



WBCSD Climate Smart Agriculture Action Plan 2020

Mid-Term Report



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① Executive Summary



In 2015, WBCSD Climate Smart Agriculture (CSA) Working Group (WG) members put forward a shared Statement of Ambition on CSA for 2030 which built on WBCSD's broader Action 2020 plan. The overall ambition is to:

Statement of Ambition 2030

Make 50% more food available and strengthen the climate resilience of farming communities whilst reducing agricultural and land-use change emissions from commercial agriculture by at least 3.7 Gt CO₂eq/year by 2030 (50%). By 2050 the target is to achieve a 65% emissions reduction.

This report summarizes what progress has been achieved to-date and the pathway to 2020. It also sets out some key policy messages, focusing on the upcoming UNFCCC¹ 23rd Conference of the Parties.

These efforts cannot be achieved alone and WBCSD works together with a number of global partners to realize its ambition. These partnerships are described in Section 5.

Policy messages

Climate smart agriculture is critical for limiting warming to 2 or 1.5 degrees globally which can only be achieved through effective partnerships and an improved enabling environment. The level of ambition across the private and public sectors needs to increase and governments and companies should increasingly look to set quantified science-based targets for the land use sector to drive progress and finance. WBCSD WG members have identified the following international policy messages for each action area. For national-level policy recommendations see Section 6 of the report.

To support the 2030 ambition, the CSA WG prioritized four action areas to address the most critical issues to hand, and which most need collaborative action to address. These sit alongside actions taken individually by members, and incorporate key cross-cutting themes like gender and other climate actions (see Appendix 4 for further detail):



**Action Area 1:
Building
smallholder
resilience/family
farmer**



**Action Area 2:
Scaling-up
investment in CSA**



**Action Area 3:
Improving
businesses' ability
to trace, measure
and monitor CSA
progress**



**Action Area 4:
Implementing
agriculture-driven
zero deforestation
commitments**



Action Area 1: Building smallholder/family farmer resilience

International policy:

- The UNFCCC process and work programs relevant to agriculture, should continue to emphasize the vulnerability of smallholder farmers to climate change and the need for coordinated international action on this issue in the form of public- private partnerships. We encourage the SBSTA² to reach a conclusion on issues relating to agriculture during COP 23.
- Efforts to implement Nationally Determined Contributions (NDCs³) in the agricultural sector should look to achieve both positive mitigation and adaptation outcomes for smallholder farmers. It is encouraging to note that more than 30 countries refer to CSA approaches in their NDCs and WBCSD further encourages parties to adopt CSA objectives in the renewal process for NDCs. These should extend beyond agricultural production and cover the whole agricultural value chain within a country.
- As parties implement their NDCs they should actively engage with the private sector to scale up the number of smallholder farmers standing to benefit from NDC finance and activities. This should include renewed investment in the broader development of rural areas, to make the agricultural economy attractive to work and prosper in for future generations.



Action Area 2: Scaling-up investment in CSA

International policy:

- Public and private climate finance investment in land use is US \$6.8 billion a year, not nearly enough for investment to reach collective NDC targets.
- More strongly recognize the role of farmers in mitigating and adapting to climate change and to take urgent action to improve the policy environment and international mechanisms to support farmer financing and make targeted investments to drive the largest impact.
- Make sure that existing or new donor and climate finance mechanisms enable and actively encourage the formation of public-private partnerships for the implementation of climate smart agriculture.



Action Area 3: Improving businesses' ability to trace, measure and monitor CSA progress

International policy:

- Actively share monitoring tools and accounting approaches for the land use sector as they are developed by both governments, non-governmental organizations and businesses. This can be achieved via the Global Alliance for Climate Smart Agriculture Knowledge Action Group for example and via tools developed by Global Forest Watch⁴.
- These mechanisms should also focus on supporting national-level monitoring level capacity in both government and academic institutions, building on early successes in this area (e.g. UN-REDD country MRV capacity building programs).
- The public and private sector need to invest further in the development of metrics, and for monitoring CSA progress. This can help countries progress under the Global Stocktake process under the UNFCCC.
- International policy and research initiatives tracing and locating areas of high deforestation should engage WBCSD member companies in helping to verify their data in the field and further expanding these data-sets.
- Further support the development of agricultural open data initiatives such as the Global Open data for Agriculture & Nutrition initiative.



Action Area 4: Implementing agriculture- driven zero deforestation commitments

International policy:

- Parties and organizations involved in the further development and implementation of REDD+ policies and incentives or REDD+ programs should actively engage businesses operating in or sourcing from the region, wherever relevant.
- International financing mechanisms and donor funds for REDD+ and sustainable landscapes approaches should further consider how to make these mechanisms as simple as possible to engage with for the private sector to scale up 'produce-protect' approaches.
- REDD+ donors should continue and expand their support for REDD+ country level readiness, as there is still much needed in this area, particularly on land governance and forest and land-use registries and monitoring systems.
- Certification bodies should continue the push towards more stringent and better enforced standards, particularly on the conversion of secondary and non-HCV forest.

Progress to-date

Measure and monitoring progress

WBCSD's Statement of Ambition is expressed according to the three pillars of CSA. A stocktake of historical progress from 2010 to 2015 was measured against each pillar by combining company-level measurement and monitoring efforts (bottom up) with data from external sources (top-down), such as SDG indicators. The purpose of this exercise is to assess where progress stands under each of the three Pillars, and to inform collective and individual country action going forward to 2020 and beyond.

Our efforts to measure progress (and therefore deliver Action Area 3) can be improved over time by:

- encouraging and building the capacity of companies to integrate CSA metrics into regular monitoring and evaluation protocols;
- sharing these monitoring and evaluation efforts across value chains and landscapes;
- facilitating transparent disclosure;
- and helping the uptake of decision-support tools for CSA to help boost CSA uptake.

Pillar 1 Productivity ambition

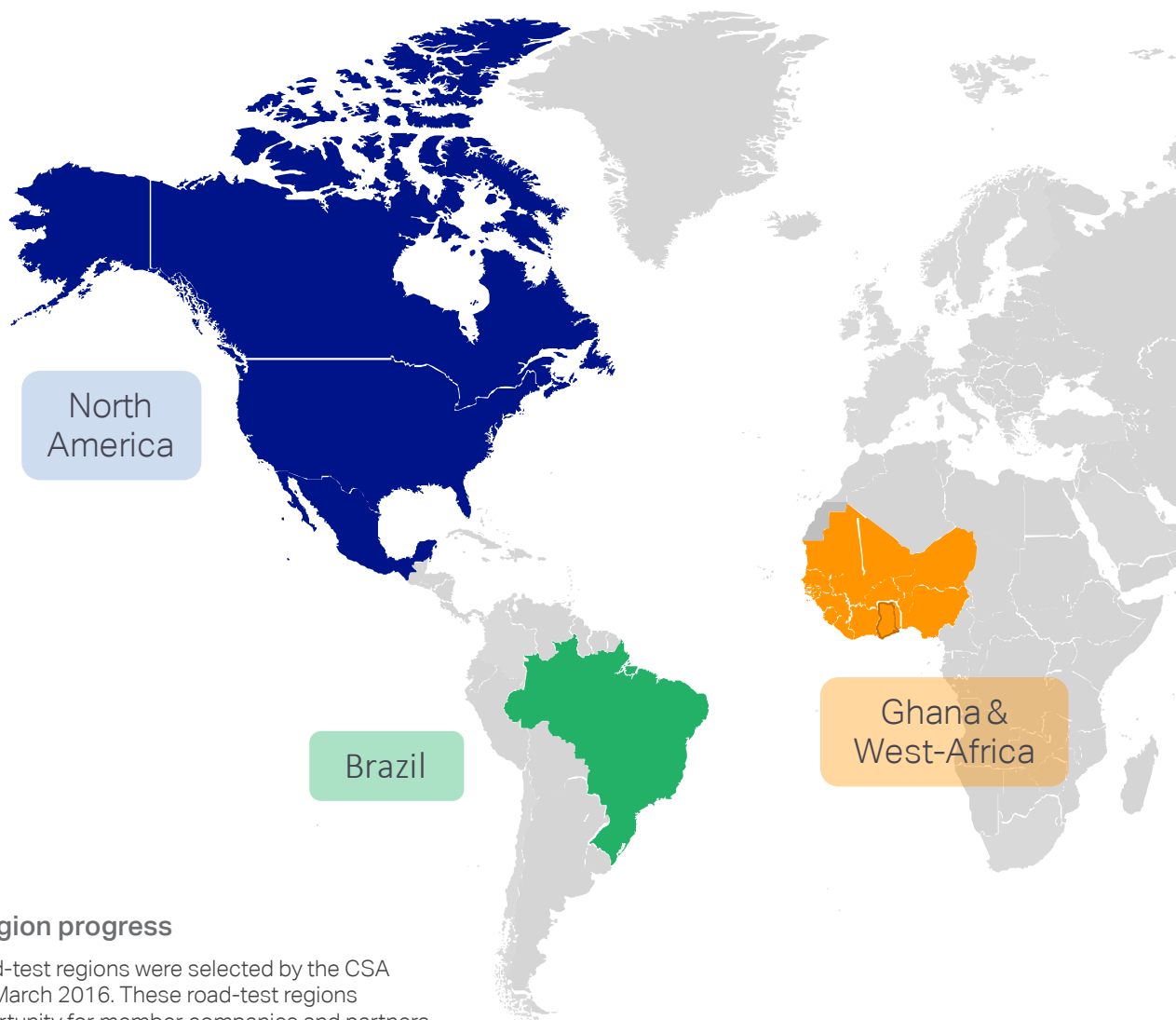
Trends indicate that we are on track to produce enough food to meet the demand for 50% more food by 2030. Going forward this analysis would benefit from the collection of data on whether this food will be equally or more nutritious. More holistic data is also needed on the inputs, throughputs and outputs of the food supply chain to properly assess the sustainability of the increased food production.

Pillar 2 Climate change resilience, incomes & livelihoods ambition

The most widely reported indicator is total water use, which grew on average from 2010-2015. However, there are no relevant global datasets to match the company indicators, which are often inconsistent with one another. Companies need to work towards collecting more quantitative information on resilience to allow for the better assessment of this pillar, including activity data (e.g. training) and outcome indicators (e.g. incomes).

Pillar 3 Climate change mitigation ambition

Global direct agricultural emissions and company Scope 1 & 2 emissions both increased during the 2010-15 period, although companies did demonstrate some progress in reducing the intensity of their own operations. Urgent action is needed to reduce direct agricultural emissions in order to meet the 2030 target. Harmonized indicators and further reporting is needed for Scope 3 emissions and data on post-production activities, such as packaging, transport and refrigeration.



Road-test region progress

A set of five road-test regions were selected by the CSA membership in March 2016. These road-test regions provide an opportunity for member companies and partners to pilot partnership approaches to implement Action Areas 1 and 4. If these pilot approaches prove successful the working group will look to scale these up further.

Progress in each of these regions is as follows:

North America:

Over the course of 2016 and 2017, four CSA meetings have taken place in North America. These meetings have helped to build relationships with important stakeholders in the region, define and clarify key issues as well as establishing a common vocabulary and frame of reference, and laying the foundation for a detailed work program. In addition to these meetings, member companies in North America have invested in a number of partnerships, for example, the Midwest Row Crop Collaborative (MRCC).

Target outcomes

Specific farmer (including demonstration farmers), acreage and other targets will be developed in 2017 and early 2018 during the detailed design and implementation of this program.

Brazil:

CEBDS has been supporting WBCSD to develop the CSA WG in Brazil building off existing partnerships, for example of that between Conservation International and Monsanto. During 2016 and 2017, it has been collaborating with the Brazilian Coalition for Climate, Forest and Agriculture. The main role of this coalition is to articulate and facilitate actions for the country to promote a new low-carbon economic development model and, consequently, respond to the challenges of climate change. CEBDS is also developing a CSA Financing Guide with the National Bank Federation.

Target outcomes

30% of the total number of farmers working with Monsanto (~50k) are targeted to be reached by the actions identified within the work program for Brazil by 2020.



Ghana and West Africa:

Ghana was identified by WBCSD members as a priority country in West Africa in early 2016. Following a meeting with 50 people representing the Ghana cocoa sector, WBCSD has produced a Ghana Collaboration Note to help identify potential collaboration models for working with the Climate Smart Value Chain Initiative in Ghana. Its aim is to leverage existing smallholder value chain interventions in order to translate climate science into actionable strategies for farmers and supporting actors. WBCSD and the Kellogg Company are supporting the piloting of this approach in the sourcing districts of member companies, via the company Kukua⁹ as a delivery partner, installing four weather stations and systems for the provision of weather information to 7,500 farmers, aiming for 30,000 by 2020. Weather station coverage is currently poor in Ghana and this intervention aims to enable farmers to adapt their practices to short term weather patterns and variability.

Target outcomes

As identified above the immediate beneficiaries of the pilot project should be 7,500 individuals. However, the intention is that the use of weather information services is then adopted within the supply chains of WBCSD member companies. For example, if this approach was adopted by all the farmers engaged in Olam's sustainable sourcing program in Ghana, this would result in 30,000 farmers using weather information services by 2020.

India:

The WG began by identifying a set of existing business solutions in agriculture that are already being implemented in India but which have the potential to scale-up to create impact at a regional/state level. For example, smart crop varieties, drip irrigation and post-harvest storage solutions. Each of these solutions was assessed for its impact on crop yields, farmer incomes and water use efficiency (given agriculture consumes nearly 90% of the available water in India). The group is now progressing with a two-pronged approach of 'action' and 'advocacy' to help scale-up the most promising solutions. Several business partnerships have been identified as the first step towards joint action, including through a learning visit to the Jain Irrigation headquarters. For example, Ambuja Cement Foundation and UPL Limited are collaborating on the role out of UPL's 'Zeba' innovation which improves water retention and fertilisation of crops, amongst farmers whom the Ambuja Cement Foundation supports to improve water use efficiency in Rajasthan, Punjab and Gujarat. WBCSD is also working towards a partnership with the International Water Management Institute to receive knowledge support, as well as partnerships with the Alliance for Water Stewardship and the 2030 Water Resources Group.

Target outcomes for India

Targeted outcomes for this region are based on the potential for scale-up of two projects, namely: (1) UPL and Olam on piloting Zeba in Madhya Pradesh for sugarcane for 40,000 farmers, and (2) Ambuja/UPL on piloting Zeba in 3 Indian states with 100,000 farmers). As such, it is currently targeted that these initiatives will reach at least 140,000 farmers by 2020.

ASEAN:

In early 2016, BCSD Singapore, Indonesian BCSD and Philippine Business for the Environment and Vietnam BCSD produced a white paper setting out private sector perspectives on CSA for policy makers in the region. In subsequent meetings, climate smart and sustainable rice production efforts was identified as a specific area where WBCSD can make a significant impact. The main action to-date has been the formation of a collaboration between WBCSD member companies, the Sustainable Rice Platform, UN Environment, the Climate Resilience Network, GIZ and CCAFS. This collaboration has a broad geographical scope with a focus on Thailand, Vietnam and Indonesia as the largest sources of GHG emissions and where enabling conditions are strongest. Collaboration targets include introducing climate smart rice and applying the Sustainable Rice Platform and/or Better Rice principles; supporting enhanced spatial planning for rice; and reducing pre- and post-harvest losses. It is anticipated that the partnership will be broadened to include civil society organizations and national governments as it progresses towards implementation.

Target outcomes

The intention of this program is to support 150,000 farmers in the region increase their adoption of climate smart practices by 2020.

