Building more resilient pathways to prosperity

COMMUNITY PERSPECTIVES FROM BURKINA FASO AND ETHIOPIA

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About this guide

Catholic Relief Services (CRS) developed a series of eight briefs to illustrate how CRS' food security programs have built absorptive, adaptive and transformative capacities of agricultural livelihoods to help individuals, communities, and systems address the challenges of recurrent shocks and chronic stresses. The agricultural livelihoods components of the CRS resilience intervention investment package focuses on livelihood protection in humanitarian emergencies contexts while promoting economically and environmentally sustainable and diversified livelihood growth. CRS achieves this through integrated and sequenced approaches which initially save livelihoods, progress to strengthen livelihoods, and ultimately build shock-resilient livelihoods, helping households and communities to stay the course along CRS' Pathway to Prosperity.

The Families Achieving Sustainable Outcomes (FASO) United States Agency for International Development (USAID) Title II development program implements integrated programming in the health districts of Tougouri in Namentenga Province in the Centre Nord Region; Manni in Gnagna Province; and Gayeri in Komondjari Province in the East Region in Burkina Faso. FASO is five-year program operating in an area with reoccurring weather-related shocks and stressors. While it was not designed to be a resilience-focused program, it nonetheless integrated the relevant factors to successfully contribute to well-being outcomes. The FASO briefs demonstrate the opportunity for developmental programs to align more with the principles in *Building Resilience to Recurrent Crisis: USAID Policy and Program Guidance*[1].

The Resilience through Enhanced Adaptation, Action-learning, and Partnership (REAAP) program is funded through the USAID Office of U.S. Foreign Disaster Assistance, Global Climate Change, and Feed the Future initiatives. REAAP is a three-year program carried out in East and West Hararghe zones of Meta, Fedis, Midhega Tolla, Mieso, Tulo, and Oda Bultum *woredas* in Oromia region of Ethiopia. The program is specifically designed to sustainably increase resilience and reduce long-term vulnerability to current and future climate change and climate-related shocks and stresses in vulnerable communities.

The resilience briefs allow CRS and partner staff to identify actual examples and to learn from success by documenting in real-time what works to strengthen resilience. Select examples of absorptive, adaptive and transformative capacities from ongoing FASO and REAAP programs are used to illustrate the promising practices and approaches as well as challenges to achieving transformative change within a three- to five-year period. The briefs also provide an overview of CRS' progress in shaping and implementing a vision for building resilience in new or existing programs.

Finally, the briefs can help program staff to identify potential areas to influence systems and structures by locating entry points, including "The Family House" approach and keyhole gardens, which can help national policies and institutions better integrate disaster risk reduction, climate smart agricultural practices and adaptations, and development approaches.

1 https://www.usaid.gov/sites/default/files/documents/1870/USAIDResiliencePolicyGuidanceDocument.pdf

Table of contents

Photo by CRS Burkino Faso staff

Building more resilient pathways to prosperity in Tougouri, Manni, and Gayeri health districts in Burkina Faso

SYNOPSIS

While the Catholic Relief Services (CRS) Burkinabe Families Achieving Sustainable Outcomes (FASO) Program was not designed to be a resilience-focused project, it nonetheless integrated the relevant factors to successfully contribute to well-being outcomes.[1] Within the FASO Program context, resilience takes the form of strengthening community and household abilities to respond to climatic and environmental shocks that affect livelihoods, as well as strengthening community attitudes toward change, collaboration, organization, decision-making, and resource management. FASO interventions reinforce the community-level structures and processes that enable households and communities to mitigate, deal with, and recover from shocks and stresses in the health districts of Tougouri, Manni, and Gayeri.

1 The FASO Title II development program implements integrated programming in the health districts of Tougouri in Namentenga Province in the Centre Nord Region; Manni in Gnagna Province; and Gayeri in Komondjari Province in the East Region. Resilience is a new approach, and few existing tools or frameworks exist to measure its impact. Resilience is highly contextual, and no set of indicators or activities sufficiently captures resilience on a global basis.

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FASO strategy for building resilience capacity. *Resilience* is the capacity to cope with stresses and shocks,[2] including the major stress of climate change. Natural shocks—including cyclical drought and seasonal floods—contribute to food insecurity in the health districts of Tougouri, Manni, and Gayeri. FASO households frequently identified five specific shocks, including:

- Loss of crops and livestock due to drought
- Loss of livestock due to illness
- Increase in food prices
- Increase in cost of inputs
- Vulnerability to droughts, floods, and storms

Resilience interventions integrate livelihoods, disaster risk reduction, and climate change reduction approaches across *recover*, *build*, and *grow* farmer segments of the Pathway to Prosperity. CRS' Pathway to Prosperity (P2P) model (based on USAID's Pathway out of Poverty) presents households with a course from the vulnerable *recover* stage through *build* to *grow*, by delivering layered and sequenced packages of interventions to groups and households according to their economic status, systematically helping them move from vulnerability to economic prosperity and resilience.[3]

Within the FASO project area, the farmer segment is mostly very poor, and in the *recover* phase, interventions focus on ensuring that households can access, consolidate, and protect key productive assets. As they move from *very poor* to *poor* (the *build* phase), farmers increase skill building in production systems; savings and loans; and linking production with markets. Table 1 demonstrates how FASO agricultural and livelihood activities align with the CRS Agriculture and Livelihood (AL) theory of change building blocks for P2P farmer segments.

DEFINING RESILIENCE

USAID defines resilience as "the ability of people, households, communities, countries and systems to mitigate, adapt to and recover from shocks and stresses in a manner that reduces chronic vulnerability and facilitates inclusive growth."

Source: USAID's "Building Resilience to Recurrent Crisis," (2012)

Scaling financial education and services for vulnerable households to engage in agricultural market systems. Community-based groups such as savings and internal lending communities (SILCs) have proven successful in building the social and financial capital of recover farmer segment households in FASO areas. Through the SILCs, recover farmer segment households have learned to come together to pool financial resources, solve problems, and learn new financial literacy skills, all of which strengthen the social bonding so critical to vulnerable households. Strengthening household assets fosters confidence, especially in women, and empowers households to undertake riskier but more productive and diversified livelihoods (e.g., parboiled rice marketing and poultry production).

The SILC groups also provide an entry point for building awareness and changing the behavior of FASO communities with respect to nutrition behavior, coping strategies, and women's empowerment. Fostering community groups to develop relationships to other communities (e.g., vegetable marketing), organizations (e.g., tool committees), and service providers (e.g., agriculture input dealers) can further build community resilience by broadening social as well as business ties.

Social cohesion and strong inter-household bonds within FASO communities foster spontaneous cooperative acts, which ensure that struggling households do not drop below a normative level during a crisis. Numerous FASO communities and households reported instances of assisting families to recover after a crisis by providing food, labor, or chickens.

The effective use of livestock production and drought-resistant crop varieties or improved seed

2 Capacity and coping capa*city* are often used as synonyms for *resilience*.
3 USAID 2011. Pathways out of Poverty: Applying key principles of the value chain approach to reach the very poor. Discussion paper. Microreport 173.

TABLE 1: FASO LINKAGE BETWEEN PATHWAY TO PROSPERITY AND BUILDING BLOCKS OF THE AGRICULTURE AND LIVELIHOOD THEORY OF CHANGE

Building Blocks[4]	Organization	Production	Finances	Market Access	Influence
Pathway to Prosperity—Farmer Segments Within FASO: Emergency Activities[5]	Food/Cash for Work asset building	Disaster risk reduction through Food/Cash for Work NRM activities			Food Aid (support to vulnerable)
Pathway to Prosperity—Farmer Segments Within FASO: Recover Activities	Group organization: SILC, market gardening, tool management, lowland rice producer, and parboiled rice marketing groups	Soil and water management: zaï, demi-lune, mulch, compost, stone bunds, early mature varieties, agroforestry, and other land/soil reclamation.	SILC, financial education, marketing basics	Seeds fairs; PICS bags; agro-dealer and seed producer technical capacity building; and facilitated linkages with producers	Landscape regeneration; support to government agricultural extension and the National Institute for Agricultural Research (INERA)
Pathway to Prosperity—Farmer Segments Within FASO: Build Activities	Livestock and poultry vaccination and feed support	Diversified production systems on farm: livestock, poultry, value-added parboiled rice, dry-season garden marketing crops, and sesame	Links to micro-finance institutions (MFIs) or warrantage	IGAs with loans acquired with MFIs and SILCs	Climate-change work with INERA to test more drought-tolerant varieties for producers

varieties in providing higher yields and reducing downside risks. Since conventional rain-fed cropping is becoming unsustainable, many FASO recover farmer households attempt to improve resilience by diversifying their livelihoods through livestock. FASO recover households, especially women-headed households, find that livestock ownership is a more efficient means of farming in non-arable areas. In FASO communities, livestock become primary assets and means of liquidity for poor and vulnerable households.

FASO recover farmer households are accessing and utilizing new or improved crop varieties that enable them to increase production and yields. This practice, in turn, improves households' resilience

4 The CRS Pathway to Prosperity (P2P) and Agriculture and Livelihoods (AL)- Signature Program Area (SPA) Theory of Change were developed after the FASO Program began; therefore, this table is meant to illustrate how they can be linked in the future. In addition, the current AL-SPA Theory of Change consists of seven total building blocks, including catalyzing behavioral change and strengthening seed and input systems.

5 The FASO Program has a set of trigger indicators, which help to inform program staff when to expand emergency activities to respond to shocks. The activities provided here are illustrative, since the actual trigger indicators have not yet noted an emergency within the FASO geographical area.

to cope with stresses. Within FASO, farmers can better cope with erratic rainfalls and participate in the market by using:

- Reliable irrigation water systems to improve crop yield
- Improved high-yielding crops, such as sorghum, cowpea, sesame, and rice varieties accessed from the National Institute for Agricultural Research (INERA) to increase production

Focus on capacity-building approaches (absorptive, adaptive, and transformative) that are mutually reinforcing and exist at multiple levels. Adaptive capacity refers to access to resources in order to cope with shocks and hazards as well as stresses and long-term changes. Adaptive capacity is higher near local rivers and streams and urban areas, which all provide opportunities for irrigation, transport, and marketing. Because adaptive capacity declines with increasing distance from major urban areas and waterways, the FASO households with the lowest relative adaptive capacity tend to be low-income, rural households located in remote areas.

Whether the shock takes the form of drought, floods, or price fluctuations, access to markets and services affect adaptive capacity. Thus, adaptive capacity tends to be highest near major urban centers where road, health, and market infrastructure are dense. The FASO Program found that, for recover farmer segments, few markets exist in the implementation zone. In fact, some villages are more than 30 kilometers from a major market center. Inaccessible markets, poor road infrastructure, and insufficient market information increase transportation costs. These factors limit recover farmers' ability to successfully negotiate fair prices and find adequate markets, especially for cash crop production. Training and market linkages significantly aided FASO farmer adoption of new technology and resulted in increased resilience.

However, results from the FASO Program showed that resilience also increased for those who had more diversified incomes. In most cases, diversifying income means producing surplus food crops or producing higher-value products for sale, such as parboiled rice, sesame, onions, and livestock products. As farmers gain access to markets and can invest in production systems, they increase their ability to recover from shocks.

FASO community member focus-group discussions revealed that the ability to generate income during the dry season is one of the most important indicators of resilience, after livestock ownership and land access. Non-farming activities (e.g., the marketing of parboiled rice)—which are both a primary and secondary source of income—help poor households and vulnerable individuals, especially women, diversify incomes, smooth consumption, and cope with shocks and stresses. Off-farm income diversification bolsters resilience capacities by helping households fill gaps in seasonal agricultural incomes and adapt to changing conditions in the rural economy and environment. This diversification is important in communities where, according to FASO project documents, one-quarter of rural FASO households engage in at least one off-farm activity. Table 2 demonstrates how various FASO activities help link FASO farmers to markets as well as contribute to resilience capacity.

Build resilience of individuals, households, communities, or higher-level systems to deal with shocks and stresses. The FASO Program continues to implement activities, but has already made remarkable progress in impacting food production and revenue generation for more than 80,000 direct beneficiaries (58 percent of whom are women) in the health districts of Tougouri, Manni, and Gayeri. The adoption of climate-smart technologies (including zaï, adapted seed varieties, and the improvement of lowland and degraded land) enabled FASO Program adopters to harvest during years of drought and erratic rainfall, when other households that did not adopt these technologies experienced failed harvests.

