact that this amount is not only a cost to a donor, but also a benefit for those households. This estimate is conservative, as it assumes that every $1 transferred is a $1 benefit to the household; it is highly likely that the benefit to the household would be greater than the actual transfer amount. This figure represents the total net cost, adjusted for surplus income, over 15 years.

- **Total Net Cost with Benefits**: This estimate 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 – measured as avoided income and livestock losses. As a result, this estimate represents a more complete picture of both the costs to donors as well as the benefits to households. This figure represents the total net cost with benefits over 15 years.

- **Average Net Cost with Benefits per Year**: This estimate averages the previous figure over 15 years, to give an average cost per year.

3.1.1 SUMMATIVE FINDINGS

An early humanitarian response would save an estimated US$1.6 billion in humanitarian aid costs over a 15-year period on the cost of humanitarian response alone. When avoided losses are incorporated, **an early humanitarian response could save US$2.5 billion, or an average of US$163 million per year.**

Safety net programming, at a transfer level tailored to the actual amounts used in each country, would save an estimated US$1.5 billion in humanitarian aid costs over a 15-year period 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 scenario that combines the safety net transfer with an increase in household income reduces the net cost of humanitarian response by an estimated US$1.6 billion over a 15-year period 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$2.9 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.**

Figure 1: Total Net Cost of Response, Kenya, Ethiopia and Somalia, US$ Million

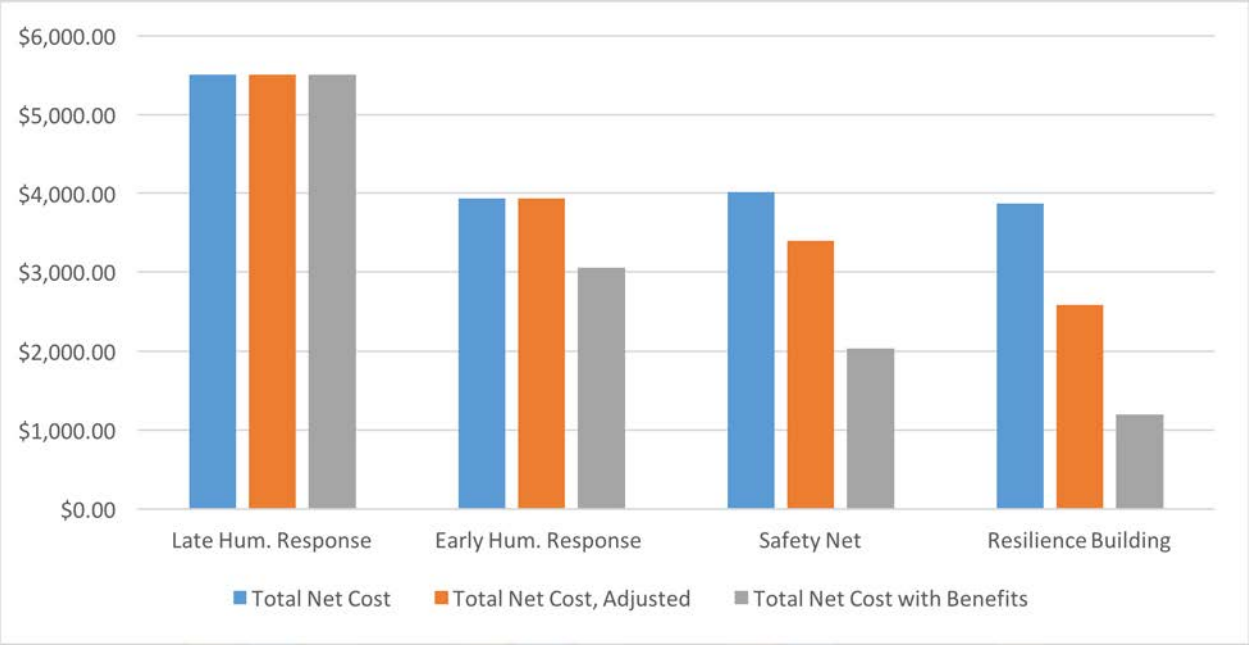


TABLE 2: SUMMARY OF COSTS, ETHIOPIA, KENYA AND SOMALIA, US$ MILLION				
INTERVENTIONS	LATE HUM. RESPONSE	EARLY HUM. RESPONSE	SAFETY NET	RESILIENCE BUILDING
TOTAL NET COST, 15 YEARS	$5,502.4	$3,936.1	$4,018.5	$3,870.1
SAVINGS		*$1,566.2*	*$1,483.9*	*$1,632.1*
TOTAL NET COST, ADJUSTED, 15 YEARS	$5,502.4	$3,936.1	$3,398.5	$2,582.4
SAVINGS		*$1,566.2*	*$2,103.9*	*$2,920.0*
TOTAL NET COST WITH BENEFITS, 15 YEARS	$5,502.4	$3,052.6	$2,038.3	$1,199.6
SAVINGS		*$2,449.7*	*$3,464.1*	*$4,302.8*
AVERAGE NET COST WITH BENEFITS PER YEAR	$366.8	$203.5	$135.9	$80.0
SAVINGS		*$163.3*	*$231.2*	*$286.8*

The benefits of early humanitarian action and resilience building can be measured against the costs. For this analysis, three Benefit to Cost Ratios (BCRs) are provided.

