

1st Progress Narrative Report

1. General Information:

Project Title	Agreement between Heifer and CIAT to develop a conceptual framework and guiding principles for CSA work for Heifer world-wide
CIAT's team	Anton Eitzinger, Osana Bonilla and Marie Quinney
Institution (Partner's Name)	Heifer Project International
Name of Partner's Project Leader	Oscar Castañeda and Datamining Consultant Timothy Ogborn
Duration (Start-End)	1 st of February 2019 to 31 st of March 2020
Reporting Period	19 th of June 2019
Narrative Summary	Under the direction of Heifer's Senior Director Program CIAT shall deliver the following Services and/or Goods: i) identify a mutually-agreeable definition of "CSA" that is relevant to Heifer's programmatic work, ii) evaluate and analyze CSA methodologies and approaches, and monitoring and evaluation ("M&E") tools, iii) facilitate a participatory workshop at Heifer's headquarters in Little Rock, Arkansas in order to co-design a CSA framework together with up to fifteen (15) workshop participants, iv) based on the CSA framework, recommend a set of indicators for measuring progress and impact of the CSA framework for inclusion in Heifer's monitoring, evaluation, and learning systems plan package, v) document Heifer's new CSA framework, CSA methodologies and approaches, models and tools for programming and implementation that Heifer will use for fundraising and marketing purposes, vi) present results from the datamining process and co-designed CSA framework to Heifer and its country offices, vii) submit a final report and documentation, with recommendations for CSA performance indicators for Heifer, strategies and tools for data collection, areas for further research, and CSA methodologies and approaches for Heifer to consider in future programming. In this first progress report, we present advances on a definition of CSA that is relevant to Heifer's programmatic work.

2. Research project highlights during the reporting period

- Identify a mutually-agreeable definition of “CSA” that is relevant to Heifer’s programmatic work

3. Specific milestones achieved

- Draft of CSA definition for Heifer

4. Activities planned and results expected during the reporting period

A CSA definition for Heifer International

Marie Quinney, Osana Bonilla and Anton Eitzinger

Executive summary

Working towards a definition of climate-smart agriculture (CSA) for Heifer International is key to guiding future interventions and providing Heifer staff with a much needed common understanding of the concept. This document aims to provide an overview of the different interpretations and operationalisations of CSA in the development sector, including some of the criticisms and challenges associated with the concept. It also highlights the strategic need for CSA in Heifer programming and suggests both the ways in which Heifer currently promotes CSA and ways in which this can be harnessed and improved upon.

Climate change is one of the most significant challenges facing farming communities of the Global South. The dependency of poor communities on agriculture and the mutual impact that agriculture and climate change have on one another highlights that targeting farmers presents both opportunities and obstacles. CSA is a powerful approach designed to address these interrelated challenges and is broadly understood as three pillars that increase productivity and adaptation in agriculture while reducing greenhouse gas emissions. Through an analysis of the available literature, however, this document will outline some limitations of this definition and suggest ways in which Heifer International can adapt it to enhance its intended impact.

CSA must not be adopted uncritically. Primarily as a result of suspicion over the involvement of certain agribusinesses in CSA efforts, some development organisations have raised concerns over the subjectivity of CSA and in its ability to achieve its socio-economic and environmental aims. While some disregard it due to fears of greenwashing, these criticisms fuel others to either refine their focus on one element of CSA or apply a specific lens which avoids ambiguity and maintains social and/or environmental standards. This document urges Heifer International to take on board such approaches in order to avoid the use of CSA as a mere buzz-word.

Adopting CSA has become of strategic importance to Heifer International in order to achieve its goals of alleviating poverty and reducing food insecurity. Entry points for mainstreaming CSA in Heifer’s strategies and frameworks have been identified. These include, but are not limited to, Heifer’s focus on reducing vulnerability and elements of the Living Income and Caring for the Earth frameworks and Theory of Change that seek to improve the environment, promote social capital and increase agricultural productivity. Heifer must, however, more purposefully integrate climate change into its programming and understanding of vulnerability, and align many of the concepts that it currently uses to one or more of the CSA pillars. By adopting the CSA concept, Heifer will be able to better identify and measure how it already contributes to each CSA objective and increase its future impact to enhance livelihoods and reduce environmental and climatic harms.

Based on a critical evaluation of Heifer's vision and approaches, and best practice in the development sector, this document suggests a working definition of CSA for Heifer International. CSA for Heifer should be defined as agriculture that: sustainably enhances productivity, livelihoods and food security (pillar 1), 'builds adaptive capacity and resilient livelihoods and agroecosystems' (pillar 2), and 'mitigates the effects of human activity/agriculture on climate change and the environment, where appropriate/possible' (pillar 3). In order to operationalise these, this document suggests some key approaches that are based on Heifer's current and potential strengths. As such, it is suggested that, for Heifer, CSA should be intentional, context-specific, adopt a landscape approach, avoid trade-offs while promoting synergies, maintain a focus on self-reliance, reduce climate-related risks and, finally, contribute to an enabling environment.

1) Introduction

The food system is at the intersection of some of the most pressing issues of our time. Agriculture, in particular, is fraught with risk, particularly in countries of the Global South. In the next few decades, increasing the productivity and incomes of smallholder farmers will be central to achieving food security around the world. **Around 75% of the world's poor are dependent, directly or indirectly, on agriculture¹ and, therefore, agriculture has been found to be the most effective and equitable way to reduce poverty and increase food security.** Nevertheless, agriculture and climate change can negatively affect one another. While climate change affects the environmental conditions necessary to produce food, some agricultural practices cause ecological damage and contribute to greenhouse gas emissions.²

The magnitude, scale and pressing nature of the effects of climate change on agriculture and food security highlight the need to ensure that they are integrated into national planning, investments and development programmes. According to the latest assessment report from the Intergovernmental Panel on Climate Change, average and seasonal maximum temperatures will continue to rise in the medium to long term, leading to wet regions becoming wetter and dry regions becoming drier.³ In addition, when including land use change, agriculture is responsible for around a quarter of total human-caused greenhouse gas emissions.⁴ **Climate-Smart Agriculture (CSA) is an approach to finding solutions to these interrelated challenges and comprises of three key objectives: productivity, adaptation/resilience and mitigation.**

Today, CSA has a wide following. As a concept, it has been interpreted and implemented by a wide variety of governments, regional and international agencies, NGOs, researchers and private sector actors. The CGIAR, in particular, has been central in leading research on CSA. In addition, global and regional partnerships that facilitate learning and collaboration have emerged in recent years, such as the Africa Climate-Smart Agriculture Alliance (ACSAA), the North American Climate-Smart Agriculture Alliance and the Global Alliance for Climate-Smart Agriculture (GACSA), that has over 200 members. As such, this document outlines some of the ways in which CSA has been defined and operationalised by research and development organisations.

¹ World Bank, 2008: https://siteresources.worldbank.org/INTWDR2008/Resources/WDR_00_book.pdf

² FAO, 2013: <http://www.fao.org/3/i3325e/i3325e.pdf>

³ IPCC, 2014: https://www.ipcc.ch/site/assets/uploads/2018/02/WGIIAR5-PartA_FINAL.pdf

⁴ FAO and CGIAR: <http://www.fao.org/3/a-i4064e.pdf>; <https://ccafs.cgiar.org/climate-smart-agriculture-0#.XKdVtkKjQQ>

The term 'climate-smart agriculture' first emerged in 2010 in a paper for the Hague Conference on Agriculture, Food Security and Climate Change,⁵ as the UN Food and Agriculture Organisation (FAO) sought to conceptualise technical, institutional, policy and financial responses to achieving food security and climate change goals. The FAO's original definition of CSA was "agriculture that sustainably increases productivity, resilience (adaptation), reduces/removes GHGs (mitigation), and enhances achievement of national food security and development goals."⁶ The FAO suggested that, ideally, agricultural systems would produce so-called 'triple-wins' for people and the planet.

The three broad aims of sustainable increases in productivity, increased resilience, and reduced emissions were, and still are, understood to be applied to agricultural systems that comprise of crops, livestock, fisheries and forests. CSA is not a new way of producing food, however. Rather, it was conceptualised as a way of **identifying and managing production systems and institutions that are best able to overcome the challenges of climate change and to ensure their continued capacity to support food security in a sustainable way**.⁷ Importantly, and as has been incorporated into even its earliest definition, CSA requires an **integrated approach that adapts and responds to specific local contexts and climatic conditions**.⁸

This document follows an analysis of Heifer's programming documentation and interviews with regional directors during which current Heifer frameworks, activities, technologies and practices that align with CSA were identified. The document also highlights future potential and entry points for strengthening Heifer's CSA approach by improving on what is currently promoted or complementing this with additional elements. These interpretations will be further extended and validated by planned activities, notably a global survey to be completed by staff in 18 Heifer countries and focused field visits to prioritised Heifer sites.

The document begins with some context surrounding the criticisms of CSA and how these can be overcome and then highlights the strategic importance of CSA for Heifer. Next, the document goes on to identify to which extent CSA is already being addressed and which are the gaps and opportunities for improvement. This has been achieved by categorising Heifer's current programming and activities into the three pillars of CSA and, finally, suggesting some key ways in which Heifer can make its current strengths a core part of its CSA approach while aligning them to best practice according to other research and development organisations.