FASO's direct beneficiaries saw an improvement in average yield, from 1.2MT/ha before the program

TABLE 2: FASO MARKET SYSTEMS RESILIENCE INTERVENTIONS

Type of Intervention	Absorptive Capacity	Adaptive Capacity	Transformative Capacity
Linking to social protection	Food and input transfer to meet immediate needs and build assets	Savings groups to smooth consumption and provide capital for households' agricultural and IGA business activities; parboiled rice equipment transfers to enable women's participation in rice value chain and upgrading	
Facilitating access to end-markets	Linking rice and vegetable market garden producers to multiple input suppliers and buyers	Diversifying economic activities to offset risk	Promoting investment in marketing infrastructure such as irrigation and transportation
Catalyzing changes in market systems	Increasing crop and livestock productivity; increasing value addition to rice and vegetables; storage through PIC bags; warrantage	Promoting value-chain coordination and adaptive management with private sector (horticulture and input providers)	Increasing efficiency of sorghum, millet, and rice chains
Fostering improved relationships and system norms	Diversifying household market opportunities to increase and smooth income throughout the year	Increasing access to financial services, including MFIs and warrantage	Building trust: bonding, bridging, and linking social capital between village development, market gardening, tool, and water user committees
Strengthening value-chain governance	Engaging vulnerable populations in market systems to increase incomes; engaging women in market systems, and strengthening leadership to empower women and increase their participation in household decision making		Disaster risk reduction action increases resilience to shocks and decreases the risk to the market system.

to 3.7MT/ha after the program; this represents an estimated total production of 2,347 MT of paddy per year.[6] FASO has improved livelihoods in the targeted communities by emphasizing value chains in the selection of crops, promoting proven climate-adaptive technologies, and facilitating access to credit. Table 3 provides an overview of FASO's results to-date, and demonstrates the scope and range of agriculture and livelihood intervention packages to groups and households according to their economic status. FASO beneficiaries also observed how the establishment of irrigated gardens reduces emigration from the villages for work, and demonstrates that villagers will stay in the village if work opportunities exist.

Learning to-date: Building resilience requires the integration of multiple components, such as community involvement, access to finance, market integration, and asset strategies, as well as long-term commitment to minimizing exposure and speeding recovery to shocks.

FASO continuously refines its approach and methodologies to improve upon prior experiences and ensure that its activities generate the desired outcomes. The learning to-date underscores the importance of treating resilience capacity development as a long-term, systemic process rather than a singular event.

TABLE 3: OVERVIEW OF FASO RESULTS IN HEALTH DISTRICTS OF TOUGOURI, MANNI, AND GAYERI

- **31% of households** reported improved access to agricultural input.
- **39% of men and women** used intercropping for cowpea.
- **18,612 farmers** applied new technologies or management practices.
- **Community members** made SILC contributions to a social fund of more than $42,500 to support each other during shocks or stresses.
- **16% of beneficiaries** accessed SILC during the last cropping season.
- **6,551 farmers** adopted and used climate-smart technologies: zaï and/or demi-lune (593), stone bunds (506), warrantage (187), and poultry breeding (344).
- **6,551 people** implemented risk-reducing practices to improve resilience to climate change.
- **3,519 ha** are under improved technologies or management practices.
- **269 ha** are under stone bund.
- **31 ha** are in market gardening.
- **FASO has supported** the establishment of 537 ha of rice.
- **Average yield improved** from 1.2MT/ha before the program to 3.7MT/ha after the program; this represents an estimated total production of 2,347 MT of paddy per year.

Source: FASO Monitoring and Evaluation Indicator Tracking Table data for FY2015.

6 FASO Monitoring and Evaluation Indicator Tracking Table data for FY2015.

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Enhancing sustainable production — adaptations for recovery in a degraded environment

SYNOPSIS

Since the 1970s, Burkina Faso has experienced drought, which has intensified vegetation loss and erosion from wind, water, and lack of soil nutrients. Rain-fed agriculture is dominant throughout the Burkinabe Families Achieving Sustainable Outcomes (FASO) Program, and it is encountering increased risk as rainfall becomes more erratic.[1] The FASO Program contributes to climate-change adaptation by:

- Promoting water-harvesting techniques and crop diversification
- Promoting the use of early-maturing and drought-tolerant varieties of seed
- Improving soil management through integrated natural-resource management
- Training farmers on readily implemented, no-cost (or low-cost) adaptations

Water management helps communities become more drought-resilient by reducing runoff and erosion, improving water infiltration, increasing soil moisture, and increasing agricultural productivity even in dry years. FASO community members recognize that improving the management of natural resources, such as soil and water, is vital for food production and will strengthen the resilience of households and communities facing food insecurity. The FASO Program centers on the concepts of resilience and sustainability. It focuses on improving the absorptive and adaptive capacities of recover farmers to system shocks and strengthening their connections to long-term markets.

1 Burkina Faso may experience a 0.8 degree Celsius rise in average temperature by 2025 and a 1.7 degree Celsius rise by 2050, with a potential drop in rainfall of –3.4% by 2015 and –7.3% by 2050. Source: Global Facility for Disaster Reduction and Recovery (GFDRR), www.gfdrr.org.

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Limited availability and access to water. Burkina Faso receives most of its rain between June and September, and rainfall during this season typically provides water for crops and livestock. Millet, sorghum, maize, and rice are the principal crops grown for household use and surpluses to be sold in markets. FASO farmers' agriculture is mainly rain-fed, making it highly dependent upon rainfall amounts and distribution. The FASO area experiences higher rainfall variability, making it vulnerable to food insecurity; thus, the FASO Program focuses on promoting improved water availability to farmers.

Water infrastructure for productivity and resilience interventions. Rain-fed rice areas are characterized by lack of water control, flooding, and droughts. Yields are typically low due to adverse climate and poor soils, as well as a lack of suitable modern technologies and improved rice varieties. The FASO Program promotes a range of water infrastructure activities for production and resilience outcomes. One activity consists of bund (embankment) construction around fields to create dikes that channel and retain water. Water is added to bunded fields by the natural flow of water from streams and rivers, and embanked to retain water for at least part of the year. In some areas, irrigation supplements natural rainfall during the wet season. Generally, FASO farmers with irrigated land reported using more purchased inputs than farmers of non-irrigated lands do.

OVERVIEW OF FASO SOIL AND WATER RECLAMATION RESULTS

Catholic Relief Services (CRS) has engaged over 6,600 farmers in the rehabilitation of more than 3,500 hectares of degraded private land through the use of zaï and other locally acceptable techniques.

Source: FASO Monitoring and Evaluation Indicator Tracking Table data for FY2015.

KEY PRINCIPLES FOR FASO'S WATER MANAGEMENT

- Capture rain where it falls.
- Make water stop and infiltrate soil.
- Make sure people and livestock do not disturb any measures put in place to achieve soil and water conservation.

The FASO Program has promoted irrigation schemes in program areas as another intervention to address both productivity and resilience. FASO-supported interventions to develop water infrastructure construction in marginal lands, including flood plains and *bas-fonds* (lowlands) show promise given the high potential of those systems to increase rice production. Within dryland areas, FASO disperses trees within fields and communities, and takes other agroforestry measures to help with soil reclamation. Micro-catchments or demi-lunes are used to harvest water in dryland areas. Even the smallest rainstorm results in runoff that is collected in the demi-lunes, and the water stored in the soil under them is enough to sustain the trees or plants during a dry spell. In FASO areas, communities and households plant trees in the demi-lunes if they can access seedlings.

Traditional techniques for conserving water and rehabilitating degraded land. The FASO Program's experience suggests that, wherever possible, community members should adopt no-cost climate-change adaptations. The zaï system is a traditional technique for conserving water and rehabilitating degraded land through the digging of a series of man-made pits on unused land. Because the land is typically less permeable to water, the man-made holes capture runoff precipitation. Farmers then fill the zaï pits with organic matter so that moisture can be more easily trapped and stored. Farmers then plant annual crops such as millet or sorghum in the pits. The zaï pits extend favorable soil conditions and are beneficial during storms, when too much

Photo by CRS Burkino Faso staff

water accumulates. The compost and organic matter in the pits absor.b excess water and store it for the planted crops.

In the FASO Program, the zaï system is often practiced in combination with contour stone bunds and the planting of trees. Traditional methods and practices for conserving water and rehabilitating degraded land include contour stone bunds, compost pits, mulching, and re-generation of vegetation and zaï pits. When adopting the zaï technology, FASO mainly calculates the cost of implementation according to the farmer's laborer and access to tools. The economic return of the farmers' investment is 100 percent, because the land brought under production was previously abandoned or unused.

Adaptations needed for recovery in a degraded environment. The FASO resiliency strategy centers on improving the capacity of vulnerable communities and households to adapt to climate change. The poor, who are especially vulnerable, have limited adaptability and few incentives to invest in climate-change mitigation unless such investments also enhance current productivity. This situation is best illustrated by a man who, although not a direct beneficiary of the program, began to dig zaï in imitation of FASO participants. He observed, "When I started digging these small holes, people called me crazy because it's crazy to cultivate in the dry season. I dug half a hectare of zaï, and I harvested twice in this field. Those who called me crazy later renamed me the 'Wise Man' and started following my example."[2]

2 RISE Newsletter, Tiabrimnani Nadinga.

FASO promotes improved land, water, soil, and crop management practices through organized capacity training, model farmers, and farmer field schools demonstration. The improved techniques and practices FASO promotes include:

- Agroforestry in which Baobab trees and moringa are planted together with sorghum and millet crops on farms. The trees enhance soil fertility, provide shade, and reduce runoff and erosion.
- Stone bunds placed along contours to slow the runoff of water and enhance its absorption
- Water-harvesting structures and systems including water ditches to collect water from a surface area for irrigation or improved filtration
- Small-scale irrigation and improved water management from ground and water sources
- Zaï pits for planting and water conservation
- Crop residue mulching – leaving crop material on the field after the harvest to improve soil texture, prevent erosion, and encourage water filtration
- Livestock manure collection and storage for future use on farmers' fields
- Composting by allowing crop residue and manure to decompose and then adding them back to the soil to improve fertility and texture, and allow for improved water filtration
- Improved, stress-tolerant grain, legume, and vegetable varieties, bred specifically by the National Institute for Agricultural Research (INERA) to be adapted to climate challenges in FASO Program area

IN THEIR OWN WORDS

During a field visit in July 2016, participants in focus-group discussions and key interviews frequently mentioned that water access was a fundamental problem, noting the strong relationship between water availability (through either rainfall or irrigation) and land productivity.

Weighing the costs and benefits of adopting technologies. The pump technology utilized in lowland rice paddies or at market gardening sites enabled producers to support large-scale irrigation during periods of erratic rainfall or during the dry season. The pump technology is a labor-saving technology for women who otherwise would be tasked with collecting water for farm, household, and production purposes. The primary disadvantage of the pump technology, which limits its scalability, is the lack of training in pump maintenance and the ongoing need for capital to pay for equipment and inputs, including spare parts and fuel. Market gardening groups and lowland rice groups often cited high pump-maintenance costs as an economic constraint, although well-organized groups were able to forecast these costs in their annual budgets and collect fees from members to meet annual operational costs.

Although producers appreciated soil and water management techniques for the resulting increase in yield, income, and soil- and water-retention, some beneficiaries – especially women – struggled to adopt or scale up the techniques. Some producers lacked the capital for needed equipment (producers needed a donkey, cart, wheelbarrow, shovel, manure, and compost to successfully complete each technique). In addition to the shortage of capital for equipment, women often found the zaï, mulch, and demi-lune techniques very labor-intensive. In some cases, they had to hire laborers to complete them, which added to their capital investment.

Recognizing these challenges and constraints, FASO capitalized tool committees with the necessary equipment, lowering barriers to the adoption of soil and water technologies that mitigated desertification and contributed to land reclamation. The tool committees appear to be a sustainable and cost-effective way for vulnerable, cash-strapped producers to access needed tools.