Progress on financing CSA

Rabobank is leading Action Area 2 based on the analysis of CSA financing needs identified by the CSA WG. This analysis included the identification of loan characteristics; equity characteristics; and insurance characteristics that support CSA adoption. Rabobank has started to work in North America together with WBCSD and Monsanto to finance the adoption of low-carbon inputs. It is also working with WWF in India together with EID Parry to empower sugar producers to adopt more sustainable sugar production by financing a Decision Support Tool. This will be presented to WBCSD India members in late 2017.

The plan to 2020

Each of these Action Areas has identified milestones for 2018, 2019 and 2020 to drive progress against the Statement of Ambition. These provide a 'direction of travel' but are likely to evolve as the work progresses:



Action Area 1: Building smallholder/family farmer resilience

&



Action Area 4: Implementing agriculture- driven zero deforestation commitments

- Milestones have been identified for each road-test region. In 2018, the West Africa and ASEAN WGs will be looking to submit donor funding proposals for scaling up their activities. In all instances, the aim is that partnerships will be established and full-scale implementation will be underway by 2019 (building on pilots in both West Africa and Brazil in 2018). This will allow for an initial evaluation in 2020 and the development of 2025 plans.



Action Area 2: Scaling-up investment in CSA

- In 2018, Rabobank will develop financing collaborations in the road test regions and WBCSD will engage with donors and multi-lateral organizations to identify funding support for road-test region activities.



Action Area 3: Improving businesses' ability to trace, measure and monitor CSA progress

- Two further progress assessments will be undertaken in late 2018 and 2020. In the meantime, training workshops will be delivered to the WBCSD CSA WG membership in 2018 and 2019 to enhance companies' capacity for monitoring and evaluation. This will be combined with work to improve the metrics and to harmonize these monitoring efforts with those of the International Centre for Tropical Agriculture and the Global Alliance for Climate Smart Agriculture (GACSA).



② Foreword





By 2050, humanity has to sustainably provide the food, fodder, fuel and fiber for the needs of 9 billion people while at the same time dealing with the effects and challenges posed by climate change. The more variable and extreme weather increasingly seen around the world represents a huge threat to productivity, to agricultural value chains and the welfare billions of people who depend on them. At the same time, agricultural production contributes directly or indirectly responsible to nearly one quarter of global greenhouse gas emissions.

The private sector plays a crucial role in bringing business solutions to these challenges. WBCSD's Climate Smart Agriculture (CSA) project responds to this urgent call by bringing together leading global companies in throughout the food and agri-business value chain to provide leadership and innovation for productive, resilient and resource-efficient agricultural systems.

There is a compelling business case for companies to act. As documented in the Better Business Better World report of the Business and Sustainable Development Commission in 2017, 14 opportunities were identified for companies to develop business solutions in food and agriculture for an estimated value of over US\$ 2.3 trillion.

As part of our Low Carbon Transition Partnerships Initiative (LCTPI), this CSA Interim Report showcases the CSA group's progress since 2015 across four priority action areas and in five road test regions across the world.

For our CSA project, success means scale, so we are fostering long-term partnerships with farmers, governments, NGOs and multi-lateral institutions to drive change through the implementation of business solutions in priority regions. We believe that this work will be instrumental in bringing a strong business voice to the 23rd Conference of the Parties (COP23) to the UNFCCC in Bonn in November 2017, and we invite you to join us in this important project.

Peter Bakker, President & CEO, WBCSD

③ The purpose of this report



The intended purpose of this report is to:

- Provide introductory information for stakeholders whom may not yet be familiar with the Action Plan to 2020.
- Externally communicate a summary of the progress of the WBCSD Climate Smart Agriculture (CSA) working group and its partners against the Action Plan to 2020 to maintain transparency.
- Reflect on this progress and set out a pathway for our work to 2020.
- Provide the perspective of WBCSD members on the current global and national policy environment regarding CSA.



4 What is the Action Plan 2020?



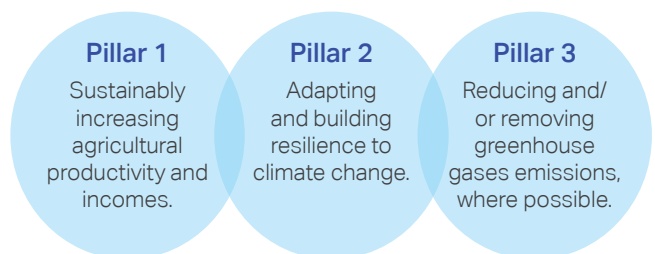
4.1. Background

The WBCSD's Low Carbon Technology Partnership initiative (LCTPi) is a joint public and private initiative to accelerate low-carbon technology development.

The objective of the initiative is to identify and catalyze actions to accelerate low-carbon technology, and scale up the deployment of these technology solutions, to a level and speed that are consistent with the objective of limiting global warming to below two degrees Celsius compared to pre-industrial levels.

CSA is one of the business solutions that the WBCSD and its member companies have identified as critical to reach the two-degree Celsius target, and have specifically added to the list of eight other technologies that are being explored as part of the LCTPi process. The CGIAR's Climate Change Agriculture and Food Security (CCAFS) Program has also provided strategic and scientific guidance for this process⁶.

We support the identification of CSA as presented by FAO at the Hague Conference on Agriculture, Food Security and Climate Change in 2010, which integrates the three dimensions of sustainable development (economic, social and environmental) by jointly addressing food security and climate challenges. It is composed of three main pillars:



Working Group (WG) members use the Action Plan to guide their contributions to these ambitions; success relies on contributions and collaboration with our broader stakeholders including farmers, NGOs, academics, multilaterals and governments. There are many existing programs⁷ fitting with CSA principles which WG members seek to engage with; we believe these could be bolstered by increased interaction and support from the business community.

Overall Statement of Ambition for 2030:

Make 50% more food available and strengthen the climate resilience of farming communities whilst reducing agricultural and land-use change emissions from commercial agriculture by at least 3.7 Gt CO₂ eq/yr by 2030 (50%). By 2050 the target is to achieve a 65% emissions reduction⁸.

WBCSD Action 2020 'Must-Haves'

- Sustainably increase the production and resource efficiency of agriculture systems to secure access to sufficient, safe and nutritious food and sustainable bio-based products
- Halve food loss and waste
- Raise farmers' net incomes, and improve rural livelihoods within agriculture landscapes
- Restore at least 12 million hectares per year of degraded land
- Within the goal of limiting global temperature rise to two degrees Celsius above pre-industrial levels, the world must, by 2020, have energy, industry, agriculture and forestry systems that, simultaneously: meet societal development needs, are undergoing the necessary structural transformation to ensure that cumulative net emissions do not exceed one trillion tons of carbon, peaking global greenhouse gas emissions by 2020 and are becoming resilient to expected changes in climate.

4.2. Introducing the Statement of Ambition to 2030

This Statement is a collective ambition shared across WBCSD CSA Working Group companies, and individual companies' ambitions may be higher or lower than this recognising the range of business types, locations and enabling environments in which they operate in. It builds on the WBCSD Action 2020 'Must-Haves' (see Box 1). For more detail on how this Statement was prepared, please refer back to the 2015 WBCSD CSA Action Plan 2020⁹.

The three pillars of the Statement of Ambition for 2030

This Statement of Ambition is structured around the three CSA pillars, which are also aligned with Sustainable Development Goals (SDGs¹⁰) 1, 2, 5, 6, 12, 13 and 15¹¹. It is intended to be a tangible expression of how WBCSD CSA Working Group companies can work alongside multi-sector partners to implement the CSA-relevant indicators under each of these SDGs. For full details, please refer to the CSA Action Plan 2020¹².

Pillar 1
Productivity ambition

Increase global food security by making 50% more nutritional food¹³ available through increased production on existing land, protecting ecosystem services and biodiversity, bringing degraded land back into productive use and reducing food loss from field to shelf.

Pillar 2
Climate change resilience, incomes & livelihoods ambition

Strengthen the climate resilience of agricultural landscapes and farming communities to successfully adapt to climate change through agroecological approaches appropriate for all scales of farming. Invest in rural communities to deliver improved and sustainable livelihoods necessary for the future of farmers, bringing prosperity through long-term relationships based on fairness, trust, women's empowerment and the transfer of skills and knowledge.

Pillar 3
Climate change mitigation ambition

Reduce GHG emissions by at least 30%¹⁴ of annual agricultural CO₂e emissions against 2010 levels (aligned with a global 1.6 GtCO₂ eq/yr reduction by 2030¹⁵ This recognizes the strong positive role played by farming communities to date in reducing GHG emissions and the potential carbon sequestration role of farmland as described in the supply side mitigation options and potential for the agricultural sector in the IPCC's AR5 report. It is also important to stress that not all these reductions will be at the farm level - a substantial portion of these reductions will also be achieved through reducing food waste up to the point of sale to the end consumer, in line with WBCSD's Action 2020 to halve food waste.

We will also play a role to eliminate GHG emissions from land-use change to commercial agriculture¹⁶ through working to halt conversion of HCV¹⁷ or HCF¹⁸ forest and all grasslands, wetlands and peatlands by the sector (equivalent of a 2.1 GtCO₂e reduction per year¹⁹). We will work with existing work streams to decrease agricultural-related deforestation already underway such as the Consumer Goods Forum, and through the Declaration on Forests and the Tropical Forests Alliance.

The relative distribution of our CO₂e reduction ambition between agriculture (including reductions in food waste from field to shelf) and land use change is provided in the chart below.



Cross-cutting themes:

- Different regional perspectives;
- gender and vulnerable groups;
- linking to other Low Carbon Technology Partnership Initiative groups;
- social and environmental principles (for more information see Appendix 4).



In addition, we align ourselves with the climate mitigation objectives of the WBCSD Land Degradation Neutrality initiative, which states that restoring the 12 million hectares that are degraded every year could secure the sequestration of 20% of global CO₂ emissions²⁰, and the WBCSD Forests Solutions Group to achieve the restoration of 30% global forest cover (1990 levels) by 2050, with 45 Gt CO₂ equivalent stored by 2030. of global CO₂ emissions, and the WBCSD Forests Solutions Group to achieve the restoration of 30% global forest cover (1990 levels) by 2050, with 45 Gt CO₂ equivalent stored by 2030.

How this meets the two degrees warming target

Analysis by the CGIAR CCAFS states that a reduction of at least 1 Gt CO₂ eq/year is needed from the agricultural sector on 2010 levels by 2030 to stay within the two degrees global warming scenario²¹; therefore reducing emissions from agriculture by 1.6 Gt CO₂ eq/year would exceed this target and facilitate the achievement of staying within 1.5 degrees. The Statement also incorporates achieving zero deforestation²² by 2030 which would achieve the reductions needed from land-use change to remain within a two or 1.5 degree limit.

The Action Plan to 2020

The Working Group has identified four priority actions areas which urgently need collective attention and collaboration with farmers, civil society, NGOs, government and research institutions in order to achieve the Statement of Ambition 2030. The Action Plan covers all farming scales and approaches, and recognizes that the business community is already taking action and will continue taking action on CSA across all these sectors.

The four action areas are:



Action Area 1: Building smallholder/family farmer resilience

This Action Area includes proposed actions to:

- Define the business case for action and identify 'road-test' countries
- Create enabling environments (economic, social and environmental) and supporting Community Based Adaptation
- Develop appropriate tools to support farmers to adopt CSA and improve profitability
- Develop mass media content and use this for awareness raising and training
- Capacity building through data access, training and investment
- Monitor and evaluate progress



Action Area 2: Scaling-up investment in CSA

This Action Area includes proposed actions to:

- Scale up and 'climate smart' agri-finance provided by WBCSD CSA WG member companies to their farmers and suppliers
- Work to develop new 'climate smart' financial products for farmers and small and medium-sized enterprises (SMEs), either directly or with their intermediaries
- Adapt and scale-up existing insurance products for farmers
- Collectively engage with climate finance and donor funding mechanisms
- Assess options for internal carbon pricing



Action Area 3: Improving businesses' ability to trace, measure and monitor CSA progress

This Action Area includes proposed actions to:

- Support identification of where climate change impacts are of greatest concern for businesses and farmers to enable targeted action
- Support identification of where agricultural supply chains and food systems are causing the greatest volumes of GHG emissions
- Develop a corporate CSA measurement approach
- Road-test the corporate CSA measurement approach with a selection of willing WG member companies
- Measure global progress towards the Statement of Ambition 2030



Action Area 4: Implementing agriculture- driven zero deforestation commitments

This Action Area includes proposed actions to:

- Identify five landscape level management action partnerships for zero deforestation
- Engage with local governments and stakeholders in these landscapes
- Form cross-sectoral working groups in these landscapes
- Establish funding mechanisms and resources for landscape management plans
- Implementing landscape level partnerships
- Monitor and evaluate progress

5 Our global partners



5.1 We Mean Business

WE MEAN BUSINESS

The We Mean Business Coalition is formed of BSR, CDP, Ceres, The B Team, The Climate Group, The Prince of Wales Corporate Leaders Group and WBCSD. Network Partners include the Asset Owner's Disclosure project, CEBDS, CLC, WWF, EPC, Japan-CLP, NBI, PRI, TERI and UNEPFI, along with a wider range of frequent collaborators. We Mean Business exists to form a common platform amongst business to catalyze climate action. The involved businesses all recognize that sustainable economic growth will necessitate the transition to a low carbon economy.²³

We Mean Business provides funding support to the WBCSD CSA Action Plan 2020.

5.2 CGIAR Research Program on Climate Change, Agriculture and Food Security



The CGIAR research program on Climate Change, Agriculture and Food Security (CCAFS) aims to address the twin challenges of global warming and decreasing food security on agricultural practices, policies and measures through a strategic collaboration between CGIAR and Future Earth.

Led by the International Center for Tropical Agriculture (CIAT), CCAFS is a collaboration among all 15 CGIAR research centers and coordinates with the other CGIAR research programs. All CGIAR centers have a stake in CCAFS, and numerous Centers have considerable climate change expertise and activities.

CCAFS will look to define and implement a transformative research program that addresses agriculture in the context of climate variability and uncertainty about future climate conditions. The research flagships are priorities and policies for CSA, climate smart technologies and practices, low emissions development, climate services and safety nets and gender and social inclusion.²⁴

CCAFS is the WBCSD CSA Action Plan 2020's knowledge partner and leads Action Area 3: Improving Businesses' Ability, Trace, Measure and Monitor CSA progress.

5.3 The FReSH program & EAT Foundation



The Food Reform for Sustainability and Health program (FReSH) is a joint program between the EAT Foundation and WBCSD which was launched with the intention of providing a platform for the private sector to accelerate change in global food systems. Its objective is to encourage a shift to healthy and enjoyable diets for all, while ensuring that this food is produced responsibly within planetary boundaries. Drawing on the research of premier institutions, FReSH will bring business and science together to develop high impact solutions: given that the private sector produces and supplies so much of the food consumed across the world, businesses will be central to transformational change in food systems.²⁵

The FReSH program complements the WBCSD CSA Action Plan 2020 by addressing climate change and food waste issues further up the supply chain, particularly from retailer to consumer.



5.4 The Global Agri-business Alliance (GAA)



The GAA is a private sector alliance that will seek to harness the collective strengths of the global agri-business sector to tackle environmental, social and sustainability challenges. Particularly committed to achieving UN Sustainable Development Goal 2, the Alliance will work to improve the resilience of farmers internationally. The GAA works with companies across the entire value chain of food and non-food crops; this means GAA includes growers, producers, traders, agro-chemicals manufacturers and agri-tech suppliers. The Alliance will harness the combined strengths of this array of companies.²⁶

The GAA helps the WBCSD CSA Action Plan to engage a broader base of key agribusinesses around the world, and co-hosts engagement events. For example, GAA meetings have provided a platform to build business engagement in the ASEAN road test region.

