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CLIMATE CHANGE, SMALLHOLDER AGRICULTURE AND FOOD & NUTRITION SECURITY SYSTEMS

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CARE INTERNATIONAL

What is the global challenge we are facing in agriculture and climate change?

Globally, 1.2 billion people live in absolute poverty and the majority of these people are women and girls. Women play critical roles in food production and preparation, but in many cultures they consume the poorest-quality food and are the first to face hunger when food is scarce. In most of the global south, despite contributing a large share of agricultural labour, women own disproportionately small amounts of agricultural land, are less involved in household decisions and have less control over household resources. Addressing the social inequality that underlies poverty, especially gender inequality, is thus indispensable for making a significant impact on poverty. At its root, poverty is caused by unequal power relations that result in the inequitable distribution of resources and opportunities between women and men, between powerholders and marginalised communities, and between countries. CARE believes that poverty cannot be overcome without addressing these underlying power imbalances.

One of the greatest inequalities of our time is reflected in the causes and consequences of climate change, which threatens the livelihoods of billions of people and poses major new challenges for reducing and eliminating chronic food and nutrition insecurity. The world's poorest and most vulnerable, who are least responsible for causing climate change, will unfairly continue to bear the brunt of its impacts. This is an extreme global injustice. Climate change is a reality for all, but those whose livelihoods depend on natural resources, including smallholder farmers in the developing world, are particularly vulnerable. They face changing seasonal patterns, unexpected and increasingly frequent extreme weather events, and long-term slow-onset changes in production potential caused by rising temperatures. All of these exacerbate existing threats to livelihoods from, for example, human-induced environmental degradation, or unstable market conditions.

CARE recognises that there are many underlying and complex challenges to achieving global food and nutrition security. Persistent inequity, environmental degradation, neglect of attention to nutrition, climate change and demographic change, sub-optimal (and often declining) production, inadequate maternal and child health services, poor water and sanitation practices and changing and unsustainable consumption and diet patterns are some of the considerable and often inter-related challenges. Today's food systems already underserve the global population of 7.2 billion, of whom nearly 1 billion are malnourished and a half a billion obese. Further, efforts to meet needs are being undertaken in ways that are rapidly destroying the planet's terrestrial and marine resources. Food security depends, among other factors, upon sustainable agricultural output to ensure a primary source of food and income. However, increases in agricultural productivity and production do not necessarily lead to improvements in food security or nutrition. Therefore, any support to smallholder agriculture must incorporate a component of nutrition security. Beyond the challenge of gender-based inequity described above, CARE is aware that global food systems, driven by an economic model that has placed considerable power within agri-business and has made terms of trade unfair, are also grossly

inequitable. This inequity affects both agriculture and climate and environmental change – and thus the food and nutrition security of millions of people.

What is CARE's approach to smallholder agriculture?

Considering the above, the need for agriculture that is sustainable, productive, equitable and resilient (*SuPER*) becomes imperative. CARE takes a holistic approach to its smallholder agriculture[1] systems work – from the conservation and enhancement of natural resources, to use of appropriate inputs for production, to post-harvest handling, to processing and marketing, to nutrition, social protection and onwards. This concerns work primarily with people and then with water, soil, pasture, livestock, agricultural crops, trees, fish, etc. It often involves work beyond direct engagement with smallholder production, for example with commercial farmers who support out-grower schemes with smallholders, work on agro-dealer or extension systems or in post-harvest processing and storage, and work with researchers and policy- and decision-makers (governance systems) from local and national to regional and global levels. Agro-ecological approaches that sustainably increase productivity and improve household consumption are key for CARE, and low or minimal use of external inputs is thus fundamental to our approaches. Our work with smallholders involves innovation and leadership in inclusive markets and financial services, savings and loans, climate and market information services, and extension and advisory work. CARE's work is comprehensive but the most important factor is our understanding and belief that reversing the inequities in the provision of services and support for women and men is essential to improve food and nutrition security and social justice.

Purpose of this paper

This paper lays out the principles of CARE's work in smallholder agriculture in a changing climate and then goes on to briefly describe some of the more important approaches and models that CARE applies in its programming. The paper is intended as a source document for both country office and member partner colleagues to assist with programme design and quality, resource mobilisation, and communication. The paper aims to contribute to the advancement of CARE's Global Strategy – particularly through the goal of helping *50 million poor and vulnerable people to increase their food and nutrition security and their resilience to climate change*. The paper also aims to specifically support the delivery of our Food and Nutrition Security Strategy and our Climate Change Strategy and to continue driving coherence in our programme work – as put forward in our Programme Strategy Implementation Plan.

What is CARE trying to achieve in its smallholder agriculture work?

CARE's goal, as articulated in its Food and Nutrition Security Strategy, is to strengthen sustainable smallholder agricultural systems to improve food and nutrition security for farmers,

[1] As in other papers, CARE follows the UN Food and Agriculture Organization (FAO) understanding that the term 'smallholder agriculture' incorporates small-scale producers engaged in livestock (including pastoralists) or fish production or who engage in mixed livelihoods. While the scope of work of this paper does not allow for great technical detail, it should be noted that many approaches addressed can and should be applied to homestead ('kitchen' or 'backyard' garden) work as well as work on farm lands. Gender and nutrition dynamics can vary considerably between garden and field and it is important that CARE understands these and thus considers at assessment stage and throughout project cycle management.

workers and consumers. The pathways by which we work to meet this goal are SuPER (Sustainable, Productive, Equitable and Resilient):

Promote **sustainable** agriculture systems that address climate and environmental impacts and which are: grounded in healthy ecosystems; driven by stable, accountable and enduring institutions and policies; and based on sustainable social and economic policies and investments that prioritise the redress of gender inequality in agriculture

Promote **productive** (including profitable and nutrition-sensitive) intensification that specifically addresses the needs of women producers; increases returns on investment, including of labour, by farmers; and is climate smart

Promote **equitable** outcomes in smallholder agriculture by: supporting the realisation of the Right to Food and other rights for the most vulnerable; enabling equal access to opportunities, resources, services and rewards for women farmers as well as men; and promoting access to affordable nutritious food by farm labourers and rural and urban consumers

CARE International's 'Programme Strategy 2020' *identifies three main roles that CARE plays for impacting on poverty and social injustice (humanitarian action, promoting lasting change and innovative solutions, and multiplying impact) as well as three approaches that are critical for addressing the underlying causes of poverty (strengthening gender equality and women's voice, promoting inclusive governance, and increasing resilience). Using these roles and approaches defines our identity as CARE and the implications of applying these roles and approaches are truly transformational. Significant progress has been made at CARE in integrating the roles and approaches in the past decade, especially through a rights-based approach, unifying framework, underlying causes of poverty analysis, and programme approach. Through the programme strategy, we have the opportunity to focus on some critical change areas, in particular with regard to the approaches, which call for a focus on rights for addressing the structural causes of poverty. The aspiration of 'the CARE approach' is transformative action that responds to local realities and addresses structural causes of poverty and injustice.*

Build **resilience** for communities and systems to be able to withstand and recover from climate-induced shocks and stresses and other risks by: supporting community-based adaptation in agriculture communities; connecting institutions and collectives for better governance; and using market, technical and climate information to support farmer-led analysis, planning and risk management

Key technical and programme approaches that CARE employs

A1 Gender-responsive and transformative approaches

In smallholder communities across the world, the roles and rules in producing, processing and marketing food are often strictly divided along gender lines. Gender norms tend to come with unfair power imbalances. Patriarchy, pervasive stereotypes about men and women's rights and roles, traditional values and cultures, and prevailing economic models combine to reinforce male-centred food and agriculture systems which, at best, address women in their stereotypical roles and undervalue their contributions to the economy. There is widespread discrimination against women in the distribution of key assets, services and information such as secure and adequate land, infrastructure, credit, education and training, employment opportunities, mobility, climate and market information services, agricultural inputs and technologies.

CARE's approach to gender equality in smallholder agriculture adheres to its Women's Empowerment Framework, which holds that to bring about holistic empowerment, it is critical to address women's *agency* (capacities, skills, confidence), the *relationships* of power that affect their choices (particularly household relationships and community groups), and the *structures* (such as agriculture and market institutions, land policies, social norms) that govern their lives and choices. In keeping with these holistic aims, CARE's Women's Empowerment Index (WEI), Climate Vulnerability and Capacity Assessment (CVCA - below), and Good Practices Framework for Gender Analysis support the identification and tracking of differential vulnerabilities – especially those based on gender inequalities.