2) Overcoming the challenges to CSA

There is, at times, a hesitance to commit to CSA with some organisations purposefully avoiding the CSA approach and others briefly acknowledging it in isolated projects or blogs, rather than it forming part of official strategy and frameworks. While no organisation questions the appropriateness of striving for food security and addressing climate change, **some sceptics have voiced their concern as to whether CSA brings anything new or helpful to the table or yields the expected socioeconomic and environmental results**.

A key concern is that CSA could be hijacked for less than sustainable aims. In anticipation of the UNFCCC COP 21 in 2015, over 300 organisations penned a joint statement warning of the risks of the lack of clear guidelines and definitions for CSA. They suggested that CSA could be used to greenwash industrialised agricultural methods thereby

⁵ FAO, 2010: <http://www.fao.org/3/i1881e/i1881e00.pdf>

⁶ FAO, 2010: <http://www.fao.org/3/i1881e/i1881e00.pdf>

⁷ FAO and CGIAR: <http://www.fao.org/3/a-i4064e.pdf>

⁸ FAO, 2013: <http://www.fao.org/3/i3325e/i3325e.pdf>

justifying carbon trading and virtually any agricultural technology or practice.⁹ A central point of their opposition is the formation of the GACSA, that includes large agri-business corporations such as Syngenta and fertiliser producer Yara¹⁰. NGOs such as Greenpeace and Friends of the Earth have distanced themselves from CSA primarily due to their objection to the GACSA. Oxfam, too, is critical of the GACSA, yet joined the African CSA Alliance.

In response to these criticisms, some organisations have developed different approaches. Christian Aid¹¹, for example, follows 'climate resilient agriculture', focusing on the adaptation objective and the livelihood needs of smallholder farmers. In addition, Care International primarily refers to 'water-smart agriculture',¹² 'climate-resilient agriculture'¹³ or the 'SuPER approach'¹⁴ - sustainable, productive, equitable and resilient livelihoods, and food and nutrition security in a changing climate – seemingly as an attempt to redefine CSA on their own terms.

ActionAid International¹⁵ raised concerns that CSA, on the whole, lacked clear social and environmental criteria, meaning that almost anything could in principle be branded climate-smart. On the other hand, some civil society organisations, such as Global Justice, see no need for CSA as they believe that agroecology is already suited to address issues of climate change in agriculture.¹⁶ Nevertheless, others, including FAO, ODI, ICRAF and the WBCSD¹⁷, highlight that agro-ecological methods form a central part of CSA, and that CSA, therefore, has an even wider scope.

The journey that Practical Action embarked on, however, is indicative of the careful defining, planning and programming needed to ensure that CSA is able to meet the socioeconomic and environmental needs of agricultural systems and involved stakeholders. Initially, Practical Action echoed the above criticisms of CSA suggesting that many practices that are supposedly climate-smart are unsustainable and will lead to 'business as usual' that will marginalise smallholder farmers.¹⁸ In order to overcome these concerns, Practical Action uses a 'Technology Justice' lens. Technology Justice refers to addressing the politics and power behind the technologies necessary for CSA. Practical Action uses this lens to give people the ability to choose and access technologies that give them a dignified life, while not preventing future generations from doing so. In this way, they are trying to prevent CSA from supporting socially

⁹ Neufeldt et al, 2013; CSA Concern, 2015: <http://www.climatesmartagconcerns.info/cop21-statement.html>; <https://agricultureandfoodsecurity.biomedcentral.com/articles/10.1186/2048-7010-2-12>

¹⁰ GACSA: <http://www.fao.org/gacsa/members/members-list/en/>

¹¹ Christian Aid, 2015: <https://www.christianaid.org.uk/sites/default/files/2016-03/climate-resilient-agriculture-briefing-jul-2015.pdf>

¹² Care International: <https://www.care.org/work/health/water/sustainable-systems/wasa>

¹³ Care International: <https://www.care-international.org/what-we-do/food-and-nutrition-security-climate-change>

¹⁴ Care International: <https://careclimatechange.org/our-work/super/>

¹⁵ ActionAid International, 2014: https://actionaid.org/sites/default/files/csag_clevernamelosinggame_0.pdf

¹⁶ Fitzpatrick, 2015: <https://www.globaljustice.org.uk/sites/default/files/files/resources/agroecology-report-from-the-roots-up-web-version.pdf>

¹⁷ FAO; ODI; ICRAF; WBCSD: <http://www.fao.org/3/a-i4064e.pdf>; https://assets.publishing.service.gov.uk/media/57a0897840f0b649740000c6/EoD_Topic_Guide_Climate_Smart_Agriculture_April2015-1.pdf; <http://www.worldagroforestry.org/news/climate-smart-agriculture-should-be-livelihood-smart-too>; <https://lctpi.wbcsd.org/wp-content/uploads/2015/12/LCTPi-CSA-Action-Plan-Report.pdf>

¹⁸ Practical Action, 2015: <https://policy.practicalaction.org/resources/publications/item/climate-smart-agriculture-and-smallholder-farmers>

or environmentally unsustainable technologies and emphasise that adaptive capacity and mitigation should not be overlooked in the pursuit of increased productivity. **As such, CSA should be used to guide development efforts and redirect them against business as usual.**

Other organisations also expand on the definition of CSA or explicitly use a lens through which to view and operationalise it that aligns more closely with their ethos and avoids ambiguity. World Vision, for example, utilises CSA to ensure the resilience of smallholders, focusing on women and vulnerable groups, and advocates for the strengthening of livelihoods through productivity.¹⁹ Furthermore, the International Institute for Environment and Development and WWF UK²⁰ adhere to the FAO definition of CSA, yet it forms part of their wider framework of 'climate-smart, pro-poor conservation'. Similarly, CSA has recently been explicitly adopted in the Sustainable Agriculture Network Standard, as developed in partnership with the Rainforest Alliance.²¹ Here, the CSA approach has been useful in mainstreaming climate issues in all activities, rather than being part of one add-on climate module. Either of these approaches could be an option for Heifer.

Another way to overcome the aforementioned criticisms of CSA is to adopt the understanding that **concentrating on one CSA objective alone is not sufficient**. For example, ICRAF emphasises the importance of livelihoods in its understanding of CSA. ICRAF states that "agricultural methods that focus on climate change solely will not be as successful as methods that focus on improving farmer livelihoods".²² Furthermore, expands on the three objectives and increases the interlinkages between them.²³ CCAFS stresses that productivity must be increased sustainably and "without having a negative impact on the environment". Adhering to this definition would ensure that productivity without integrating aspects of adaptation and/or mitigation would not form part of CSA. It is this precise language that is key to ensuring that CSA is not simply more of the same with a different name.

Key insights

- Care must be taken to use CSA to avoid business-as-usual
- Some organisations use a certain lens to avoid greenwashing with CSA
- Heifer could include CSA as part of its broader frameworks or make it central to every aspect
- CSA must include efforts on two or more of the CSA pillars

3) The strategic importance of CSA for Heifer

Climate variability and climate change are affecting food systems worldwide and is exacerbating the already challenging situations that many poor and food insecure communities face in the countries where Heifer operates. The livelihoods of many smallholder farmers are limited by the environmental consequences of climate impacts and unsustainable production methods. Pursuing CSA has, therefore, become of strategic importance to Heifer.

¹⁹ World Vision, 2016: <https://www.wvi.org/article/world-vision-and-global-alliance-climate-smart-agriculture-gacsa>

²⁰ IIED, 2016: <https://pubs.iied.org/pdfs/G04148.pdf>

²¹ Rainforest Alliance, 2017: <https://www.rainforest-alliance.org/sites/default/files/2016-10/Climate-Smart-Ag-SAN2017-160922.pdf>

²² ICRAF: <http://www.worldagroforestry.org/news/climate-smart-agriculture-should-be-livelihood-smart-too>

²³ CCAFS: <https://csa.guide/>

In order to gauge Heifer's need for and added value to CSA, the CSA objectives need to be situated in the context of Heifer's aims, strategy and theory of change. CSA must be integrated into approaches that contribute to Heifer's overall goals of helping farming communities around the world "lift themselves to self-reliance"²⁴ by focusing on the attainment of a 'living income'.²⁵

These goals are already aligned with the first pillar of CSA which focuses on productivity, income and food security. **Increasing agricultural and financial productivity is certainly one of Heifer's strengths.** Nevertheless, this pillar needs to be further detailed and aligned with Heifer's specific interpretation as there exists much variation in its understanding and operationalisation in the development sector, as will be explained later. Furthermore, productivity can be strengthened by also acting on the resilience/adaptation and mitigation pillars, highlighting the interconnectedness of the three CSA objectives.

Recent publications summarise Heifer's mission as ending "hunger and poverty while caring for the earth"²⁶ and aiming for "zero hunger, zero poverty, zero environmental damage".²⁷ In line with this, Heifer is developing a new results framework titled 'Caring for the Earth' (C4E). Further, **'improving the environment' forms part of Heifer's theory of change**²⁸ and, therefore, elements of this are incorporated into its projects. Additionally, several of the 12 cornerstones that make up the Value-Based Holistic Community Development (VBHCD) framework make reference to sustainability, the environment and improved resource management.²⁹ **Developing social capital, which could enhance climate resilience, is also a key focus of Heifer's work.** As such, there is already an understanding of the importance of broad social and environmental issues and these guiding principles form the basis of Heifer's current interpretation of CSA.