5.5 The Global Alliance for Climate Smart Agriculture (GACSA)



GACSA is a multi-stakeholder platform of 180 members. It is working towards three outcomes: improving farmers' productivity in a sustainable way, building farmers' resilience to extreme weather events and climate change and reducing greenhouse gases emissions associated with agriculture. These will help to improve food security and nutrition. GACSA will contribute to these aims by fostering knowledge learning, sharing and partnership building.²⁷

WBCSD is the chair of GACSA's Investment Action Group (IAG) and a member of its strategic committee. GACSA presents a good ongoing opportunity for WBCSD to engage with the broader policy making, donor and research community as it seeks to scale up private sector adoption of CSA.

5.6 The North American Alliance for Climate Smart Agriculture (NAACSA)



The North American Climate Smart Agriculture Alliance operates under the wing of Solutions from the Land (SfL), a not-for-profit corporation focused on land based solutions to global challenges. SfL functions as the fiduciary agent for the Alliance and serves as the NACSAA Secretariat.

The Alliance is guided by a self-directed Steering Committee comprised of industry leaders, farmers, conservation representatives, government officials, equipment providers, and value chain partners. This nucleus of leadership represents interests from all three countries across the North American continent, Canada, Mexico and the United States. The Steering Committee is directed by a chair person elected by its members. The chair person will facilitate Steering Committee meetings and help with member engagement²⁸.

NAACSA is a key implementation partner in the North American road-test region. For more detail see Section 8.4.

5.7 The Climate Smart Value Chains Initiative

CSV I

The Climate Smart Value Chains Initiative is the product of a relationship between the Sustainable Food Lab, CCAGS, IITA, Rainforest Alliance and Root Capital. It uses climate science to benefit cocoa and coffee farmers as well as those in supply chains related to these crops across Ghana, Peru and Nicaragua.²⁹ Climate Science is being used to create strategies for farmers to achieve local scale CSA practices.³⁰

The CSV I is a key implementation partner for the West African Road-Test Region.

5.8 The Earth Genome and Arizona State University



The Earth Genome is an environmental data analytics organization. Through the use of big environmental data, The Earth Genome is tackling a variety of problems with the aim of creating financial value for businesses. Their initial focus areas include ensuring corporations and cities have secure water supply chains, identifying and mitigating high risk agricultural supply chains and improving agricultural yield given the linked challenges of climate change and water availability.³¹

The Earth Genome and Arizona State University have been partners with WBCSD India where they have been leading on the conceptualization of the India Agriculture Tool.

5.9 Business for Social Responsibility (BSR)



Recently celebrating 25 years of work in sustainability, BSR works with its network of 250 companies and partners to develop sustainable business strategies. This involves sustainability consulting, collaboration and research. Several collaborative initiatives have been incubated by BSR including the Global Network Initiative and the Future of Fuel. These are aimed at helping companies focus on cross cutting issues like energy.³²

BSR is a key implementation partner for WBCSD in North America and have worked together on engagement events such as the landscapes session within the Climate Action Summit in Washington D.C in 2016.

6 Our policy messages for COP 23



The WBCSD CSA Action Plan 2020 in 2015 contained a series of policy recommendations at the global and national level, structured around our four Action Areas. Below we update these recommendations for 2017 and in particular the upcoming UNFCCC 23rd Conference of the Parties.

Whilst these policy messages are framed as 'policy asks' to the public sector, WBCSD members are looking to work together with government and advance private sector action in these areas.

6.1 Overall Policy Message

Climate smart agriculture is critical for realizing a 2 or 1.5 degree world and can only be achieved through effective partnerships and an improved enabling environment. The level of ambition needs to increase across the private and public sectors. To enable the private sector to engage further in these issues, governments can set quantified science-based targets for the land use sector in their NDCs and enhance or develop programs that target key barriers for progress on these issues, including financing, measurement tools, and farmer risk mitigation.





6.2 Action Area 1: Building smallholder/family farmer resilience

International policy:

- The UNFCCC process and work programmes relevant to agriculture, should continue to emphasize the vulnerability of smallholder farmers to climate change and the need for coordinated international action on this issue in the form of public-private partnerships. We encourage the SBSTA to reach a conclusion on issues relating to agriculture during COP 23.
- Efforts to implement Nationally Determined Contributions (NDCs) in the agricultural sector should look to achieve both positive mitigation and adaptation outcomes for smallholder farmers. It is encouraging to note that more than 30 countries refer to CSA approaches in their NDCs and WBCSD further encourages parties to adopt CSA objectives in the renewal process for NDCs. These should extend beyond agricultural production and cover the whole agricultural value chain within a country.
- As parties implement their NDCs they should actively engage with the private sector to scale up the number of smallholder farmers standing to benefit from NDC finance and activities. This should include renewed investment in the broader development of rural areas, to make the agricultural economy attractive to work and prosper in for future generations.

National policy:

WBCSD members seek to work together with government to help:

- Provide better legal recognition and protection of local and customary land rights, including improving land registries and records. This will help give smallholder farmers the confidence to invest in CSA on their farms over the medium to long term.
- Prioritize national investments to improve access to mobile phone services for farmers, as well as access to good weather station data. This will facilitate the ability of farmers to access mobile information, finance and insurance solutions (see policy recommendations under Action Area 2 for more detail on recommendations related to mobile finance).
- Provide a supportive enabling environment for farmers to adopt climate smart practices, including appropriate cash and non-cash subsidies where necessary and consistent with other national and international obligations, effective extension support, partnering with the private sector wherever beneficial.
- Encourage investments in infrastructure and training for agriculture extension support, science and research.



6.3 Action Area 2: Scaling-up investment in CSA

International policy:

- Public and private climate finance investment in land use is \$6.8 billion a year, not nearly enough for investment to reach collective NDC targets.
- We collectively need to more strongly recognize the role of farmers in mitigating and adapting to climate change and to take urgent action to improve the policy environment and international mechanisms to support farmer financing.
- We encourage existing or new donor and climate finance mechanisms to enable and actively encourage the formation of public-private partnerships for the implementation of climate smart agriculture.

National policy:

WBCSD members seek to work together with government to help:

- Prioritize infrastructure investments to improve access to finance for smallholders. This should focus on the coverage of mobile phone masts (for mobile banking) and the physical infrastructure for the delivery of rural financial services (both public and private).
- Actively encourage financial institutions to lend to organizations representing farmers, and disaggregate rural interest rates so that risks and returns are more closely specified for different crops, providing risk share or subsidizing premiums and supporting banks to train their bank officers to better understand the agricultural economy³³.
- Provide better legal recognition and protection of local and customary land rights, to enable them to be better recognized and accounted for by financial institutions in their lending policies. Work to amend land tenure laws to include explicit guarantees for women to own land in their own right, for women and men to have equal rights to inherit land and for joint-titling³⁴.
- Support crop insurance programs that encourage investment in agricultural technologies that improve yields and resiliency, reduce post-harvest losses and/or reduce net GHG emissions.
- Work with the relevant government agencies to improve the legislative environment for farmer insurance mechanisms. They should also be receptive to linking formally with insurance providers to scale-up insurance provision into a sustainable large-scale system³⁵.



6.4 Action Area 3: Improving businesses' ability to trace, measure and monitor CSA progress

International policy:

- We should actively share monitoring tools and accounting approaches for the land use sector as they are developed by both governments, non-governmental organizations and businesses. This can be achieved via the Global Alliance for Climate Smart Agriculture Knowledge Action Group for example and via tools developed by Global Forest Watch³⁶.
- These mechanisms should also focus on supporting national-level monitoring level capacity in both government and academic institutions, building on early successes in this area (e.g. UN-REDD country MRV capacity building programs).
- International policy and research initiatives tracing and locating areas of high deforestation should engage WBCSD member companies in helping to verify their data in the field and further expanding these data-sets.
- The public and private sector should support the development of agricultural open data initiatives such as the Global Open data for Agriculture & Nutrition initiative.

National policy:

WBCSD members seek to work together with government to help:

- Focus on building open and accessible national farmer databases, including spatial information on farmer locations and agricultural production types.
- Maintain and build capacity within national government agencies to implement monitoring and measurement of indicators relevant to the three CSA pillars, and to share this information and collaborate with the private sector to strengthen these systems.
- Invest further in building the skills base of academic institutions and government staff on monitoring and measuring indicators related to CSA at a national and sub-national level.
- Enact steps to track and monitor food loss and waste at a national level and resulting emissions.



6.5 Action Area 4: Implementing agriculture- driven zero deforestation commitments

International policy:

- Parties and organizations involved in the further development and implementation of REDD+ policies and incentives or REDD+ programs should actively engage businesses operating in or sourcing from the region, wherever relevant.
- International financing mechanisms and donor funds for REDD+ and Sustainable Landscapes approaches should further consider how to make these mechanisms as simple as possible to engage with for the private sector to scale up 'produce-protect' approaches.
- REDD+ donors should continue and expand their support for REDD+ country level readiness, as there is still much needed in this area, particularly on land governance and forest and land-use registries and monitoring systems.
- Certification bodies should continue the push towards more stringent and better enforced standards, particularly on the conversion of secondary and non-HCV forest.

National policy:

WBCSD members seek to work together with government to help:

- REDD+ agencies and relevant ministries increase their level of engagement with the private sector to better identify opportunities to collaborate in implementing national and sub-national REDD+ plans and strategies.
- National and Sub-National Government bodies to promote public-partnerships to reduce deforestation and promote sustainable land management in priority provinces/states. These same bodies should seek to promote landscape level management planning approaches, and pro-actively engage with the private sector in this process.
- National Governments review the regulatory and fiscal policy incentives for business to reduce and eliminate deforestation and degradation, and remove perverse incentives which increase deforestation and land-use change pressure.
- National Governments remove penalties or punitive action for companies putting in place reasonable conservation and restoration in place in government land concessions.

7 Measurement of overall progress to date (Action Area 3)



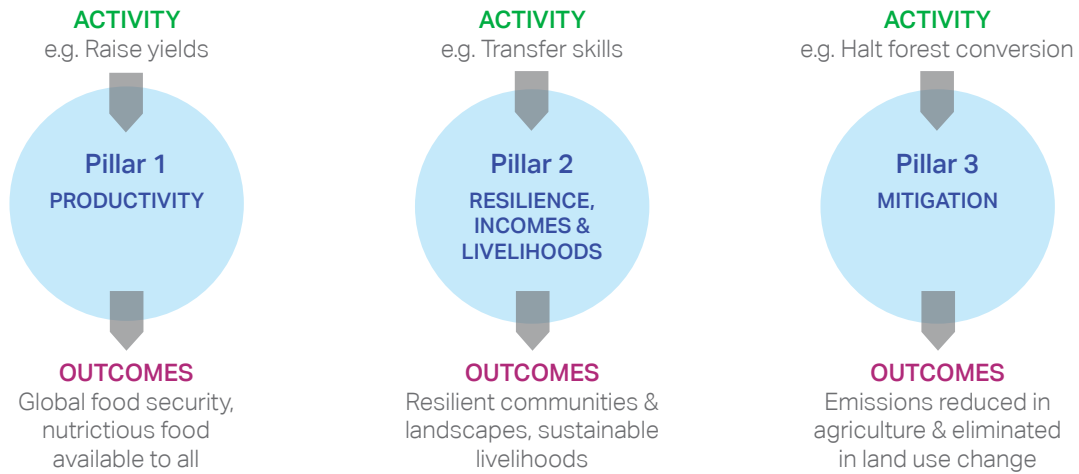
Action Area 3 of the WBCSD CSA Action Plan focuses on improving businesses' ability to trace, measure and monitor CSA progress, to enable member companies and partners to meet the 2030 Statement of Ambition on CSA, and to demonstrate progress and achievement in a rigorous and transparent manner. Since the action plan was announced in December 2015, the CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS) has led work in this Action Area, and has developed a simple framework with recommended indicators to enable CSA measurement at the company level, a framework for measuring progress towards the 2030 Statement of Ambition, and took stock of what historical progress has been under each of the three pillars between 2010-2015. The outcomes of this report will be used to guide both collective WG and individual company actions up to 2020 and beyond to 2030.

The below is a summary of the full report, Vermeulen, S and Snorre, FN. 'Measuring Progress Towards the WBCSD Statement of Ambition on Climate smart Agriculture: Improving Businesses Ability to Trace, Measure and Monitor CSA' available at <https://cgspace.cgiar.org/handle/10568/80652>

7.1 Framework for tracking progress towards CSA outcomes

The framework includes indicators pertaining to (a) outcomes identified in the statement of ambition and (b) activities to achieve those outcomes (Figure 1). For example, if the intended outcome is to strengthen climate resilience of agricultural landscapes and farming communities, stated activities to achieve this outcome include adopting agroecological approaches, investing in rural communities, and building long-term empowering relationships between farmers and industry. For each pillar, the outcomes and the activities are linked by an implicit theory of change – a hypothesis, or best bet, that the activities will deliver the outcomes.

Figure 1: How activities lead to outcomes in the implicit theory of change for each CSA pillar



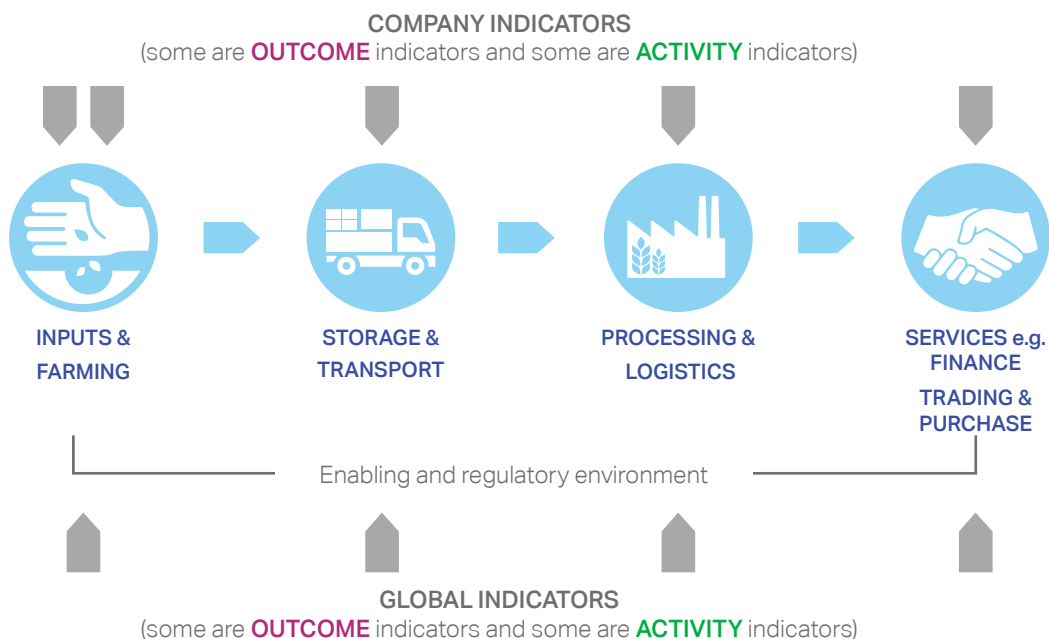
The framework has applicability both at the company level, and at the global level, to assess collective progress towards the statement of ambition. To assess collective progress, company level measurement and monitoring efforts (bottom up indicators) should be combined with external sources (top down indicators) such as SDG indicators, World Bank, IFAD and FAO sources, thus creating a picture of progress towards global goals. Figure 2 shows how bottom up and top down indicators can be combined to get a fuller picture of CSA progress at the global level.


(CSR) reports and sustainability reports, as well as through external initiatives such as the Global Reporting Initiative (GRI) and Carbon Disclosure Project (CDP). Our efforts were limited by the varied approaches to measurement adopted by companies, including in indicators used, and how these indicators are measured (i.e. absolute vs. relative progress), and the availability of historical data. In addition, we have made some approximate assumptions on the companies' share of global progress towards the WBCSD CSA Statement of Ambition, based on each company's share of their respective sub-sectors in 2016. Whilst this approach does have limitations in terms of accuracy of values of different food items, it provides some indication of volume in a given year.