To a lesser extent, FASO promoted forestry management techniques for forage and shading

FASO SOIL AND WATER MANAGEMENT TECHNIQUES					
Crop and soil management techniques	Increased yield	Increased revenue	Improved soil fertility	Increased water retention/soil moisture	Short cycle crops adapted to climate change
Zaï	X	X	X	X	
Demi-lune	X	X	X	X	
Stone bunds	X	X	X	X	
Compost	X	X	X	X	
Mulch	X	X	X	X	
Adapted seeds (drought-tolerant and early-maturing varieties)	X	X			X
Market gardening	X	X			
Pump technology	X	X		X	

for animals, as well as crop protection on individual farms. When coupled with managed water access, agroforestry supports soil and water management by improving soil fertility and reducing soil erosion. The table above demonstrates how FASO interventions contribute to improved outcomes for producers.

Scaling up. The FASO Program is critical to USAID's resilience and climate vulnerability work, and can be brought into the planning and design of future USAID programming to ensure that it responds to current climate trends, anticipates likely climate shocks, and provides workable solutions to food security challenges. Looking ahead, the FASO Program has identified potential areas to influence systems and structures, including: by locating entry points, it can help national policies and institutions better integrate disaster risk reduction, climate smart agricultural practices and adaptations, and development approaches.

Learning to-date: FASO smallholder farmers are dependent on natural resources for their livelihoods and food production. However, their resilience depends on their future ability to protect and enrich those resources, and to adapt to the impacts of climate change at the farm level. Adaptation approaches such as land reclamation are vital to protecting farmers from drought, flooding, and loss of production and income.

FASO farmers started to recognize positive changes in their landscapes after investing in zaï, demi-lune, mulching, and inter-cropping, as well as using adapted, stress-tolerant seed varieties. FASO community members observed that soil and water management helped reduce soil erosion, increase rainwater infiltration, increase stream flows, raise the water table, raise pond levels, and increase crop yields even in dry years. This realization was the tipping point for greater change. Non-

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program farmers and communities have now started adopting similar production techniques and reclaiming marginal lands.

However, agricultural techniques and technology on their own do not necessarily lead to adoption and productivity increases among smallholder farmers.

Effective capacity-building interventions require long-term commitment, especially in FASO areas where the initial natural resource base is weak. Programs must sustain support over a long period to institutionalize new approaches, systems, and practices; ensure sustainable production efforts; and prevent the erosion of emerging gains.

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Resilient pathways through women's access to resources and services

SYNOPSIS

The Burkinabe Families Achieving Sustainable Outcomes (FASO) Program created more income-generating opportunities for women. Since diversification of livelihoods is the path towards resilience for many poor households, women's increased access to income is essential for transformative change. By investing in human capital, with a special focus on women, FASO contributes to a key dimension of resilience capacity. Market gardening—a gender-sensitive package of resilience-focused absorptive and adaptive capacity interventions –contributes to climate-change adaptation, household food security, and nutritional impacts. In addition, it increases women's productivity and control of income, as well as their access to irrigation agriculture and cash.

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Resilience and gender. Gender influences the skills, strategies, and mechanisms individuals use to cope with and adapt to disturbances. It is more difficult for women to adapt to shocks and stresses because of their limited access to and control over productive and financial resources. Thus, women often struggle to diversify or utilize improved varieties of crops and small livestock that are better able to withstand drought or pests. Additionally, women—who typically own small plots of marginal land—often lack access to the technologies that fit their needs, facilitate adaptive capacity, and reduce workload. Through FASO-supported land reclamation activities, female heads of household have gained a source of security and reduced the vulnerability of their households.

FASO learned that women's time burden inhibited them from adopting agricultural and natural-resource management technologies. Recognizing this time constraint, FASO intentionally disseminated less labor-intensive agricultural and natural-resource management technologies to women and ensured that production and marketing decisions took into account their workloads and access to tools, land, and financial services. In order to ensure adoption of new practices, FASO strengthened women's access to – and control of—land and water.

Opportunities for women's livelihood strategies and adaptive capacity are linked to women's assets and levels of access to income and common property resources. Women reported working mostly with groups that operate within the community, and relying more on bonding social capital (usually informal connections to family, kin, and friends, but also community members in general). Women engage in mutual risk-sharing networks at the village level. They depend on everyday forms of collaboration in activities such as collecting water and fetching fuel wood. In some cases, women help each other with farm work in exchange for labor, cash, or produce.

The FASO Program supported the formation of 777 savings and internal lending communities (SILC) groups. SILCs are helping women in the project areas develop basic skills in financial management. SILCs have contributed to the development of financial capital by helping women save money and drive revenue-generating activities, mainly in the dry season. The social fund has also contributed to women's solidarity groups by supporting the poorest members of the community. Women SILC members reported

OVERVIEW OF WOMEN-FOCUSED RESULTS IN FASO

- **52% of female participants** in FASO programs increased access to productive economic resources.
- **61% of targeted beneficiarie**s reported increased revenue from agricultural activities.
- **3,147 women** accessed improved post-harvest storage techniques and technologies.
- **10,789 women farmers** were supported with USAID Title II food assistance to improve the productivity of more than 5,800 ha of degraded land.
- **637 ha of lowland** have been improved and allocated to 3,692 rice producers, 1,146 of which are women.
- **Women participating in market gardening** earned an average income of $116 per beneficiary over a four-month dry season production cycle.
- **Women participating in warrantag**e and rice parboiling activities earned an average income of $161 and $134, respectively, over a four-month period coinciding with the "lean season."
- **771 savings** and internal lending communities (SILCs), primarily made up of women members, mobilized $488,890 and generated $113,000 in interest. They contributed more than $42,500 to a social fund to support each other during shocks and stresses.

Source: FASO Monitoring and Evaluation Indicator Tracking Table data for FY2015.

Photo by CRS Burkino Faso staff

using such funds to pay for school fees, educational supplies, the school canteen, or farm labor.

In addition to SILC, women participate in warrantage schemes. Instead of selling their cereals or produce at harvest time, women can receive loans while leaving part of their production in a locked warehouse with keys held by their group and the financial institution. This credit gives smallholders the means to buy essential inputs for the next planting and to hold on to product until the lean season, when food stocks start to run low and prices climb. At that point, farmers can redeem their product from the warehouse, sell their crop, repay their loan, and generate a profit. By using part of the credit to finance other income-generating activities, many farmers were able to repay their loans even before selling their crop.

Gender-based access to resources and ability to withstand shocks. Women own or manage most of small ruminant assets. Sheep and goats play an important resilience function, as they are important household assets with saving and insurance roles. They also play a crucial risk-mitigation role in the face of drought, crop failures, and reinvestment in production following a shock or stress.

Sheep and goats' ability to survive in harsh environments make them an important part of rural safety-net systems in Tougori, Manni, and Gayeri health districts. Sales of animals or their products supplement household income, and larger animals transport people and goods. Most significantly, animals store value generated by farming, and, to a lesser extent, by other forms of production and market exchange. For livestock

owners, animals constitute an asset base that can be liquidated when difficulties arise. In addition, animals provide animal products and represent an asset in the making (in terms of off-spring). Thus, raising livestock is an important livelihood strategy for women. Small ruminants and chickens are the most common animals among the most vulnerable households, including all-women and women-headed households.

As a result of FASO interventions, women can engage more in livestock rearing—an important part of the local economy. In the FASO Program intervention area, women generated income from gardening or sale of poultry, which they reinvested in breeding small ruminants. For example, a women who participated in the FASO Program reported that her aggregate successes in poultry and bean farming have enabled her to buy two goats, which in turn have produced more kids. She has also raised 276 chickens, of which she has sold more than 70.[1]

Livestock plays a critical role in recover and build farmer households, serving as savings and income sources, and providing manure for soil-improvement activities. Access to livestock or poultry has been transformational for women, who can now contribute cash or products to the household. Women repeatedly mentioned that this ability to contribute improved their status and increased their decision-making power within the household and community.

RESILIENCE: SCALING UP EFFORTS

Because of their contribution to health and nutrition goals, marketing gardens play an important role in child nutrition and expanding economic opportunities—especially for women—in the FASO Program.

Households seldom consume their animals (with the exception of chickens). Instead, most tend to reserve high-value animals for sale when scarce cash is needed or when "buying-up" for larger animals. Access to larger animals—cattle, donkeys, mules, and horses—may be key for more resilient livelihood strategies within the FASO Program area. Community members observed that the absence of livestock was a strong indicator of food insecurity or vulnerability. During a field visit conducted in July 2016, speakers in focus group discussions and key interviews frequently mentioned that households without any animals, especially those without poultry, were considered the poorest of the poor.

By establishing dry-season gardening for women to grow vegetables—including onions, tomatoes, okra, and peppers—for household consumption and income generation, FASO leveraged the productivity of developed lowland areas. Fresh

FASO IMPROVED NUTRITION THROUGH AGRICULTURE AND FOOD SYSTEMS

- **Targeted the vulnerable** and improved equity through participation and access to resources.
- **Improved** the natural resource base
- **Empowered women**
- **Facilitated diversification** and increased production of nutrient-dense crops (e.g., orange-fleshed sweet potatoes, sesame, and legumes) and small-scale livestock (e.g., goats and poultry)
- **Improved processing,** storage, and preservation to retain nutritional value and food safety; reduce seasonality and post-harvest losses; and make healthy, convenient-to-prepare foods
- **Expanded market access** for vulnerable groups, particularly for marketing nutritious foods (e.g., garden vegetables, tomatoes, and peppers)

1 FASO Program FY15 Annual Results Report Success Story, "Asseta and the Golden Egg."

Photo by CRS Burkino Faso staff

vegetables are now available in local markets, where they contribute to improved incomes and nutrition. In most cases, women share the harvest among themselves. In some of the FASO areas in Gayeri health district, irrigated market gardens have allowed community members to access fresh vegetables for the first time during the dry season.

Women also received training in techniques for parboiling rice, as well as equipment to help with the scaling up of this income-generating activity. Rough rice harvested from the field with the husk and bran layer still attached is sometimes called paddy rice. Women can add value to paddy rice through parboiling. In parboiling, rough rice is steamed under intense pressure that pushes nutrients from the bran layer into the kernel, making it sturdier and less likely to break during milling. The final product can be sold as milled rice, and the by-products—the husk and bran—can be sold as animal feed.

While some livelihood activities provided a steady income throughout most of the year, others provided income in lump sums. Women appreciated both types of income for different reasons. They found it easier to plan for the steadier sources of income, such as petty trade. These income sources reassured women that they could pay for regular expenses such as school fees and food each month, even though they did not currently possess that income. However, these livelihood activities usually produced only a small income and did not provide enough to meet unexpected expenses such as medical treatment or equipment repairs. Therefore, women needed a balance of steady but relatively small income sources, and lump-sum income sources (e.g., income from animal sales). Rice

harvests seemed to provide both steady incomes and lump-sum income. The stored rice could be sold as needed, in amounts just large enough for the households' needs.

Learning to-date: Two key drivers of resilience are: (1) diversification of income sources, and (2) access to resources and services. FASO facilitated the appropriate linkages needed to help female-headed vulnerable households manage risks. Through marketing gardens, poultry rearing, and livestock and small ruminant-fattening activities, women have been able to accumulate resources by focusing on one activity to achieve high returns.

However, in order to reduce the long-term risks for female-headed households, the FASO Program needs more time to facilitate development with major forms of service to support their activities (e.g., veterinary services for livestock and output markets for cash crops such as onions). In supporting women's income diversification strategies, it is important to identify the major risks and stresses facing households in their various activities, and provide the necessary linkages to ensure they can sustain their specialization over the long term.

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A gender-transformative resilience-based approach to building functional organizations

SYNOPSIS

The inequities that exist in Burkinabe society—especially in rural areas—prevent women and girls from participating in and benefiting from development. Cultural and religious norms—which, in certain contexts, restrict women from acquiring skills and knowledge—weigh heavily against the well-being of women and girls in these areas. Unequal power in decision-making and natural and livelihood resources management further contributes to their vulnerability. Building functional organizations is a crucial step for long-term development and change in systems and structures, including communities, smallholder farmers, and organizations.

Since its inception, the Catholic Relief Services (CRS) Burkinabe Families Achieving Sustainable Outcomes (FASO) Program has focused on a number of aspects of local governance through the support of village development councils (VDCs), municipalities, water users' associations, rice producer groups, rice parboiler groups, tool management committees, market gardening site management committees, and private service providers (PSPs) (e.g., village poultry extension agents, pump and moto-pump repairers, etc.). FASO supports women's groups in the villages as well as women's participation in formal organizations, and it ensures that women have access to training, agricultural inputs, and other productive assets.