CARE's Women's Empowerment Index captures changes in women's mobility, decision-making control, men's and women's attitudes towards gender-equitable roles in family life, women's participation in public life, and men's participation in domestic tasks – along with changes in women's productivity, incomes, and access to and control over resources, markets and services. In its climate vulnerability and capacity analysis, CARE also places heavy emphasis on identifying differential factors – such as age, ethnicity, caste, marital status – that intersect with and exacerbate gender-based inequities.

Transforming gender inequality in smallholder agriculture begins with a gender and power analysis, which should examine the critical components of agricultural systems (access to inputs and natural resources, extension services, value addition, output markets, finance, social safety nets, policy, etc.) regarding not only the different work roles of men and women in the production of specific crops, but also power relationships, gender norms, and intra-household dynamics. It should extend to household level to see how gender norms (women's and men's household duties, ability to control finances and decisions, mobility, etc.) affect their production and marketing opportunities, and their ability to invest in household food and nutrition security. Potential value chains are ranked to select those that have high potential to increase income and a high likelihood of women retaining control of benefits.

CARE works with existing community groups as platforms for leveraging agriculture and marketing capacities. In the Farmer Field and Business School (below) approach, CARE integrates participatory community gender dialogues[2] to discuss gender norms and power issues alongside capacity-building and on-farm training in agriculture, marketing or adaptation. Collectives are platforms for the type of social transformation and behaviour change that CARE strives for. They present opportunities to provide the safe space needed to discuss gender issues and discriminatory practices and challenges, and to identify potential solutions. Women become better prepared and more confident to raise their voice in household and public dialogues; men become more aware of and willing to challenge gender discriminatory practices themselves. Dialogues can be integrated throughout the seasonal calendar by way of facilitated discussion, role plays or games and they can contribute to demanding change at higher levels. Social analysis and action (below) is another approach and particularly useful for addressing sensitive issues. The active engagement of men (community leaders, spouses, etc.) and boys is essential across all these approaches.

[2] In India, CARE has adopted the REFLECT (Regenerated Freirean Literacy through Empowering Community Technique) approach with men and boys and communities to initiate thought processes and discussion on gender issues. A team of trained facilitators, drawn from the community, leads a process of periodic reflection and decision making for enhanced gender equity.

Do no harm principles: A gender-transformative approach to agriculture challenges existing power structures and aims to move the bar on inequitable social norms. However, social change is not linear; gender work can have unintended outcomes, such as a backlash against change agents and programme participants. In particular, some economic empowerment programmes targeting women have been associated with a temporary increase in gender-based violence. There have also been cases where, as women's enterprises became profitable, they were taken over by male farmers, and women lost access to quality crop land and markets (which means that engaging men essential). At the same time, unanticipated positive outcomes can also emerge. CARE's approach to smallholder agriculture requires regular investment in gender capacity at all levels, as well as designated reflective spaces and processes for staff, farmers and partners to share observations and respond appropriately to emerging risks and opportunities. It is incumbent upon all CARE project and programme design and implementation processes to commit to the integration of gender and GBV interventions in sectoral programming and guidance has been developed for this purpose.

A2 Nutrition

Climate change has a negative impact on food and nutrition security and on the health of millions of vulnerable and marginalised people, particularly women and children. The International Panel on Climate Change (IPCC)[3] makes it clear that climate change will have a substantial impact on *per capita* calorie availability, malnutrition (particularly stunting and undernutrition) and related child deaths and disability-adjusted life years lost in developing countries. It is expected that health losses due to climate change-induced undernutrition will occur mainly in areas that are already food-insecure. Climate change further exacerbates the enormous existing burden of undernutrition, undermining current efforts to reduce hunger and promote nutrition. Emerging research shows it may also impact hidden hunger (micronutrient deficiency), as climate change/higher levels of CO2 in fact reduce the nutritional value of crops.[4]

Nutrition-sensitive agriculture is a way to define agriculture investments made with the purpose of improving nutrition. Approaches such as community-based adaptation (CBA) to climate change can ensure that adaptation in agricultural livelihoods delivers positive nutrition outcomes. CARE is exploring some of the co-benefits to health from nutrition-sensitive climate change adaptation and mitigation measures in the agricultural sector – particularly through legumes, which are both highly nutritious and climate-smart in terms of their contribution to enhanced soil organic matter and therefore soil productivity.

[3] The International Panel on Climate Change 5th Assessment Report (IPCC-AR5) 2014

[4] http://www.climatescienceandpolicy.eu/2014/10/hidden-hunger-and-the-carbon-dioxide-effect-on-nutritional-values-of-food/. IPCC AR5 highlights the projected impact of elevated CO2 levels on protein concentrations in major cereals, in addition to impacts noted here on micro-nutrients: Change in nitrogen concentration, a proxy for protein concentration, is the most examined quality trait and since AR4 studies have been extended to almost all the major food crops. Cereals grown in elevated CO2 show a decrease in protein. Meta-analysis of 228 experimental observations finds decreases between 10 to 14 % in edible portions of wheat, rice, barley and potato, but only 1.5 % in soybeans, a nitrogen-fixing legume, when grown in elevated CO2 (Taub et al., 2008). Elevated CO2 can lower the nutritional quality of flour produced from grain cereals.

Several pathways have been identified (below) showing how nutrition-sensitive agriculture interventions can more directly impact nutrition and food security. Interventions should be designed considering pathways most relevant to the value chain as well as identifying the most relevant underlying causes of undernutrition. The pathways include:

- agricultural income (for food purchase and health and education expenditure)
- food production (own consumption, and processing and storage)
- women's empowerment (through women's decision-making in the household, women's time use, the impact on their ability to care for themselves and their children, their workload and control of income, and their participation in markets).

Horticulture, legumes, aquaculture, apiculture and livestock are nutrient-rich food sources that include essential nutrients commonly deficient in the diet. Because of the potential for income generation, value-chain interventions are a good entry point for nutrition messages on the importance of sourcing healthy inputs from the market when they are not available at home. In addition, all agriculture investments can be made more nutrition-sensitive by analysing the pathways explained above and following simple programming principles outlined here. Nutrition-sensitive interventions and programmes in agriculture have enormous potential to enhance the scale and effectiveness of nutrition-specific interventions and crop and breeding choices, postharvest choices (factoring nutrition in storage, processing, and preservation) and food safety practices should all be considered in efforts to improve dietary diversity and household diet quality. Nutrition-sensitive agriculture should be carried out in collaboration with **nutrition-specific** interventions that target the immediate causes of undernutrition. Nutrition-specific (including, for example, micronutrient supplementation, social and behaviour change, education, water and sanitation and health services) and nutrition-sensitive programming combined have the greatest potential to reduce chronic and acute malnutrition and to improve consumption and nutrient utilisation. Context specificity, (geographic, socio-cultural, utilisation/dietary habits etc.) and the integration of care and feeding practices within the household and community must be understood if a well-designed smallholder agriculture programme is to contribute to positive nutrition outcomes.

At the analysis and assessment stage an integrated mapping of nutrition in terms of nutrition tools, resources, and how it links to agricultural (including homestead or backyard garden) production and value chains should be facilitated, and collection of quantitative data through baseline assessment with questions on nutritional status, feeding practices, knowledge and attitudes should take place. Research to understand local/regional nuances regarding food production, household income, and nutrition, care and feeding practices is then required.

To ensure that there are links between **production, income and nutrition** (including the relevance of value chains and agricultural output for sale), analysis to contextualise individual/household and community needs (considering access to local markets, availability of foods for a diverse diet at household and community levels, and gender dynamics) is necessary. Good smallholder agriculture programming should increase attention to homestead food production (vegetables, fruits and small animals) as a means not only to improve nutritional well being (dietary diversity) but also to improve soil health and water efficiency through sustainable practices. CARE has learned that such programming can deliver high impact when the empowerment of women is addressed in tandem. Food storage and food safety (increasingly important in a changing climate) can also be improved through a comprehensive approach to

agriculture and household nutrition (below) and continuous action research is required to understand the correlations between increases in production, income and nutrition security.

Food utilisation (care and feeding practices) can be improved by developing social and behaviour change strategies based on quantitative and qualitative data to inform key messages for group discussions and education. Village savings and loan associations (VSLAs), farmer collectives or other community groups can be used to facilitate the transfer of information and support around backyard gardening to community members, giving special attention to pregnant and lactating women. Agriculture-to-Nutrition Community days that include seed storage or cooking demonstrations, together with basic health, hygiene and sanitation practice messages, can also be beneficial.