Progress towards the CSA statement of ambition

Using the framework represented in Figure 2, we collected global data such as those from the World Bank, IFAD and FAO, company level data, collected from annual reports, corporate social responsibility

Figure 2: Combining company and external global indicators for a fuller picture of CSA progress





Pillar 1
Productivity
ambition

The ambition here is to increase global food security by making 50% more nutritional food available through increased production on existing land, protecting ecosystem services and biodiversity, bringing degraded land back into productive use and reducing food loss from field to shelf. Figure 3 shows that trends in global yield and production quantities from 2010-2014 indicate that we are on track to produce enough food to meet the demand for 50% more food by 2030, although no direct evidence is available on whether this food will be equally or more nutritious.

Although some companies report improvements in yields, more efficient farming, more sustainably sourced their raw materials, and reductions their total waste to landfill (see Figure 4), we need more holistic data on the inputs, throughputs and outputs of the food supply chain to properly assess the companies' CSA progress and the sustainability of the increased food production evidenced from 2010 to 2014.

Table 1: Summary of company data for Pillar 1

| Component of WBCSD pillar 1 | Indicator categories use by companies | Data available from WBCSD members | Data from WBCSD members that would improve the analysis |
|---|---|---|---|
| 1.1 Improve the supply of nutritious food | Production | Several companies report yields, but no absolute measures (e.g. tonnes per hectare) and only using own baselines for relative measurements (e.g. percentage improvement compared to 2014) | <ul style="list-style-type: none"> Yield data in numbers (e.g. total tonnes, calories, protein etc.) not percentages |
| 1.2 Sustainably improve production on existing land | Productivity i.e. agricultural input efficiency | One company tracks amounts of various agricultural inputs per tonne of marketable crop yield for 2014-2015. | <ul style="list-style-type: none"> Data focused on important or high-risk crops (e.g. corn, soy, palm) Absolute yield gains (e.g. per hectare) Percentage increases against a shared baseline year More companies reporting |
| 1.2 Protecting ecosystem services and biodiversity, and bringing degraded land back into productive use | Sustainable sourcing/certification | Four companies report on the percentage of specific raw materials that are sustainably sourced or certified in 2015. One company for 2010. | <ul style="list-style-type: none"> Aggregate data Data focused on important or high-risk crops (e.g. corn, soy, palm) Linking sourcing to outcomes |
| 1.3 Reduce food loss from field to shelf | Reduction in waste | Just over 50% of companies report on tonnes of waste sent to landfill 2015. 40% of companies report for 2010. | <ul style="list-style-type: none"> Data on food waste specifically |

Figure 3: Projected production of major food groups between 2010 and 2030: WBCSD target versus current trajectory

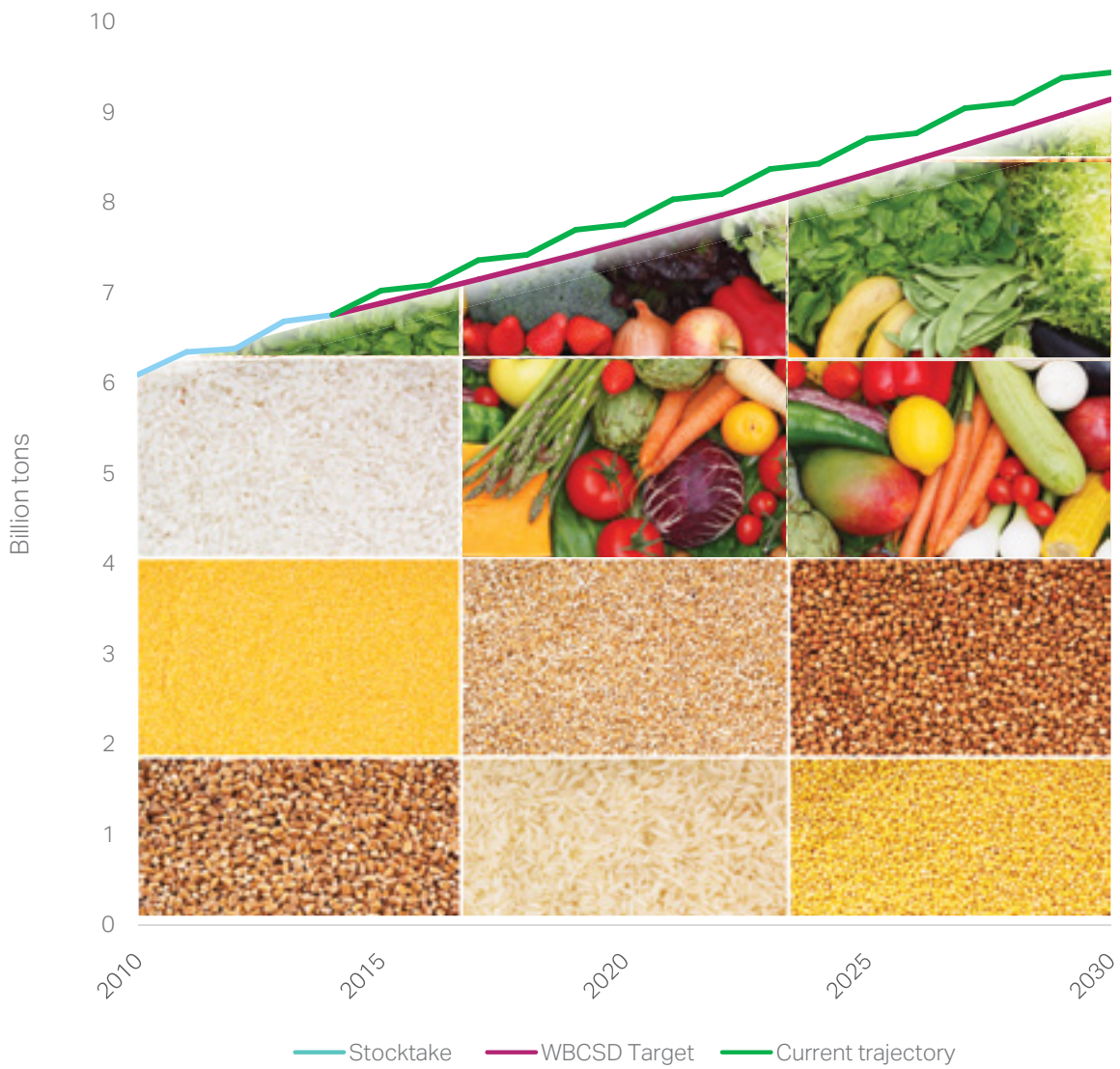
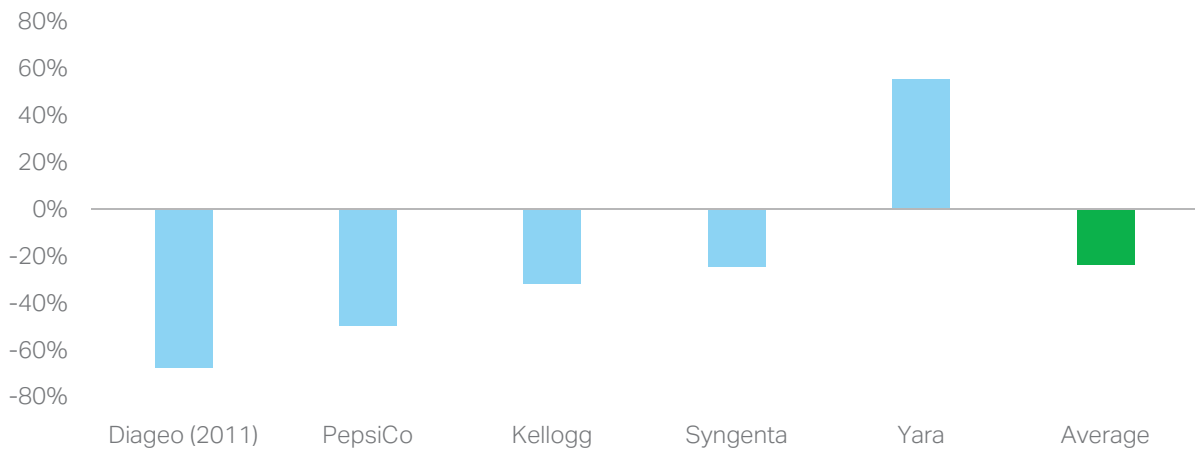


Figure 4: Company reporting on percentage change in waste to landfill, 2010-15





Pillar 2
**Climate change
resilience, incomes
& livelihoods
ambition**

The ambition is to strengthen the climate resilience of agricultural landscapes and farming communities to successfully adapt to climate change through agroecological approaches appropriate for all scales of farming (see Appendix 2 for information on the principles of agroecology adopted in the WBCSD CSA WG). It also includes investing in rural communities to deliver improved and sustainable livelihoods necessary for the future of farmers, bringing prosperity through

long-term relationships based on fairness, trust, women's empowerment and the transfer of skills and knowledge.

There are no quantitative CSA targets for this pillar, nor relevant global data that match the indicators that companies use for resilience. In addition, few companies report on resilience indicators, let alone in both 2010 and 2015. Thus, it is impossible to make a general statement on progress from 2010 to 2015, or make projections towards 2030. As Figure 5 shows, total water use, the most widely reported indicator, grew on average from 2010-2015. However, this indicator does not sufficiently operationalize agroecological practices, limiting our ability to link it to the overarching statement. For WBCSD members to demonstrate their collective progress towards the CSA pillar on resilience globally, more companies will need to provide quantitative information on indicators that cover both activities (e.g. training, on-farm agroecological practices) and outcomes (e.g. incomes, women's share of assets and decisions).

Table 2: Summary of company data for Pillar 2

| Component of WBCSD pillar 2 | Indicator categories use by companies | Data available from WBCSD members | Data from WBCSD members that would improve the analysis |
|---|---------------------------------------|---|--|
| 2.2 Improve rural incomes and livelihoods | Livelihoods improved | Three companies provide a headcount of livelihood improvements in 2015, and one in 2010 | <ul style="list-style-type: none"> Common units for measuring livelihood improvements More comprehensive data on e.g. income or assets |
| 2.1 implement agro-ecological approaches | Total water use | Most companies report total water use (m3) for both 2010 and 2015. | <ul style="list-style-type: none"> Reporting of e.g. hectares covered by agroecological practices |
| 2.3 Maintain long-term fair relationships with smallholder supplies | Farmer loans | One company measures total value of loans (USD) for 2010 and 2015. | <ul style="list-style-type: none"> More companies reporting |
| 2.3 Maintain long-term fair relationships with smallholder supplies | Fair labour agreements | One company tracks the percentage of farmers who have entered a fair labour agreement. | <ul style="list-style-type: none"> More companies reporting |
| 2.4 Empower women in smallholder farmer communities | Female farmers trained | Three companies report, with only one company providing 2015 data for number of female farmers trained. | <ul style="list-style-type: none"> Data relating to empowerment outcomes for female farmers, e.g. income, assets, etc. |
| 2.5 Transfer skills and knowledge to smallholder farmers | Farmer training | Three companies report number of farmers trained (not women or smallholders specifically) in 2010 and 2015. | <ul style="list-style-type: none"> More companies reporting Clearer distinction between farmers and smallholders |
| 2.5 Transfer skills and knowledge to smallholder farmers | Youth engagement | Two companies report for 2015, one for both 2010 and 2015. | <ul style="list-style-type: none"> More companies reporting |
| 2.5 Transfer skills and knowledge to smallholder farmers | Smallholders trained | Three companies report number of smallholders trained in 2015, one of these in 2010. | <ul style="list-style-type: none"> More companies reporting Clearer distinction between farmers/ smallholders |

Figure 5: Company reporting on percentage changes in water use, 2010-15

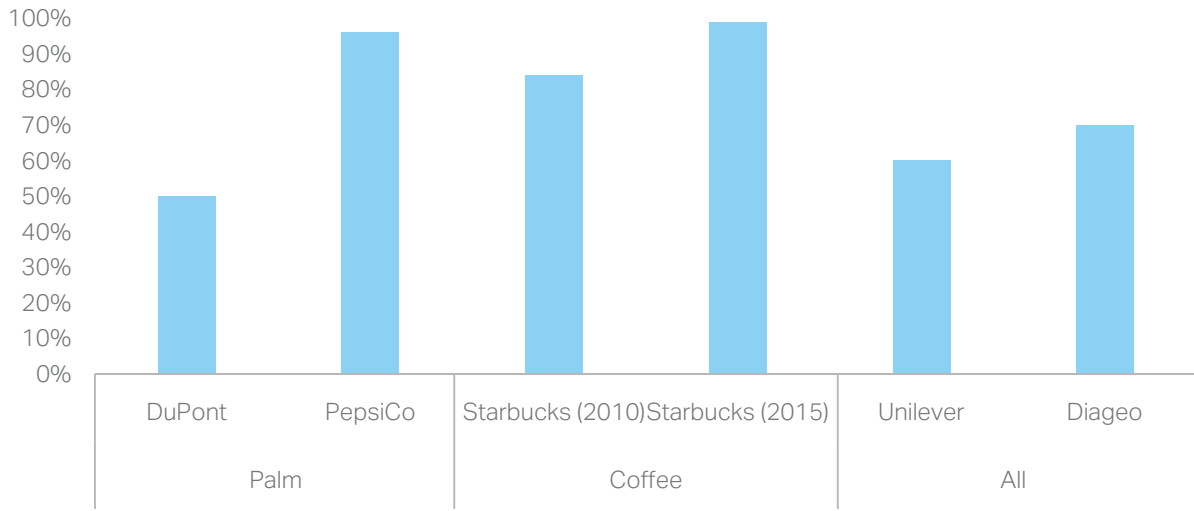
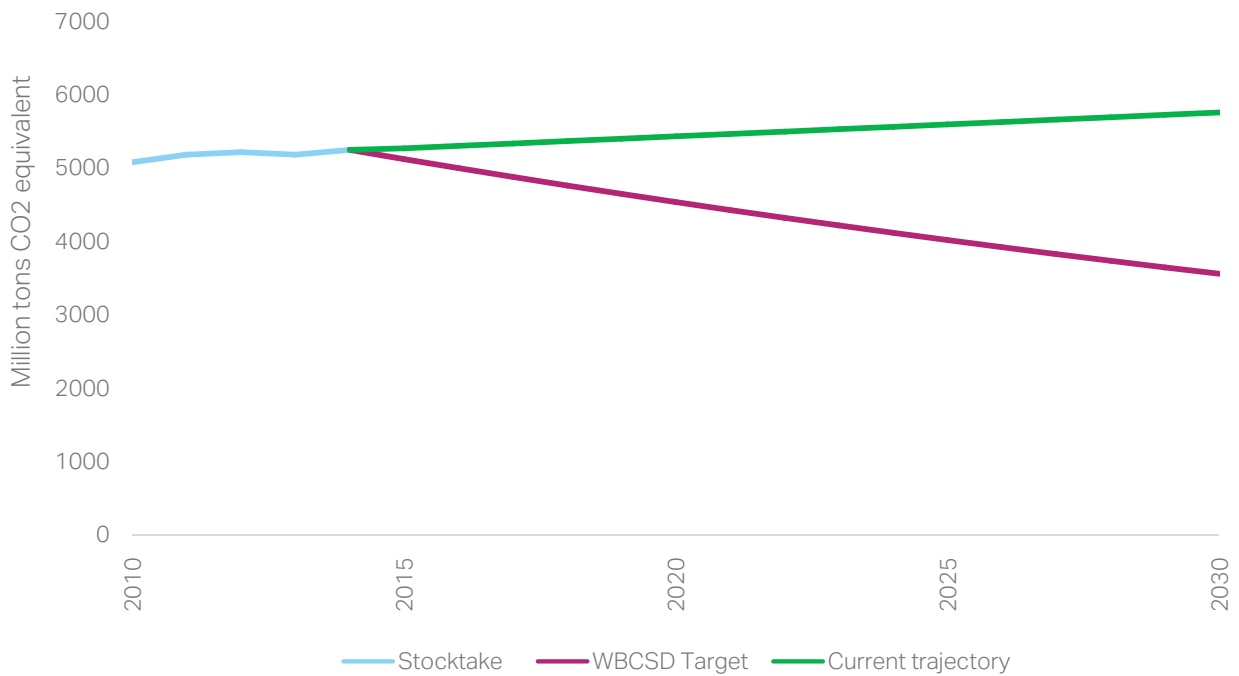