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OVERVIEW OF FASO GOVERNANCE RESULTS

- **94%** of village development councils (VDCs) are coordinating the development and implementation of community development action plans.
- **82%** of targeted VDCs have developed community development action plans.
- **95%** of adult education participants are able to pass a basic literacy exam.
- **86%** of VDCs meet three of the four functioning criteria.
- **57%** of targeted community structures have at least one woman in a decision-making position.
- **58%** of targeted VDCs have at least one woman in a decision-making position.
- **1,037 food-security** private enterprises (for profit); producers organizations; water users associations; women's groups; trade and business associations; and community-based organizations (CBO) receive FASO assistance.
- **FASO has influenced** the development of land tenure issues, including the allocation of 650 hectares of lowland to FASO beneficiaries for agricultural production.
- **FASO has trained** 666 male and 270 female VDC members in roles and responsibilities while providing them with essential management tools.
- **FASO technical support** and facilitation in 100 pilot villages has raised awareness of VDC roles.
- **Foutouri, Bartiebougou, Kalitaghin, and Nagbingou VDCs** mobilized $14,000 to support their community development projects.

Source: FASO Monitoring and Evaluation Indicator Tracking Table data for FY2015.

Promoting good governance and more resilience equitable programming. Components of resilience are not a recipe or a checklist to follow; instead, they are contextual, requiring the involvement of community members to discuss options and address different types of shocks and stresses. Women rely on internal village groups that allow them to tap into a network of risk-sharing village organizations. These include informal mutual-help groups and formal associations. The formal and informal women's village-level groups excel in solidarity and local initiative. Women successfully depend on such social relations to cope with, manage, or adapt to stress in their daily lives. Through those networks, some women have gained recognition as leaders within their villages.

However, when it comes to community-level decision-making, women's voices are often left out of conversations on resource provision and infrastructure placement. Women observe that their participation in community groups and local government is often limited, and, even when they do participate in meetings, they do not feel free to voice their thoughts and opinions.

The FASO Program identified components of more equitable functional organization programming, including:

- Approaches that empower women and reduce gaps between males and females
- Functioning institutions of good governance and democratic accountability

The VDC is the legal entity created as part of decentralization reforms. It represents and governs the smallest demographic level (the village) and reports to the community (see text box on page 3). In order for FASO to institutionalize and sustain nutrition and agricultural outcomes, it must not only work with the VDC, but also provide active support to grow the role and status of women in these committees. Improved internal governance creates the organizational environment necessary to catalyze more effective performance and active pursuit of the committees' goals and objectives.

FASO educates VDCs and the populations they

VILLAGE DEVELOPMENT COUNCILS (VDCS)

VDCs were established in 2004. Since 2004, the Government of Burkina Faso (GoBF) has invested in training VDCs and communities in their roles and responsibilities. However, this training is often insufficient and impractical, especially given that most VDCs and mayors are illiterate. Most VDCs do not hold regularly scheduled meetings, record meeting discussions or decisions, maintain transparent processes for managing village finances, or raise funds. The organizational structure is comprised of twelve members: a president, vice-president, secretary, assistant secretary, treasurer, assistant treasurer, two people responsible for women's issues, two people responsible for rural issues, and two people responsible for youth issues.

Source: FASO Proposal

serve on their roles and responsibilities as citizens or as elected and appointed officials. This education includes information about laws, regulations, rights, and methods of advocacy. In addition, FASO provides training on basic governance skills, such as regular meetings, record keeping, information sharing, transparent decision making, and financial management and accountability. FASO believes that a more active, engaged citizenry strengthens social cohesion in the community and creates an enabling environment that sustains the continued progress of program outcomes. FASO supports VDCs in the implementation of key governance concepts and attainment of benchmarks set. For example, it engages them to equitably oversee distribution of improved lowlands to limit risk of conflict, especially between farmers and livestock owners.

Access to land and leadership. Male household heads or community leaders typically allocate the most marginal land to their wives or women. FASO made its program-supported land reclamation, which is labor-intensive, slightly easier through Food for Work interventions, community labor, or hired labor. The introduction of soil and water conservation techniques, as well as land reclamation, have enabled many farmers, including women, to grow crops on land long since abandoned as unproductive.

Tenure security is critical to enable the scaling up and adoption of these land reclamation techniques. Many women lack the necessary control over the land they farm and this potentially diminishes their incentive to invest in productivity-boosting measures. Enhancing resilience requires a dual focus on both production and women's rights to revenues and resources.

Market gardens highlight an important issue for resource ownership, income, and resilience. Land-owning families often welcome the development of market gardens on land of little current value; however, once the gardens generate significant revenues, the heads of the land-owning families (usually men) are often tempted to reassert traditional ownership rights and claims on income from those lands. This easily overlooked issue needs to be adequately addressed before investments are made. For example, the reclaimed lowland plots allow for the production of sorghum and rice. Within the FASO communities, growing rice is a sign of privilege; therefore, the process of identifying which households benefit from these reclaimed lowland plots needs to be carefully managed to ensure equity and minimize conflict.

Because the market gardens are invariably cultivated on lands that fall under the jurisdiction of local leadership, local leaders must also be involved in and committed to any equitable decisions. For this reason, the FASO Program went through a documented negotiation process involving municipalities and traditional authorities to declare these lands "community land," with a minimum of 25 percent of plots allocated to women. FASO made this a firm precondition before investing in the improvement of these marginal lands. FASO found, in practice, that some municipalities actually exceeded this minimum, which allowed more women to benefit from the plots. In addition to this negotiation, FASO facilitated women's groups to help with social communications about land tenure and supported them in obtaining collective grants of land.

Gender inequality at the household and community levels must be addressed in all organizations seeking to improve long-term resilience of vulnerable populations, and organizations must make this priority explicit. FASO attempts to maximize women's economic

empowerment, decision making, access to social services, productive resources, and opportunities to increase household incomes.

FASO's inclusive and participatory approach contributed to the VDCs becoming more geographically diverse, socially diverse, and representative of the community – with the number of female VDC members increasing from 15 to 29 percent. FASO' support to seven municipalities for the renewal of VDC has increased women's representation in leadership positions from 1 percent to 14 percent. In addition, many women now note that they feel more empowered to speak because they have access to income through other FASO-supported activities, such as poultry raising. Specifically, women feel that they can now solve problems. Men also now recognize that women have greater value in organizations – and, for some women, this means they play a greater role in decision making. With this newfound respect, women now sit together with men in organizational groups to discuss and find solutions to problems.

Transformative capacity is a long-term investment, which means that it may span a period greater than the life of FASO. FASO contributes to community transformative capacity through good governance management and village-level transparency. It supports VDCs and various producer and livelihood groups. Because of this, councils and groups seem better able to mobilize resources to both sustain and expand community activities. Such interventions reinforce community-level structures and processes that enable communities to mitigate, deal with, and recover from shocks and stresses. For example, VDCs have started to improve their provision of social services and collective action, such as contributing to food collection for school canteens, planting trees in school yards, and mobilizing the community around literacy sessions. In addition, the municipalities' involvement in the FASO monitoring committees helps FASO more easily address practical concerns related to the allocation of land for market gardening and infrastructure for lowland improvement.

However, the FASO Program recognizes that there are limits to addressing social and cultural norms that inhibit people's capacities to deal with resilience. Within a five-year program, FASO can only realistically achieve small gains in terms of gender equality and women's empowerment. To build advocacy efforts for gender equality with local organizations, including VDCs, communities need to demonstrate a genuine willingness to work on gender in the context of resilience to shocks and climate changes. Through a conscious program of facilitated affirmative action, FASO can support women in decision-making roles to build leadership and management competencies, allowing FASO communities to increase gender equity and women's empowerment.

Learning to-date: The FASO Program has increased women's willingness and ability to engage in community- and organizational-level planning processes. Program interventions provide training and tools to women that encourage their involvement in community organizations and leadership roles. However, the process of transforming systems often encounters resistance. To ensure transformation, the FASO Program communities need greater investment and long-term commitment. While FASO strives to ensure the equitable participation and increased leadership of women in its activities, there are still few women in leadership positions of organizational groups

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Photo by CRS Ethiopia staff

Building resilient communities

SYNOPSIS

The target population of Resilience through Enhanced Adaptation, Action-learning, and Partnership (REAAP) is vulnerable to shocks, including price-related and weather-related shocks (e.g., drought and floods). Successful resilience programming not only enables communities to better respond to shocks, but also actively invests in ways to avoid and adapt to shocks and stresses. Because the impacts of climate change will likely exacerbate vulnerabilities in East and West Hararghe in the future, REAAP communities have developed improved mechanisms to prevent, respond to, and mitigate shocks at multiple levels. These mechanisms include community-led early warning, meteorology information collection, indigenous knowledge sharing, contingency budgets, and community collective investments.[1]

1 REAAP is funded through the USAID Office of U.S. Foreign Disaster Assistance, Global Climate Change, and Feed the Future initiatives. REAAP is a three-year, USAID-funded project specifically designed to address resilience. This project aims to sustainably increase resilience and reduce long-term vulnerability to current and future climate change, and climate-related shocks and stresses in vulnerable communities of East and West Hararghe zones of Meta, Fedis, Midhega Tolla, Mieso, Tulo, and Oda Bultum *woredas* in Oromia region. Catholic Relief Services (CRS)/Ethiopia, Ethiopian Catholic Church – Social and Development Coordinating Office of Harare (ECC-SDCOH), Handicap International, and Cordaid consortium members are REAAP implementing partners. REAAP is helping nearly half a million people adapt new practices and technologies that mitigate drought, erratic rainfall, and land degradation, and to better withstand climate change.

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OVERVIEW OF AND USE OF EARLY WARNING (EW) INFORMATION

- **30,000 people** are using early warning information for long-term forecasting and better agriculture activity planning within the REAAP coverage area.
- **100 Disaster Risk Reduction** (DRR) facilitators provide weekly rainfall data via mobile short message service (SMS) devices.
- **Analysis and forecasts** of bi-weekly/monthly rainfall data have been provided to 100 DRR facilitators.
- **100 sub-districts** and communities have gained access to short-and long-term sub-national level economic and weather forecasting systems.
- **17 rain gauges** have been provided to each one of the 100 ***kebeles***, to support innovations in technology and collective natural resource management, as well as data usage for analysis.
- **100 DRR committees** have been created as legitimate community leadership and decision-making platforms.
- **DRR committees use rainfall data** for community-led discussions integrated with their action plans, while community members apply knowledge at the farm level.

Interpreting trends and specific context. Building resilience reduces individuals' vulnerability to shocks and persistent food insecurity problems, and helps them respond to and plan for change. REAAP fosters resilience by building households' and institutions' capacity to withstand the likely events associated with changing weather patterns, and to manage a range of livelihood activities that improve food security. Using the Community-Managed Disaster Risk Reduction (CM-DRR) model[2] developed by Catholic Relief Services (CRS)—an approach that assesses threats, identifies risks, and prioritizes actions through a Participatory Disaster Risk Assessment (PDRA)–REAAP has helped communities determine who is most vulnerable to food insecurity by evaluating:

- Sensitivity to food security shocks
- Adaptive capacity
- Overall vulnerability to food security shocks
- Humanitarian crisis levels
- Food availability at the household-level
- Nutritional status
- Exposure to food security shocks

The REAAP approach is an inclusive community process that involved women, people with disabilities, youth, and other vulnerable households in resilience-focused discussions regarding needs and actions. Through a mapping process, communities identified threats that included drought, land shortages, population pressures, deforestation, soil erosion, pests, and diseases. Thus far, using the CM-DRR model and PDRA tool, REAAP has helped communities in 100 *kebeles*[3] to recognize important needs and build pathways to resilience against future shocks.

As a result of the participatory process, communities better understand the threats they face and how they can mitigate shocks by identifying: (1) their own resources and adaptive capacities, and (2) the horizontal and vertical partnerships that can supplement their early warning (EW) and shock mitigation needs. REAAP also helps communities identify existing strengths and opportunities, such as indigenous knowledge sharing and informal

2 The REAAP Program has used the CRS CM-DRR tool to guide activities in the project, which examines not only household-level vulnerability but also community-level vulnerability: www.crsprogramquality.org.
3 A *kebele* is the lowest administration unit in Ethiopia.