- (1): The costs of investment (safety net, resilience interventions) are offset against the benefits, measured in terms of the avoided costs of humanitarian aid. A BCR greater than one indicates that the avoided cost of aid required to fill the humanitarian deficit is greater than the additional cost of safety net/resilience programming.

- (2): This figure is adjusted to account for the benefit of any transfer to households that is above their food deficit.

- (3): The cost of investment is offset against the avoided cost of humanitarian aid as well as the avoided income and asset losses.

When the cost of intervention is offset against avoided humanitarian aid costs, the ratio of benefits to costs ranges between 1.8 and 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 higher; **every US$1 spent on safety net/resilience programming results in net benefits of between US$2.3 and US$3.3.**

TABLE 3: BENEFIT TO COST RATIOS			
	BCR: AVOIDED COST OF AID (1)	BCR: AVOIDED COST OF AID, ADJUSTED (2)	BCR: AVOIDED COST OF AID + AVOIDED LOSSES (3)
	ETHIOPIA: SOMALI		
SAFETY NET	1.73	2.00	2.88
RESILIENCE BUILDING	1.75	2.34	3.31
	ETHIOPIA: TIGRAY		
SAFETY NET	2.21	2.22	2.25
RESILIENCE BUILDING	2.16	2.42	2.27
	SOMALIA		
SAFETY NET	1.30	1.83	2.56
RESILIENCE BUILDING	1.40	2.26	3.03
	KENYA: TURKANA		
SAFETY NET	2.06	2.22	2.60
RESILIENCE BUILDING	2.33	2.69	3.01
	KENYA: NORTH EAST		
SAFETY NET	1.07	1.62	2.76
RESILIENCE BUILDING	1.17	2.01	3.21

4 DISCUSSION OF FINDINGS 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.** Interventions that build people's resilience, as modelled here through an increase in household income ranging between US$365 and US$450 per household per year, 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 US Government 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.** Total USG expenditures on emergency food aid for the years 2001 to 2016 equated to US$5.4 billion in the three study countries. Applying the same ratios as estimated in this analysis of savings to total USG spend, the USG could have saved US$1.6 billion over 15 years; these are estimated direct cost savings to the USG by investing in resilience building measures, net of the cost of implementing a resilience building package of interventions. When this figure is adjusted to account for the benefits of the transfer beyond filling the food deficit, the USG could 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.**

- **Triggers for early response need to be 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.** There is not a clear or definitive measure for when an early response needs to be triggered. In the model, it is assumed to take place before negative coping strategies are employed and assumes a reduction in the escalation of food prices. The food deficits are not caused by one single factor; it is clearly a mixture of food prices, animal/crop prices, as well as rainfall that determine the outcome.