As stated in Heifer's climate change position paper on Latin America,³⁰ **CSA is central to achieving Heifer's goals of improving rural livelihoods and food security** by addressing the mutual impact that agriculture and climate change have on one another. The importance of integrating CSA further into Heifer's work was also reported during interviews with regional staff, given the increasing food security observed in Heifer regions.

For example, the Heifer Africa team reported that while CSA is one key area of their work, they do not currently take a thematic approach. Therefore, they stated that there are no specific climate change interventions in their regional portfolio. Nevertheless, the importance of integrating CSA further into Heifer's work in Africa was emphasised due to widespread climate variability and increasing food insecurity. It was also suggested that climate issues are a donor priority so having a strategy in place would be beneficial.

²⁴ Heifer Fact Sheet 2019

²⁵ <https://www.youtube.com/watch?v=JNmStuZR1s0&feature=youtu.be>

²⁶ Heifer Fact Sheet 2019

²⁷ <https://www.heifer.org/ending-hunger/our-future/index.html>

²⁸ <https://www.heifer.org/ending-hunger/our-future/index.html>

²⁹ <https://www.heifer.org/ending-hunger/our-approach/values-based-development/index.html>

³⁰ Heifer – CIAT Latin America CSA Position Paper

One of the benefits of CSA is that it can be adapted to a given context and organisation.³¹ Nevertheless, CSA is not a politically neutral concept and this is also one of CSA's greatest weaknesses. There is a noticeable tension between the need for a flexible, non-prescriptive approach and the downsides of adopting the term to simply attract investment and justify dubious agendas. Heifer, however, has the opportunity to align CSA to its decades of experience in development to highlight how CSA can be used for holistic aims that benefit both people and the planet. **While CSA is a useful and flexible concept that can increase the visibility of an organisation, Heifer must go one step further than that, which will require some challenging discussions and decisions to ensure that the integrity of CSA is maintained. As such, Heifer's position and motivations for adopting the term CSA must be made transparent.**

Development organisations and the private sector are in need of well-defined criteria to operationalise CSA in the context of addressing equity issues in CSA and allocating power with smallholder communities. Therefore, Heifer must establish clear socioeconomic and environmental guidelines and standards for CSA in order to avoid ambiguity. Key to this endeavour, however, is to clarify what is meant by CSA. Often, organisations adopt the official FAO definition but adapt it in practice in an ad-hoc way, but Heifer would benefit from having an explicit and tailored understanding of CSA from the outset. In particular, it is important to clarify how CSA contributes to Heifer's work and, likewise, how Heifer contributes to CSA aims.

By more intentionally embedding and promoting the CSA concept, Heifer can better capture additional dimensions of what it is currently doing and, importantly, broaden its scope and potential impact towards increasing adaptive capacity and resilience to climate shocks and decrease emissions and environmental degradation. The following sections will outline the CSA context in the development sector current understandings of CSA for Heifer and how these can be improved upon.

Key insights

Heifer's alignment to CSA:

- Agricultural and financial productivity
- Improving the environment/caring for the earth
- Social capital
- Self-reliance
- Frameworks and approaches: Living income, VBHCD, C4E

4) Heifer's current understanding of CSA and opportunities for improvements

There is a noticeable desire and potential for mainstreaming climate issues into Heifer programming.

Although climate change and CSA are invisible on the surface of Heifer's strategy and frameworks, the first three elements of Heifer's theory of change have the potential to be adapted to its understanding of the three CSA pillars. These are 'increase in income and assets', 'food security and nutrition' and 'environment'. Heifer should ensure that its definition of 'environment' includes an understanding of the risks from environmental change, including long term climate change, disaster risks from climate variability, biodiversity loss, population growth and sustainable development. Perhaps 'climate' is implicit within Heifer's understanding of the environment, but this has to be made clear. This is particularly important given that resource-limited farmers depend on natural resources and are particularly sensitive to climatic stress.

³¹ ActionAid International, 2014: https://actionaid.org/sites/default/files/csag_clevernamelosinggame_0.pdf

When digging deeper into monitoring and evaluation methodologies and regional activities, it is clear that some aspects of CSA, namely technology adoption, have started to be incorporated and measured more intentionally. Furthermore, specific technologies, practices and services that could be considered climate-smart have been part of Heifer projects for many years. Sustainable intensification, for example, has been promoted in Latin America in order to mutually benefit ecosystems and small and medium-sized producers. Similarly, early warning systems are in the early stages of use in Nicaragua and Honduras in order to improve decision-making and enhance resilience to climate variability.³² Nonetheless, the lack of an explanation of what CSA means to Heifer has led to a variety of interpretations in Heifer documents and staff experiences leading to inconsistent approaches.

In interviews with Heifer regional staff, questions of Heifer's CSA approach emerged. While there were no doubts that integrating CSA will be helpful and is necessary, either the FAO definition was recited or CSA was understood as solely relating to environmental impact. It is a useful starting point, however, Heifer's distinctive perspective and approach to addressing development issues must be incorporated. If CSA were visible in Heifer programming, it would, at this stage, be nested in its wider approaches, rather than being a driving force in itself. The lack of inclusion of climate-related risks and vulnerability in Heifer's theory of change, VBHCD and living income framework results in regions, countries and projects differing in the extent of their inclusion of CSA. Heifer could be more specific in its goal to 'improve the environment' and be explicit about which climate-related ambitions it holds. For example, it could aim to reduce farmers' livelihood risks from climate extremes.

The interview with the Latin America Director, for example, reported a concern for claiming to 'do it all' with relation to CSA.

Heifer may wish to focus on one type of ecosystem, activity or climatic issue in its application of CSA in order to focus expertise and energy.

Key insights

Heifer's alignment with CSA:

- CSA technologies, practices and services promoted in Heifer countries
- Some CSA monitoring (adoption indicators)

Areas for improvement

- First three elements of ToC could be adapted to fit the three CSA pillars
- Heifer's definition of the environment should include risks from climate change and variability, among others
- Opportunity to specify which climate-related ambition Heifer has and establish clear boundaries

³² CIAT Heifer Latin America position paper

a) Sustainably enhancing productivity, livelihoods and food security

i) *Definition and development context*

The first CSA objective is generally understood as increasing agricultural productivity that improves income, food security and livelihoods.³³ Increasing productivity while simultaneously reducing costs through increased resource use efficiency is crucial to attaining growth. The difference between actual yields and the technically feasible yields are substantial for smallholder farmers³⁴ while livestock productivity worldwide could be much higher.³⁵ Reducing these ‘yield gaps’ by enhancing agro-ecosystem productivity and increasing the efficiency of the use of natural resources and agricultural inputs may increase the returns to farmers, reduce poverty and increase food availability. Some of these measures can also result in lower greenhouse gas emissions, highlighting the synergies with other CSA pillars.³⁶ Moreover, **the addition of ‘sustainably’ ensures that productivity, incomes and food security are sought while taking into account the other two pillars.**

The way in which productivity is interpreted and operationalised by the development community depends on the vision and goals of the organisation in question.

The World Bank, for example, employs a narrow interpretation of productivity in CSA, focusing primarily on farm-based technologies and practices that boost incomes and yields, rather than incorporating wider aspects of community wellbeing.³⁷ As such, the World Bank and CIAT’s ‘Smartness Score’ in their recent publication defines productivity as yields, post-harvest losses and income/profit.³⁸

Nevertheless, the World Agroforestry Centre (ICRAF) stresses that agricultural income and yields are but one side of being productive.³⁹

The WBCSD,⁴⁰ in its Low Carbon Technology Partnerships initiative, understands the productivity slightly differently, as a sustainable increase in the production of nutritional food and reducing food loss.

Similarly, nutrition, one of the core goals of USAID’s⁴¹ Feed The Future initiative, has been integrated into its understanding of first CSA objective.

³³ Lipper et al. 2014: <https://www.nature.com/articles/nclimate2437>

³⁴ FAO, 2014: <http://www.fao.org/3/a-i4040e.pdf>

³⁵ FAO and CGIAR: <http://www.fao.org/3/a-i4064e.pdf>

³⁶ FAO and CGIAR: <http://www.fao.org/3/a-i4064e.pdf>

³⁷ World Bank: <http://www.worldbank.org/en/topic/climate-smart-agriculture>

³⁸ WB and CIAT, 2018: <http://documents.worldbank.org/curated/en/917051543938012931/pdf/132672-WP-P168692-PUBLIC-4-12-2018-12-27-47-CSAInsightsfromCSAProfiles.pdf>

³⁹ Neufeldt et al., 2015: <http://www.worldagroforestry.org/downloads/Publications/PDFS/WP15720.pdf>

⁴⁰ WBCSD, 2015: <https://lctpi.wbcd.org/wp-content/uploads/2015/12/LCTPi-CSA-Action-Plan-Report.pdf>

⁴¹ USAID, 2016: https://www.agrilinks.org/sites/default/files/resource/files/Framework%20CSA%20paper%20final%20%281%29_0.pdf

Nevertheless, Dinesh and colleagues⁴² categorised aspects such as job creation and improved health and nutritional outcomes as co-benefits of productivity, rather than defining parts.