Considering the above approaches (and those addressed below), the critical guidance points for programming in smallholder agriculture with nutrition outcomes in mind are thus: 1) the need for thorough analysis; 2) the paramount importance of identifying the most vulnerable, empowering women and building human capital; 3) avoidance of monocultures and promoting diverse cropping systems that make use of inter-cropping and crop rotations that include nitrogen-fixing legumes; 4) the need to incorporate nutrient-dense foods such as vegetables, fruits, legumes and small livestock, including the systematic promotion of homestead gardens; 5) the promotion of appropriate rural livelihood options to better manage risk and provide income-generating opportunities for the most vulnerable; 6) the inclusion of nutrition education/behaviour change communications in agriculture programmes (including beyond specific project sites); 7) changing the seasonality of food availability by reducing post-harvest losses through improved storage and processing and reducing the seasonality of smallholder agriculture through improved irrigation and soil and water conservation practices.[5] Finally, programmes should work to ensure that government or private extension services and programmes in other sectors are more nutrition-sensitive so that they carry forward nutrition messaging and education to farmers. Other market actors such as input suppliers or women and men in the market place can act as entry points for nutrition messaging. In many circumstances, non-agricultural nutrition sources and entitlements also need to be ensured and CARE can advocate for this. Coupling of food provision direct-from-farm with other food entitlements is critical to building resilience and inter-sectoral measures are thus critical. CARE will continue to make the case to other sectors, including, for example, agriculture, climate change, health, or social protection, that goals will be reached faster by using a nutrition lens; by including nutrition goals, indicators, and targets; and by work with partners to use this lens to develop specific nutrition-enhancing practices and actions within their interventions.

A3 Inclusive value chains and market system engagement

Market systems play a critical role in the transformation of rural livelihoods, as they empower producers to effectively generate income. But markets in the global south are often fragmented and poorly regulated, with various actors in the chain frequently taking most value at the expense of primary producers. Information flow on price and production trends, demand levels and transaction costs remain inaccessible to smallholders. This challenge is particularly acute for

[5] The promotion of crop warrantage, a system whereby harvest is pre-purchased by community groups at agreed average prices, then stored and sold on the market at a later date when prices rise, has enabled farmers to pay debts and retain food stocks, for example – see CARE's CBA Good Practice Paper.

women due to busy workloads, mobility challenges, unequal access to service providers, and restrictions on effective participation in higher-value market opportunities. Generally, individual primary producers are price-takers – unable to determine pricing based on information and lacking both understanding of profitability and negotiation skills in the market place. Restricted income or insecurity of tenure can further prohibit investment in production and better management of natural resources.

Inclusive market systems can engage and benefit poor people and/or other marginalised groups in roles ranging from producer, service provider and entrepreneur to employee with a job that provides a living in a dignified way, thus benefiting those who are often excluded from the benefits of agricultural market systems. The productivity and efficiency of market systems are thus essential for the success of rural economies and to the incomes of the poorest. In supporting the development of inclusive market systems, CARE uses a push-pull model to empower individuals and groups to build capacity, as well as to engage other actors (market actors, government agencies, etc.) outside of a programme's target population. Push strategies can be thought of agency-building efforts, while pull strategies include efforts to affect structural and relationship barriers. This approach allows for the sequencing of interventions to meet the constraints and opportunities that face target households, and enables them to transition to higher steps on the ladder, transitioning from poverty to food security, while avoiding reverting to lower steps on the ladder. Inclusivity will mean little for many in the long run, however, if these market systems are not themselves sensitive to climate and environmental impacts. For instance, a pull strategy may include work with agro-dealer systems to ensure better availability of quality inputs at lower cost, as well as connections to output markets. Or it may include the use of agro-kiosks which are more localised and community-driven. Considering the need for a low external-input approach (that is also knowledge driven), CARE's position on the use of agro-chemical inputs and, most importantly, our goal of food and nutrition security, programme design and implementation will need to ensure that agro-dealer models do not become vehicles for unsustainable agro-chemical input supply.

In an increasingly competitive environment, taking a market-system focus ensures that vulnerable communities are empowered to enhance value and gains from productivity, thereby enabling them to invest in better health, nutrition and other livelihood outcomes. Value chains represent a critical lens by which we can understand how a product moves from producer to customer within market systems. This perspective provides an important means to understand commercial and socio-economic relationships, mechanisms for increasing efficiency, and ways to enable business to increase productivity, add value and create employment. It provides a reference point for improvements in services and the business environment and helps to identify leverage points to generate pro-poor systemic change.

CARE applies a **value-chain lens** to its agricultural programming with the aim of enhancing food and nutrition security. In our agricultural development work, we ensure that thorough value-chain analysis is at the forefront of selection and engagement in selected value chains. Our focus is on addressing the bottlenecks that inhibit the participation, confidence and competitiveness of – and return on investment for – our impact groups, particularly women, in value chains. We emphasise the need to focus on identifying the most viable market opportunities that are particularly responsive to women's needs. Addressing productivity challenges through access to quality inputs (through microfranchising input shops, for example), sustainable production practices, reduction of post-harvest losses (below) and access to support services are critical

elements of this approach. Selection of value chains based on their environmental integrity, their viability under changing climate scenarios, their economic potential, their responsiveness to market conditions for both long- (sustainable) and short-term opportunities, their appropriateness for women farmers, and their nutrition potential (i.e. capacity to deliver food and nutrition security outcomes) are at the centre of the approach. Access to input and output markets that meet these criteria, through developing forward and backward links (as well as access to higher-value markets), can thus improve both natural resource management and, critically, household income and food and nutrition security. Supporting farmers to be able to bulk, store and sell produce when prices are optimal is a particularly important consideration with income and profitability in mind.[6]

For smallholder producers to actively engage in market systems, an understanding of how value chains and markets work is thus essential. CARE's approach aims to build the capacity of service providers (including social enterprises) to deliver effective and sustainable business support services to farmers. Our approach involves Farmer Field and Business Schools (below), working with and supporting marketing structures (and other governance structures) that are equitable, through which farmers and/or farmer collective bodies interact directly with buyers to negotiate and build relationships. Collectivisation and supporting the creation of collectives, can be a transformative approach across all our smallholder agriculture work. Our approach also has a focus on promoting gendered value chains, looking specifically and gender roles in value chain analyses and promoting actions that are gender responsive and transformative. We build the capacity of farmers – often through producer groups, farmer associations, cooperatives and social enterprises – to understand the costs of doing business and develop participatory business plans enabling them to better manage their businesses (below). Through this approach, farmers can better understand and estimate their yields, anticipated productivity levels and prices as well as market dynamics. Finally, a market-systems approach (which includes value-chains work) to sustainable agriculture should include diversity. Diversity of production and the integration of diversity within a holistic farming system are important, as a narrow commodity focus will neither spread risk nor improve nutrition outcomes through variation of household food baskets.

A4 Community-based adaptation to climate change

Changing climate and weather patterns, and the uncertainty that comes with it, is a growing challenge for farmers and development actors – and none more so than smallholders in climate-sensitive hotspots. The new risks that climate change brings to agriculture are reducing farmers' confidence and the value of their local knowledge. Farmers face a growing need to access information to learn to anticipate possible futures, manage uncertainty and make economic, social and environmental decisions and trade-offs on a continuous basis in relation to a changing climate. These abilities make up **adaptive capacity** – which is central to increasing the resilience of farmers and their agriculture systems. Building adaptive capacity involves strengthening a number of inter-related factors: 1) access to, accumulation of and control over assets; 2) access to knowledge and information; 3) innovation; 4) effective institutions and entitlements; and 5)

[6] Though beyond scope of this paper, it is worth noting CARE's interest in local and regional purchase (LRP) as part of its humanitarian work. In circumstances of acute food insecurity, humanitarian actors can greatly benefit from working with government agencies and the World Food Programme (WFP) by accessing locally-produced food. This has multiple benefits for smallholder farmers and, more importantly, allows timely and affordable access to food in emergencies.

flexible and forward-looking decision-making and governance – all of which are articulated in the Local Adaptive Capacity Framework.

Community-based adaptation (CBA) is a holistic approach that focuses on building adaptive capacity and on addressing the underlying (structural, social, economic and political) causes of vulnerability. It does so by combining social decision-making processes with support to technical adaptation strategies or interventions (such as introducing drought-tolerant seed), informed by climate science forecasts and projections, climate risk and impact analysis, and the designing of 'climate-resilient' livelihoods and disaster risk reduction interventions. CBA builds on good sustainable development but with the addition of climate change analysis that considers different timescales and decision-making which is informed by anticipated future weather and climate. CARE's experience indicates that analysis of differences in roles, power and resources, plus a targeted approach to promoting improved gender equality as part of adaptive capacity-building, has mutually beneficial outcomes in women's empowerment, household and community capacity to adapt, and increased food and nutrition security. CARE has developed a comprehensive set of gender-responsive approaches to climate vulnerability and capacity assessment (CVCA), CBA planning and integration, climate information systems, monitoring and evaluation CBA and others. CARE's CBA approach considers the most pertinent issues for smallholder agriculture in the 21st century: risk and uncertainty, trade-offs and cost benefit issues, climate information, early warning early action system links and consequent connections to humanitarian action, disaster risk reduction and livelihood security.