- 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 model 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.

Reducing humanitarian need requires a mix of both consumption support and productive activities.

The following two figures show examples of how deficits change over time, the first set of graphs compare a late humanitarian response and a resilience scenario for the Turkana Border Pastoral livelihood zone, and the second compare the same set of graphs but for an Agro-Pastoral livelihood zone. The green line in the graphs represents the Livelihoods Protection Threshold (LPT) - the level of income required for households to be able to meet their own needs and not incur a deficit.

In the pastoral context, households consistently face a significant deficit, with the majority of their income made up of livestock sales, milk, and other sources of income (typically self-employment or wage

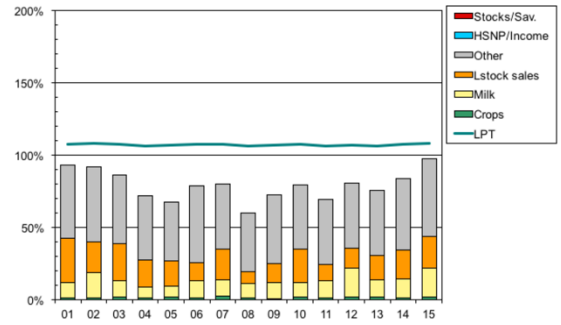
labor). Under the resilience scenario, where households benefit from an increase in income, the population not only moves to above the LPT in every year, but there is enough income in several of the years to also allow families to save (marked in red in the graphs below) – a key shift that allows households to begin to use their household income for productive activities.

By contrast, the agro-pastoral population has more sources of income, with crops added to livestock, milk and other sources. Further, without any intervention, households are closer to their LPT. When the resilience scenario is added in, households are consistently above the LPT, and able to save in almost every year.

These differences are certainly influenced by the difference in production system. However, this is not to suggest that pastoral production systems are inherently less productive, but rather that efforts to strengthen that system may be required, for example in terms of closer access to markets selling cheaper food, or closer access to health and education services, or less risk of conflict. The issue is not just about how the income is constituted, but how connected these groups are to the institutions that support them.

Figure 2: Turkana Border Pastoral Livelihood Zone, Very Poor Households

Late Humanitarian Response



Resilience

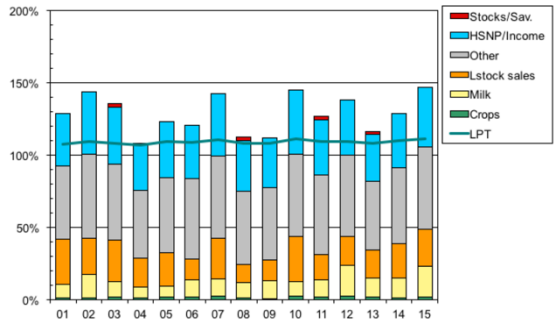
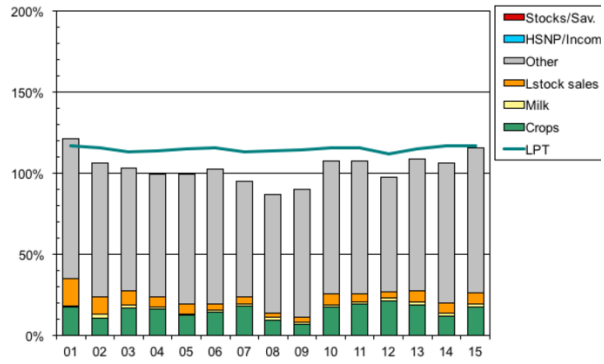
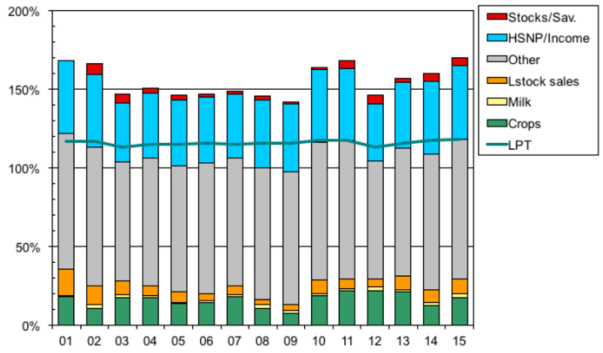


Figure 3: Turkana Agro-Pastoral Livelihood Zone, Very Poor Households

Late Humanitarian Response



Resilience



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.