Furthermore, although the first objective of CSA is understood to mean increased incomes and yields, leading to food security, higher yields alone will not necessarily lead to increased access to more nutritious food. Similarly, increased income will only lead to poverty reduction if poverty is defined as a lack of financial resources alone. **As such, the productivity objective should be holistic and could include reducing poverty and inequality, and increasing nutritional outcomes, food availability and access.** This highlights the need for further context and organisational-specific lenses for each of the three CSA objectives.

ii) Heifer's understanding of pillar 1

Heifer helps “farmers by connecting them to markets, improving their access to financial services and helping them employ crop-livestock integration methods.”⁴³ Further, the first of the 12 cornerstones of VBHCD is ‘nutrition & income’ that seeks to create sustainable ways to end hunger and poverty by creating inclusive local economic and supporting pro-poor wealth-creating value chains.⁴⁴ As such, the aspects of Heifer’s approach that relate to the productivity CSA objective are vast. Productivity-related activities for Heifer mainly relate to increasing incomes from (sustainable) agricultural activities. “By educating small-scale farmers on improved and environmentally sound farming methods, [Heifer] helps farmers reap stronger yields, improve the environment and increase their incomes”.⁴⁵

The Heifer Africa team, for example, linked CSA practices with increasing production. Such practices mentioned in the interviews mostly fall into the category of conservation agriculture such as energy use and changing crops types.

However, **Heifer has a broader interpretation of the first CSA pillar that also includes aspects that extend further than on-farm activities.** Heifer takes a holistic approach to productivity by addressing “the farmer, the livestock, the consumer and the land itself”.⁴⁶ Heifer also strives to go beyond traditional productivity in an attempt to increase income through other means in a strategy called “grow and diversify revenue”.⁴⁷ The contribution of this strategy to the second pillar of CSA in terms of increasing adaptive capacity and resilience should also be acknowledged. Nevertheless, it is not clear whether, if at all, climate change issues are central to such diversification. This would have to form part of a robust definition of CSA for Heifer.

⁴² Dinesh et al. 2015: <https://ccaafs.cgiar.org/publications/climate-smart-agriculture-effective-review-selected-cases#.XKdgyOtKjOQ>

⁴³ Heifer Fact Sheet 2019

⁴⁴ <https://www.heifer.org/our-work/economic-development/index.html>

⁴⁵ <https://www.heifer.org/ending-hunger/our-approach/strengthening-livelihoods/index.html>

⁴⁶ <https://www.heifer.org/ending-hunger/our-approach/strengthening-livelihoods/index.html>

⁴⁷ <https://www.youtube.com/watch?v=JNmStuZR1s0&feature=youtu.be>

Given Heifer's conception (and the meaning of 'heifer' itself), the productivity side of its operation places great emphasis on livestock and animal husbandry. 'Passing on the gift' is a hallmark of Heifer's approach. It refers to the policy that "[e]ach family who receives an animal passes on the first female offspring to another family in need, along with training on its care. This unique approach creates a ripple effect that transforms lives and communities, at minimum doubling the impact of the original gift."⁴⁸ Heifer states that **livestock can serve multiple purposes, one of which is to alleviate poverty and achieve food security**.⁴⁹ The environmental facet also runs through this approach, as Heifer also claims to follow 'sustainable livestock development', which they define as improved access to animal health services and disease control, improved management, improved nutrition and improved marketing of livestock and livestock products."⁵⁰ "The technologies include animal genetic improvement, improving feed, and fodder and forage production, appropriate housing and management combined with animal health service delivery".⁵¹ Heifer's aim with regards to livestock is to increase the efficiency of production in order to meet market and nutritional needs.⁵² However, in order to strengthen the contribution of livestock management to CSA, Heifer would have to include strategies that acknowledge that livestock activities can be vulnerable to and affect climate change and, therefore, need to be designed as climate-smart strategies. As such, the productivity side of Heifer's CSA may have to reflect this in its understanding of diversification.

Heifer aims to determine "best value chain opportunities; identify, support and strengthen agri-enterprises; deploy capital and technology; and mobilize private sector partnerships".⁵³ In this way, **Heifer's activities contribute to the CSA objective of productivity in terms of increasing revenue from agriculture**. Importantly, however, it is not solely income that is measured to determine so-called productivity, but the access that is granted, or not, to fundamental aspects of wellbeing and livelihoods that differ depending on the location. The 'living income' objective goes one step further and incorporates many more elements of community life and economic activities. A living income, according to Heifer, ensures access to diverse and nutritious food, adequate housing, education, transport and culture. Productivity for Heifer, therefore, goes further than yields and agricultural income, and could be broadened to, for example, 'productivity, livelihoods and food security'. Nevertheless, Heifer could go one step further to aligning this pillar to CSA by conceptualising these efforts as ensuring access to diverse, nutritious and climate-resilient food.

Key insights

- The first pillar is understood as improvements to agricultural productivity, incomes and food security, among others
- The first pillar must be achieved taking into account environmental consequences

Heifer's alignment with CSA:

- Heifer's understanding of the first pillar goes beyond on-farm activities
- Increasing revenue from agriculture

⁴⁸ Heifer Fact Sheet 2019

⁴⁹ <https://www.heifer.org/ending-hunger/our-approach/livestock-and-training/index.html>

⁵⁰ <https://www.heifer.org/ending-hunger/our-approach/livestock-and-training/index.html>

⁵¹ Heifer International Animal Well-being Guidelines and Standards

⁵² Heifer International Animal Well-being Guidelines and Standards

⁵³ Accelerate – Not for distribution

- The use of livestock to reduce poverty and food insecurity
- Sustainable livestock development

Areas for improvement

- The inclusion of strategies that acknowledge environmental and climatic limitations of livestock rearing
- Potential to include access to diverse, nutritious and climate-resilient food to first pillar

b) Building adaptive capacity and resilient livelihoods and agroecosystems

i) *Definition and context*

It is increasingly acknowledged that adaptation and resilience are two interrelated concepts that cannot exist without one another. Many organisations, including the FAO, CCAFS and World Vision, make use of both the terms resilience and adaptation as important components of CSA. **The Nature Conservancy,⁵⁴ for example, defines adaptation as “reducing the impact of climate change on agriculture by making it more resilient”.** In order for a community or food system to be resilient, it must adopt strategies to adapt to changing climates. Equally, an increase in adaptive capacity over time leads to increased resilience.⁵⁵ **Resilience is generally understood as the ability to prepare for and the capacity to recover from changes and shocks.**⁵⁶ Therefore, one reason for the preference for the term adaptation, however, is that resilience may imply recovering from a shock and achieving the previous state once more.⁵⁷ Adaptation, however, also looks towards new pathways and strategies, regardless of what came before. Conversely, resilience has been understood as the reduction in vulnerability alongside an increase in adaptive capacity⁵⁸, which may make it broader in scope.

Reducing risk and avoiding the negative impacts of climate change in agriculture is possible and requires effective adaptation strategies. Although the strategies will vary depending on the specific location, there are a wide range of climate-smart technologies, practices and services that have already been identified that can provide a starting point. These include building the resilience of agro-ecosystems by increasing ecosystem services through agroecological approaches. Furthermore, reducing risk exposure through diversification and efficient input supplies, such as stress tolerant crop varieties, are examples of adaptation that can decrease the harmful effects of climate change.⁵⁹

ii) *Heifer’s understanding of pillar 2*

Adaptation is not explicitly mentioned by Heifer, although the theme of resilience runs through much of what they do. Heifer does not explicitly mention climate resilience but does refer to “[t]he ability of people, households and

⁵⁴ The Nature Conservancy:

https://www.nature.org/content/dam/tnc/nature/en/documents/GA_AgToolkit_Practices_Combined_03_Web1.pdf

⁵⁵ FAO, 2013: <http://www.fao.org/3/i3325e/i3325e.pdf>

⁵⁶ Bene et al. 2012: <https://onlinelibrary.wiley.com/doi/abs/10.1111/j.2040-0209.2012.00405.x>

⁵⁷ Dinesh et al., 2018: <https://cgspace.cgiar.org/rest/bitstreams/152296/retrieve>

⁵⁸ World Bank: <https://www.worldbank.org/en/topic/climate-smart-agriculture>

⁵⁹ FAO and CGIAR: <http://www.fao.org/3/a-i4064e.pdf>

communities to adapt and recover from social, economic and environmental shocks and stresses”.⁶⁰ **As such, the traditional co-benefits of CSA (such as off-farm activities, access to food, education and social capital), will likely be central to Heifer’s definition of adaptation/resilience.** Nonetheless, Heifer’s current focus does not capture the resilience or adaptive capacity of the agricultural and food system more broadly, which would strengthen any future definition.

Reducing environmental impacts is also a commonality throughout Heifer’s activities. Although these are good starting points, the resilience of farmers and the agroecosystem to climate-specific threats, however, is not found, and reducing climate vulnerability is not prioritised throughout Heifer’s strategy and frameworks. While there is evidence of some technologies and practices that enhance adaptive capacity and (climate) resilience and decrease the vulnerability of the agricultural system to climate shocks, as with the overall approach to CSA in Heifer’s work, there lacks a consistent and institutional approach. In order to appropriately integrate a CSA approach, Heifer will have to more concretely situate climate in its conception of resilience.