CBA approaches can be tailored for use in specific farming situations and timescales, for example: supporting innovation, flexibility and decisions for annual or perennial crops; short- and long-term farm investment; informing early warning and early action systems; supporting integration of action in development; risk and financial management; making links to financial and insurance services for crops and livestock; and bringing decisions under the control of those affected by them. Information from climate science, particularly climate forecasts, is a relatively new but essential resource that can assist decision-making and planning for adaptation in agriculture. Taking into account the value of local knowledge alongside scientific sources is even more valuable. For example, farmers learn not only how to access drought-tolerant seed varieties suited to their areas, but through access to climate information from forecasts and their own rain gauges, and going through a planning process, they also learn how to know when and how much of which crops to plant in a given season. Such approaches are described in CARE's paper on Facing Uncertainty.

But climate-resilient farming systems and food security will not be achieved through community action alone. CBA is a multi-level and cross-sectoral approach that involves working from community level actions to local government planning and capacity-building, through to influencing national level polices and plans in favour of approaches which are responsive to the needs of vulnerable population groups. Engaging stakeholders critically at multiple levels, CBA is thus an approach that can successfully link communities to policy development processes, holistic agricultural development and the scrutiny of public service provision.

A5 VSLAs – village savings and loan associations

Many small producers (and especially women) in the developing world lack access to cash or to financial services to borrow cash to invest in production. Millions of smallholders, often working

in isolation, have little power and influence, and are often disconnected from support systems. Many live and work in such remote areas that the demand for their produce is extremely low – or non-existent. They have thus relatively low credit needs. Groups ('collectives') offer a way to reach large numbers of such vulnerable smallholders with a financial service, while at the same time enabling them to learn from each other, to use their numbers to access inputs and bulk produce, to negotiate with buyers to get better prices, and eventually to influence service providers and policymakers.

CARE is a pioneer of savings-led approaches, with several million VSLA members in over 20 countries in Africa alone. VSLAs offer a way for people, especially women, to save small amounts of money monthly in a group, and at times to borrow for investment. Many VSLA groups are formed around farming groups, or *vice versa* (members can save money earned from farming, and buy inputs or pay for other farming costs). VSLAs facilitate community empowerment (particularly that of women), providing a way for members to gain experience and confidence running groups and taking decisions over productive assets. While other financial services are needed to make significant differences for smallholder communities (insurance, working capital for entrepreneurs, supplier credit, land improvement loans, etc.), VSLAs are a reliable way to reach vulnerable people – either directly or indirectly (as community capital increases and informal safety nets improve).

A **VSLA** is a voluntary association of 15-30 people, (often women only), with a common interest in economic empowerment and livelihood enhancement. The groups meet usually on a weekly basis to save money, which is then lent to members at an agreed rate of interest. A VSLA cycle takes 8-12 months, after which members share their savings and the interest earned. The cycle is then repeated. The model also has a welfare fund from which members can borrow interest-free loans in case of an emergency. Members are also trained in financial literacy and enterprise selection and management. Studies from CARE's work have shown a survival rate of VSLAs of over 90%.] The key elements of the VSLA approach include **self-selection,** where, after an external agent such as CARE introduces the concept of savings and loan services to the community, members self-select to form a group. **Training** is provided over a few months to help members define purpose, elect officials, and set terms for savings and loans, including interest rates, repayment schedules, etc. The methodology offers recordkeeping techniques suitable for literate or illiterate people. **Governance** is critical: each VSLA elects officers, and all transactions – the collection of member savings and the disbursement of loans – are carried out at weekly member meetings, ensuring transparency and accountability. VSLAs begin by collecting weekly savings from members which are accumulated in the form of shares at a price agreed upon by the group. The use of shares simplifies recordkeeping. Once sufficient savings have accumulated in the cashbox over four to five weeks, loans are offered to members. Typical loans range from $10 to $20. Some nine to 12 months after the VSLA is formed, the group conducts an 'action audit' whereby it pays out savings and earnings from interest and fees, closes its books, and disbands. The action audit is usually timed to provide a lump sum to members at critical times in the year when access to money is needed, for example to pay for school fees or inputs at the start of the agricultural season. It also enables members to leave the group and new members to join. Most groups reconstitute themselves and resume the savings and loan process].

VSLAs are complementary to micro-finance institutes (MFIs). They serve people living in remote places whose income is low and irregular and who need to save cash in small amounts. Such populations are costly for MFIs to serve. Through VSLAs, some community members may build asset bases enough to be attractive clients for MFIs, credit unions and banks and there is thus growing recognition of the importance of VSLAs as an entry-level component of a vibrant and inclusive financial system. Significant benefits can accrue from linking VSLAs to smallholder agriculture and CARE programming considers agricultural seasonal planning in the context of established savings and loans schemes. There is potential for agricultural finance activities to benefit from members being able to tap into their own financial resources; members can apply

their group management skills to farmers' groups; a group can join an external agriculture-related production or marketing entity; and, because of better cash flows, group members have the potential to maximise profit from their agricultural products by selling at an opportune time in the market. Capacity and confidence can be greatly enhanced through VSLAs. Through cereal bank management, for example, as groups access (or purchase) land collectively to cultivate, they also assume responsibility for managing the banks on behalf of the community, due to their collective organisational capacity. Further, with the income smoothing (in addition to income increase) that group members commonly achieve, it is possible for them to save when they have any extra resources and then use those resources when they are needed. Finally, VSLAs can assist with upward links to policy advocacy processes and platforms, to climate and agriculture finance, and, as in the case of Ethiopia, to national productive safety net programmes and productive markets.

A6 Farmer-led learning and Field School approaches

Context-appropriate solutions are fundamental in agriculture systems. There is not one technological solution that works in every situation. Empowering farmers with options and the information and knowledge they need to make good decisions lies at the heart of context-appropriate solutions. This includes agricultural research and extension or 'innovation' systems that are gender-sensitive and the promotion of farmers' voice and participation – particularly that of women – in agricultural and climate service delivery and formation of policy, plans and investment strategies. CARE adopts participatory approaches to agricultural research and extension, such as versions of the **Farmer Field Schools** (FFS) approach popularised by the FAO. These result in improved productivity, the dissemination of more sustainable practices, increased farmer confidence, increased farmer collective power (and thus market engagement), and increased adaptive capacity.

Many different farmer participatory approaches have been developed, with CARE and others gradually moving from the consultative mode of participation in agricultural innovation systems to a collaborative, collegial and integrated mode of farmer participation and hence farmer empowerment. We are therefore emphasising participatory approaches to agricultural research and extension, based on the Farmer Field School approach, which is based on 'learning by discovery' and adult learning principles. Recognising that strong local institutions are a critical element of adaptive capacity at community level, CARE has adapted the FFS model into the Farmer Field and Business School (FFBS - integrating agriculture, marketing, gender and nutrition) and Climate Field School (integrating climate scenario planning) among other approaches to build the capacity of local organisations to facilitate learning around climate resilient, sustainable agriculture.

The FFBS employs a hands-on 'learning by doing' approach that serves as a platform for building smallholder capacity on sustainable agriculture, market literacy and engagement, nutrition, gender and women's empowerment, and performance monitoring. The FFBS is innovative and unique in its integration of all these components into the agricultural cycle, scheduling and synchronising it to ensure that all key stakeholders have a common understanding and clarity on the links between the key technical components required to achieve multiple outcomes around empowerment, equity and increased productivity. An FFBS curriculum and toolkit covers specific lessons on each of the thematic areas and forms the basis for capacity-building sessions for the community-based facilitators who, in turn, train a given number of groups of women drawn from their respective targeted groups.

Climate Field Schools use farmer field school principles and aim to increase farmers' knowledge on climate change and improve their response to it. Farmers already operate in complex environments compounded by climate variability, especially around rainfall patterns, and respond to this through adapting their farming practices throughout the season using a combination of improved technologies and traditional knowledge. CARE has sought to improve farmers' adaptation strategies in a bid to increase resilience within the limits set by the environment and changing seasonality, through better scenario planning. This includes working with meteorological service providers to receive rainfall data from farmers on a regular basis and disseminating forecasts and advisories throughout the growing season. This makes it easier for farmers to respond and adapt. In cases where official rain forecasts and predictions are not sufficiently downscaled, farmers are able to make their own observations and act on them. Farmers are now more aware of how to use climate information in managing their soil, water and crop resources for best results and benefit from their effort. Improvements and innovations in information and communication technologies (ICT) allow for better programming in this and other areas (such as marketing or early warning and early action) and should be considered in programme design.