REAAP EARLY WARNING (EW)

The USAID-funded REAAP co-plans with targeted communities to follow these principles:

1. Ensure regular communication of collected EW information both "upward" (e.g., to donors and departmental decision makers in the Ethiopian government) and "downward" (e.g., back to the communities and members from which the data were collected).
2. Enhance capacity of local entities (e.g., beneficiaries and institutions) to actively participate in the EW program by:
    a. Strengthening their ability to establish an evidence base of information that fills an identified knowledge gap and can be used for self-advocacy in future, localized food security issues
    b. Increasing the likelihood that entities use EW information to inform proactive planning, initiatives, and community-led actions, in part by encouraging demand for this information.

social networks, which can be supported and strengthened in resilience programming. After initial mapping, the CM-DRR was given more organizational and leadership structure by the formation of a Disaster Risk Reduction (DRR) committee in each REAAP community.[4]

Agriculture programming and early warning systems (EWS). Because of the severe drought that occurred alongside the 2015–2016 El Niño in the East and West Hararghe zones, the number of individuals in need of food assistance in Ethiopia spiked dramatically. Rural food security in Ethiopia depends largely on rain-fed agriculture, and climate change is expected to lead to more erratic rainfall and frequent extreme weather events that adversely impact food security. Large-scale EWS, such as the Famine Early Warning System Network (FEWSNET), are not designed to track and report on conditions at the community level, leaving communities to manage their own EWS in coordination with the Government of Ethiopia's national systems.

Agriculture-related livelihoods are important to households in the East and West Haraghe zones. Agriculture-related data and interventions help REAAP communities understand the reasons for establishing and then linking their local EWS to national EWS for early response, especially against slow-onset shocks such as drought.

REAAP helped CM-DRR committees look at the implications of resilience, early warning, disaster risk reduction, and climate-change adaptation interventions in the East and West Hararghe zones. REAAP and the communities observed that the lack of accessible and useful climate information hampers the ability of local communities and government representatives to adapt to the negative effects of climate change. Furthermore, within the East and West Hararghe zones, substantial bottlenecks exist in the flow of forecasts and climate analysis produced at the national level, and from the central (*woreda*) to local (community) level. REAAP found that, at the local level, procedures, information-processing systems, and technical capacity were not sufficient to request, receive, interpret, or analyze climate information for decision-making purposes. Therefore, REAAP set about strengthening communities' capacity to:

- Monitor food security conditions.
- Share monitoring data with sub-national and national food-security monitoring entities.
- Advocate for food and cash assistance for perceived food security concerns as identified or needed, using evidence collected through this local-level monitoring system.

Early warning data collection is now operational. However, REAAP first gave more organizational and functional structure to weekly data collection and dissemination of EW information by designating a DRR facilitator in each REAAP community.[5] REAAP provided each one of the 100 *kebeles* with 17 rain gauges to support data collection and analysis. Mobile short message service (SMS) devices were used to relay data-capturing information on rainfall, crops, pasture conditions, livestock health, and market prices for major crops. The rainfall record graph on page 5

4 Thus far, 100 DRR committees have been formed and conduct themselves under a set of rules that mandate women make up at least 50 percent of the committee's members.

5 Thus far, 100 DRR facilitators have been identified and trained to relay analyses and forecasts, and to disseminate them both upward and back to communities.

Photo by CRS Ethiopia staff

depicts maximum rain fall recorded across REAAP *woredas* during the period of April to May 2016.

REAAP communities also use traditional indigenous knowledge from community members—in some cases, elderly citizens—who could accurately interpret natural signs of weather change (e.g., wind direction at certain points in the season) to ground truth data analysis. Through DRR committee meetings and community-wide discussions, meteorological data and indigenous knowledge help inform community members about appropriate household-level actions (e.g., the timing of planting and harvesting) and next steps in response to short- and long-term monitoring trends.

Practices and strategies communities use to adapt to or mitigate the impact of climate change and shocks. In Ethiopia, shocks and stresses are a perennial feature of the climate.[6] With climate change, the normal weather shocks that affect people's livelihoods will become more severe and frequent, with shorter warning times than in the past.

To prepare communities for more acute shocks, REAAP provides them with technical assistance so they can consider what changes they will face locally. In addition to training on the CM-DRR approach and PDRA tool, and the establishment of a local-level EWS, REAAP provides community-based DRR committees with contingency budgets and mandates them to identify collective investments to increase the capacity of the community to withstand identified shocks. For example, one highland community identified the need to fund a collective infrastructure intervention to pipe spring water to their community, ensuring a reliable, accessible supply of water in times of drought or erratic rainfall.

REAAP communities commonly identified soil and water-management related projects as CM-DRR action-plan investments.

Communities empowered to influence resilience agendas and priorities. DRR approaches that build resilience must be participatory and community-driven while also engaging local and sub-national

6 Climate-change assessments predict that Ethiopia will become warmer, with average projected increases of over 3 degrees centigrade by the 2090s. Scientists believe this warming will be associated with heat waves and higher water losses from soil, water sources, and plants. In some areas, this means a real risk of more droughts that constrain crop growth. Therefore, REAAP investments need to reduce and manage risk, build adaptive capacity, and deploy a flexible, proactive response to the drought/shock cycle management.

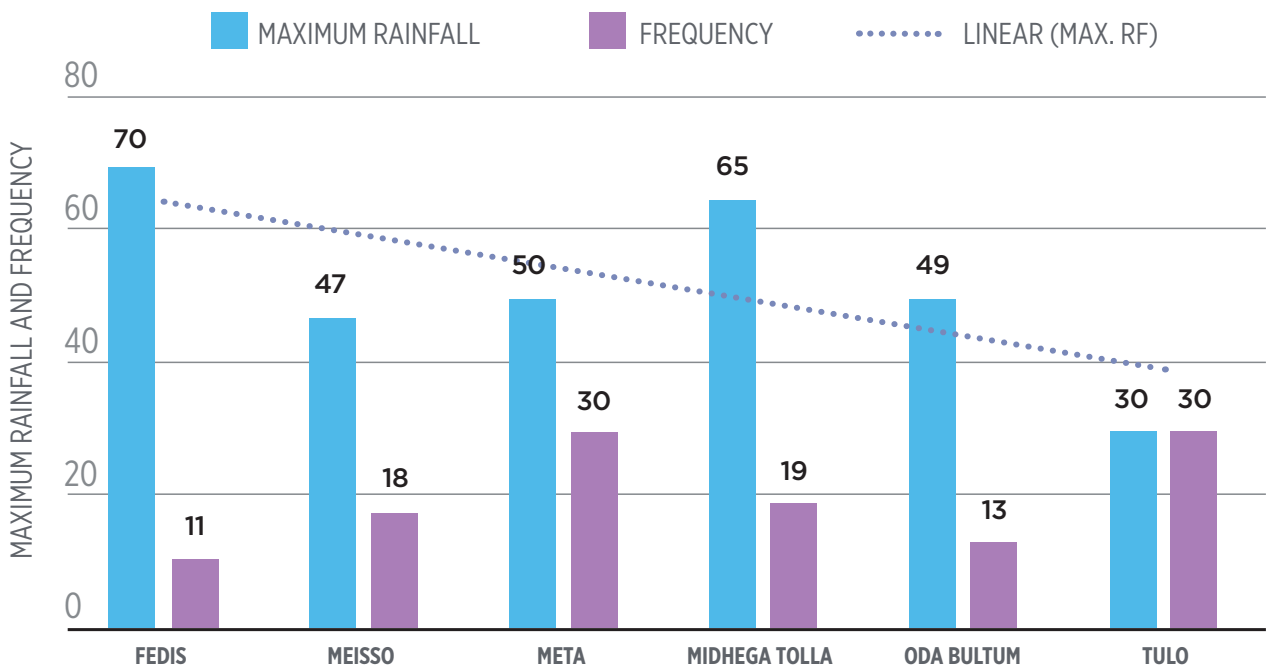
levels of government. The REAAP Program has increased communities' willingness and ability to engage in *kebele*-level and community-level participatory planning and monitoring processes – particularly through the use of indigenous knowledge and the inclusion of women, youth, people with disabilities, and other vulnerable households.

REAAP provided training and tools to men, women, youth, and people with disabilities, which stimulated them to engage in community development. The communities' own internal organizations (DRR committees) are defining the terms under which REAAP communities operate and adapt to changes. REAAP has empowered communities to influence resilience agendas and priorities for the provision of technical assistance, inputs, and other development goods and services that respond to local realities and priorities.

On the basis of current experience and future scenarios, communities can review the range of available options and select activities tailored to local needs and conditions. This approach helps communities build adaptive capacity, gain confidence, and identify options to withstand shocks and stresses, skills that will ultimately help them improve incomes and food security. Communities use participatory approaches for developing and implementing community and district development plans to ensure that their response meets the needs of the local community. Communities also focus on interventions that:

- Have a wider development impact (e.g., small ruminant fattening)
- Address immediate needs due to drought, but also strengthen market systems.
- Increase incomes (e.g., by enabling the sale of surplus production, which allows for greater asset accumulation, food access, and consumption smoothing).
- Reduce risk by diversifying livelihood opportunities and livelihood risk profiles (e.g., engaging in off-farm and non-farm income-generating activities, such as petty trade).
- Protect assets, smooth consumption, and improve relationships for men, women, youth, and people with disabilities.

Maximum rainfall recorded across *woreda*



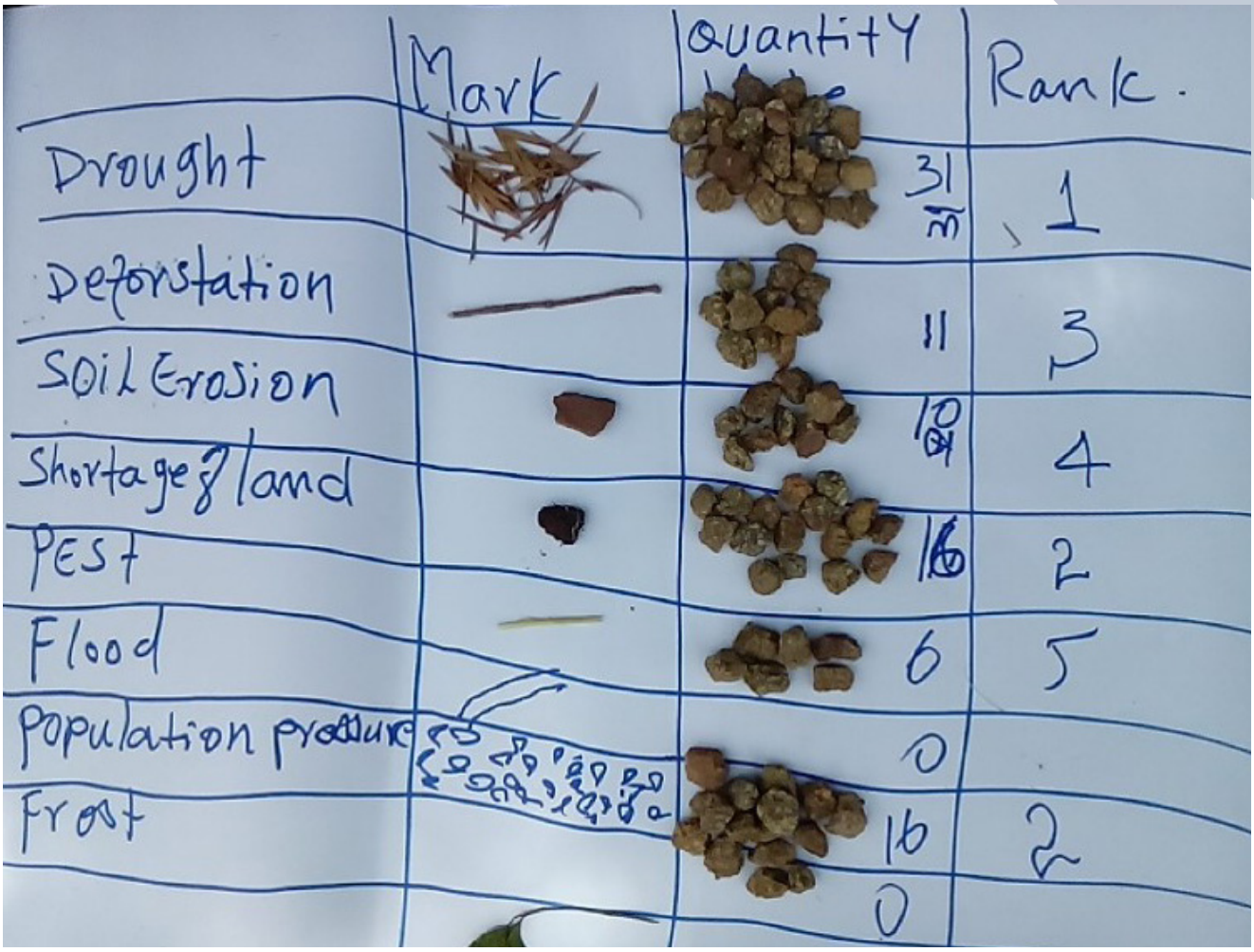


Photo by CRS Ethiopia staff

Learning to-date: Land degradation, deforestation, and drought are among the most severe challenges for agriculture in East and West Hararghe zones. REAAP helps establish community-based EWS to strengthen linkages and existing capacities in drought and flood forecasting, and empowers communities with risk identification tools. As a result, REAAP communities better understand the threats they face and how to mitigate shocks by identifying resources and adaptive capacities. REAAP communities also identify partnerships that can help supplement their early warning and shock mitigation needs, and make linkages as needed.