Furthermore, it will be important for Heifer to acknowledge what it is overlooking if it frames adaptation as resilience and be transparent about the choice that it makes. If Heifer chooses to include adaptation as well as resilience in its conceptualisation of the second CSA pillar, it should acknowledge the need to develop adaptive capacity which goes further than adaptation. For example, adaptation refers to adjustments due to current or future climate changes, while adaptive capacity refers to the ability of a whole system to adjust to climate change.⁶¹ Adaptive capacity, therefore, seems more closely aligned with Heifer’s current activities and goals.

Heifer’s global publications employ much of the terminology of agricultural methods that could potentially enhance adaptive capacity and resilience such as addressing “soil erosion, soil fertility, sanitation, forestation, bio-diversity, pollution, wildlife and watershed conditions”.⁶² This link would have to be further elaborated upon, however. It is not clear whether the motivation is to increase resilience in crop/livestock production, the household, the community, the ecosystem or all of them. Furthermore, Heifer’s strategy and frameworks often mention training about the environment⁶³, “improving the environment” and “improved resource management” (the latter two of which being part of the 12 VBHCS cornerstones)⁶⁴ without going into much further detail. Heifer does, however, stress the importance of “mitigating the effects of “lean months” and helping achieve a consistent level of food security”.⁶⁵ This suggests a focus on adaptive capacity, though the link between this and climatic and environmental threats would benefit from some clarity.

One element that is linked to the adaptation objective is Heifer’s emphasis on livestock. Livestock may contribute to an increased capacity for farmer’s and their families to cope with a variety of climatic and economic shocks. In Heifer’s words, “[a]nimals also serve as a living savings account for emergencies”.⁶⁶ Further, **Heifer’s animal wellbeing strategies seek to “minimiz[e] the impact of climate change by adapting climate smart livestock management**

⁶⁰ Heifer Definitions

⁶¹ Practical Action, 2015: <https://policy.practicalaction.org/resources/publications/item/climate-smart-agriculture-and-smallholder-farmers>

⁶² <https://www.heifer.org/environment/index.html>

⁶³ <https://www.heifer.org/ending-hunger/our-approach/strengthening-livelihoods/index.html>

⁶⁴ <https://www.heifer.org/ending-hunger/our-approach/strengthening-livelihoods/index.html>

⁶⁵ <https://www.heifer.org/ending-hunger/our-approach/strengthening-livelihoods/index.html>

⁶⁶ <https://www.heifer.org/ending-hunger/our-approach/values-based-development/sustainability-and-self-reliance.html>

practices”.⁶⁷ As such, their interventions seek to produce fodder and forage in alignment with agroecological practices.⁶⁸ Nevertheless, in going forward with CSA, it will be important for Heifer to avoid a one-size-fits-all approach to the promotion of livestock at all costs, since rearing animals may not always be the most climate-smart option, particularly when taking mitigation into account, or may not be viable at all due to geographical conditions. Interestingly, during the interviews with Heifer Asia, it was noted that livestock alone is insufficient to produce a living income. Therefore, livelihood diversification through secondary value chains, such as kitchen gardening, is promoted in the region. It would be beneficial to see such awareness in Heifer’s definition of CSA.

CSA for Heifer should incorporate diversification as a way to give farmers and communities increased options that go beyond types of crops and animals and include diverse farming practices and off-farm income opportunities. Heifer’s portfolio already shows some examples of livelihood diversification and an understanding of its importance for agricultural and livelihood resilience to socioeconomic and environmental shocks. As environmental and climatic situations evolve, farmers may choose different crops, livestock or income sources in order to reduce risk and ensure stable returns. This is especially made possible due to the provision of information on potential shocks. Diversification and risk reduction, therefore, are intertwined. **Ultimately, farmers will determine the level of risk that they face, but Heifer can help to offer a wider range of options that enhance resilience, adaptive capacity and, if possible, a reduced environmental impact.**

Heifer’s conceptualisation of resilience is broader than in traditional understandings of CSA that are confined to agricultural activities and commodities. Heifer’s market creation approach identifies and targets communities “from highly vulnerable (A) to more resilient (B and C) farmers 4 – promoting holistic community-wide development across the spectrum of need.”⁶⁹ The living income goal also takes a holistic approach to wellbeing that would certainly contribute to adaptive capacity and, as has been mentioned already, ensures that the communities they work with not only have sufficient financial earnings but also have access to “adequate food, housing and other essential resources to lead decent and dignified lives.”⁷⁰ Further, Heifer considers community needs, rather than just the individual farmer, in order to allow them to build “resilient livelihoods.”⁷¹ Finally, seven out of the 12 cornerstones of VBHCD have the potential to contribute to increased adaptive capacity beyond the farm-level. These are 1) Accountability, 2) Sharing & Caring, 3) Gender & Family Focus, 4) Genuine Need & Justice, 5) Full Participation, 6) Training, Education & Participation, 7) Spirituality”.⁷² However, in order to make CSA a central motivator for its activities, Heifer would benefit from further defining vulnerability and explicitly utilising climate issues in order to prioritise interventions and identify communities in need. Furthermore, Heifer could reflect an understanding that resilience not only relates to access to resources and opportunities but long-term stability.

Another way in which resilience for Heifer already goes further than on-farm technologies and practices is through its focus on gender and marginalised groups. Although this is somewhat of a cross-cutting theme that would also have implications for productivity, in particular, it reflects a particular concern for the wider sociocultural context in which agriculture is based. Heifer ensures that women “have the training and resources necessary to be leaders in

⁶⁷ Heifer International Animal Well-being Guidelines and Standards

⁶⁸ Heifer International Animal Well-being Guidelines and Standards

⁶⁹ Accelerate – Not for distribution

⁷⁰ Heifer Fact Sheet 2019

⁷¹ Heifer Fact Sheet 2019

⁷² <https://www.heifer.org/ending-hunger/our-approach/values-based-development/index.html>

their families and communities, along with increased access to income and assets.”⁷³ This reflects Heifer’s aim of increasing social capital and self-reliance,⁷⁴ which would contribute to adaptive capacity and the ability of families to absorb shocks. These could, therefore, be reframed as enhancing adaptive capacity. Furthermore, poor and vulnerable groups form an integral part of Heifer’s work, which would increase the adaptive capacity of such communities, as they tend to be the most affected by climate change. Nevertheless, the link between climate vulnerability and how Heifer currently defines vulnerability would have to be made clear in order for programming to be positioned within the scope of CSA. As it stands, it is unclear how, if at all, environmental and climatic vulnerability factors into Heifer’s identification of vulnerable groups.

The interviews with regional teams reflected a deeper understanding and operationalisation of adaptive capacity and resilience to climate change. The interview with Heifer Africa, for example, framed adaptation as resilience and the team stressed that they take a proactive, rather than reactive, approach to building resilience to climate-related shocks. They mentioned the benefit of CSA for minimising risk through practices such as the use of climate-resilient crops, water conservation and mulching. Similarly, reducing vulnerability and increasing resilience was reported as a focal part of Heifer’s work in Asia. **The Asia team noted that this pillar cuts across Heifer’s VBHCD framework and highlighted their strength at enhancing resilience and social capital in order to minimise climate-related losses.** Nevertheless, only in Latin America was CSA interpreted as significantly more than a selection of technologies and practices. Heifer’s overall strategy and definition of resilience could benefit from drawing on some of the understandings on the ground.

Overall, an ideal interpretation of this CSA objective for Heifer could be summarised by the following: building resilient communities via strengthening farmers adaptive capacities to prevent, respond, adjust and recover from climate-related impacts on their livelihoods and the agroecosystems.

Key insights

- Resilience and adaptive capacity are interrelated concepts
- Adaptation is defined as reducing the impact of climate change on agriculture
- Resilience is defined as the ability to prepare for and recover from climatic shocks

Heifer’s alignment with CSA:

- Heifer’s focus on resilience to social, economic and environmental shocks
- On-farm technologies and practices that contribute to resilience-building of agroecological system
- Livestock as a livelihood strategy and resource for emergencies
- Potential to reframe off-farm activities, work with women and social capital as building adaptive capacity
- Frameworks and approaches: Living Income, VBHCD, graduation model

Areas for improvement

- Heifer should be more explicit with regards to resilience to climate-related shocks
- Heifer could extend its understanding of resilience to include adaptive capacity
- Heifer should extend its focus to building resilient agricultural and food system, rather than just the farmers and communities
- Reducing climate vulnerability should be prioritised
- Be transparent about choosing resilience over adaptive capacity if not using both terms
- Clarify the link between environmental focus and mitigating the effects of lean months and climate change
- Clarify the link between promotion of livestock and resilience to climate change

⁷³ Heifer Fact Sheet 2019

⁷⁴ Heifer Fact Sheet 2019

- Emphasise secondary value chains as adaptation strategies where livestock is not suitable or sufficient
- Make diversification (agricultural and livelihood) central part of Heifer's understanding of resilience
- Clarify link between the Living Income approach, VBHCD and increasing adaptive capacity
- Make climate vulnerability explicit in Heifer's understanding of vulnerability, especially in graduation model

a) Mitigating the effects of human activity/agriculture on climate change and the environment, where appropriate/possible

i) *Definition and context*

Another key element of CSA is addressing the impact that agriculture has on the environment. Rather than mitigating the effects of climate change, with regards to CSA, mitigation generally refers to a reduction in greenhouse gas emissions. Technologies and practices that reduce the effects of climate change belong under the objective of adaptation. Just as with the two other CSA objectives, there are numerous ways in which to achieve this goal. **One priority for mitigation in CSA is 'sustainable intensification' which involves practices which produce a greater increase in agricultural outputs than the increase in emissions.**⁷⁵ **Another important part of mitigation efforts should be through increasing carbon-sequestration in the agricultural system.** Practices such as increasing tree cover and reducing soil erosion are two methods to increase the store of carbon in agricultural systems.⁷⁶ In order to obtain a triple-win, it is often necessary to consider using ecological methods of integrating fertilisers and urea with biological nitrogen fixation and organic matter, such as manure. This would lead to fewer emissions than other traditional methods, while not sacrificing productivity and adaptation.