For participatory approaches to have the desired impact, holistic and inclusive planning that brings multiple actors working at differing scales together is critical for sustainable outcomes and good governance. Participatory Scenario Planning (below) is an example of an emerging model in CARE's work which enables communities and local governments to collectively interpret seasonal climate forecasts from the meteorological services and traditional forecasters at local level. It facilitates flexible, weather-based planning, enabling different actors (especially smallholders) to adapt to seasonal variations in climate, while at the same time building evidence and capacity for adaptation planning. This approach has been shown to lead to enhanced relations between meteorologists and local actors, increased flexible and locally owned decision-making, and greater confidence in local knowledge and innovation.

Successful participatory approaches thus rely on analysis (such as on climate vulnerability and adaptive capacity), on multi-stakeholder dialogue, on links between levels of power, on negotiation and mediation, on collective goal setting, on innovation and technology development, and on transparent decision-making. The application of these principles is assisted by techniques and tools that can be divided into four categories: 1) group dynamics learning contracts, role reversals, feedback sessions; 2) sampling – transect walks, wealth ranking, social mapping; 3) interviewing – focus group discussions, semi-structured interviews, triangulation; and 4) visualisation – Venn diagrams, matrix scoring, timelines, etc. To ensure that people are not excluded from participation, these techniques are based on adult learning approaches and rely on oral communication, observation, pictures, symbols, physical objects and group memory. Learning and Practice Alliance building is another approach applied by CARE.

Participatory Scenario Planning is a multi-stakeholder forum for accessing seasonal climate forecasts and 'translating' them to relate to local livelihoods and development so as to generate information for use in decision-making and planning in a season. PSP ensures that community voice, experience and expertise contribute to developing locally relevant agricultural solutions to existing and new climate risks and challenges. It enables ***equitable*** access to climate information by smallholders, agricultural extension and support services. PSP is grounded in shared and iterative learning and the process creates links between actors who would not normally sit together to plan, – resulting in connectivity between actors, institutions and organisations for coordinated actions. The PSP process follows five major steps

- **designing** – a locally relevant and appropriate process, including deciding the level (national, county/province, district, etc.) at which to conduct PSP and form partnerships)
- **preparing** – bringing out stakeholder information needs for the coming season)
- **workshopping** – a multi-stakeholder forum where seasonal forecasts from local forecasters and climate scientists are combined to create a more accurate forecast for a local area. This is combined with technical expertise from different government sector ministries, organisations and institutions to develop actionable and locally relevant information (advisories) for decision-making and planning)
- **communicating** – the advisories to reach a wider and targeted audience who need to use the information
- **monitoring, evaluating and feedback** – to learn the challenges, benefits and impacts of PSP on livelihood decisions and choices.

Scenario planning addresses the need to understand and manage broader uncertainty of the future as the climate continues to vary and change. Uncertain information on the future climate is taken as a barrier to using the information, even though it is more useful for planning agricultural investments than no information at all. Scenario planning enables actors to contend with a range of possible climatic impacts now and in the future so that shocks do not come as surprises and risks can be anticipated, reduced, managed or turned into opportunities. This builds actors' capacity to make informed, appropriate and forward-looking decisions and plans on ***sustainable*** and ***productive*** agricultural technologies and practices for increased food and nutrition security and ensuring that smallholder agriculture is climate ***resilient***.

A7 Climate resilient agroecological practices

Climate-resilient agroecological practices aim to contribute to the achievement of sustainable development goals and thus integrate the three dimensions of sustainable development (economic, social and environmental). While economic and social aspects are dealt with elsewhere in this paper, this section primarily addresses the agronomic aspects of environmentally sustainable agriculture, with particular emphasis on intensification of productivity through agroecological approaches, which can dramatically increase food availability locally and globally. These practices can also improve food access by farmers, workers and consumers by enabling larger amounts of nutritious, affordable food.

Sustainable production techniques, and particularly **conservation agriculture**, build on the three principles of: minimum tillage; crop rotations or intercropping; and continuous soil cover. While specific techniques vary depending on the agroecological zone and the social and economic realities locally, emphasis is on improving soil fertility and soil's ability to absorb and maintain moisture. Conservation agriculture is gaining renewed interest as it is considered a 'climate-smart' approach to smallholder agriculture whereby food security and adaptation outcomes can be maximised. CARE applies agroecological principles in all its conservation agriculture work and can demonstrate significant yield increases.

Sustainable production techniques can encompass other practices and approaches. Critical to our efforts to increase the sustainability and productivity of smallholder agriculture is a low

external-input approach.[7] This is characterised by the use of only limited and economically and environmentally sustainable amounts of chemical fertilisers (e.g., micro-dosing), pesticides[8] and improved seeds as required to increase productivity and resilience to climate change. This approach is further characterised by a focus on: improved **soil** fertility through increasing soil organic matter and improved nitrogen use efficiency; increasing the number of **trees** and other perennials in agricultural landscapes, particularly economic (e.g., fruit) and nitrogen-fixing species; more efficient use of scarce **water** resources; and access to high-quality **seeds** and other planting material (both indigenous and improved varieties) that are suited for local contexts and resilient to climate change. While the 'triple-win' (productivity, resilience, mitigation) envisioned by proponents of 'climate-smart' agriculture will not always be possible (and certainly not without trade-offs), CARE does believe there are many interventions that offer 'multiple benefits' that can be promoted with 'no regrets'.

Soil and water management: The availability of nitrogen, phosphorus and other nutrients is essential for increasing yields while water-use management and efficiency is key to production, as soil is the primary mode of storage of nutrients and water for plant growth. Key plant nutrients can be provided by inorganic mineral fertilisers, by organic manures such as compost and crop residues, by using legumes as green manure cover crops and inoculants for nitrogen fixation, and by no-till or conservation agriculture. CARE advocates the use of methods and practices that increase organic nutrient inputs; retention and utilisation are fundamental and reduce the need for mineral fertilisers, which due to cost and access, are often unavailable to smallholders and through their production and transport contribute to greenhouse gas emissions. Water infiltration rates can be improved by building soil organic matter and the use of mulches. Techniques such as ridges, pits and contour barriers further increase rainfall infiltration and reduce soil erosion. Water that runs off fields, landscapes and rooftops can be captured and stored in small-scale water harvesting and retention structures on adjacent landscape such as tanks, pools, pits or small ponds (below). All of these should be controlled and managed at household, community or landscape level and should be a focus of CARE interventions where feasible.

CARE's pioneering work in **water for agriculture** recognises that agriculture is the largest global user of scarce fresh water. As temperatures rise, atmospheric moisture will increase, increasing the frequency of heavy rains and severe weather events. While globally, rainfall should increase, the problem increasingly will be predictability and distribution. Many already arid and semi-arid regions are expected to see even less rain in the coming decades. Our approach to water for agriculture incorporates many of the techniques and approaches outlined above, such as conservation agriculture and climate smart agriculture, both of which pay specific attention to improving the use of scarce water resources for farming. CARE goes beyond field-based practices and emphasises global investments in irrigation efficiency, equity and environmental

[7] Where soils are poor, an entirely closed system will not support the increases in productivity required to make smallholder agriculture viable. CARE's approach to low-external agriculture encourages the use of external inputs that are organic and locally sourced, making use, for example of green manures and crop-livestock-forest interactions that go beyond farm borders or waste management through local composting. Agro-forestry options should also be pursued, as fertiliser trees are an economical way of increasing soil fertility, reducing termite infestation and bringing other socio-economic and household energy benefits.

[8] In keeping with historical CARE policy, the use of pesticides classified as extremely (1a), highly (1b), and moderately (2) hazardous by the WHO are banned in all CARE projects. Less hazardous pesticides should only be used where no effective natural pest management approaches to control weeds, insects and diseases causing major crop damage can be identified.

benefits, achieving more food for less water. The use for irrigation of both 'green' water (e.g., rainfall and soil moisture; conservation agriculture focuses on this) and 'blue' water (from lakes, streams and aquifers) is promoted.

In East Africa, CARE has evolved an approach to managing water in smallholder farming called 'water smart agriculture' (WaSA sourcebook). This recognises water as a key constraint on the production of smallholder farmers across the region – particularly in the context of existing rainfall variability, rising temperatures and future uncertainty over regional patterns of climate change. WaSA incorporates approaches outlined in conservation agriculture above and seeks: i) capture, storage and use of water to overcome rainfall uncertainties and to provide water on a sustainable basis where this can significantly improve farmer yields, nutritional outcomes and livelihood security; ii) efficient and effective governance of the soil-water relationship through enhancing soil moisture retention, reducing the destructive impacts of rapid run-off and supporting better targeting of water to crop-root systems during critical growing periods; and iii) improving farmer-to-farmer governance of resources through increasing knowledge and learning about water management options, water resource management and solutions to competition for water between farmers and with other sectors, including domestic supply.