Figure 6: Projected total agricultural emissions between 2010 and 2030: WBCSD target



Pillar 3
Climate change mitigation ambition

The ambition is to reduce GHG emissions by at least 30% of annual agricultural CO₂ equivalent emissions against 2010 levels (aligned with a global 1.6 GtCO₂ equivalent year reduction by 2030). This recognizes the strong positive role played by farming communities to date in reducing GHG emissions and the potential carbon sequestration role of farmland as described in the supply side mitigation options and potential for the agricultural sector in the IPCC’s AR5 report. Not all these reductions will be at the farm level - a substantial portion of these reductions will also be achieved through reducing food waste up to the point of sale to the end consumer, in line with WBCSD’s Action 2020 to halve food waste. Member companies will also play a role to eliminate GHG emissions from land-use change to commercial agriculture through working to halt conversion of HCV or HCF forest and all grasslands, wetlands and peatlands by the sector (equivalent of a 2.1 GtCO₂ equivalent reduction per year). Member companies will also work with existing work streams

to decrease agricultural-related deforestation already underway such as the Consumer Goods Forum, and through the Declaration on Forests and the Tropical Forests Alliance. In addition, member companies aligned themselves with the climate mitigation objectives of the WBCSD Land Degradation Neutrality initiative, which states that restoring the 12 million hectares that are degraded every year could secure the sequestration of 20% of global CO₂ emissions, and the WBCSD Forests Solutions Group to achieve the restoration of 30% global forest cover (1990 levels) by 2050, with 45 Gt CO₂ equivalent stored by 2030.

As Table 3 shows, between 2010 and 2015, global direct agricultural emissions and company Scope 1 & 2 emissions increased, 3.3% and 9% respectively. Figure 6 shows that if direct agricultural emissions continue along the same trend they exhibited from 2010-2014, the 2030 goal of 30% emissions reductions compared to 2010 will not be met. Nevertheless, companies generally reduced the intensity of their own operations, showing that some progress is being made to reach the target. However, reporting on Scope 3 emissions is not currently pervasive enough to report on company progress tied specifically to agricultural emissions. In addition, harmonized indicators and further reporting would be necessary to track company progress on emissions linked to post-production activities such as packaging, transport and refrigeration. Deforestation, a major source of global emissions associated with agriculture, will also contribute to Scope 3 emissions for some companies.

Table 2: Summary of company data for Pillar 2

| | |
|--|---------------|
| Global agricultural emissions 2010 (tons CO ₂ equivalent) | 5,077,484,950 |
| Global agricultural emissions 2014 (tons CO ₂ equivalent) | 5,245,823,200 |
| Percent change in emissions, 2010-2014 | 3.3% |
| Company share of global agricultural emissions, 2015 | 1.2% |
| Needed annual reduction in emissions to reach goal | 2.4% |



Figure 7: Company reporting on percentage change in Scope 1+2 emissions, 2010-15

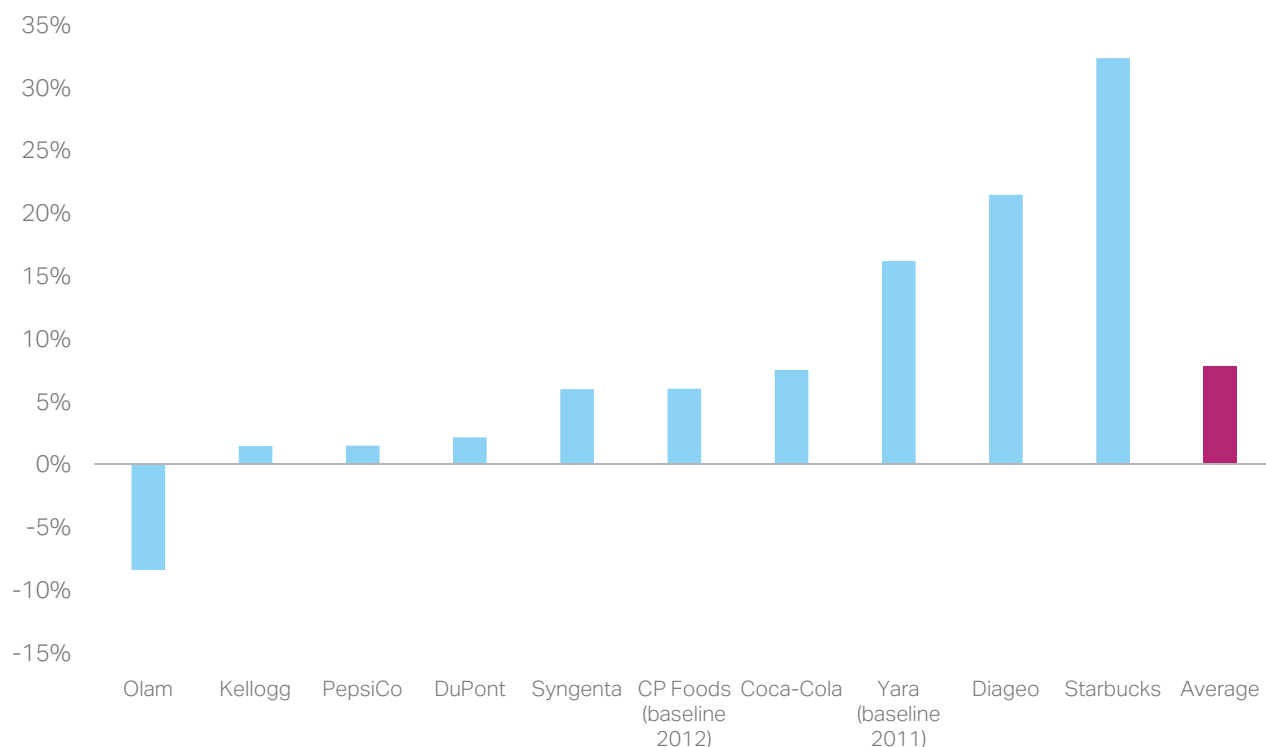


Table 4: Summary of company data for Pillar 3

| Component of WBCSD pillar 3 | Indicator categories use by companies | Data available from WBCSD members | Data from WBCSD members that would improve the analysis |
|---|--|---|---|
| 3.1 Direct agricultural emissions | Scope 3 emissions | Almost half of the companies report Scope 3 emissions for 2015, but only three companies report in 2010. One company reports Scope 3 emissions in both periods. | <ul style="list-style-type: none"> More transparent and complete scope 3 reporting, i.e. some companies only consider a limited number of factors (e.g. corporate travel). |
| 3.2 Food supply chain emissions | Scope 1 & 2 emissions | Except for one company, all companies report Scope 1 & 2 emissions for 2015. Three companies do not have Scope 1+2 emissions available for 2010, or 2012. | <ul style="list-style-type: none"> Data from all companies, in 2010 and 2015. |
| 3.2 Food supply chain emissions | Emissions intensity | Calculated based on Scope 1+2 emissions divided sales in USD. | <ul style="list-style-type: none"> The emissions intensity measure used here does not take into account margins. Alternatively, could use e.g. emissions per ton of food produced. |
| 3.2 Food supply chain emissions | Resource-efficient packaging | Two companies report for 2015. | <ul style="list-style-type: none"> Harmonization of metrics. For example, either percent improvement in efficiency compared to a common baseline or total weight of packing or packaging reductions. |
| 3.3 Deforestation and other land use change | Sustainable sourcing/certification of forestry-based goods | Two companies report for 2015. | <ul style="list-style-type: none"> Harmonization of metrics, e.g. percent covered by FSC. Alternatively, tons of C (or CO₂ equivalent) avoided or sequestered. |

7.2 Ways forward

Building CSA metrics into regular practice: This stocktake has identified a number of indicators which companies can integrate into regular monitoring and evaluation protocols, thus enabling more rigorous measurement of progress towards the set ambitions.

Prioritize CSA investments: Several tools now exist to help farming operations and rural development projects to weigh up options for CSA investment, considering performance of investments across CSA pillars, to compare the scope and CSA intentionality among different project designs, and to select CSA indicators. Using such tools to prioritize CSA investments will enable rapid scaling up of CSA efforts.

Shared measurement across value chains: The WBCSD CSA road-test countries and regions provide an innovative opportunity to implement CSA across whole value chains and landscapes – and to test and measure how scale effects and trade-offs can be managed in the real world. If relevant companies are ready, willing and able to invest in shared monitoring and evaluation, this is also an innovative opportunity to improve businesses' ability to trace, measure, monitor and communicate progress on CSA.

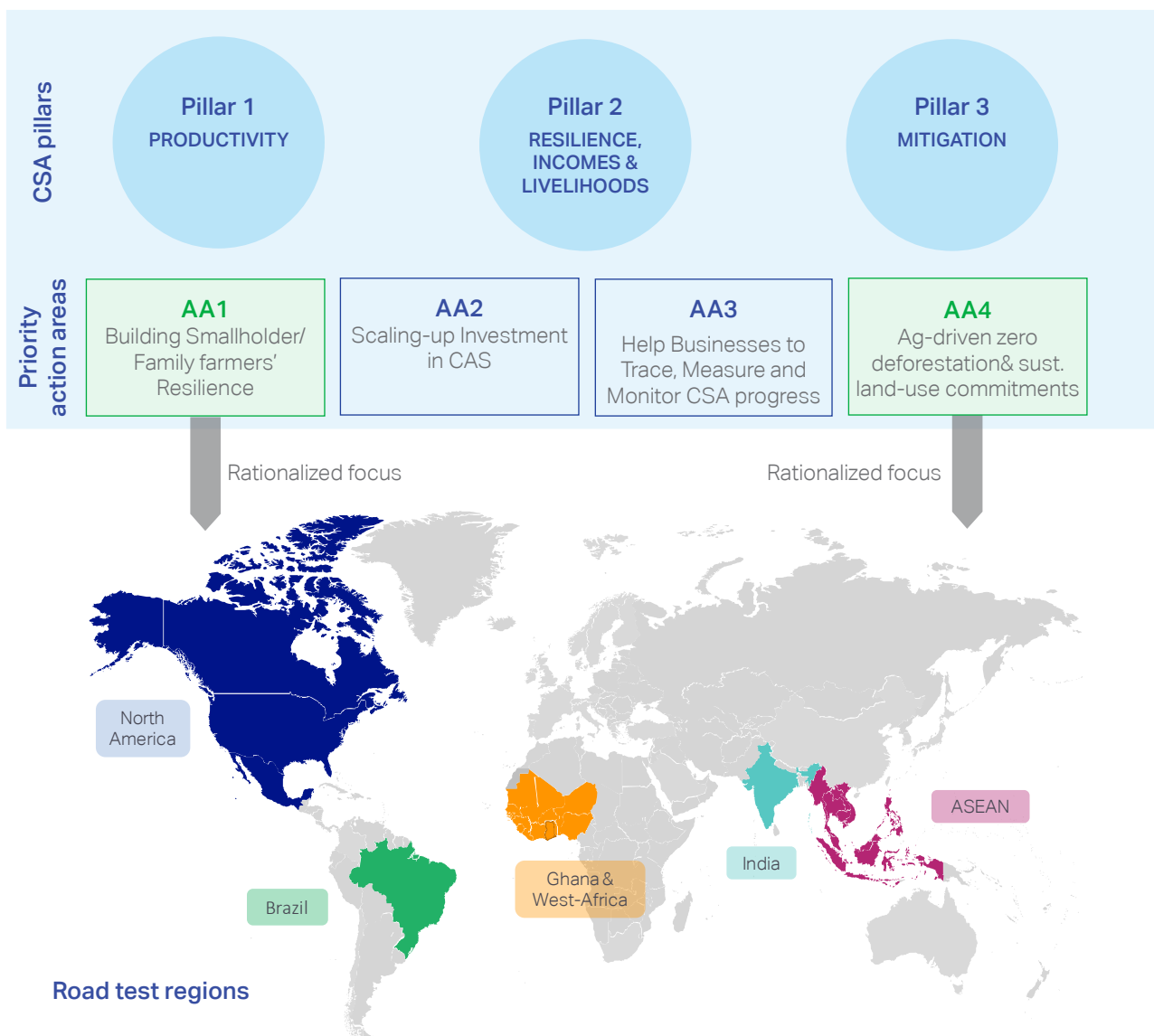
Transparency: Our assessment focused on publicly available data reported by companies, however additional indicators and data may exist with companies, which are not in the public domain. WBCSD can play a facilitating role to collect confidential company level data to enable more rigorous industry wide tracking of progress.

Build capacity: Measurement of some CSA related indicators (e.g. resilience) might be new to companies, and considerable capacity building efforts might be needed to put these concepts into practice. WBCSD can, through its global and regional efforts facilitate capacity building activities to enhance companies' capacity.



8 Road-test region country progress (Action Areas 1 and 4)





Summary of progress so far

To maximize impacts on CSA, it is important to collaborate at regional levels where CSA practices, technologies and financial support can be piloted and potentially scaled up with those partners and farming communities who need it most. For this reason, a planning exercise was undertaken in 2016 to establish areas where focused activities in CSA Action Area 1 (Building Smallholder Resilience) and Action Area 4 (Agriculture-driven Zero Deforestation and Sustainable Land-use) could be tested at local levels with the aim of achieving wider scale up.

Out of this exercise, five 'road test' regions were selected: ASEAN (Association of SE Asian Nations), Brazil, Ghana and West Africa, India and North America. The reporting period for the Road-test regions within the Action 2020 CSA program began in January 2016, and data was collected for this report up to mid-2017. Over this 18 month period, there were two main output areas as part of the Action 2020 CSA regional work:

- ID of road-test regions and development of high level plans [Completed]: Consultation with a wide range of stakeholders enabled the selection of five road test regions which met the following criteria: (1) They were instrumental to meeting relevant SDGs, particularly SDG2 on food security and sustainable production, (2) They had differentiated coverage between developing, middle income and developed countries, across which many global food value chains and businesses operate (and face different sets of needs and challenges), (3) They had existing presence and ongoing potential for collaboration between CSA program partners, and (4) They had good potential for impact in piloting and scaling up CSA actions.
- Detailed regional program plans and implementation [In progress]: For each identified region, individual development plans are in progress, with the following objectives: (1) Identify, coordinate, align and mobilize members and partners, (2) Secure funding, (3) Develop detailed plans, (4) Initiate implementation. Specific progress, actions and case studies for each region are provided in the sections below.



8.1 India

Key CSA issues identified

India faces high water stress and is characterized by having one of the most fragile water resources in the world³⁷. The food security challenge in India is massive – the country is home to 25% of the world's hungry and 40% of the world's malnourished women and children. Agriculture consumes nearly 90% of the available water in the country and therefore holds the key to unlocking sound water management.