In the model presented here, the cost of a safety net transfer is much higher than the cost of investing in people's ability to generate their own income. The safety net transfer requires delivery of a full cash or food transfer in every year of the model, whereas investment in activities that can yield income typically have returns on investment that are much higher (in some cases, the full cost of enabling chronically poor households to generate their own income could be much higher than a safety net due to the extensive investment that is required in some markets and financial systems). However, both are needed as people will struggle to successfully engage in productive activities if they are not able to meet their basic household needs. Getting this mix right is important, but will also be difficult given that this balance will be different for each household, and it is different from year to year, depending on weather and market conditions.

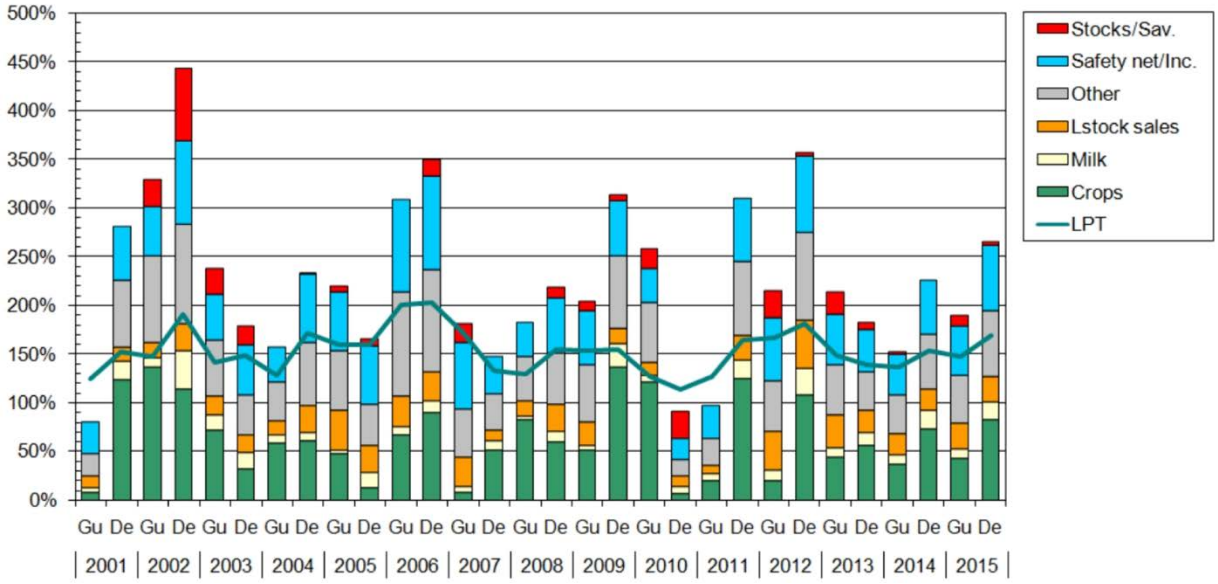
While the figures presented above clearly show the importance of consumption support to allow households to begin to save and engage in productive activities, in both contexts this saving is minimal. This suggests that greater inputs are likely required to progress households from requiring regular and 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. However, as discussed in greater detail below, building systems to allow for people to maximize their productive potential could be expensive, and in some cases unviable, in certain populations.

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. Investment in 'good' years is critical as it allows households to build up enough income to offset losses in 'bad' years.