Our approach is based on the testing, adoption and scaling-up of technologies and practices through a network of Champion Farmers. These farmers are selected by local institutions under a Learning and Practice Alliance using a range of criteria including capacity to adopt and innovate, willingness to engage in action research, and ability to reach out to and work with other 'early adopters' in their communities. Champion farmers undertake simple application of technologies and practices drawing on technical innovations in water capture and delivery (e.g. water harvesting, treadle pumps, well technologies) and storage in the soil profile (including ridging, mulching, double digging and terracing). Working with researchers and extension staff under Learning and Practice Alliances (above) they share the results of their experience with other farmers and continue with further short cycles of action research across seasons to help determine costs, returns on investments, and ways of scaling-up. On-farm soil and water conservation and management practices will become more important than ever for smallholder agriculture and thus for much of CARE's work.

The central focus of Champion Farmer engagement is to enrich and support empowerment of rural women, though it is recognised that farming communities cover a range of farmer types, so engaging both women *and* men is also key to wider success, particularly in triggering wider uptake and adoption. WaSA is, above all, a system of thinking about water in smallholder farming that is evidence-based and enables investment by farmers themselves, by local authorities working with them, and by wider national and regional institutions as part of broad-based economic development strategies. It does this by bringing more direct knowledge of the beneficial impacts and richer, locally contextualised, data on the costs involved. In key ways, WaSA emulates the success of the WASH 'package' to water supply, sanitation and hygiene education that has underpinned significant health transformations in rural and urban communities in East Africa and elsewhere through targeting faecal-oral disease transmission routes.

Pest and disease management: Integrated pest and disease management establishes the relationship between the environment and the development of crops. By observing fields and crops, farmers become more conscious of the interaction between the environment and the

crop. This knowledge allows them to identify constraints to crop growth, to make informed decisions and to adapt strategies that minimise negative effects. Strong vigorous plants are better able to tolerate insect and pest damage. Regular field observation, analysis and feedback to enable farmers make informed decisions based on specific insect pests, natural enemies, diseases, the growth stage of the crop, and weather and climate factors is critical. Farmers learn quickly and gain confidence in their own knowledge and ability to make decisions. Without the relevant knowledge, they may, for example, use too much pesticide out of fear and misinformation, and human health can be at risk. CARE advocates minimal use of the least toxic pesticides when absolutely necessary and their use should be accompanied by training on safe use and handling and their inherent risks. Further, we should protect and help natural enemies that live naturally within the crop field or in wild plants in nearby fields so that they become abundant and effective.

Seed and seed systems: Genetic make-up determines plant and animal tolerance to shocks such as temperature extremes, drought, flooding, pests and diseases. It also regulates the length of growing seasons/production cycles and influences productivity through the response to inputs such as fertiliser, water and organic matter. The preservation of genetic resources of crops and breeds and their wild relatives is therefore fundamental in developing resilience to shocks, improving the efficient use of resources, shortening production cycles and generating higher yields (and quality and nutritional content) per area of land. Generating varieties and breeds that are tailored to ecosystems and the needs of farmers is crucial. While farmers will want to plant high-yielding varieties as cash crops, ensuring that they maintain a mix of traditional crops and improved varieties will ensure better adaptation to climate change and adverse weather, thereby reducing the risk of total crop failure. Ensuring a well-functioning diversity of seed systems, which include commercial systems with high-quality improved seeds (Open Pollinated Varieties (OPVs) and Hybrids), locally produced and sold OPVs, and farmer's own seed management (storage and preservation), will reduce overall risk and maximise food production.[9] Many of the improved (and local) varieties will have different characteristics that can address pest, fertility, drought and flood conditions. Women have traditionally been responsible for the care and management of seed resources, and their primary involvement in seed systems is critical. CARE has a key role to play in helping to establish commercial seed systems that are more women-responsive. Key ways in which this can be done is getting crop breeders to work more closely with women farmers to identify their needs and to breed appropriate seeds, working with the private sector to help develop women-responsive retail systems and to engage with community seed banking; and encouraging women's engagement in the seed sector from research to farmers.

Harvest and post-harvest management: Globally, nearly one third of all food produced is wasted before it is eaten; in many southern countries, a quarter or more is often lost due to ineffective post-harvest handling, insect infestations, rodents, moisture and so on. Efficient harvesting and transformation of agricultural produce can reduce post-harvest losses (PHL) and preserve food quantity, quality and nutritional value. It also ensures better use of co-products

[9] CARE does not engage in programming with genetically modified organisms (GMOs) and objects to their use. Beyond food sovereignty concerns and concerns around the capture of input and credit supply routes by agribusiness, there are agronomic and environmental objections to using GMOs. There is considerable concern about the effects of GMOs that interbreed with other varieties once in farmers' fields. There is also troubling evidence that areas with years of GMO use are seeing increasing resistance to pests, and a build-up of weeds that are increasingly resistant to herbicides.

and by-products – as feed for livestock, to produce renewable energy in integrated systems, or to improve soil fertility. CARE has been working to reduce post-harvest losses due to insects, rodents, fungus and moisture in a variety of ways, including through simple household technologies, village-level construction and use of 'pest-proof' storage facilities, improved drying and handling techniques, and warehouse receipt systems that allow farmers to receive immediate income from their harvest yet sell at a later date when prices are higher. A diverse system is needed to address the needs of different farmer groups, particularly women. CARE's focus has been on cost effectiveness, safety (human and environment) and overall effectiveness of the system. This includes retention of overall food quality in processing while at the same time reducing carbon footprints, increasing the operational efficiency of processing, packaging, storage and transport, and ensuring increased shelf life. Food processing allows surplus to be stored for lean years or allows a staggered sale. This ensures greater availability of food and income throughout the season and in lean years. Moreover, food processing creates jobs and income opportunities, especially for women and young people. CARE supports the shortest possible food supply chains and the highest possible nutritional value in food.

Climate Smart Agriculture (CSA) aims to address the threat that climate change poses (and harness opportunities that agriculture presents) to a sustainable food system through the three pillars of: i) sustainable and equitable increases in agricultural productivity and incomes; ii) greater resilience of food systems and farming livelihoods; and iii) reduction and/or removal of greenhouse gas emissions from agriculture where possible. CSA is not a single specific agricultural technology or practice that can be universally applied. It is an approach that requires site-specific assessments to identify suitable agricultural production technologies and practices. The CSA parameters are not yet clearly defined and some use and interpretation of its intent are inconsistent with the objective of achieving true agricultural sustainability, notably by including practices that are not proven solutions to tackling hunger or achieving sustainable development, such as the use of genetically modified organisms. CSA also risks being too focused on climate mitigation. There are concerns that, by prioritising mitigation, CSA risks turning smallholder farms into carbon sinks – thus diverting attention from the bigger challenges of preventing or reducing emissions in the global north. In addition, market-based sequestration approaches to agriculture, promoted by a number of supporters of CSA, risk aggravating land and water acquisitions by increasing the value of arable land.[1] Finally, if implementation models are not clarified, CSA risks being delivered via business-as-usual, top-down, non-participatory approaches that are insensitive to rights or social and environmental safeguards that have been ineffective in the past. Such approaches fail to account for the heterogeneity of farmers' assets and endowments, and overall are disempowering for smallholders.[1] CARE is working with colleagues in the Alliance for CSA in Africa to ensure that CSA practices and approaches are consistent with agroecology and with International Assessment of Agricultural Knowledge, Science and Technology for Development (IAASTD) guidance. CARE sees beyond 'triple win' in good smallholder agriculture programming in a changing climate and has challenged proponents of CSA to increase attention to equitable and sustainable outcomes. As within agroecology or sustainable intensification paradigms, CARE aims for multiple benefits from good practices in agriculture under increasing climate disruption. The primary goal is food and nutrition security for the most vulnerable. Increased adaptive capacity, reduced inequities (especially gender inequity), improved ecosystems, health and services, transparent and inclusive governance and policy formulation, and robust social and environmental safeguards should all be components of CSA, for example. The co-benefit that CSA brings in terms of carbon sequestration is a bonus but CARE does not view that with equal weight for smallholder agriculture in the global south. In all our engagement with all development paradigms in this space, CARE will apply its SuPER principles as benchmarks.