Like most organisations, while the Rainforest Alliance abides by the FAO definition, it has its own motivation for CSA. The Rainforest Alliance aims to use CSA to make farming current land more efficient in order to avoid encroachment on forests. For the Rainforest Alliance, therefore, mitigation is a key focus. Nevertheless, **as more and more organisations have adopted and implemented CSA, the mitigation objective has taken a back seat, often being viewed as a co-benefit, rather than an equally weighted pillar.**⁷⁷ As such, the original FAO definition of CSA has evolved somewhat since its conception. The subsequent FAO CSA Sourcebook⁷⁸ added the now prevalent clarifier to the third objective of reducing greenhouse gas emissions "where possible".

World Vision expands on this further and posits that mitigation should occur "where appropriate, and in the interest of smallholder farmers".⁷⁹ This is because a 'triple-win' may not be deemed possible if an intervention increases yields (productivity) and uses drought-resistant seeds (adaptation) while increasing greenhouse gas emissions. This is also the case for USAID's⁸⁰ 'Feed The Future' initiative that has reducing poverty and enhancing nutrition as its core focus. USAID, therefore, also apply the condition of 'where appropriate' and suggest a minimum of a 'double-win'.

⁷⁵ IPCC, 2014: https://www.ipcc.ch/site/assets/uploads/2018/02/ipcc_wg3_ar5_chapter11.pdf

⁷⁶ FAO and CGIAR: <http://www.fao.org/3/a-i4064e.pdf>

⁷⁷ FAO, 2014: <http://www.fao.org/3/a-i3817e.pdf>

⁷⁸ FAO, 2013: <http://www.fao.org/3/i3325e/i3325e.pdf>

⁷⁹ World Vision, 2014: <https://www.wvi.org/sites/default/files/Climate-smart%20alliance%207914.pdf>

⁸⁰ USAID: <https://www.climate-links.org/sites/default/files/asset/document/Framework%20CSA%20paper%20final%20281%29.pdf>

Similarly, **the ODI suggests that an approach conforms to CSA if it addresses two or more of its objectives.**⁸¹ This is seen as best practice and should be adopted by Heifer.

iii) *Heifer's understanding of pillar 3*

Mitigation efforts for smallholders are far more complex, and often harder to justify to communities and donors, than adaptation or resilience-building. Of primary importance to Heifer will always be ensuring poverty reduction and food security. While this will often entail an absolute increase in greenhouse gas emissions, opportunities exist to reduce emissions per unit of output by promoting resource-use efficiency and carbon sinks. Although the third pillar of CSA may not often be the main motivator for adopting a climate-smart approach, adaptation and resilience strategies often incorporate mitigation benefits that should not be overlooked. Resource-use efficiency and sustainable intensification, for example, reduce agricultural costs, increase the longevity of production and can lead to carbon sequestration.⁸² To have a robust understanding and application of CSA, however, mitigation will have to be accepted and adopted by farmers and communities. As such, **in Heifer's definition of mitigation, the link that this pillar has with future productivity and resilience building must be made clear.** It is only then that mitigation efforts will be viewed as contributing to Heifer's goals.

Although not explicitly mentioned in Heifer publications and frameworks, much like the second pillar, there is much potential in Heifer's programming to identify and draw on for mitigation. One suggestion to make Heifer's contribution to mitigation (and other pillars) would be to classify promoted technologies, practices and services according to the CSA pillars that they align with. Mitigation is potentially contained within the broader goal of addressing environmental issues, although there is a more direct mention of reforestation in the C4E framework that is under development. Heifer's focus on reducing negative environmental impacts has repercussions for a reduction of greenhouse gas emissions, whether this is the aim or not. "[E]nvironmentally sound farming methods"⁸³ such as those addressing "soil erosion, soil fertility, [...] forestation, bio-diversity, pollution, wildlife and watershed conditions where possible"⁸⁴ seem like an interpretation of the FAO's definition of mitigation in CSA. Heifer even states that "Reforestation is a facet of projects in areas stripped of trees, and manure and crop residues are used to reinvigorate poor soil".⁸⁵ With regards to livestock management, there is also mention of "zero- or managed-grazing techniques, to prevent overgrazing".⁸⁶ Similarly, **the animal wellbeing guidelines emphasise that interventions should "[m]inimiz[e] the impact of livestock food chains on greenhouse gas (GHG) emissions".**⁸⁷ Nevertheless, there is a

⁸¹ ODI, 2015:

https://assets.publishing.service.gov.uk/media/57a0897840f0b649740000c6/EoD_Topic_Guide_Climate_Smart_Agriculture_April2015-1.pdf

⁸² IPCC, 2014; Hershey, 2012: https://www.ipcc.ch/site/assets/uploads/2018/02/ipcc_wg3_ar5_chapter11.pdf; <https://cgspace.cgiar.org/handle/10568/54656>

⁸³ <https://www.heifer.org/ending-hunger/our-approach/strengthening-livelihoods/index.html>

⁸⁴ <https://www.heifer.org/environment/index.html>

⁸⁵ <https://www.heifer.org/environment/index.html>

⁸⁶ <https://www.heifer.org/ending-hunger/our-approach/strengthening-livelihoods/index.html>

⁸⁷ Heifer International Animal Well-being Guidelines and Standards

lack of explicit mention in Heifer documentation of mitigating climate change, reflecting the fact that it, too, views mitigation as a co-benefit.

The meetings with regional staff, however, hinted more strongly at mitigation. Nevertheless, some interviewees only saw a reduction of greenhouse gas emissions as a by-product of agricultural intensification, rather than institutionally or socially desirable in itself (Heifer Africa, for example). Mitigation was also somewhat of an afterthought during the meeting with the Heifer Asia team. Nevertheless, several practices that contribute to reducing greenhouse gas emissions were mentioned, whether they are included for this reason or not. They include biogas digesters and zero grazing to reduce environmental degradation and reduce the carbon footprint. Similarly, although some mitigation co-benefits were implied during the interview with Heifer Americas staff, only Nicaragua appeared to have an intentional approach to reducing emissions. Although these are all useful entry points for further elaboration and inclusion of mitigation in Heifer's contribution to CSA, mitigation outcomes are currently not required to be measured and, thus, are often low down on the list of Heifer priorities. There are, however, opportunities to fortify the promotion of mitigation and improve its perceived importance to social outcomes. **Some Heifer projects in Nicaragua, for example, go so far as to monitor greenhouse gas emissions data and measure carbon sequestration.**

The emissions from livestock must be consistently addressed in Heifer's mitigation strategy. Heifer has a chance to provide leadership on how livestock can form part of climate-smart development by supporting innovative management and practices. This will, however, depend on the extent to which Heifer views the mitigation pillar as a co-benefit. If Heifer understands CSA as only a tool or set of practices that can produce improved economic and livelihood outcomes, then rearing livestock, could be ideal. Nevertheless, if Heifer views CSA more holistically and weaves it through every aspect of planning, taking a long-term view of outcomes, livestock production will not always necessarily be desirable. Although it is a delicate balancing act, particularly because of the pressing socioeconomic conditions that many communities find themselves in, Heifer must confront and attempt to overcome the potential trade-off that certain activities have in contributing to environmental degradation and climate change.

One way to further incorporate mitigation into Heifer's programming is to identify potential areas for sustainable fertiliser inputs such as biological nitrogen fixation and the use of organic matter. These situations, particularly in which communities have not used chemical fertilisers before, could result in triple-wins. This would uncouple increases in productivity from greenhouse gas emissions. This is a good example of how Heifer can use its definition of CSA to adapt its theory of change and C4E framework. CSA for Heifer must not be increased productivity and community resilience at all cost, since, by taking a long-term approach, it should determine that true resilience and productivity cannot be achieved when the environment is being degraded. While reducing absolute levels of greenhouse gas emissions may not always be possible at the expense of other social goals, mitigation must not always be seen as dispensable. One way could be that when communities 'graduate' to level B or C, and are no longer deemed highly vulnerable, then mitigation efforts should be included.