Agriculture is the third largest emitter (17%) of Greenhouse Gases in India- most of this coming from livestock rearing, fertilizer production and consumption³⁸. A deep dive into the agriculture sector in India reveals an interconnected set of issues related to resource (land and water) constraints, inappropriate use of chemical fertilizers and pesticides, smallholder landholdings, low farmer-incomes and a lack of inefficient storage and processing facilities.

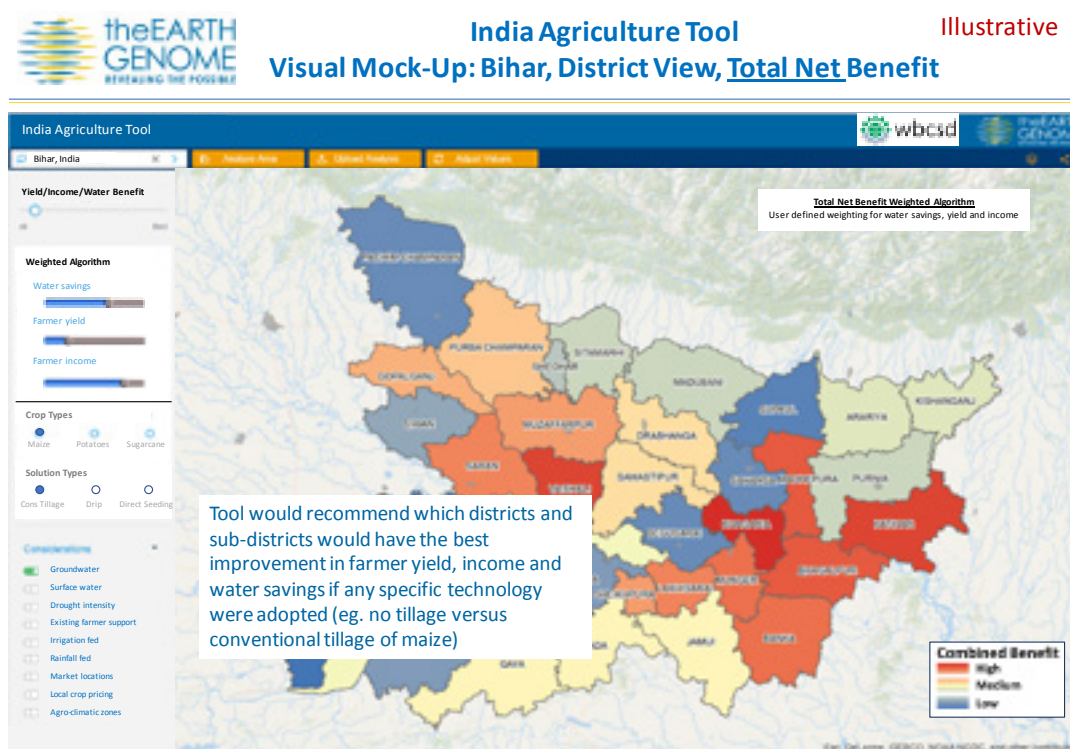
Through its flagship initiatives of "Per Drop More Crop" and "Water to Every farm", the Indian government at the Central level is targeting its efforts and resources to ensuring the availability of water to all farms, and improving water use efficiency in agriculture. It is understood that water scarcity poses a significant risk to businesses operating in the agriculture value chain, and therefore, "de-risking" agriculture brings value to businesses. Several businesses also see an opportunity in offering products, services and innovation that help improve water efficiency in agriculture and create sustainable livelihoods for farmers.

The planning process to address these issues and implement solutions

The India road-test process is led by a Working Group of 10-member companies of WBCSD in India: Ambuja Cements (Lafarge Holcim), ITC, Jain Irrigation, Monsanto, Olam, PepsiCo, PwC, UPL, Yara and Yes Bank.

The Working Group first met in March 2016, and began by identifying a set of existing business solutions in Agriculture that have the potential of scaling-up to create impact. The businesses in India have been implementing these in various geographies within the country, and in different local contexts. The impact of each business solution on crop yields, farmer incomes, and Water use efficiency was studied and documented into a report called "Co-optimizing Solution in Water and Agriculture – Lessons from India for Water Security"³⁹.

Figure 8: Mock output of the India Agriculture Tool



Additionally, WBCSD India has been collaborating with The Earth Genome and Arizona State University on the development of an India Agriculture Tool to help companies:

- Find areas in the watersheds they are sourcing from where drip and zero till approaches may be most applicable based on high-level screening;
- Estimate the potential scale at which these could be adopted; and
- Calculate potential yield increases and farmer income benefits.

A mock output from this work is provided in Figure 8, which shows how it could be used to identify districts and sub-districts where the benefits may be greatest from the adoption of specific technologies.

The implementation solutions that have been studied and documented by the Working Group are:

- Smart Crop Varieties: new crop varieties with beneficial properties such as high yields, insect resistance, and herbicide tolerance
- Tissue Culture and Grafting: multiplying superior plant cells/parts through artificial means
- Specialized Fertigation Products: products developed for targeted improvements in yields etc. of specific crops
- Integrated Pest Management: the practice of a range of options including cultural, biological mechanical etc. for prevention and control of pests
- Mixed Farming Systems: diversification of crops in time or space, with the aim of improving soil fertility and water use efficiency
- Agro-forestry: the practice of growing trees together with crop production systems
- Integrated Watershed Management: watershed based assessment and implementation of farming and other interventions suited to the context
- Drip irrigation: an engineered system of pipes and valves that allows water to drip directly into the root zone of crops, achieving phenomenal improvement in water use efficiency
- Direct Seeding in Rice: an efficient alternative to transplantation of rice seedlings in standing water, often achieving significant water savings and reduction in greenhouse gas emissions
- Conservation Agriculture: efficient agronomy practices implemented as a set – including drop irrigation, furrow irrigation, trash mulching, land levelling etc.
- Specialized Superabsorbent products: specialized products that help improve the field capacity of soil, and improve uptake of moisture and nutrients
- Solar pumps: use of solar technology to pump, lift and supply water to crops through pipes/drip
- Sustainable Crop Intensification Systems: a set of identified practices for cultivation of specific crops to achieve maximum efficiency in input use and best achievable yields in the crop
- Post-harvest storage solutions: the use of specialized chemical solution to prevent spoilage of produce in storage, and avoiding product losses
- Improving market linkages: integrating farmers to product supply chains thus reducing post-harvest losses in agricultural produce

Four key enablers were identified for the scale-up of the identified solutions: availability of funds, government engagement, trainings and on-site support, and partnerships. Training and on-site support has been identified as critical to the success of the majority of solutions. The Working Group on Water-smart Agriculture arrived at a two-way approach of action and advocacy as their strategy to scale-up the identified business solutions. There is consensus in initiating partnerships as a means to replicate the identified solutions on the ground, and to initiate advocacy efforts to develop a supportive government policy and regulatory environment for these solutions.

Actions taken to date to implement the plan

In 2017, several business-to-business partnerships have been initiated as the first step to exploring the potential that lies within the Group for jointly furthering the implementation of these solutions. Olam have partnered with UPL to undertake a trial of UPLs "Zeba" on a 40ha sugarcane plot. On similar lines, Ambuja Cement Foundation are implementing "Zeba" on multiple crops at multiple locations (in Rajasthan, Punjab and Maharashtra). UPL has been providing agronomy support in implementation in the two cases. Furthermore, Ambuja Cement Foundation and Jain Irrigation are working to sign a corporate level agreement to ensure total provision of solutions offered by Jain Irrigation in the outreach programs of Ambuja Cement Foundation. ITC, in partnership with CCAFS is promoting climate smart technologies and building farmers' capacity in 2000 villages in 6 states of India, and scaling up the Climate smart Village model.

The Working Group on Water-smart Agriculture concluded a learning-visit to the Jain Irrigation headquarters in Jalgaon, Maharashtra, and identified clear opportunities to collaborate on specific projects/engagements for joint working in the area of water-smart agriculture.

Additionally, WBCSD is working towards a partnership with the International Water Management Institute (IWMI). The partnership is expected to lead to focused interventions for a scale-up of the identified solutions by WBCSD member companies, based on science-based targets and knowledge support provided by IWMI. A selection of projects are currently under discussion with WBCSD member companies. Finally, other partnerships are also being explored, notably with the Alliance for Water Stewardship and 2030 Water Resources Group. These are aimed at scale-up of business solutions to achieve impact at a regional/state level.

Target outcomes

Targeted outcomes for this region are based on the potential for scale-up of two projects, namely: (1) UPL and Olam on piloting Zeba in Madhya Pradesh for sugarcane for 40,000 farmers, and (2) Ambuja/UPL on piloting Zeba in 3 Indian states with 100,000 farmers). As such, it is currently targeted that these initiatives will reach at least 140,000 farmers by 2020.

Case study: Ambuja Cement and UPL Limited's 'Zeba' collaboration

Partnerships have been identified by WBCSD members of the Water-smart Agriculture Working Group as a key enabler to the scale-up of business solutions identified in India. Sound and supportive government policies, finance, and capacity-building of farmers are the other enablers to scale-up.

There is also an understanding that partnerships between members within the group can go a long way in expanding the outreach and achieving significant on-ground impact. With this background, Ambuja Cement and UPL Limited have collaborated and began work on using UPLs innovation "Zeba" in Ambuja's outreach with farmers in three Indian states of Gujarat, Rajasthan and Punjab.

Ambuja Cement is a Lafarge-Holcim Group company in India which has identified water-efficiency in agriculture as an important contributing factor to the water security and sustainability of their own operations. Ambuja Cement Foundation works with over 100,000 farmers in 9 Indian states, with an aim of improving water use efficiency and building farmer capacities to achieve efficiency in Agriculture.

UPL on the other hand are a leading agriculture solution providing company manufacturing a wide portfolio of products in both pre- and post-harvest categories. Their innovation called "Zeba" is a starch-based, environmentally-friendly, super-absorbent chemical that improves the field capacity of soils when applied in sub-surface applications mixed with fertilizers. "Zeba" is being demonstrated on several crops at several locations in India yielding significant results on crop yields and quality of produce. Trials on "Zeba" have demonstrated up to 75% reduction in water-use efficiency by way of reduction in irrigation requirement of crops.

UPL Limited and Ambuja Cement Foundation worked together to identify crop/location combinations on which they intended to pilot the application of "Zeba". The pilot projects took off in three states on the following crops:

1. Cotton and Green Gram (Mung Beans) in Rajasthan
2. Cotton in Punjab
3. Cotton and Groundnuts in Gujarat

While UPL staff provide agronomy support on the project, the outreach team at Ambuja Cement ensures the impacts of the implementation of Zeba are tracked on three key indicators – water-use efficiency improvement, crop yield improvement and farmer income improvement.





8.2 West Africa

Key CSA issues identified (Adapted from Botchway, et al. 'Vulnerability of West Africa Agriculture and Food Systems to Climate Change: The Need for Action through Climate smart Agriculture' Presentation at WBCSD/Olam meeting in Ghana, 8 October 2015.)

West Africa is a highly diverse region in terms of agro-climatic conditions and production potential, though large portions of West Africa's land is desert or arid Sahel, with encroaching desertification a key challenge. Those countries that do have high forest cover are experiencing substantial challenges with deforestation and forest degradation. The population in the West African region is 290 million and is expected to grow 100% between 2010 and 2050, and population growth combined with low increases in productivity could increase food insecurity in the region.

Climate Change is likely to lead to a decline in the length of the growing season for the majority of crops in West Africa, with an average reduction in the region of 5-20% in West Africa. There is a clear indication of changes in precipitation with either a reduction in the heavy-rainfall areas, particularly along the coast, or an average increased in areas of the Sahel hitherto devoid of much rain. Southern parts of Ghana, Togo, Benin and Nigeria are set to become dryer.

The frequency and strength of extreme events (such as floods, droughts, and storms) is likely to increase and is already having a significant impact on agriculture in the region. For example, in recent years in Ghana the amount of farmland destroyed due to extreme climate events has been 100,000 ha per year with 250,000 MT of food destroyed, contributing to cereal production deficits in the region of 100,000 MT in 2008.

The planning process to address these issues and implement solutions

Ghana was selected by WBCSD members as a priority country to collaborate in at the WBCSD Liaison Delegate Meeting in April 2016. There is no WBCSD or BCSD presence, so the decision was taken to road-test the Action Plan approach by collaborating with existing relevant initiatives in the country. Under the umbrella of the global CCAFS program the Climate Smart Value Chain Initiative is being implemented by the International Center for Tropical Agriculture (CIAT), the International Institute of Tropical Agriculture (IITA), the Rainforest Alliance, Root Capital and the Sustainable Food Lab. The initiative leverages existing smallholder

value chain interventions to translate climate science into actionable strategies for farmers and supporting actors, including agricultural businesses, voluntary certification schemes, and investors, across a number of geographies using smallholder coffee and cocoa systems in Africa and Latin America as model cases. This novel combination adds value to existing work with the goal of achieving adoption at scale for locally relevant CSA practices.

A cross-section of more than 50 people representing the Ghana cocoa sector came together on March 9th 2016 in Accra to review the advances of the Climate Smart Value Chain Initiative. This workshop built from a kick-off workshop held in May 2015, field visits and joint work combining soil mapping with climate change data in collaboration with the Cocoa Research Institute of Ghana and focused on providing information to value chain actors generated during the past year. During the meeting, a set of suggested 'learning sites' were proposed, with the goal of identifying partners interested in promoting CSA practices in specific zones. With interested partners, the project would provide access to specific climate change projections, key drivers of change and help identify CSA practices to test, conduct cost-benefit analysis and use to construct site specific resilient strategies.

Via the CCAFS relationship the WBCSD CSA Working Group has held early discussions on potential collaboration models. This has been formalized in the 'Ghana Collaboration Note'. A meeting was held in Accra on the 4th November 2016 to discuss this collaboration in greater depth between the country representatives of the partners.

The result of these discussions was an agreement to develop a proposal to improve the climate resilience of farmers and reduce forest degradation and deforestation in the cocoa belt of Ghana, and the 'transform' zone, where cocoa cultivation is unlikely to be feasible in the next 10-30 years. The main partner for this proposal is Rainforest Alliance.

Actions taken to date to implement the plan

Ghana has a poor coverage of weather stations which means that regional level forecasts are often misleading at the local level. This makes it difficult for farmers to adapt their practices to upcoming weather patterns. For example, applying pesticides shortly before a period of heavy rainfall can waste the pesticide when it gets washed off, and also cause negative environmental effects from run-off to surrounding water systems. This challenge exists for all farmers, and varies in severity depending on the commodity being grown.

For cocoa farmers, there are specific weather-related challenges associated with crops such as cocoa, though most farmers grow other annual crops as well which are particularly sensitive to weekly and monthly variations in weather patterns. In parts of the cocoa growing region of Ghana, which will face a climatic transition away from suitability for growing cocoa in the next 10-30 years, the importance of these alternative crops will increase.

In line with the WBCSD Action Plan, the improvement of weather forecasting for farmers would make a significant impact on their climate resiliency and strengthen the enabling environment for CSA in Ghana. The focus of this collaboration would be on the areas our member companies are sourcing from, but there would also be significant broader benefits at a national level from this.

WBCSD, with additional funding support from Kellogg are seeking to address these issues via a pilot project to install five weather stations which will serve as an information basis for innovations that help farmers to improve their yields/ practices and mitigate the effects of climate change. This initiative will investigate possible communication channels to research which kind of product or service is appropriate when delivering weather information such as forecasts. These weather stations will be installed in the sourcing districts of WBCSD member companies for trialing purposes. Each company takes their own approach to engaging with and providing information to their farmers, but the intention is that if the pilot proves successful this weather information can be integrated into these systems and scaled up.