The baseline model presented above assumes that the same level of safety net transfer amount is provided to households in every year of the model. In the years when total household income, including any intervention outcome, exceeds the household's livelihoods protection threshold by 20%, some of that income tips over into savings that can be used in the next year to help fill household deficits, although these savings do not provide any return on investment in the model. However, it is also possible that a greater investment up front could allow sufficient income generation to allow households to begin to fill their own deficits. The model was adjusted to assume that an initial one off transfer is provided at the outset of the model, used entirely for investment in income generation, assumed to yield a 30% return each year.[4]

The graph in Figure 4 shows an example of a poor agropastoral livelihood zone in Somalia. The graph presents a scenario without an upfront investment that yields income. Households receive a safety net transfer (as represented by the blue portion of the bar); when the safety net transfer is 20% above the LPT, it tips over into savings (represented by the red portion of the bar). The model shows how the safety net transfer shifts people above their LPT in approximately 14 of the 30 seasons represented, thus averting humanitarian need nearly 50% of the time.

Figure 4: Somalia Agro-Pastoral Livelihood Zone, Safety Net Transfer

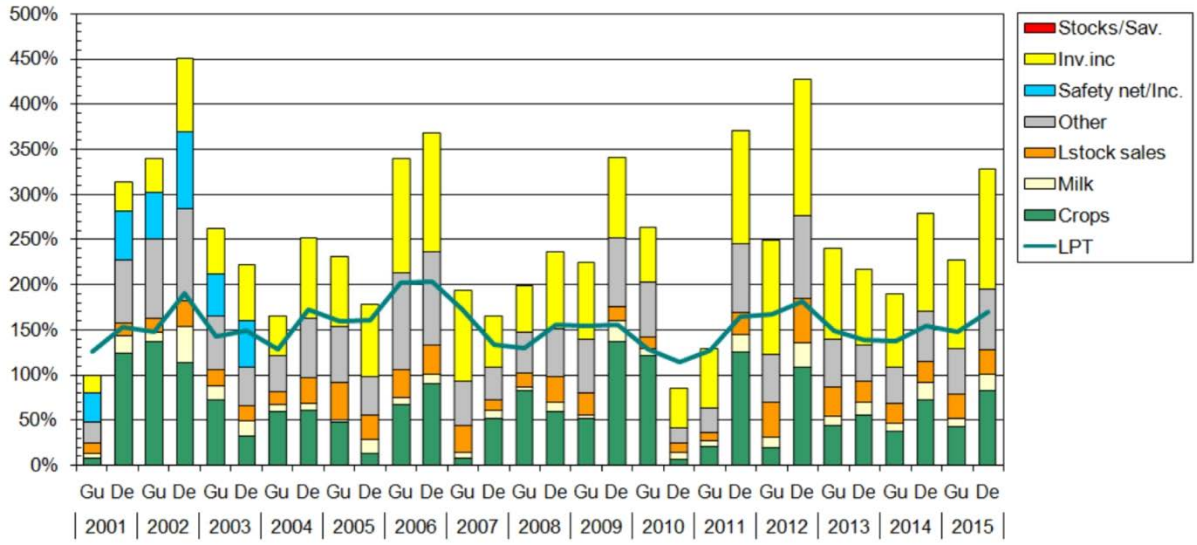


In Figure 5, the same livelihood zone is now given a one off investment payment of US$450, assumed to yield 30% income per year. The safety net transfer is supplied for the first three years only. The model almost exactly mimics the graph in Figure 4, but now instead of a yearly safety net filling the food deficit, **households are using their own income to fill that deficit**. However, this also assumes that that

[4] THE MODEL ASSUMES THAT WHEN INCOMES ARE 20% HIGHER THAN THE LPT, HOUSEHOLDS INVEST 25% OF THE SURPLUS INCOME, AND THAT WHEN INCOMES ARE 50% HIGHER THAN THE LPT, HOUSEHOLDS INVEST 50% OF THE SURPLUS INCOME. IT IS ASSUMED THAT THIS RETURN IS ACHIEVED IN ALL YEARS OF THE MODEL, WHEREAS IN REALITY THESE RETURNS MAY BE LESS IN BAD YEARS, AND COULD ALSO BE MORE IN GOOD YEARS.

pot of money is used for investment, and that it returns 30% every year of the model. While these are not unreasonable assumptions, they do require that business, supply chains, markets and roads, are all in place to allow for this kind of investment, and therefore highlight the importance of investing in a systems approach to resilience.