There are ample opportunities for scaling up REAAP, as the methods, data collection, simple tools, and templates are easy to replicate elsewhere. REAAP communities are very willing to mobilize their own resources to continue funding DRR priorities. Through the participatory process, communities learn how to restore the landscape by implementing short- and long-term action plans, and to recognize opportunities for improving incomes and food security at the household level.

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Photo by CRS Ethiopia staff

Enhancing Sustainable Production at the Landscape Level

SYNOPSIS

In Resilience through Enhanced Adaptation, Action-learning, and Partnership (REAAP) areas, community-led initiatives are channeling water through integrated water and soil resource management interventions. Micro-catchments, used to harvest water in highland areas in East and West Hararghe zones, perform a particularly important function during periods of erratic rainfall or drought. Even the smallest rainstorm results in runoff that is collected in the micro-catchments, and the water stored in the soil under the micro-catchment is sufficient to sustain trees or plants during a dry spell.

Within highland areas, REAAP disperses trees within communities and undertakes other agroforestry measures to help with soil reclamation. REAAP community members have observed that water management helps reduce soil erosion, increase rainwater infiltration, increase stream flows, raise the water table, and reduce crop loss even in dry years—including the 2015–2016 El Niño drought.

Farmland- and landscape-level restoration is important to REAAP households and communities because of community-identified problems such as population pressures, land shortages, inefficient water use, over-farmed lands, deforestation, drought, poverty, and food insecurity. Improving the management of natural resources vital to food production (such as soil and water) strengthens the resilience of REAAP communities by reducing food insecurity. Farmland- and landscape-level restoration also contributes to resilience through asset building, food production, and income.

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Improving rain-fed agriculture systems is important to building resilience in East and West Hararghe. In highland areas, increasing population, decreased land size, and increasing climate pressure has resulted in degraded land and pasture areas for crop production and the rearing and fattening of livestock. Ethiopia needs improved watershed management, especially in East and West Hararghe, in order to mitigate soil erosion, deforestation, reduced soil fertility, and increasing levels of siltation in rivers and streams. If not properly undertaken, watershed management interventions, particularly on hillsides, can lead to the removal of natural cover, which increases soil erosion and vulnerability to flooding.

OVERVIEW OF WATERSHED RESULTS IN REAAP

- **31 miles** of hillside terracing built, and 27 hectares (ha) of gully sides rehabilitated
- **106 ha** of degraded watershed area enclosed for rehabilitation, 23 ponds maintained, and 55 ha closed for pastoralist communities
- **898 ha** of land under spate irrigation using runoff water
- **909 miles** of stone and soil bunds built; 324 miles of physical soil water conservation maintained; and 180 miles of trench excavated
- **20 community nursery sites** established, with 177,162 trees seedlings raised and planted

Weighing the costs and benefits of adopting technologies. Best practices for soil and water conservation interventions, agroforestry interventions, and construction of water conservation or water catchments in Ethiopia are subject to guidance from the Government of Ethiopia (GoE) Ministry of Agriculture Regulations on Water Conservation and Water Catchments.

However, the table on page 3 demonstrates how REAAP interventions contribute to increased yield, increased revenue, improved soil fertility, increased water retention/soil moisture, and climate change adaption.

In REAAP areas, watershed treatments include physical structures built by community members, including continuous contour trenches, water trenches, check dams, and micro check dams to slow down water flow. In addition, tree and grass plantings hold soil in place and enrich it, while social fencing prevents overgrazing or harvesting of forest products. Water management helps communities become more drought-resilient by reducing runoff and erosion, improving water infiltration, increasing soil moisture, and increasing agricultural productivity even in dry years. The improved techniques and practices included:

- Stone bunds placed along contours to slow water runoff and enhance absorption
- Water harvesting structures and systems, including water ditches that collect water from a surface area for irrigation or improved filtration
- Small-scale irrigation and improved management of water from ground, runoff, and water sources
- Crop residue mulching (leaving crop material on the field after the harvest to improve soil texture, prevent erosion, and encourage water filtration)
- Livestock manure collection and storage for future use on farmers' fields
- Composting by first allowing crop residue and manure to decompose and then adding them back to the soil to improve soil fertility and texture, and allow for improved water filtration

REAAP's engagement of the community in implementing these plans has contributed to environmental transformation at scale (e.g., 761 miles of stone and soil bunds have been built, 247 miles of physical soil water conservation have been maintained, and 94 miles of trench have been excavated), reversing degradation and improving

REAAP – SOIL AND WATER MANAGEMENT TECHNIQUES					
Crop and soil management techniques	**Increased yield**	**Increased revenue**	**Improved soil fertility**	**Increased water retention/soil moisture**	**Short cycle crops adapted to climate change**
Micro-catchments based Natural Resource Management (NRM)	X	X	X	X	X
Stone bunds	X	X	X	X	
Compost	X	X	X	X	
Mulch	X	X	X	X	
Adapted/ improved seeds, planting materials, or inputs	X	X			X
Keyhole gardening	X	X			X
Pump technology	X	X		X	

biodiversity, crop health, and livestock productivity in West and East Haraghe. REAAP is using a number of community-led initiatives to provide shade to livestock and annual crops, and to support better soil and water management. Trees provide fuel for energy and some fruit for food. Within watershed areas, community members cut grass and sell it as livestock fodder, and set aside areas for small ruminant fattening.

Community members began to observe positive changes in their landscapes after investing in community forests, and their observations changed the community's behavior surrounding deforestation and watershed management. Participants in focus group discussions, held during a field visit in June 2016, frequently mentioned water management as a fundamental problem, noting the strong relationship between water availability (through either rainfall or irrigation) and land productivity. Where farmers had access to watershed management infrastructure, those in watershed catchment households recognized and appreciated how these projects helped to recharge water basins, especially during the El Niño drought.

AVOIDING CONFLICT IN RECLAIMED WATERSHEDS

Cattle, sheep, donkey, goats, poultry, and other livestock are integral to rural livelihoods and local cultures in Hararghe's communities. They provide food, materials, income, and traction power for pulling carts or transporting goods to markets. Properly managed, livestock production can enhance economic well-being. However, improperly managed, it has the potential to increase environmental harm to watersheds. Potential impacts include overgrazing of cleared or converted land (which reduces the density of vegetation and amount of organic matter generated), leading to increased soil erosion from wind and water and decreased soil fertility through loss of nutrients. These impacts can contribute to diminished water quality and availability in highland areas. Due to these factors, one of the watershed management principles promoted in REAAP communities is ensuring people and livestock do not disturb any measures put in place to achieve soil and water conservation. To ensure compliance, communities developed bylaws on how to manage reclaimed watersheds, while youth helped to maintain enclosed areas.

Photo by CRS Ethiopia staff

REAAP has helped lay a foundation to transform farmer livelihoods through a sufficient investment of time and resources, allowing for sustainable gains to the natural resource base. Regenerating degraded land enables more water capture in the field, greater increases in the water table, and the return of perennial streams and rivers. These water and soil management approaches also result in the reforestation of hillsides, which reduces flooding and soil erosion, thereby increasing food production.

Learning to-date: REAAP communities mobilize their own resources to restore the landscape through the implementation of short- and long-term community action plans. The cost of building resilience is sometimes difficult to measure, since it is not always apparent what negative outcomes have been prevented. However, REAAP community feedback and results to-date suggest that, despite the relatively high cost of public works in vulnerable communities, the costs are significantly outweighed by the broad benefits observed by community members.

Linking public works and livelihood activities to watershed activities has helped recharge water basins in the East and West Haraghe zones, even during the El Niño drought. These interventions provided effective means to manage shocks and climate-related risks, and improved crop production and the natural resource base. As a result of these soil and water management investments, REAAP community members have observed more moisture retained in the soil, recharged riverbeds even during dry periods, and less prevalent flood damage due to check dams.

REAAP communities are aware of the need to work together toward afforestation to restore precious forests and the biodiversity contained within them, and to mitigate conflict through social fencing and collective action.

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Fostering more equitable decision making

SYNOPSIS

Catholic Relief Services (CRS) and Ethiopia Development Food Assistance Program (DFAP)[1] explored the opportunity to promote community and couples communications by piloting The Family House (TFH) approach in six *kebeles*[2] in Kersa and Meta *woredas*[3] from December 2015 through March 2016. Using TFH approach, the pilot aimed to strengthen couples' relationships by addressing communication through messages. CRS Ethiopia/DFAP found that TFH approach can help families make better decisions regarding agricultural livelihoods by deliberately crafting dialogue around equitable decisions and family income spending, especially when coupled with a related intervention such as CRS' savings and internal lending communities (SILC).[4] The pilot also demonstrated that an effective network of community-based TFH couples could dramatically increase the percentage of new couples exposed to this approach.

Even after the pilot ended, TFH-trained couples continued to disseminate TFH approach and messages to community members through social events. The six-*kebele* pilot study results informed the Government of Ethiopia (GoE) district offices about the benefits of a more broad-based policy to increase community-based TFH awareness, training, and utilization. By scaling up TFH approach—for example, by linking it to Resilience through Enhanced Adaptation, Action-learning, and Partnership (REAAP) communities in East and West Hararghe[5]—CRS Ethiopia/DFAP can potentially strengthen communities against outside shocks and stresses at different layers of society, including the household level.

1 This was a five-year United States Agency for International Development (USAID) Title II-funded program.
2 A *kebele* is the smallest administrative unit contained within a *woreda* in Ethiopia.
3 A *woreda* is an administrative division managed by a local government in Ethiopia.
4 Community-based groups such as savings and internal lending communities (SILC) have proven successful in building the social and financial capital of recover farmer segment households.
5 REAAP is being implemented in the vulnerable communities of East and West Hararghe zones, including Meta, which is one of two pilot *woredas*. REAAP helps nearly half a million people adapt new practices and technologies to mitigate drought, erratic rainfall, and land degradation, and better withstand climate change.

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Vulnerability varies across social groups. Within social systems, the relationships, networks, behaviors, and cultural norms between people, households, communities, and groups can impact resilience. To more clearly understand the drivers of vulnerability, CRS Ethiopia/DFAP has attempted to clearly understand the social drivers of vulnerability, including the inequitable distribution of rights, resources, and power that make certain individuals, households, communities, or groups more sensitive to the impacts of shocks and stresses. Women are disproportionately at risk to shocks (e.g., they often have to travel much further from the home to fetch water for the household during periods of drought). In addition, unequal power in decision making and livelihood resource management contributes to their vulnerability. Cultural roles that restrict women from acquiring skills and knowledge further increase their vulnerability in certain contexts. CRS Ethiopia/DFAP have leveraged data generated from The Family House pilot study to inform partners on how to increase resilience, especially in vulnerable households, through changes in project design, linkages, and long-term benefits within target communities.

Building social capital and human assets increases resilience of vulnerable households. Community-based groups such as producer groups and SILC groups have helped build the social and financial capital of vulnerable households in Ethiopia. For example, CRS' SILC model strengthens social capital and household absorptive capacity by allowing participants to draw on savings in times of shock. During the 2015–2016 El Niño drought, SILC group members had access to regular savings, loan, and social or emergency funds to help them better cope. The SILC group rules require members—primarily women in Ethiopia—to save whatever little they have (typically, 1–2 birr per month[6]). Their savings have proved very useful for capitalizing petty-trade activity or purchasing seeds and food.