Finally, mitigation for Heifer should be understood as more than strictly a reduction of greenhouse gas emissions. For Heifer, mitigation could mean reducing the effects of agriculture on the climate and the environment more generally. While there is often some overlap, an overemphasis on the climate may hide some important environmental impacts. **A traditional CSA lens would risk Heifer overlooking environmental effects of agricultural activities that are non-climatic, such as biodiversity loss and water availability independent of climate change.**⁸⁸

⁸⁸ ODI, 2015:

https://assets.publishing.service.gov.uk/media/57a0897840f0b649740000c6/EoD_Topic_Guide_Climate_Smart_Agriculture_April2015-1.pdf

This may lead to unsustainable solutions at worst or, at best, missed opportunities for developing a more sustainable system. Broadening its interpretation, therefore, would provide Heifer with a distinctive angle on mitigation and encompasses many elements of its current activities.

Key insights

- Mitigation generally understood as a reduction in greenhouse gas emissions
- Mitigation could go further than impacts on climate-change
- Mitigation is often viewed as a co-benefit
- CSA must address two or more pillars
- Mitigation efforts are harder to justify to communities and donors than the other two pillars

Heifer's alignment with CSA:

- C4E framework's mention of reforestation
- Environmentally sound farming methods and conservation promoted
- Animal wellbeing guidelines seek to reduce GHG emissions from livestock
- Some Heifer Latin America countries have a more intentional approach to mitigation

Areas for improvement

- Heifer should seek to reduce emissions per unit of output
- Heifer should capture and measure mitigation co-benefits and reframe them as relating to climate change
- Heifer should classify the technologies, practices and services that it promotes according to which CSA pillar they contribute to
- Develop a comprehensive and consistent strategy to reduce GHG emissions from livestock
- Find entry points for use of biological fertilisers for triple-wins
- Adapt frameworks and strategies to include mitigation
- Heifer should broaden its understanding of mitigation to reducing agriculture's GHG emissions and impact on the environment throughout the system

5) Heifer's approach based on internal values and goals, and best practice

a) Mainstreaming CSA into Heifer's institutional approach

CSA is not a specific set of technologies or practices, nor is it a new type of agriculture. It is an approach that combines different tools and management approaches applied through a climate impact lens. As it stands, however, **the perception of the interpretation of CSA for Heifer staff and strategy is generally a selection of technologies and practices that can contribute to one or more of the elements of the theory of change**. This has led to a somewhat scattered approach in which technologies and practices can be cherry-picked with a limited scope beyond the project needs. CSA is not yet an institutional approach that is systematically implemented and the theory of change and related frameworks do not reflect an understanding of the effects of climate-related risks or a will to decrease agriculture's impact on climate change and the environment. Heifer has the chance to present CSA as a continuous process that holistically considers the obstacles and opportunities that arise at the intersection of climate change, the environment and agriculture. This should include, but should not be limited to increasing and overcoming barriers to technology adoption.

Intentionality is an important component of adopting CSA as an institutional approach. The added value of intentionality was mentioned several times in interviews with Heifer staff. With regards to CSA, **intentionality refers to deliberately considering how climate-related shocks and climate change (and other environmental factors)**

impacts on agricultural production, agroecosystems and farming community livelihoods (adaptation/resilience) and vice versa (mitigation). Furthermore, internationality means designing interventions to intentionally reduce tradeoffs and increase synergies while targeting outcomes to at least two CSA pillars. For Heifer, this would mean CSA no longer being an add-on to its work on increasing incomes and food security. A such, mainstreaming CSA is about far more than presenting a unique selling point to donors. It should be incorporated into Heifer's core strategy and used as a programming, monitoring and evaluation, as well as a marketing, tool. Reimagining CSA in this way would provide opportunities for scaling CSA activities and furthering Heifer's impact.

b) Context-specificity

Crucially, since under CSA, technologies, practices and services are combined with objectives based in complex socio-economic and environmental contexts, the scope for formulating combinations is endless. Questions about which groupings of activities and practices work best where and for whom are far from resolved. In Heifer's adoption of CSA, it must provide avenues to answer these questions and achieve the right balance between the inflexible cookie-cutter approach, and unrestricted flexibility which may lead to activities being implemented simply to check a box. Importantly, **approaches must address the needs of a particular context and community and what is appropriate will vary according to region, ecosystem and specific crop.** As highlighted in the interviews with Heifer staff in Africa, there is no official or formal approach to steer Heifer's work towards addressing climate issues. Although the team stated that they do adapt interventions to the given context, it is more on an ad-hoc, rather than systematic, basis. In the future, Heifer's interpretation of CSA, therefore, must be specific to the geographical, environmental and climatic context of its work, as well as being sensitive to socioeconomic, political and cultural factors. It is also crucial that Heifer acknowledge the danger of maladaptation and that what may be deemed climate-smart today, may not be tomorrow.

c) Avoiding trade-offs and promoting synergies

The ideal scenario for CSA is for a technology or practice to produce so-called triple-win outcomes: increased productivity, adaptation and reduced emissions. For example, addressing the mitigation objective by using resources efficiently will have the co-benefit of preserving land and increasing biodiversity, simultaneously contributing to the adaptation and mitigation objectives.⁸⁹ Nevertheless, this is not always possible so **a key issue for the CSA approach is how to identify and address trade-offs that inevitably arise between the three objectives.** Heifer's conceptualisation of CSA must seek to integrate approaches that maximise synergies and minimise trade-offs. By framing CSA from a community perspective, Heifer can avoid the potential for environmentally or socially harmful interventions from appearing sustainable. The way in which progress is understood and measured, particularly at which scale and time-frame, will be crucial to this.

Clear metrics of success are lacking and highlight some of the difficult decisions that must be made. For example, can yield increases⁹⁰ produced by large amounts of chemical fertilisers that increase emissions⁹¹ and degrade soils be

⁸⁹ FAO, 2013: <http://www.fao.org/3/i3325e/i3325e.pdf>; <https://csa.guide/>

⁹⁰ Denning et al. 2009: <https://journals.plos.org/plosbiology/article?id=10.1371/journal.pbio.1000023>

⁹¹ Dewees et al. 2010: <https://openknowledge.worldbank.org/handle/10986/18015>

climate-smart? If this traps communities into expensive relationships with agri-businesses and/or damages soil fertility, it may be seen as truly sustainable. This also overlaps with Heifer's focus on self-reliance and diversification. If communities are not self-reliant long-term and do not have several livelihood options to rely on, then CSA is not occurring. However, there are ways to overcome these trade-offs and ensure that planning takes into account a multitude of factors.

As Lipper and colleagues⁹² note, even if all three objectives cannot be met in all contexts, CSA is still applicable. The main aim should be to address the three objectives, even if they do not occur simultaneously. **The issue of scale is fundamental to any definition of CSA.** The FAO suggests that it is unhelpful to the broad goals of CSA to assume that the actions of each individual farmer should create increased productivity, adaptation and mitigation benefits.⁹³ CSA should include multiple elements (technologies and practices, institutions and policies) at several scales (community, landscape, agro-ecological zone, regional and national).⁹⁴ As such, each case should be assessed independently since the need and opportunities for each CSA objective vary between these scales. Therefore it is not only the type of interventions that is important for Heifer to consider but their temporal and spatial variety.

Such flexibility regarding trade-offs is particularly important for low-income agricultural communities who are most affected by but have contributed the least to, climate change. In these contexts, the focus is often placed on strengthening livelihoods through productivity and adaptation.⁹⁵ Encouragingly, however, a recent assessment of over 300 climate-smart production systems by the World Bank and CIAT⁹⁶ found that most CSA technologies produce synergies between productivity, adaptation and mitigation. Of particular note for all three objectives were tree management, improved pastures, silvopastures, water management and conservation agriculture. Furthermore, the experts consulted for this study only identified trade-offs in a small number of technologies.

d) Landscape approach

While it may be tempting to continue framing CSA as the adoption of technologies and practices which increase agricultural yields and incomes, this may conceal a multitude of context or institution-specific trade-offs, costs or risks. In response to such concerns, climate-smart landscapes have begun to emerge and align closely with Heifer's current scope of addressing development issues throughout the whole agricultural system. As such, CSA is understood to apply to the wider food value chain, including consumption habits, access, food waste and the political

⁹² Lipper et al. 2014: <https://www.nature.com/articles/nclimate2437>

⁹³ FAO and CGIAR: <http://www.fao.org/3/a-i4064e.pdf>

⁹⁴ FAO and CGIAR: <http://www.fao.org/3/a-i4064e.pdf>

⁹⁵ Dinesh et al. 2015: <https://ccaafs.cgiar.org/publications/climate-smart-agriculture-effective-review-selected-cases#.XKdgyOtKjOQ>

⁹⁶ WB and CIAT, 2018: <http://documents.worldbank.org/curated/en/917051543938012931/pdf/132672-WP-P168692-PUBLIC-4-12-2018-12-27-47-CSAInsightsfromCSAProfiles.pdf>

and economic context in which it is situated and depends.⁹⁷ The FAO suggested that CSA apply a landscape approach in order to integrate biodiversity, ecosystem services, forestry, water resources and other sources of rural livelihoods.⁹⁸ CGIAR's CCAFS programme's Climate-Smart Villages concept, for example, address all aspects of a community's adaptation, mitigation, food security and development in the planning of how to respond to climate change.⁹⁹