Figure 5: Somalia Agro-Pastoral Livelihood Zone, Investment and Income Model



In the figures above, investment in good years allows households to have the room to invest in activities that critically allow them to save enough to cover their needs in bad years. As a result, bringing together the humanitarian and development communities becomes absolutely essential to reduce humanitarian need. Importantly, investment in people's ability to generate their income will be far more cost effective than long term safety net programming, and the model suggests that this requires a strong investment in household livelihoods in the good years precisely because this will offset need in the 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.

A similar set of analyses were run for Tigray in Ethiopia. This livelihood zone is chronically food insecure, and the safety net transfer in Figure 6 only just maintains these households above their LPT. In Figure 7, the same livelihood zone is now given the same one off investment payment of US$450 that was given in the Somalia example, assumed to yield 30% income per year, as above. In this example, a safety net transfer is still required for at least 10 years in the model in order to maintain this population above their LPT. Importantly, the yellow portion of the bar that represents investment income barely increases from year 1 to year 15, indicating that while these households are better off, they are unlikely to experience 'graduation' out of poverty.

Figure 6: Tigray, Ethiopia, Agricultural Livelihood Zone, Safety Net Transfer

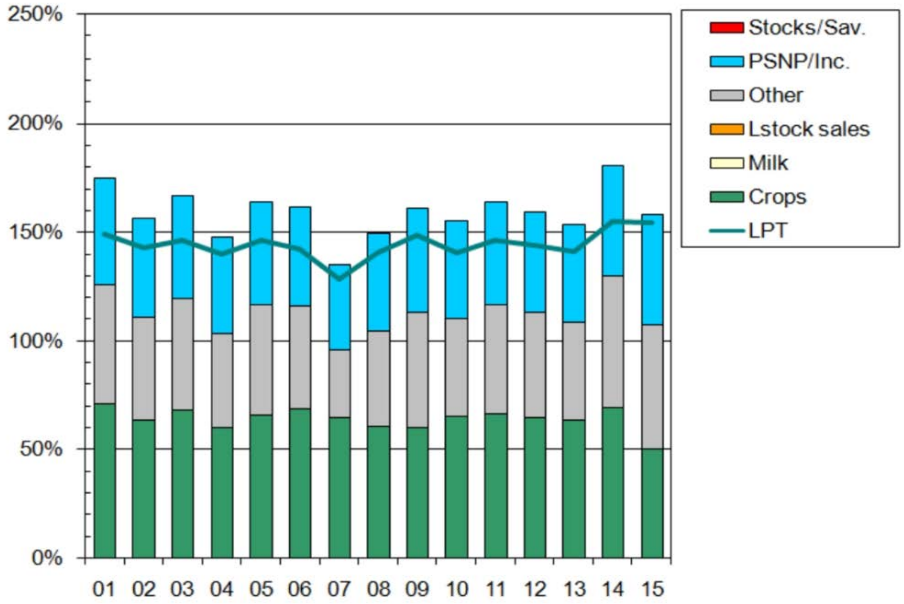
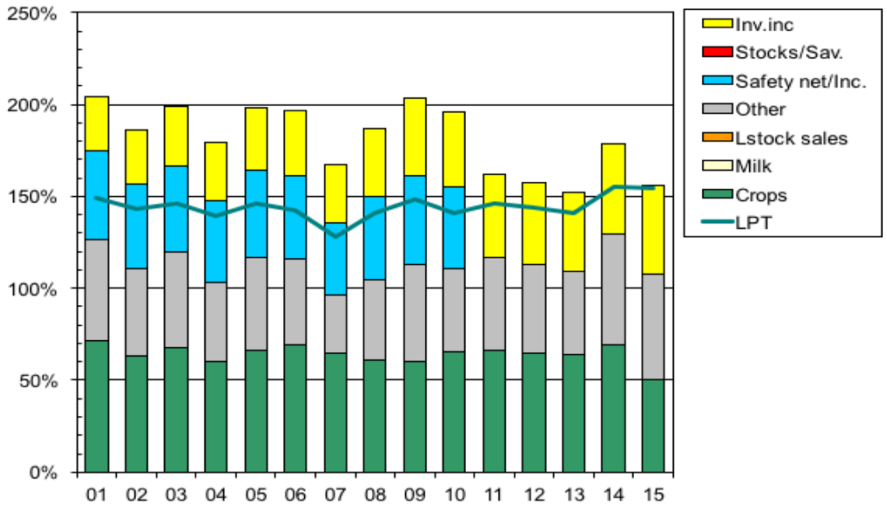