A8 Governance and rights

The need to focus attention on tenure of land and other natural resources and user rights and access forms a critical component of many of CARE's projects. In broader terms, the Right to Food and its framework is an area in which CARE has increasing interest and our new Global Programme Strategy makes our responsibilities clear. Work around rights requires renewed efforts by ourselves, governments, our civil society partners, the private sector and others to

ensure that rights are protected and promoted[10]. Supporting women's engagement in policy formulation – as professionals, resource users and members of women's organisations – is critical in the agriculture, natural resource management and climate change spheres. Promoting gender-sensitive legislation, enforcing existing legislation and making judicial and ministerial systems more accessible and responsive to women are important in our programming because legal provisions and policies for improving access to adequate land, water and other natural resources are essential for women's economic empowerment. Underpinning rights claims, legislation and policy concerns are issues of governance.

Governance is a key pillar of CARE's Global Programme Strategy and is critical to all areas of our programme work. CARE defines governance as the exercise of power in the management of public affairs. Much of the development community now recognises that poverty is not simply about the brute quantity of resources or opportunities available within a society, but also about how, and by whom, public decisions are made and resources collected and allocated. CARE's approach to governance is shaped by our programming principles, our rights-based approach, and our focus on marginalised women and girls. ***Good* governance** means ensuring that this management is participatory, equitable, transparent and accountable, and that those with power are effective and responsive to citizens' rights, needs and interests. Our governance work is grounded by CARE's Governance Programming Framework, which has the following hypothesis for change:

If citizens are empowered, if power-holders are effective, accountable and responsive, if spaces for negotiation are expanded, effective and inclusive, then sustainable and equitable development can be achieved.

To achieve this, we need to engage with the dynamic political process of negotiation, conflict resolution and decision-making in public management related to food and nutrition security in three domains: 1) empowering citizens to claim their rights; 2) promoting the accountability of public authorities and service providers; and 3) enabling spaces in which citizens, public authorities and service providers can dialogue and agree commitments to make food and nutrition security policies more inclusive, increase or reallocate budgets or subsidies, and improve the quality of relevant public services.

In terms of citizen empowerment, this may include efforts to promote **citizen participation** in local planning. For example, in Ghana, CARE has supported citizens to develop Community Action Plans (CAPs) to inform District Assemblies' Medium Term Development Plans (MTDPs), developing a manual to support District Assemblies to integrate and prioritise concerns of climate change, food security and resilience in planning and budgeting processes. (The use of Community Adaptation Action Plans (CAAPs) in Ghana is also a successful modification of this model.) To be effective and influential, people must typically act collectively in civil society organisations and as smallholder farmers' organisations often lack capacity, CARE must seek

[10] Further to the Right to Food and all other statutory Human Rights and their provisions, the Voluntary Guidelines on the Tenure of Land, Fisheries and Forests; the Guiding Principles on Business and Human Rights and the emerging Principles of Responsible Agricultural Investment are some of the rights-based instruments that are of interest to CARE. Sector standards and good practices should also be applied in CARE programming and policy work where appropriate. An example of this would be the Social and Environmental Standards (SES), jointly developed by CARE. Though developed for work in reducing emissions in deforestation and forest degradation and sustainable forest management, (REDD+), many of the standards are valid across the productive sectors, including agriculture.

ways to support them. Actions to ensure greater transparency, accountability and responsiveness on the part of public authorities may include engagement in land literacy or land-titling work; equal and minimum wage work; budget monitoring of district-level resource allocations for relevant sectors; or direct advocacy (below) efforts to influence government to increase funding, make or change policy – or ensure its implementation. For example, CARE led the formation of the Child Nutrition Initiative in Peru, which sought to influence the government to make chronic infant malnutrition a national budgetary and programmatic priority. This developed a collaborative, evidence-based and multi-sectoral approach which viewed malnutrition not as a 'food problem', but rather as a complex issue with multiple contributing factors. In several parts of Asia CARE has supported successful land-titling work and there is growing programme interest in this area.

In terms of enabling spaces for dialogue, actions may include developing **social accountability processes** and tools such as the Community Score Card. In Malawi, for example, CARE facilitated citizen and public authority scoring related to the size of farming land for cash crops and the type and quality of facilities for distribution of fertilisers and inputs. We then facilitated a space for dialogue between the two in order to jointly identify service delivery issues that could be resolved.

The community scorecard (CSC) is a two-way and ongoing participatory tool for assessment, planning, monitoring and evaluation of services. Developed by CARE Malawi in 2002, CSC is easy to use and can be adapted into any sector where there is a service delivery scenario. The CSC brings together the demand side ('service user') and the supply side ('service provider') of a particular service or programme to jointly analyse issues underlying service delivery problems and find a common and shared way of addressing those issues. It is an exciting way to increase participation, accountability and transparency between service users, providers and decision-makers. The main goal of the CSC is to positively influence the quality, efficiency and accountability with which services are provided at different levels. The core implementation strategy to achieve the goal is using dialogue in a participatory forum that engages both service users and service providers.
The CSC process involves five crucial stages: 1) planning and preparation – at outset, CSC practitioners undergo a planning and preparation process in coordination with key stakeholders, including the community they work with, to prioritise issues generated during focus group discussions; 2) scoring – the community generates a performance scorecard, with the help of the service providers, by developing indicators for assessing priority issues, and complete the scorecard by scoring against each indicator; 3) provider self-evaluation scorecard – service providers assess the service provisions and the barriers to quality service delivery, and develop indicators for quality service provisions. They also complete the scorecard by scoring against each indicator; 4) interface meeting and action planning – community and service providers come together to present their findings from respective scorecards and the priority issues identified. Issues are prioritised jointly in a negotiated manner and an action plan is developed to address those issues; 5) action plan implementation and monitoring – based on agreed responsibilities, the action plan is executed by all stakeholders who come together periodically to monitor and evaluate the actions taken].

CARE's governance work at the agriculture and climate change nexus must thus pay attention to rights-based approaches that aim to empower smallholders, collectives and representative groups in their efforts to hold duty bearers to account. While improved technical approaches have a lot to contribute, our influencing of policy processes (on issues such as land tenure, the right to food, and equality) and governance structures also needs to intensify.

A9 Monitoring, evaluation, reflection and learning

Adopting participatory approaches to M+E is fundamental for comprehensive outcome mapping and accountability and CARE has developed innovative models and tools over many years. The CARE Food and Nutrition Security Steering Committee is working to identify a core set of high level globally recognised indicators that can be applied across our portfolio. It is currently difficult to articulate CARE's impact on food and nutrition security through smallholder agriculture, in part because we use a diverse set of indicators with insufficient consistency, making data aggregation a challenge.

Participatory performance tracking: The Participatory Performance Tracker (PPT) is an adaptable tool which enables a programme to track individual and group-level adoption of key practices in order to streamline data collection and strengthen programme results. Community members gather to discuss and track on a chart their progress against programme objectives and adoption of practices promoted. Peer review is undertaken, based on visible evidence, and standards are maintained and promoted during regular meetings. The tool was developed for a Dairy Value Chain project in Bangladesh and currently the six-country Pathways to Secure Livelihoods programme uses the model to reach 50,000 women in agriculture.

The PPT is both a management tool and an outcome monitoring tool. This allows for the evaluation of group dynamics and performance, with support from group leaders and field facilitators. The tool has the potential to facilitate dialogue around adoption of key behaviours and practices, and capture data on individual and group performance. This data can be aggregated at district, regional, national or global level in order to analyse how groups progress over time. Data may also be disaggregated by the year that groups began participating in the programme to determine success at different time points.
Cohorts can be compared in order to learn what is working in the field and where there may be gaps in programme implementation. Data from the PPT may also be analysed according to practice area, such as agriculture, financial inclusion, or nutrition. This allows for the identification of high and low performing groups and allows CARE to study what makes them successful or what causes them to struggle.

The **Participatory Monitoring, Evaluation, Reflection and Learning in community-based adaptation** (PMERL) approach provides a platform for local stakeholders (community members and others) involved in a community-based adaptation (CBA) initiative to articulate their own needs, priorities and vision of change. PMERL also seeks to instigate continuous and joint learning and reflection between these groups. PMERL is especially helpful given that it is often difficult to predict the impacts of climate change, particularly at local level, and therefore it is not always easy to know exactly what communities are adapting to, or what 'successful' adaptation looks like. Managing this uncertainty requires a 'learning-by-doing' approach, where communities and practitioners are able to track, respond to, and take advantage of changing contexts and unexpected events. This requires a system for monitoring both changes in a variety of *contexts* and the effectiveness of responses to changing contexts, and then feeding that information back into the planning and implementation cycle, so that adjustments can be made as necessary.