This pilot project aims to reach 500 farmers, sending weather information via SMS. A conservative estimate of wider impact through direct contact with this group is x5 per farmer (i.e. an assumption of a family of five members benefiting from increased revenue from improved farm performance, thus $500 \times 5 = 2,500$). However, through education and explanation of the value of the information, each recipient of weather information can be encouraged to share it with x3 further adults/ 'heads of families' who would each have an average family size of x5. This means that the pilot project has the potential to reach $500 \times 3 \times 5 = 7,500$ individuals throughout not only the farming, but also the wider, community.

In addition, the delivery partner Kukua⁴⁰ would like to pilot its African Weather APP (currently under development with support from Microsoft and a grant received through Microsoft's Affordable Access Initiative) with extension workers, local staff of sponsoring companies etc. as a powerful tool for future dissemination of weather information to a growing number of smartphone users.

In addition to the many positive impacts of providing weather forecasts to farmers, the data collected by the weather stations will also be of great value. As the stations collect observations, a powerful data set will be generated which will enable all with an interest in climate change, and in the cocoa industry, to assess the realities of changing weather patterns across the region. Building a climate map for the areas covered by the weather stations could facilitate planning regarding crop suitability and required adaptation: critical for the sustainable future of commodity crops such as cocoa.

Target outcomes

As identified above the immediate beneficiaries of the pilot project should be 7,500 individuals. However, the intention is that the use of weather information services is then adopted within the supply chains of WBCSD member companies. For example, if this approach was adopted by all the farmers engaged in Olam's sustainable sourcing program in Ghana, this would result in 30,000 farmers using weather information services by 2020.





8.3 ASEAN

Identification of key CSA issues and solutions. (Information from WBCSD, (2017) Multi-stakeholder Collaboration: Inclusive Rice Landscapes.

Southeast Asian rice farmers are among the world's most vulnerable to the impacts of climate change with increased variability in surface water flows, the threat of rising sea levels and salt water inundation and the frequency of extreme weather events.

Traditional rice farming practices have relied on the regularity of seasonal rainfall and surface water flows, have lacked the support of extension services to increase yields and to meet environmental best practice and rely heavily on manual labor, frequently from an aging, predominantly female labor force. The GHG emissions from rice are the highest of any broad-acre crop per hectare or per ton of commodity produced.

Rice production needs to increase by 25% before 2050 to meet global demand and many rice farming communities are suffering from a lack of nutrients in their diets, particularly vitamin A and zinc, leading to human developmental issues.

The planning process to address these issues and implement solutions

In early 2016 the BCSD Singapore, Indonesian BCSD, Philippines Business for The Environment and Vietnam BCSD produced the white paper 'Efficient Agriculture, Stronger Economies in ASEAN'⁴¹ setting out private sector perspectives for policy makers in the region. This has also formed the basis for planning in the region.

In September 2016, in the sidelines of the 'Building Sustainable Futures Forum' WBCSD organized a workshop for further collaborative planning between member companies.

This was followed by a meeting on 13 March 2017 at the Responsible Business Forum on Food and Agriculture in Jakarta, in combination with the GAA. During this meeting, the need for the rapid scaling up of climate smart and sustainable rice production was identified, as a key area where WBCSD can make a significant impact.

Actions taken to date to implement this plan

- The main action to date is the formation of a collaboration between WBCSD member companies, the Sustainable Rice Platform, UN Environment, the ASEAN Climate Resilience Network (CRN), GIZ and CCAFS. The goal of the project collaboration is to increase resource use efficiency and reduce climate change and other environmental impacts through sustainable intensification of rice-based landscapes in ASEAN+3 countries⁴².
- The ASEAN CSA working group covers all of the rice producing countries in the ASEAN+3 region and has the support of the regional BCSD network of in-country sustainable business leadership.
- From the public sector and development agencies, the ASEAN Climate Resilience Network (CRN), supported by GIZ, is the ASEAN regional representative group for the Global Alliance for Climate Smart Agriculture and is also strongly focused on rice and the need for adaptive management at the landscape scale.
- WBCSD partners CCAFS have also been instrumental in the leadership and promotion of CSA in the region and have presented the International Rice Research Institute's work on cyclical wetting and drying of rice paddies to reduce GHG emissions and at least maintain production levels.
- The recent developments and successes of numerous organizations and partnerships strongly point to the need for a multi-year, ASEAN+3 wide initiative to scale up rice sustainability in partnership with ASEAN+3 governments, business and leading NGOs.
- Support for a major investment program is provided by the ASEAN+3 regional INDCs submitted under the Paris Agreement of 2015. All countries in ASEAN+3 have submitted plans to drastically reduce GHG emissions and to use emissions reductions and sequestration from Agriculture, Forestry and Land Use (AFOLU) to meet their targets.
- The members of the ASEAN CSA working group (all partners and organizations) will seek to develop the largest global investment program for sustainable rice landscapes using the funding opportunities available under climate and development finance programs and initiatives.
- As a spearhead for sustainable development and GHG reduction, a major regional rice program will

provide the opportunity for multiple outcomes, including the use of biomass residues for energy generation, enhanced market access and trade, improved water management and availability for other uses (including environmental flows).

- As rice production cuts across so many SDG targets, it can be expected that numerous sub-regional and local development projects will be developed. As the largest rice growing countries in the world, China and India programs could also be developed along the same methodology as the Sustainable Rice Platform.

Collaboration targets

- Improving water efficiencies and reducing GHG emissions in rice production systems through introducing climate smart rice and applying the Sustainable Rice Platform and/or Better Rice principles at farm level ('to do no harm' - exclude culturally sensitive systems such as the 'Subak' in Bali, Indonesia);
- Enhancing resilience and enabling expansion of rice production through protecting rice sector interests in (adequate) water resources through sustainably managed forest landscapes, supporting enhanced spatial planning/national strategic zoning for rice;
- Make green infrastructure investments, and public-private investments in forests-water-rice systems and through the use of genetic diversity in rice in supporting resilience, pest and disease control (refers to opportunity to support countries towards transitioning to green economies/investment, links of irrigated rice dependencies on healthy watersheds/natural capital, and ASEAN+3 countries strategic targets of rice expansion through additional irrigation infrastructure);
- Reducing pre- and post-harvest losses through upscaling of successful models in Integrated Pest Management, improved on-farm technologies, and small-holder support programs as well as using genetic diversity in rice for pest and disease control (based on methodologies and tools developed through GEF supported initiatives);
- Building a stronger business case for reducing energy and agrochemicals use through upscaling of sustainable trade, voluntary certification and improved standards and quality assurance;
- Enhancing nutrition and human health through diversification and protection of wild rice varieties and cultivars; and

- Strengthening the global business case for sustainable intensification of rice production through standardizing, establishing and disseminating the evidence base for positive environmental and social outcomes.
- The partnership should be further broadened to include CSOs and national governments, including for the key targeted countries:
- China (ASEAN+3): Ministry of Agriculture, Ministry of Environmental Protection (MEP), National Development and Reform Commission (NDRC), Chinese Academy of Science (CAS), and China-ASEAN Environmental Cooperation Center (CAEC);
- Indonesia: Ministry of Agriculture (Directorate General of Food Crops); Indonesian Center for Food Crops Research and Development (ICFORD); Indonesian Agricultural Multi-stakeholder Collaboration for Inclusive Rice Landscapes, Environment Research Institute (IAERI); Ministry of Environment and Forestry (forested landscapes/ watershed management);
- Thailand: Rice Department, Ministry of Agriculture & Cooperatives; Office of Natural Resources and Environmental Policy and Planning (ONEP); Bank for Agriculture and Agricultural Cooperatives; and
- Vietnam: Ministry of Agriculture and Rural Development; Institute of Policy and Strategy for Agriculture and Rural Development (IPSARD).

Geographical scope

All ASEAN rice producing nations, with a focus on Thailand, Vietnam and Indonesia as the largest sources of GHG emissions and where enabling conditions are strongest. Each country will have its own plan of implementation based on regional priorities and funding availability.

Target outcomes

The intention of this program is to support 150,000 farmers in the region increase their adoption of climate smart practices by 2020.

Case study: Kellogg Climate Smart Rice Production

Background

In March 2015, the Thai Government released a new variety of medium grain rice. This was the culmination of a partnership between Kellogg and Thailand's Bureau of Rice Research and Development as well as other collaborators such as the International Rice Research Institute. Leveraging the Kellogg's Origins Program, an initiative designed to promote CSA, Kellogg partnered with smallholder farmers to bring them the rice variety. The development of the grain was advantageous to both farmers and Kellogg. Farmers had access to a pest resistant and high yield seed, while diversifying the crop grown in the region can create new market opportunities and improve resilience against adverse market or environmental shocks. Additionally, it offered Kellogg supply chain security.

Progress since 2015

The first crop of the new rice grain was successfully harvested in 2015. The project has directly reached and impacted 700 smallholder farmers, 60% of whom are women. Market expansion has resulted in increased incomes for farmers. Moreover, through strategic partnerships with IRRI and UNEP, Kellogg has supplied smallholder farmers with access to best practices in sustainable agriculture- leading to a reduction in food waste and greenhouse gas emissions in the growing process. Kellogg's postharvest program has monitored seed quality and harvest practices with gaps in these areas being identified and training planned to remedy them.

What's next?

The project has a goal to reach 1,000 farmers, with Kellogg committed to its long-term viability. Further training will be given to farmers on drying, milling and storage in December 2017 to help maintain the expected standard of seed quality and harvest practices. To this end, Kellogg's agribusiness team will continue to work with extension workers and suppliers to maintain good practices. Finally, Kellogg's will continue to work towards the aims of higher yields with less inputs and higher milling yields with better rice quality so less energy resource is needed and less waste is produced.



8.4 North America

Identification of key CSA issues and solutions

Climate change poses a major challenge to U.S. agriculture because of the critical dependence of the agricultural system on climate and because of the complex role agriculture plays in rural and national social and economic systems. Climate change has the potential to both positively and negatively affect the location, timing, and productivity of crop, livestock, and fishery systems at local and national scales. It will also alter the stability of food supplies and create new food security challenges for the United States as the world seeks to feed nine billion people by 2050⁴³.

There are likely to be shifting agricultural patterns and crop yields, with likely gains for Northern farmers offset by losses in the Midwest and South. The Risky Business Project highlighted in 2014 in its 'The Economic Risks of Climate Change in The United States' publication⁴⁴ that:

- As extreme heat spreads across the middle of the country by the end of the century, some states in the Southeast, lower Great Plains, and Midwest risk up to a 50% to 70% loss in average annual crop yields (corn, soy, cotton, and wheat), without agricultural adaptation.
- At the same time, warmer temperatures and carbon fertilization may improve agricultural productivity and crop yields in the upper Great Plains and other Northern states.
- A defining characteristic of agriculture in the U.S. is its ability to adapt. Food systems are resilient at a national level, and agricultural producers have proven themselves extremely able to adapt to changing climate conditions. These shifts, however, still carry risks for the individual farming communities most vulnerable to projected climatic changes.
- The North America Climate Smart Agriculture Alliance (NACSAA) has been established as a platform for knowledge sharing and application of climate science to agriculture. It has an important role across the Action Areas and in particular to engage farmers and the agriculture community to collaborate in developing ways to improve the resiliency of production systems, as well as adapt and mitigate present and future risks from changing climatic conditions.

The WBCSD CSA North America Road Test Region aims to complement the global WBCSD CSA Action Plan by tailoring the goals, strategies and implementation methodologies of the initiative to the North American context, namely Canada, Mexico and the United States. CSA North America prioritizes Action Areas 2, 3 and 4, as these are most applicable to the North American context.

Modest progress has been made over the past year in the North America Road Test Region, and now the pace is picking up as new resources are allocated to the program. While Mexico and Canada are within the scope for this road test region, to date most of the activities covered the United States of America. With a broadening membership in Mexico and Canada, activities are expected to expand beyond the US shortly.

The planning process to address these issues and implement solutions

Over the course of 2016 and 2017, four CSA meetings (WBCSD Annual Meeting at Yale, GreenBiz/ASU, IFPRI and LCTPi/Clean Energy Ministerial) have taken place in North America. These meetings have had several outputs. They've helped to build relationships with important stakeholders in North America, define and clarify key issues in the region as well as establishing a common vocabulary and frame of reference, and laying the foundation for a detailed work program in North America. In addition to these meetings, member companies in North America have invested in the key partnerships mentioned below and a team of Yale graduate students conducted a research project looking at financing climate smart agriculture.

Key stakeholders and partners in North America

Please see Section 5 for further information on these partnerships:

- We Mean Business (WMB)
- North America Climate Smart Agriculture Alliance (NACSAA)
- Business for Social Responsibility (BSR)

Representatives from the three organizations above have been working together since May 2017 to establish a partnership architecture and draft the action plan, which includes work-streams around the following topics:

1. Align North America CSA work with global CSA initiatives
2. Develop North America CSA Principles and Objectives
3. Build Action Coalition
4. Build capacity of key grower partners
5. Design CSA digital platform

Actions taken to date to implement this plan

Members of the CSA working group are fostering important partnerships and initiatives in North America. These include: The Carbon Neutral Collaborative, Soil Health Partnership, and the Midwest Row Crop Collaborative (MRCC).

In December 2016, Monsanto established the Carbon-Neutral Collaborative, a group of environmental experts and leading academic voices in agricultural greenhouse gases to provide professional and expert advice to Monsanto on its commitment to become carbon neutral by 2021. Additionally, the NCGA, Monsanto and other leaders in greenhouse gases, many of whom also sit on the Carbon Neutral Collaborative, joined forces to develop a formal framework for accounting how agricultural practices can mitigate greenhouse gas emissions. Together, the group secured a USDA Conservation Innovation Grant (CIG) of US\$1M to match Monsanto's contribution of US\$1.6M and in-kind giving of resources to develop a transparent, scalable and verifiable accounting framework that will measure and report carbon reductions. Monsanto's plans to make its operational footprint carbon neutral by 2021 include a focus on its internal operations, including contract seed production, introduction of breakthrough products, and collaborations with farmers and global partners to support adoption of climate smart practices.

The Soil Health Partnership is the product of a National Corn Growers Association initiative with support from Monsanto, the Natural Resources Conservation Service, The Walton Family Foundation, the Midwest Row Crop Collaborative, The General Mills Foundation, The Environmental Defense Fund and The Nature Conservancy. The overall goal of the partnership is to measure and communicate the economic and environmental benefits of different soil management strategies to provide a set of regionally specific, data driven recommendations that farmers can use to improve the productivity and sustainability of their farms. As of summer 2016, 65 farmers were enrolled in the Soil Health Partnership and there are plans to reach 100 by 2017. Enrolled farms serve as demonstrations to other farmers on innovative soil management practices. Moreover, the organization plans to hold approximately 70 field days throughout 2017 where farmers can learn about making their farm more sustainable through changing nutrient management and tillage strategies.

Target outcomes

Specific farmer (including demonstration farmers), acreage and other targets will be developed in 2017 and early 2018 during the detailed design and implementation of this program.

A case study on the MRCC is provided on the next page..

Case study: The Midwest Row Crop Collaborative (MRCC)

Background

Kellogg, PepsiCo and Monsanto have joined with other companies and non-profits to form the MRCC in 2016. The group is working towards expanding agricultural solutions that protect air and water quality while also increasing food production in Iowa, Illinois and Nebraska. This involves achieving tangible environmental improvements through multi-stakeholder collaboration and change at scale. The key focus of the MRCC is targeting oxygen depletion in the Gulf of Mexico and achieving the goals outlined in the Gulf Hypoxia Taskforce Action Plan which aims to “reduce mitigate and control hypoxia in the Northern Gulf of Mexico and improve water quality in the Mississippi River Basin”

Progress since 2016

Work is already underway in three watersheds: assessments have been performed to analyze existing work, identify gaps and create a roadmap to improved outcomes, new staff has been brought on to accelerate and expand existing work, and funding to Regional Conservation Partnership Programs and other partners has been granted. The program is working with key stakeholders in the region to engage farmers and agriculture retailers to assess needs and develop the business case for sustainability. An example of this is the support that the MRCC gives to the Soil Health Partnership, a program of the National Corn Growers Association, whose goal is to measure and communicate the economic and environmental benefits of different soil management strategies, and provide a set of regionally specific, data-driven recommendations that farmers can use to improve the productivity and sustainability of their farms. Through the support of MRCC, SHP has increased its network of soil health demonstration farms by 40% funded in Iowa, Illinois and Nebraska which will serve as showcases for other farmers to investigate innovative soil management practices, including reduced tillage systems, cover crops and advanced nutrient management.