Figure 7: Tigray, Ethiopia, Agricultural Livelihood Zone, Investment and Income Model



These findings raise some tough questions around what 'building resilience' might look like for different populations. Building systems to allow for people to maximize their productive potential won't work in all contexts, for example where household land holdings are so small that self-sufficiency is simply not possible, no matter how productive that piece of land. Even if job opportunities were maximized in some of these areas, people moving out of pastoralism will still have to out-migrate to find work. Out-migration, as a key strategy to access more opportunities to increase household income levels, may contrast with safety net and asset-building strategies that encourage households to stay in certain areas. The analysis presented here defines resilience by its outcome (namely an increase in income), but is intervention-agnostic. The types of interventions or livelihood strategies that lead to this outcome will be varied.

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'.

Baseline HEA livelihoods data was collected in Tigray in 2006 and 2016. A comparison of these two baselines shows that a great deal has changed – mostly for the better. There have been notable changes in crop production, and expansion of agricultural extension services; investments in livestock health; markets have expanded and road networks have been built.

Despite all of these improvements, the evidence does not point to major changes in the patterns of household food and cash income. On the face of it, the findings seem disappointing. However, a deeper analysis reveals that, despite significant increases in yield, population growth has meant that people's land holdings have decreased, and as a result households have more or less maintained a similar pattern of access to food and cash income.

This context clearly demonstrates why one cannot assume that investments in resilience will always result in direct improvements in household welfare. The confluence of a whole variety of factors and conditions can confound a clear understanding of whether things are better or worse. And these findings also beg the question – what would have happened to this population if there had not been a significant investment in production?

The HEA model is used to estimate household deficits based on the 2015 baseline data, with the investment in production, modelled across 15 years for a population of 1.9 million people. This outcome is then compared to a second model that estimates the same set of parameters but without an increase in production. 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. For example, improved awareness on health practices needs to be complemented by adequate health facilities and services at those facilities; investment in productive activities requires access to markets and investment in roads; cash transfers are not effective unless they take place within the context of highly integrated markets and access to goods and supplies.

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. For example, the economic model uses actual cost data from the UN World Food Programme (WFP) on the cost of delivering food aid through international procurement at peak prices, international procurement at optimized prices, and local procurement. Mechanisms such as multi-year humanitarian funding can contribute substantially to cost savings by ensuring that agencies have the funds in place to procure at the time of the year that optimizes prices, rather than delaying until emergency funds are released.

Safety net transfers as modelled here are delivered to all very poor and poor households; yet in reality safety net transfers are not always delivered to all who need it, resulting in sharing out and hence a reduced transfer per household that may not allow households to achieve their productive potential. The model suggests that investing in safety nets for all very poor and poor households is still more cost effective than a late humanitarian response.

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. A clearer understanding of the types of interventions that are having a significant impact is important. However, reframing intervention around a community driven approach in a context where building resilience means different things for different households, will be essential to maximize effectiveness. A much broader perspective on adaptive investment that can respond to the multiple and changing needs of households and communities may be required to truly address resilience in an effective and sustained manner.