The PMERL process builds on a project's existing M&E system to facilitate collective learning and reflection that can then feed back into project planning and implementation to ensure outcomes are achieved. The process aims to involve all sections of the community in measuring their progress towards building capacity to adapt to current and future impacts of climate

change. Ideally, PMERL builds on information gathered at analysis stage and is introduced during the CBA design or planning stage. The process seeks to find out what community members, service providers and others are doing differently, how CBA initiatives are enabling these changes in behaviour, and whether this helps community members and local institutions to respond effectively to climatic stresses and changes in the short and long term. Learning points taken from this process (namely about what is happening on the ground and whether key objectives are being met) can then also lead to adjustments in project planning, while also being used to feed back into the analysis and design of a next project phase, any follow-up activities, or the design of a different project altogether.

Social Analysis and Action (SAA): SAA is a method developed by CARE to address health-related issues in a more comprehensive manner by addressing social, economic and cultural factors. In Ethiopia, CARE adopted SAA for its food security programmes. SAA is an approach that is used within communities through regular facilitated dialogue to address social conditions that perpetuate development challenges. Acknowledging that social and cultural contexts play a key role in programme success, SAA serves as a framework to provide support in these areas. The SAA process, through guided dialogue, directs staff on how to identify their own biases and behaviours that might contribute to social stigma, discrimination and social conditions. SAA then gives the entire group – development workers included – the means to incorporate social norms and practices into regular dialogue that breaks down barriers that stem from social factors. It enables development workers to successfully work with communities to identify links between social factors, food insecurity and nutrition, and then determine how to address them.

SAA requires both staff and programme participants to adopt a reflective learning approach to consider the complex social realities that influence development. By being willing to explore and address our own realities, we take the first steps to implementing SAA. These participatory tools, in their own way, help CARE to facilitate the process of enhancing programme quality and to reach out to the poor farmers we serve as they strive to escape from poverty.

A10 Multiplying impact: research

As CARE, its partners and its impact populations grapple with increasingly complex and rapidly changing dynamics, research – by CARE and others – can deepen understanding of those dynamics and the underlying causes of poverty and vulnerability. Research enables CARE to pilot innovative solutions to development challenges and to demonstrate successful approaches that meet the needs of poor and vulnerable populations. The results both enhance CARE programmes and position CARE as a thought-leader to influence policy-makers and practitioners to a significant scale.

CARE has extensive and influential partnerships and alliances with several research and policy institutions. Traditionally strong and emerging collaborations exist with institutions such as Cornell, ODI (Overseas Development Institute), IDS (Institute of Development Studies), CCAFS (the Climate Change Agriculture and Food Security programme of the CGIAR[11] system), NEF (New Economics Foundation), Tufts, Said Business School, IIED (International Institute for Environment and Development) to numerous other CGIAR research bodies, southern research institutes and universities, research and policy bodies such as FANRPAN (Food and Nutrition

[11] The Consultative Group for International Agricultural Research

Research Policy and Advocacy Network), among others. Early engagement with policy-makers in the research process facilitates their buy-in to research results, makes them partners in the effort, and lays the groundwork for greater impact.

Guided by strategic intent and a thoughtful and coherent learning and research agenda, CARE's engagement with research partners ensures that research is directed toward understanding the challenges of target populations and identifying solutions that respond to the social, political, economic and environmental context in which they seek to lead dignified fulfilling lives, free from poverty. Participatory research methods facilitate inclusion of local knowledge and perceptions while also building the capacity of local populations to explore and understand the changing dynamics around them. The comprehensive Gender and Inclusion Toolbox, which outlines approaches to participatory research in climate change and agriculture, contains various approaches of critical interest.

A11 Multiplying impact: policy advocacy

CARE's new Programme Strategy explicitly recognises poverty as a social justice issue, making it incumbent upon us to pay maximum attention to the realisation of human rights and to recommit to addressing the underlying causes of poverty. Those underlying causes are often related to the absence or poor implementation of national and international policies to protect and promote the interests of poor and marginalised communities. Advocacy is thus a powerful, complementary tool to other CARE strategies.

CARE defines advocacy as the deliberate process of influencing those who make decisions about developing, changing and implementing policies (in this case: to reduce poverty and food and nutrition insecurity in the context of a changing climate primarily but also to contribute to the mitigation of climate change). Decision-makers are those who legislate, negotiate or set budgets relating to formal public policies. As explained in the CARE International Advocacy Handbook (The Village (Advocacy Page) and on Minerva), CARE strives first to understand the policy problem, the context in which we seek change, who can make that change, and the solutions we might propose. This process ensures strategic targeting of often scarce resources.

Advocacy spans from directly engaging policy-makers to share evidence and lobby for policy change to raising public awareness and galvanising public support to press policy-makers for change. The change CARE seeks may entail advocating for:

- commitments from governments at a national or global level,
- a change in existing policy that negatively affects poor people,
- a new global or national policy to promote the interests of poor people, or
- effective implementation or increased funding for existing policy.

CARE prioritises evidence-based advocacy, recognising that its ability to credibly comment on and influence policy and practice stems from decades of experience. CARE often engages in advocacy with partners at all levels. Partnering or working in advocacy coalitions enables CARE to amplify its voice and those of its programme participants, as we influence the message of other actors and deliver the message as a group, rather than alone. Working in coalition can mean that CARE must identify its niche in order to demonstrate a unique contribution, but it also provides an opportunity to share the workload among like-minded civil society organisations. Strengthening smallholder farmers' representative organisations to do effective

policy advocacy based on their own strategic plans is particularly important for sustainability beyond CARE's support.

CARE's policy advocacy work, in ACRES[12] and beyond, thus aims to strategically leverage CARE's expertise, credibility and partnerships to advance policies that meet the needs and promote the rights of poor, vulnerable smallholder farmers. CARE's advocacy targets global policy processes, such as the UN Committee on World Food Security (CFS), the UN Framework Convention on Climate Change (UNFCCC), and the post-2015 development goals, as well as national and regional policies and institutions. CARE's national and regional-level policy work will play an increasingly important role under the CARE 2020 Vision and the Programme Strategy, as we seek to multiply our impact, support the realisation of the Right to Food, and address the underlying causes of poverty. Delivering long-term sustainable impact demands that CARE prioritises the promotion of an enabling environment that empowers poor, vulnerable smallholder farmers to realise their rights and shape their own futures. This must be constantly forward-looking and flexible. We must work with the dynamics of youth exit from agriculture, for example, and tackle the demographic, intergenerational and gender issues associated. But most importantly, CARE's approaches to smallholder agriculture in a changing climate must not flinch in their focus on reducing inequity and realising food and nutrition security for the poorest and most vulnerable.

Conclusion

The twin injustices of climate change and hunger represent huge challenges for humanity. Because agriculture is at once the source of our food, a source of carbon emissions and a carbon sink, and it both contributes to and mitigates climate change, it is imperative that our interventions are holistic. CARE's Programme Strategy sets out a course to ensure that inequity and injustice in all their forms are tackled and it is incumbent upon all of us to embrace that course. This means, among other things, taking an approach to smallholder agriculture that is at once sustainable; productive and profitable; equitable; and resilient. The approaches above, tried and tested by CARE and others, represent some of the more important means to achieve just and sustainable agriculture systems for better food and nutrition security.

[12] ACRES is a cross-disciplinary and cross-organisational team and a coordinated effort between the CARE International Poverty, Environment and Climate Change Network (PECCN) and the CARE International Food and Nutrition Security Steering Committee with the aim of addressing the challenge of food insecurity in a changing climate at both programming and policy advocacy levels. The Theme Team, established in 2012, brought together CARE's climate change, food and nutrition security and water colleagues working on smallholder agriculture and now comprises 30 colleagues across Member and Country Offices and multi-country programmes. Members represent various sectoral areas and work across a spectrum of managerial, technical and operational roles.

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Cover photo: *Workia Konake shows the orkra and corn seeds she will be planting in her garden plot. Women from the community of Soumabozo tend to their plots in the community garden. Their work entails drawing water from garden wells, planting seeds and clearing weeds. The group has also begun growing thorn tree seedings which will be planted around the garden's perimeter to reinforce the fence. In Soumabozo, CARE has helped a new women's association negotiate for one hectare of land to begin communal farming for food support and income generation. Previously, their primary source of income was gathering firewood, which had a detrimental impact on the environment. The goal is to make sustainable agriculture a viable alternative for livelihood. CARE is working with a Djenne-based NGO called AADI (Association for Support of Integrated Development) to implement the project. CARE has funded construction of four wells on the farmland for irrigation. The women's association has also facilitated women's participation in planning and decision-making within the community. Credit: Valenda Campbell/CARE*