Through the SILC groups, households have learned to come together to pool financial resources, solve problems, create forums for discussion, and learn new skills, all of which strengthen the social bonding so critical to vulnerable households. The SILC and producer groups also provide a foundation for building further skills (e.g., agronomic, financial, and business skills). Strengthening household assets fosters confidence and empowers households to undertake riskier but more productive and diversified livelihoods. The groups also provide an entry point for awareness building and behavior change with respect to improved nutrition, coping strategies, and women's empowerment during periods of shock or stress. Community groups that develop relationships to other communities, organizations, and service providers can further

CONTEXT-SPECIFIC CONSIDERATIONS

The Faithful House (TFH) is a couples-strengthening curriculum focused on improving the quality of the couple relationship. In 2015, TFH was adapted for use with Muslim couples in a modified curriculum entitled Islamic Family House (IFH). For the pilot in Ethiopia, the curriculum name was modified to The Family House—a name that was more appropriate to the local context and avoided mentioning any specific religion or faith. This name emphasizes that the house belongs to the family and focuses on the togetherness of its members.

OVERVIEW OF THE FAMILY HOUSE PILOT

Twenty trained TFH couples provided 4–5 messages (e.g., recognition of gender equality and gender roles, and shared decision making on resource utilization) to SILC, producer, and community conversations groups in six *kebeles* in Kersa and Meta *woredas* during the pilot period (December 2015–March 2016).

Two hundred and twelve couples have been transmitting messages to their children and other community members during community conversations meetings; at SILC and Fuel Efficient Stove (FES) producer group meetings; and at government mass labor mobilizations representing post-pilot, self-replicating, scaling up efforts.

6 As of September 2016, 1 U.S. dollar equaled 22 Ethiopian birr.

build resilience by broadening social networks as well as business or marketing ties. For example, using skills learned in SILC, group members can also form seed multiplication producer groups outside the SILC to improve their links to markets.

Using SILC and producer groups as well as community conversations (CC)[7] meetings as an entry point, CRS Ethiopia/DFAP piloted TFH approach to determine how participation could help couples re-imagine their relationships and identify areas where they were most interested in increasing joint decision-making skills. During the implementation, CRS Ethiopia/DFAP found that women predominately participated in SILC groups and were the members of the household who saved. One of the study's findings suggests that TFH approach has the potential to motivate men to participate in group activities, especially SILC activities.

PILOT KEY TASKS

- CRS selected 20 role-model couples.
- CRS conducted workshop on TFH approach for the 20 selected couples.
- Twenty trained couples conveyed TFH messages to 212 community members in two Meta and Kersa *woredas* over a three-month period.
- SILC and other groups received messages 4–5 times during the pilot period.
- CRS supervised, followed up on, and documented changes in couples' perceptions over the three-month pilot period.
- Pilot participants were able to recite main points from TFH approach that they received from the trained couples, including recognition of gender equality and gender roles, and shared decision making on resource utilization.

Partnering with GoE on the development and rollout of the pilot. To increase community co-investment and planning in the pilot, CRS Ethiopia/DFAP held meetings with implementing partners, religious leaders, and government representatives from Women's Affairs and "Yehaimanot Mechachal"[8] offices of both *woredas* to orient them in TFH approach. Subsequently, CRS Ethiopia/DFAP selected, in collaboration with government stakeholders, *kebeles* for the pilot study. They selected a total of 20 couples (40 people) that were members of the CRS Ethiopia/DFAP beneficiary community, based on their positive couple relations and community acceptance.[9] The couples shared similar socioeconomic backgrounds, including religion and language, with other DFAP project beneficiaries. After receiving training, the 20 couples started transmitting messages to other community members at CC groups as well as SILC and producer group meetings, and other social events such as Edir.[10]

Overall, the results demonstrate the areas where community or program planners need to link TFH to technical interventions that promote specific desired outcomes, such as increasing saving and credit activities. The post-pilot test indicated that women's involvement in decision making increased, which could contribute to improved well-being outcomes for women and girls in the future.

Government stakeholders, including the *woreda* Women's Affairs Office head, facilitated message transmission to community members, provided technical support to trained couples, and followed up on their activities. This practice attracted the attention of neighboring communities, and they began asking for membership in TFH approach groups. When participants in the training observed the benefits of the communication-skills education, they initiated discussions about expanding the reach of TFH approach with the *kebele* administration. In some cases, participants decided to teach what they learned to the community at large.

7 It is critical to address gender-based violence and child marriage, since both contribute to the vulnerability for young women in Ethiopia and limit their opportunities, including productive livelihood opportunities. Within DFAP communities, the CC method encourages positive changes in the reduction and prevention of gender-based violence, early marriage, and other harmful traditional practices. It also creates awareness and facilitates open discussions about these issues among family members, improves the decision-making role of women in the household, and promotes women's empowerment.

8 Amharic phrase that refers to religious tolerance.

9 For couple selection, the pilot used standard criteria implemented by other CRS countries.

10 In Ethiopia, an edir is a traditional burial society to which members make monthly contributions and in return receive a payment to help cover funeral expenses.

While government officials were involved in the pilot from its inception, and even helped select couples, they did not have adequate knowledge about TFH approach, nor did they have access to the training materials and other guiding documents appropriate to the local context. To some extent, this lack of guidance has affected stakeholders' capacity to provide technical support to trained couples and other community members who received the messages. Sharing the findings and issues raised in this TFH pilot study can encourage a more widespread discussion within and across communities, and with *kebele*, *woreda*, and national policymakers.

Sustainability of engaging couples in TFH messaging activities. Sustainability for the new communication skills appears promising, as couples expressed plans to continue improving their relationships as well as sharing their knowledge of TFH approach with others. Trained couples also served as positive role models for other couples. After the introduction of TFH, men made statements such as: "Before I sell agricultural products, I talk to my wife about it and do not make decisions just by myself."[11] In addition, men realized that household management required the participation of both women and men. This realization prompted action—for example, husbands began to share household responsibilities and sit down with their spouses at night to plan for the future.[12] Women also demonstrated some instances of greater autonomy after the pilot.[13]

Overall, these are promising changes that can provide the foundation for the greater household resilience that is needed during periods of shock. The pilot findings also indicate that integrating TFH approach led to encouraging results in other social, economic, and political areas.

COMMUNITIES LEADING THE WAY TO CHANGE BEHAVIOR

Women's restricted access to income and limited decision-making in regard to household assets critically affects the well-being of families. TFH work seeks to change behavior at the household and community level, leading to the adoption of improved practices and more equitable decision making. When coupled with a specific technical area, TFH method can bring greater equality into household decision making through direct family counseling.

- **Prevention and reduction of gender-based violence, early marriage, and other harmful traditional practices.** Most harmful traditional practices are rooted in religious beliefs. Conveying TFH messages to community members can potentially correct harmful beliefs and practices affecting community members—mainly women and girls—and eventually eradicate them.
- **Improving the decision-making role of women in households.** TFH approach promotes constant communication as well as joint decision making by couples, which contributes positively to the development of knowledge, self-esteem, self-confidence, decision-making skills, and status of women. For example, REAAP monitoring data revealed an improvement in female representation in community-level institutions due to SILC and other disaster risk reduction (DRR) activities.
- **Promoting empowerment of women.** TFH approach helps change men's attitudes and behaviors toward women. Men support their wives and partners in achieving socioeconomic empowerment. For example, it is now common practice for women to purchase goats for rearing or fattening by using their savings from SILC group activity.

Improving men's active participation in SILC groups. DFAP monitoring data show that women

11 Getenesh Alayou and Dejene Mideksa, "Catholic Relief Services/Ethiopia Development Food Assistance Program: The Family House Pilot Project Evaluation Report," March 2016, p. 41. A post-test survey that included comments from a male participant from Tola *kebele*, Kersa *woreda*, indicating a change in communications with his wife.

12 Getenesh Alayou and Dejene Mideksa, "Catholic Relief Services/Ethiopia Development Food Assistance Program: The Family House Pilot Project Evaluation Report," March 2016, p. 41. A focus group discussion that included comments from a male participant from Hakebas *kebele*, Meta *woreda*, indicating a change in communications with his wife.

13 Pre- and post-test comparison indicates improvement around decisions to participate in DFAP saving and credit activities after the pilot. At pre-test, out of 22 respondents, only 1 wife decided by herself, 5 let partner, make the decision, and 3 decided jointly. Husbands, however, replied as follows: 5 decided by themselves, 6 let partner make the decision, and 2 decided jointly. Post-test results showed that, out of 23 respondents, 47.8% made decisions by themselves and 52.2% made decisions with their partners. Out of these respondents, 8 wives replied they decided by themselves and 3 let partner make the decision. On the other hand, 3 husbands decided by themselves and 9 let partner make the decision, showing that wives developed strong decision-making power in DFAP saving and credit activities after the pilot.

make up the majority of participants in SILC groups. However, both women and men are encouraged to actively participate in SILC group activities. TFH approach can potentially motivate more men to participate in group activities and improve their culture of saving.

Learning to-date: Before the pilot introduction of TFH approach, couples, especially women, reported minimum joint decision-making communications. After the training, couples were assigned to work on improving their relationships and to share TFH messages with 212 other couples, mainly through group settings such as SILC. Accordingly, CRS Ethiopia/DFAP observed two major changes: (1) positive attitude change among couples toward their spouses, and (2) improved joint decision making, cohesion, and couples communications, as well as reduced gender-based violence. Pilot participants' households started to observe positive changes in their lives after couple communications altered. This alteration led to the adoption of similar communications by non-pilot friends and neighbors.

The introduction of TFH approach has demonstrated the capacity of people, especially men, to develop better communication and joint decision-making skills when they have the training and tools to do so. CRS Ethiopia/DFAP sees excellent opportunities for scaling up with local community groups. For example, by linking TFH approach to REAAP communities in East and West Hararghe, CRS Ethiopia/DFAP has the potential to strengthen communities against outside shocks and stresses at different layers of society, including the household level.

HOW THE FAMILY HOUSEHOLD APPROACH CONTRIBUTES TO RESILIENCE-BUILDING CAPACITY

Absorptive capacity at the household level: During a shock, absorptive capacity can be irreversible (e.g., selling of livestock) or reversible (borrowing money). Participation in savings and loan groups, such as SILC, can minimize households' sensitivity to shocks and stresses while contributing to social and financial capital.

Adaptive capacity at the household level: The ability to proactively modify conditions through new skill development and decision-making practices (e.g., TFH approach) in anticipation of, or as a reaction to, shocks and stresses.

Transformative capacity at the household level: The TFH approach, coupled with SILC, has the potential to strengthen communities against outside shocks and stresses at different layers of society, including the household level. When a family participates in collective sharing, learning, and innovation, the power balance shifts, allowing women greater access to health care, education, livelihoods, and rights, and leading to permanent changes in the role of children.

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Photo by CRS Ethiopia staff

Advocating for nutrition change

SYNOPSIS

Resilience through Enhanced Adaptation, Action-learning, and Partnership (REAAP) promotes vegetable homestead gardens (e.g., the signature keyhole gardens of Catholic Relief Services [CRS]), behavior change, and food preparation trainings to improve the nutritional intake of mothers and children. By producing year-round, nutrient-dense foods through home gardening and preservation techniques, households can become more resilient by managing climate risks and shocks such as drought. The innovative aspect of the REAAP keyhole garden approach is the integrated agricultural-nutrition intervention, which is packaged to deliver much more than just a homestead garden.[1]

1 Working within the Public Safety Net Program (PSNP) funding priorities and guidance, Catholic Relief Services (CRS) was also constructing keyhole gardens in Ethiopia prior to REAAP through its USAID Title II Development Food Assistance Program (DFAP).

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Enhancing sustainable production. The REAAP keyhole garden technique focuses on intensively growing nutrient-dense vegetables in a small space, paying close attention to soil improvement, watering, and weeding. By applying green manure and cover crops in the keyhole garden beds, households increase organic matter and nitrogen availability in the soil. Other soil improvements include mulch treatments and water channeled from the household, both of which are added through a basket in the center of the garden. The use of household water guarantees a year-round growing season and provides year-round access to vegetables at the household level, even during the dry season or periods of erratic rainfall. Fencing protects the keyhole garden from being distributed by goats and chickens.