One of Heifer's key strengths which should be articulated in its definition of CSA is that the benefits of its work do not end at the farm gate. **Heifer has a particular ability to identify and establish post-farm opportunities which can be harnessed for mainstreaming CSA throughout the value chain.** For example, Heifer takes a holistic approach to productivity by teaching farmers how to work the land in a way that benefits everyone involved in the process of agriculture, from the farmer to the consumer.¹⁰⁰ Furthermore, defining CSA as climate-related activities in the field, rather than across the food system may lead Heifer to overlook environmental and social trade-offs that are non-climatic and are central to Heifer's work. In addition, when CSA practices are adopted across a landscape or supply chain, it can have positive impacts at the regional or national level. Heifer should, therefore, communicate this 'landscape' approach in its definition of CSA.

e) Readiness

Interventions that appear to contribute to CSA may not always have the desired outcome if the factors that determine the adoption and scaling of technologies and practices are not addressed. As such, a more comprehensive approach that moves away from technology adoption to a more systems-based approach should be followed. This means including a range of policy, market and other stakeholders. It is these actors that will provide the opportunities and obstacles to CSA and who must form part of any organisation's vision for mainstreaming CSA. **A system's perspective is crucial as institutional aspects reflect and reinforce agency, historical trends and power dynamics.**

Many research and development organisations refer to the development of an enabling environment and financing mechanisms for CSA. Readiness refers to the "capacity to manage plan, implement and monitor climate finance and activities related to climate change".¹⁰¹ According to CCAFS,¹⁰² with relation to CSA, **readiness relates to institutional or financial steps taken to support CSA technologies and practices, create enabling conditions for CSA and mainstream climate change in decision-making.** 'Readiness' requires national governments, international entities, private companies and NGOs to promote and finance CSA and ensure increased coordination between the various arms of environmental, development and production processes.¹⁰³ Readiness, or its component parts, is mentioned

⁹⁷ ODI, 2015:

https://assets.publishing.service.gov.uk/media/57a0897840f0b649740000c6/EoD_Topic_Guide_Climate_Smart_Agriculture_April2015-1.pdf

⁹⁸ FAO, 2013: <http://www.fao.org/3/i3325e/i3325e.pdf>

⁹⁹ CCAFS: <https://ccafs.cgiar.org/climate-smart-villages#.XKxfw-tKiAw>

¹⁰⁰ <https://www.heifer.org/ending-hunger/our-approach/strengthening-livelihoods/index.html>

¹⁰¹ Wollenberg et al, 2015: <https://ccafs.cgiar.org/publications/climate-readiness-indicators-agriculture#.XKySuutKiAw>

¹⁰² Wollenberg et al, 2015: <https://ccafs.cgiar.org/publications/climate-readiness-indicators-agriculture#.XKySuutKiAw>

¹⁰³ FAO, 2010: <http://www.fao.org/3/i1881e/i1881e00.pdf>

by most research and development organisations employing the term CSA. As such, in order to facilitate choices to poor and vulnerable groups, CSA for Heifer may be in a position to form part of a national and international effort through partnerships with private and political actors.

Policy decisions relating to public infrastructure, for example, will impact the ability of CSA to address transportation and postharvest losses. Private companies and civil society organisations are crucial for bringing agricultural outputs to market, as well as in the adoption of new technologies and practices. Heifer could, therefore, inform or directly support the development of policies that are supportive of climate-smart approaches and contribute to the 'readiness' of the enabling environment to support CSA. Further, **reducing risk is not possible without the cooperation of country leaders and government ministries.** Issues such as land tenure, climate policy, agricultural subsidies and control of resources can be significant enablers or barriers to CSA and Heifer's goals. Many of the changes required to produce a truly climate-smart and pro-poor food system depend on interactions with the wider political context and Heifer has the potential to influence the future trajectory.

f) Self-reliance

Self-reliance was frequently mentioned in the interviews as one of Heifer's key motivators and strengths. As reflected in the VBHCD framework, Heifer "helps communities become the drivers of their own change."¹⁰⁴ **The benefits of Heifer's focus on self-reliance on CSA are twofold: firstly, it means that communities will be involved in decision-making and planning, and secondly, that they will carry it forward and make it sustained into the future.** Much like Practical Action's 'Technology Justice' lens,¹⁰⁵ Heifer could develop a way to make self-reliance central to their operationalisation of CSA in order to overcome many of the trade-offs associated with conventional applications. Furthermore, this may avoid a dependency on (expensive) external inputs, particularly contributing to mitigation and ensuring a balance between the three pillars. The ability of the communities to develop agency and responsibility to ensure long-term progress was highlighted during interviews with Heifer staff. The Heifer Africa team, for example, stated that self-reliance is the foundation of its work in the region and that this will help CSA to be temporally sustainable due to the social capital developed. CSA efforts must, therefore, include a long-term perspective which would be mutually beneficial to the promotion of self-reliance and future climate change impacts.

g) Climate-related risk reduction

A comprehensive risk-management perspective should be an integral part of CSA. When adhering to a comprehensive approach to increasing the resilience of smallholder farmers, a combination of risk-management strategies should be employed. These include improved resource management through asset creation (risk reduction), insurance (risk transfer), livelihood diversification and microcredit (prudent risk taking) and savings (risk reserves).¹⁰⁶ Risk management forms part of several research and development organisations' understanding of CSA,

¹⁰⁴ Heifer Fact Sheet 2019

¹⁰⁵ Practical Action, 2015: <https://policy.practicalaction.org/resources/publications/item/climate-smart-agriculture-and-smallholder-farmers>

¹⁰⁶ WFP and Oxfam America, 2012: www.wfp.org/disaster-risk-reduction

including USAID,¹⁰⁷ FAO¹⁰⁸ and World Bank.¹⁰⁹ One key enabling factor to reduce risk is the development of and access to quality information related to climate variability and environmental shocks. Heifer should, therefore, support climate vulnerability assessments at country and regional levels to identify the risks to food security and livelihoods, including off-farm sections of the food system. Furthermore, climate services and technologies that are easy to use and easily accessible must be made available to all stakeholders, ranging from the farmer to the policymaker.

Heifer has an opportunity to utilise risk reduction as a unique selling point to donors and farmers themselves.

Following Heifer's current emphasis on resilience building, CSA should be seen as a tool for achieving goals related to reduced risk and increased living income. As was noted in staff interviews, environmental and climatic risk reduction is not the driving force for designing projects and choosing the location of interventions. Currently, other types of risk reduction drive decision-making. Nevertheless, a broader understanding of risk reduction should form a central part in any definition of CSA, as good practice in agriculture will undoubtedly draw upon climate variability, resource availability, production, processing and storage, which are all affected by unexpected shocks. Productivity and livelihood outcomes in many Heifer countries would benefit from predicting and planning for climate variability, which could greatly enhance a proactive approach to long-term resilience building and adaptive capacity. Current resilience interventions such as improved water management and providing market information provide entry points for bolstering environmental and risk-management more broadly.

Heifer Americas, in their interview, stated that they take climate-related issues further than required by current Heifer guidance. After firstly engaging in a collaborative exercise defining a regional framework with country staff by identifying and the future risks and needs, Heifer Americas addresses practices that increase the resilience of farmers to climate change. Nicaragua, for example, makes use of agro-climatic stations and water and crop management methods that alleviate the effects of the dry climate. In addition, projects in Honduras increase resilience through shade management of coffee crops and by using mobile software. The interview with the Americas team highlighted the benefits of further mainstreaming and systematically including CSA in all levels of programming.

Key insights

CSA should be intentional

- CSA for Heifer generally appears to be understood as a set of technologies and practices
- CSA should deliberately guide the programming and planning of Heifer's interventions
- CSA should be used as a programming, M&E and marketing tool for Heifer

CSA should be context-specific

- Heifer must systematically adapt CSA to the particular conditions and needs of a community and locality at a given moment

CSA should avoid trade-offs and promote synergies

- Heifer must frame CSA from a community perspective
- Heifer must adopt clear metrics to capture CSA outcomes and synergies

¹⁰⁷ USAID, 2016:

https://www.agrilinks.org/sites/default/files/resource/files/Framework%20CSA%20paper%20final%20%281%29_0.pdf

¹⁰⁸ FAO, 2013: <http://www.fao.org/3/i3325e/i3325e.pdf>

¹⁰⁹ World Bank, 2018: <https://www.worldbank.org/en/topic/agriculture/publication/bringing-the-concept-of-climate-smart-agriculture-to-life>

- The CSA pillars should be achieved at different scales, reducing some pressure from the farmer

CSA should include a landscape approach

- Heifer must apply CSA throughout the food value chain and wider farming community

CSA should contribute to readiness

- Heifer may be able to address the financial and political enabling environment that allow or prevent CSA from being a success

CSA should enhance self-reliance

- Self-reliance could be the lens through which Heifer applies CSA to avoid social and environmental trade-offs
- Participatory planning and the development of social capital will ensure that CSA is viable long-term

CSA should reduce climate-related risk

- A comprehensive climate risk-management strategy should be a central part of CSA for Heifer
- Heifer should support and make sure of climate vulnerability assessments
- Heifer should promote the use of climate information for all stakeholders

5. Major challenges encountered during the reporting period

None

6. What needs to be done next?

In the following reporting period, we will carry out the following activities:

- Carry out regional survey
- Plan field visits
- Evaluate M&E

7. Lessons learned and implications for the project

None

8. Other comments