Keyhole gardens contribute to resilience in a number of ways within adopter households, including recovery from shocks (e.g., El Niño) or household stresses. The gardens decrease risk from dependence on any one staple crop as well as from crop loss at the farm-level. Vegetables mature more quickly than staple crops do (a factor that becomes important during periods of erratic rainfall) and can be grown throughout the year. Thus, REAAP keyhole garden adopters reduce risk simply because the garden crop faces less exposure to possible disruptions. Vegetables from keyhole gardens can be processed into value-added products and preserved using simple drying techniques, making year-round, nutrient-dense foods available at the household level.

KEYHOLE GARDEN

A keyhole garden is a two-meter-wide, circular, raised garden bed with a keyhole-shaped indentation on one side. The indentation allows gardeners to access the bed for weeding and adding gray water and mulch to a composting basket situated in the center of the garden. Keyhole gardens are relatively easy to construct, and they utilize locally available materials such as stones, soil, mulch, grass, and tree branches.

Building functional organizations. In order for REAAP to institutionalize and sustain agriculture-nutrition outcomes, the program had to work with the disaster risk reduction (DRR) committee, savings and internal lending communities (SILC)[2] agents, and DRR facilitators within the REAAP communities. At the DRR committee level, improved governance created the organizational environment necessary to catalyze

2 Community-based groups such as SILC have contributed to building the social and financial capital of vulnerable households in Ethiopia. CRS' SILC model strengthens social capital and household absorptive capacity by allowing participants to draw on savings in times of shock. During the current drought, SILC group members continue to have access to regular savings, loan, and social or emergency funds to help them cope.

Photo by CRS Ethiopia staff

more effective performance, which motivated committee members to more actively pursue the committees' goals and objectives, including scaling up the keyhole-garden integrated agriculture-nutrition intervention.

REAAP achieved a high adoption rate for the keyhole garden package of interventions (2,045 functional homestead gardens[3]) despite the 2015–2016 El Niño, which contributed to widespread drought across many areas of East and West Hararghe zones, and caused many households to struggle. Significantly, after the drought, many households restarted growing vegetables as soon as the rains began, utilizing their own money to purchase seeds, planting materials, and other inputs. These actions demonstrate promising signs of sustainability for the keyhole-garden integrated agriculture-nutrition intervention. REAAP also engaged with, and provided active capacity-building support to, *woreda*[4]-level development officers (extension agents), so they could encourage vegetable consumption and increased nutritional intake for mothers and children.

REAAP's support for keyhole gardens, specifically as a strategy to improve maternal and child health and nutrition, involved partnering with the Government of Ethiopia (GoE). REAAP facilitated and supported agronomy and nutrition training for government personnel and community health workers, making them a sustainable, community-based source of technical support for further scaling up of the keyhole garden package of interventions.

Fostering change and adoption through demonstrations and modeling. In Ethiopia, the populace does not commonly eat fresh vegetables;

OVERVIEW OF AGRICULTURE-NUTRITION RESULTS IN REAAP

- **2,009 keyhole gardens** were built in Oda Bultum, Mieso, Tullo, Meta, Midhega Tola, and Fedis districts.
- **2,045 homestead gardens** functioned during the 2015–2016 El Niño drought and or rainy season in Oda Bultum, Mieso, Tullo, Meta, Midhega Tola, and Fedis districts.
- **Households introduced runoff** harvest technologies to reserve water for keyhole gardens in drought-prone areas as a means to reduce risk and ensure the garden's survival.

3 REAAP communities constructed 50–100 demonstration gardens for agro-economic-nutrition education training, while, within REAAP communities, 2,045 additional homestead gardens were constructed for sustainable production.

4 A *woreda* is an administrative division, comparable to a district, managed by a local government in Ethiopia.

they use vegetables mainly as relishes and not as a significant part of their diets. Thus, in order to foster change, REAAP needed to undertake culinary demonstrations.

In Ethiopia, shiro is a local stew made with field peas and chickpeas, commonly eaten on a daily basis. Although shiro is high in protein, no vegetables are included in the dish. Through culinary demonstrations, REAAP showed how vegetables could be introduced to local dishes such as shiro.

Initially, people did not understand how eating vegetables helped them or their children. Thus, the REAAP keyhole-garden package of interventions focused on nutrition training, including training on cooking practices, preservation methods, food preparation, recipes, and the health benefits of consuming vegetables. REAAP used community-led cooking demonstrations as entry points to discuss with parents how to diversify their diet and increase micronutrient consumption—especially for children—using locally available foods including vegetables produced in keyhole gardens.

Since learning about healthy vegetables and how to cook them to retain nutritional value, both mothers and fathers have observed changes in the behaviour and health of their children. Women have started preparing vegetables daily for children under five, and men proudly mention that their children eat vegetables several times per day and, as a result, are sick less often. This shift in behaviour took place not only because of improved knowledge about nutrition, but also because of the increased available income that came from linking keyhole-garden households to both SILC groups and seed and input systems (allowing households to purchase vegetable seeds and maintain future keyhole gardens. REAAP community members near Dire Dawa have reported that "within a year of garden promotion, some communities have bought their own seeds in the local market with their own money."

Linking SILC to keyhole-garden adopters was an innovative approach that helped promote a more diversified diet. Because of increased access to savings and income, people had more money to purchase necessary seeds and inputs for growing the nutritious foods promoted by REAAP communities. Over the long term, SILCs offer communities one of the best prospects for gaining access to income-generating and technical-support activities that help them obtain nutrient-dense foods. According to one REAAP DRR field agent, "[A]lthough REAAP did not distribute vegetable seeds in 2016, several communities and groups requested assistance with purchasing vegetable seeds in larger marketing towns, many of them with funds generated by their Savings and Internal Lending Communities groups."

Strengthening seed and input systems. The timely availability of different type of vegetable seeds locally is one of the ongoing challenges for sustainable homestead gardening in East and West Hararghe zones. REAAP has not offered incentives, such as vegetable seeds, to create keyhole gardens. Offering vegetable seeds repeatedly, for free, could limit the incentive for households to maintain their keyhole gardens when the subsidy ends, and to make long-term linkages between households, communities, and seed multiplication or input suppliers. Therefore, REAAP is invested in linking SILC groups with communities so that households can assume the responsibility to link or supply seeds to the community.

REAAP's Community-Managed Disaster Risk Reduction (CM-DRR) strategy activated locally driven seed supply and linkages. Through collective action, it maximized geographic access to agricultural inputs as well as financial access to small agricultural equipment and seeds. This access ensured linkages and the sustainability of the keyhole-garden intervention. DRR committees addressed access to vegetable seeds by reaching out to GoE agencies and making bulk purchases from major market centers, which offer a selection of agri-dealers and a diverse range of seeds. Community members took collective action to determine seed availability and accessibility through local government offices, markets, or established seed multiplication plots at the community level. They established local supply

chains for vegetable seeds in many communities, and are in the process of developing more through peer-to-peer visits in many other communities. While keyhole gardens do not require bulk seed packages, community members are learning how to bulk their needs so they can purchase for the entire community, and enable multiple households to use smaller units for plantings.

Advocating for behavior change. Despite the drought conditions precipitated by El Niño, the REAAP keyhole gardens have become functional eighteen months after their establishment. Women have found the technology acceptable—vegetable care is hand-labor intensive, but, with the raised beds, a woman can easily manage it, even when carrying a baby on her back. REAAP provided families with skills training on how to prepare food for their children.

During times of drought, women and girls have to walk further to access water for home use. However, the keyhole garden is close to home, so its labor can be integrated with other daily household tasks and does not require further transportation time to access fields. A CRS-Ethiopia commissioned study on keyhole-garden adoption[5] found that REAAP households were:

- Confident about maintaining keyhole garden year-round
- Believed that maintaining keyhole gardens builds healthy families and also saves money[6]
- Noticed that children fed nutrient-dense food were less likely to become malnourished

During a field visit conducted in June 2016, participants in focus group discussions and key interviews frequently mentioned that households with keyhole gardens were now making daily meals that contained vegetables for their children under five years of age, even in the dry season.

REAAP organized trainings for *woreda* development agents and model households to further scale up agronomic practices in communities of East and West Hararghe zones to:

- Increase the sustainability of the keyhole gardens.
- Facilitate linkages with public and private seed systems.
- Promote the preparation and consumption of vegetables in the home.

After initial household participation in the keyhole-garden training package, community groups fostered relationships with communities, organizations, and service providers to scale up further keyhole gardens. They achieved this through joint visits, DRR committee campaigns, and broadening social as well as business ties with technical agronomic support and seed input suppliers.

By linking nutritionally vulnerable households with a variety of vegetable seeds and technical support, REAAP has worked to increase mothers and children's consumption of diversified, nutrient-dense foods. Households with keyhole gardens showed higher levels of dietary diversity, despite the 2015–2016 El Niño, which contributed to widespread drought across many areas of East and West Hararghe zones.

In the keyhole garden, vegetables are grown in a mix—such as carrot, lettuce, cabbage, onion, Swiss

SCALING UP EFFORTS IN ETHIOPIA

The keyhole-garden approach involves positive engagement with governments, communities, and households to bring about sustainable change at scale. Recognizing its contributions to obtaining nutritional goals, the Government of Ethiopia included keyhole gardens as an intervention in their Productive Safety Net Programmer Phase IV: Programme Implementation Manual (Ministry of Agriculture, Addis Ababa, December 2014). CRS Ethiopia was instrumental in influencing policy change in this area by demonstrating the efficiency of the keyhole-garden intervention in its project areas.

5 Yohannes Haile and John Steelman, Barrier analysis to promote the sustainable use of keyhole gardens in Ethiopia designing for behavioral change (DBC), CRS Ethiopia, October 2015.

6 Ibid. The CRS Ethiopia study also found that keyhole garden non-participants perceived that selling keyhole garden vegetables was more beneficial than using them for home consumption.

chard, and tomatoes—and include a diverse set of species. Taken collectively, dietary diversification at the household level can help communities buffer against food shortages caused by erratic rainfall or drought. Having a homestead garden also significantly reduces recovery time from a shock – an important fact given that children born during periods of drought are more likely to become chronically malnourished later in childhood than those who were not.[7]

Learning to-date: An important step in improving the nutrition status of women and children under five is the use of targeted interventions to achieve positive behavior changes at household and community levels. A series of linked home and agro-economic activities can creatively raise community members' and GoE's knowledge levels about more diversified and nutritious diets, as well as use of local foods. The keyhole-garden interventions show promising signs of sustainability, despite the 2015–2016 El Niño, which contributed to widespread drought across many areas of East and West Hararghe zones. Keyhole gardens strengthen existing resilience strategies by preserving informal, social, safety-network-based strategies that reduce risk and provide household-level buffers against shocks and stresses. Although REAAP cannot assume that nutrition will automatically increase with the use of keyhole garden, ongoing training helps connect the keyhole gardens with the desired outcomes.

REAAP KEYHOLE-GARDEN PACKAGE OF AGRICULTURE-NUTRITION INTERVENTIONS AND RESILIENCE

Contributions to absorptive capacity: Absorptive capacity refers to the ability to minimize sensitivity to shocks and stresses. REAAP keyhole-garden households had access to savings and loan groups (SILC); self-insurance if cereal crops failed; and social cohesion/social protection support through shared keyhole-garden labor and crops.

Contributions to adaptive capacity: Adaptive capacity refers to the ability to proactively modify conditions and practices in anticipation of or as a reaction to shocks and stresses. Keyhole-garden model families assisted with trainings on the use of seeds, planting materials, water harvesting techniques (such as the re-use of household water), livelihood diversification, and access to technical training and skill development from Area Development Program Office (ADPO) and *woreda*-level extension staff.

Contributions to transformative capacity: Transformative capacity refers to the ability to facilitate systemic change and a positive environment in which people are willing and able to invest and innovate while managing risks. Transformative capacity addresses the underlying cultural, institutional, and learning dynamics within a system, enabling communities to absorb and adapt over the long term. Keyhole gardens contribute to organized communities by encouraging knowledge adoption, community action, nutritional behavior practices, the creation of vegetable seed groups, and strengthened links between local government structures and communities.

7 Jennifer Bryce, Nancy Terreri, Cesar G. Victora, Elizabeth Mason, Bernadette Daelmans, et al. Countdown to 2015: tracking intervention coverage for child survival, The Lancet Series, September 18, 2006, Volume 268, No. 9541.

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