What's next?

MRCC aims to reach 10 major watersheds as well as 75% of the row crop acres in Iowa, Illinois and Nebraska by 2025. This will include the building of a resource center for farmers and farm advisors to learn the latest information on conservation practices and the business case to implement them on their farm. MRCC will also aim to help reform public policy through working with federal and state level policymakers to promote legislation that will help progress sustainable agriculture and create scale in conservation practices. Finally, MRCC will engage with consumers and shoppers to increase awareness on the sustainability related efforts of farmers.

References

US EPA. (2017). Mississippi River/Gulf of Mexico Hypoxia Task Force. Retrieved 07 05, 2017, from <https://www.epa.gov/ms-htf/hypoxia-task-force-2008-action-plan-and-related-documents>



8.5 Brazil

Key CSA issues identified

In Brazil, companies and NGOs have been focusing on reducing deforestation from agriculture, and implementing low-carbon agricultural approaches with support from the Brazilian Business Council for Sustainable Development (CEBDS).

Key CSA issues and opportunities in Brazil

In Brazil, 32% of total GHG emissions are a consequence of land use change, which is largely driven by deforestation aimed at creating pastures or plantations. Brazil has voluntarily committed to implement actions that aim at a reduction between 1,168 and 1,259 million tCO₂ equivalent of total estimated emissions for 2020 (3,236 million tCO₂ equivalent). The agricultural sector has a responsibility to contribute with a reduction of 22.5% in GHG emissions.

Additionally, the Brazilian Nationally Determined Contribution (NDC) foresees:

- The strengthening of policies and measures aimed at achieving zero illegal deforestation by 2030 in the Brazilian Amazon and offsetting greenhouse gas emissions from legal forest conversion by 2030;
- The restoration and reforestation of 12 million hectares of forest by 2030 for multiple uses;
- In the agricultural sector, the strengthening of the Low Carbon Agriculture Plan (ABC Plan) as the main strategy for sustainable development in agriculture. This includes the additional restoration of 15 million hectares of degraded pastures by 2030 and the increase of 5 Million hectares of crop-livestock-forest integration (ILPF) systems by 2030.

In light of Brazil's national and international commitments, CEBDS has been supporting WBCSD to develop the Climate Smart Agriculture Working Group in Brazil, aiming to help expand CSA and solve some of the main gaps identified which are financing and technical support to farmers.



The planning process to address these issues and implement solutions

CEBDS is a co-founder and member of the Committee of Leadership and Strategy of the Agriculture and Forest Group in Brazil, which has been working to reduce deforestation with the Coalition for Climate, Forest and Agriculture. The main role of the Brazilian Coalition on Climate, Forests and Agriculture is to articulate and facilitate actions for the country to promote a new economic development model based on low-carbon economy and, consequently, respond to the challenges of climate change through:

- Dialogue among participants, with governments and institutions in general;
- Seeking solutions to the implementation of a low-carbon economy;
- Monitoring the implementation of these actions; and
- Reporting the progress of these processes to society⁴⁵.



Actions taken to date to implement the plan

A CSA Financing Guide is being developed in partnership with the National Bank Federation (FEBRABAN). The guide will be an updated version of the document issued in 2015. For this next edition, the content will be on a digital platform (via a smartphone application) for easy access, searching and updates of new content.

A CSA Private Investment Model is being developed in partnership with Rabobank. This will provide an alternative source of financing for farmers aiming to invest in CSA. In the Matopiba⁴⁶ region a model for CSA expansion involving farmer financing mechanisms, technical support, agricultural inputs and GHG monitoring is being developed. This has the objective of creating a replicable model that can be applied in different parts of the country.

A GHG monitoring white paper and business case is also being developed in partnership in IMAFLORA⁴⁷. The document will be used to encourage increased data sharing across the public and private sectors. The intention is that this will demonstrate the business demand to institutions such as EMBRAPA (Brazilian Agriculture Scientific Company) to further report on GHG emissions and sequestration from the agriculture sector, and from CSA practices specifically.



Target outcomes

30% of the total number of farmers working with Monsanto (~50k) are targeted to be reached by the actions identified within the work program for Brazil by 2020.

Case Study: From partnership to a coalition - The sustainable landscape partnership with Conservation International (CI) and Monsanto

To further develop and define these landscape approaches to sustainable agriculture, Conservation International and Monsanto organized five workshops in 2016 drawing experts in agricultural production and a range of academic and civil society stakeholders. The three focal areas of these workshops were conservation of natural capital, the development of sustainable production and bettering of local governance and stakeholder engagement through a multi-sectoral and multi-functional integrated landscape approach.

Developing sustainable agriculture involves components that are closely related to technology and innovation: this involves increasing production on current farmlands, especially through the adoption of less impactful and low-carbon emitting techniques, producing on abandoned or degraded land that still has agricultural potential, planning crops based on suitable production regions and market needs, food safety of the communities in or near that landscape and throughout the supply chain, and applying efficient and low-carbon logistics.

Sustainable intensification of agricultural production includes: diversifying production, more efficient use of land and water resources, increasing production per acre and adding value to agricultural produce in order to ensure employment and income in rural areas throughout the year. When combined with appropriate conservation measures and safeguards, use of these approaches may create opportunities to reduce further conversion of natural areas to croplands.

Results and recommendations from this process also contributed to the design and development of the Global Environment Facility (GEF) project titled Reducing Deforestation from Commodity Production focused on the Matopiba region of the Brazilian Cerrado and informed further stakeholder engagement carried out from August 2016 to August 2017. The objectives of this second round of engagement was to build a collaboration with the private sector focused on the

Matopiba region and to assess the feasibility of different potential long-term investment mechanisms such as REDD+ and develop recommendations for a monitoring and reporting system to track implementation. The status of activities related to each goal as of July 2017 is listed as follows:

1. Build strong support for sustainable agriculture through the creation of a collaboration from the private sector:

The Coalition of private sector actors has been built with support from Sociedade Rural Brasileira (SRB – farmers connection) and CEBDS (Brazilian Business Council for Sustainable Development) to help deliver Climate Smart Agriculture in Brazil with a focus on the Matopiba region of the Cerrado. A range of companies representing different levels of the soy value chain have been engaged in shaping and defining the Coalition and are supporting the development of a common vision. Efforts of this Coalition will directly contribute to the GEF project Reducing Deforestation from Commodity Production which includes farmers, governments and international organizations.

2. Assess the feasibility of different possible long-term investment mechanism such as REDD+ and others to promote the implementation of sustainable agriculture and conservation of natural areas in the Matopiba region.

An historical assessment of deforestation in the Matopiba region between 2001 and 2014 shows that the region experienced a deforestation rate of 0.96%/year, which is twice the global average of 0.5%/year. Avoiding deforestation through improved production practices combined with conservation of natural vegetation could deliver significant emissions reductions. For example, considering an average carbon stock value in Matopiba of 120 tons CO₂ equivalent/ha, a 40% reduction in deforestation would result in an emissions reduction of approximately 16 million tons CO₂ equivalent/year.

What next?

There are ongoing efforts to develop a monitoring report and verification system in order to track the progress of climate smart agriculture implementation by CSA companies across the public and private sector in Brazil. The expectation is to have this system in place by the close of October 2017.

9 Progress on financing CSA (Action Area 2)



CSA financing needs

The following financing needs have been identified by the WBCSD CSA group. The case study below describes how Rabobank, the lead organization for Action Area 2, is progressing some of these solutions in the road-test countries.

Farm Level

- **Access to finance for farmers in their supply chain** – there is a need to find innovative forms of collateral, financial literacy and business planning tools, loans with appropriate interest rates and repayment terms (below market rates) and access to current account banking (e.g. via e-wallets)
- **Farmer organization** – farmer associations can be effective organizations to apply for and receive bank loans for onwards distribution to individual farmer members. These members are then encouraged to make repayments on time via the scrutiny of their peers. How can this model be further adopted and expanded?
- **Insurance** – we need to bundle insurance with credit provision, so that you don't have farmers sitting in debt if there is crop failure.

Storage and transport

- **Investment in storage, transport and processing infrastructure** – relatively simple measures can be taken to reduce food waste and spoilage in storage & transport, but this requires investment – either as equity or loans for third party financiers.
- **Similarly, investment is needed to help 'climate smart' storage and transport** e.g. impact investment to help seed processors purchase and install bioenergy generators using processing waste.

Processing

- **Investment in improving processing quality and reduce spoilage** – again relatively simple measures can be taken to investing in new technology and skills to improve the quality of processing, improving quality & consistency and reduce waste/spoilage.
- **Energy investments** - are needed to help 'climate smart' storage and transport e.g. impact investment to help seed processors purchase and install bioenergy generators using processing waste.

Purchasing and trading

- **Helping companies improve contractual terms with farmers** – companies are aware that the current contracting structures may limit farmers' ability to invest in their farms over the long term, but there are legitimate reasons why business needs these terms in place.

Loan characteristics that support CSA adoption

For farmers:

- **Having interest rates that are below market rate and repayment periods that are longer.** As farmers make investments in their farm to become more climate smart they may not receive direct returns in a typical repayment period.
- **Using non-conventional collateral (e.g. cash flow data) or donor finance to guarantee loans,** recognizes that farmers often do not have the credit history to get a conventional loan.

Helping farmers to aggregate into cooperatives to access loans that they may not be able to access as individuals. Can also help to de-risk loans by having a selective process for member farmers.

For agribusiness:

- Offering preferential interest rate loans to agribusiness (e.g. input providers) that offer climate smart training to the smallholders that they purchase from.

Equity characteristics that support CSA adoption

For farmers:

- Helping aggregate smallholders into cooperatives, recognizing that individually they are too small to be attractive to equity investors.
- Allowing for dividends to be paid out in the form of offtake of raw produce (crops) or environmental benefits (carbon credits).
- Longer term equity & patient capital financing needed for some CSA activities e.g. agroforestry establishment.

For agribusiness:

- Using stock financing allows for capital to be released against the value of the stock, this reduces storage losses for farmers e.g. warehouse receipts financing- the warehouse operator issues the receipts as evidence that a quantity of the commodity has been deposited.
- Providing preferential equity investments terms for agribusiness that support CSA adoption in the smallholder farms that it purchases from.

Insurance characteristics that support CSA adoption

For farmers:

- Providing additional services to the insurance reduces losses for the farmer and pay-outs for the insurer e.g. insurers can offer weather-related forecast information to farmers via SMS.
- Providing technical assistance can help farmers to access insurance products, recognizing that many smallholders will have limited financial product understanding.
- Reducing premiums for farmers who have implemented CSA best practices recognizes that the likelihood of damage has been reduced.
- Encouraging the rebuilding and rehabilitating land using CSA best practice after an insurer has had to pay-out recognizes that this will reduce likelihood of future pay outs.
- Having weather index linked insurance can help make farmers more resilient against extreme weather events and can make pay outs easier than traditional insurance.

Case Study: Rabobank financing collaborations in road-test regions

Rabobank became a member and co-chair of the WBCSD CSA Working Group in 2017. It has a global food and agri-loan portfolio of 92.3 billion euros, is present in 40 countries and helps 2 million farmers in Africa, Asia and South-America to access finance via the partner banks of Rabo Development⁴⁸.

As a bank where sustainability is a fully permeated value in its business, Rabobank plans to implement actions in the medium and long term with regard to CSA. The bank intends to develop financial solutions (specific products and/or credit facilities) that can be offered directly to their food and agriculture clients, in order to support the scaling up of CSA implementation.

North America

In North America Rabobank is working together with WBCSD and Monsanto to promote the adoption of a seed package to produce a cover crop with lower CO₂ emissions. The pilot being currently planned is to facilitate 50 large commercial farmers to acquire and implement CSA-enabling inputs from Monsanto. The aim is to use these to achieve higher yields and increased profits after a two to three-year period.

India

Rabobank and WWF India have launched a partnership with a major Indian sugar producer - EID Parry. The ambition is to introduce a Decision Support Tool to empower sugar producers to practice more sustainable sugar production. The partners believe that sugar production characterized by better water management, more responsible water consumption, a reduced impact on the surrounding ecosystems, lower CO₂ emission and better re-use of residual products, will not only protect nature but also produce better economic returns. This Decision Support Tool will be presented to all the members of WBCSD India towards the end of 2017. Rabobank has also offered to be the bank of choice to all the WBCSD India members for any "CSA" financing opportunities.

ASEAN

Together with WBCSD, UNEP and OLAM, Rabobank is initiating a sustainable rice project. The main idea is how to increase resource use efficiency and reduce climate change and other environmental impacts through sustainable intensification of rice-based landscapes in ASEAN countries (linked to GEF IP objective 'increasing efficiencies and effectiveness of food system'). Rabobank is now identifying a target area of rice farming, and will introduce an improved rice farming approach that will increase the resource (i.e. water) utilization and reduce the methane emission.

Ghana

Rabo International Advisory Services (RIAS) establishes agribusiness financing advisory, supply chain advisory and cooperative capacity building. RIAS is part of the blended finance strategy team of Rabobank. It identifies blended finance solutions, including and combining commercial corporate lending with third party sponsors like multilaterals, grant funds and micro credit for CSA projects for Rabobank's Food & Agri clients (e.g. oil palm & cocoa replanting, agroforestry, etc.). In Ghana RIAS works closely together with The Rainforest Alliance. The latter was awarded a feasibility study design grant in 2016 Q1. The Rainforest Alliance has used the Convergence Design Funding to explore an investment and risk sharing facility for local financial institutions in Ghana to lend to smallholder cocoa farmers and their organizations for CSA investments. RIAS performed the design activities for this facility.

Further WWF partnerships

Rabobank and WWF are working on a range of CSA projects in Brazil, Chile and The Netherlands. These relate to the dependency of agriculture on biodiversity to be future proof:

- Brazil: increasing the yield per hectare and reducing deforestation by using integrated livestock-crop-forestry systems
- Chile: sustainable salmon cultivation, while conserving maritime ecosystems
- The Netherlands: biodiversity improvements to increase dairy farmer resilience

All projects that Rabobank and WWF work on were recently reflected in Rabobank's head office in Utrecht, The Netherlands, during the 'Sustainable Development Goal (SDG) 17: what makes a partnership successful?' congress.

10 The Plan to 2020



In this section, we provide summary information of the planned milestones for the Action Plan from 2018-2020. This is intended to provide our stakeholders with an indication of the 'direction of travel', though these will likely evolve and will be subject to updating during the period.



Both of these Action Areas are implemented via the road-test country process. Table 5 below outlines what the planned milestones are in each of these countries up to 2020.



**Action Area 1:
Building smallholder/family
farmer resilience**

&



**Action Area 4:
Implementing agriculture-
driven zero deforestation
commitments**

Table 5: Planned milestones for the Action Plan from 2018-2020.

| Road Test Region : West Africa | |
|-----------------------------------|--|
| 2018 milestones | <ul style="list-style-type: none"> • Implementing WBCSD and member-funded pilot project • Form partnerships and submit larger scale funding proposal at the national or regional level to scale up CSA implementation in the supply chains of member companies • Engage successfully with broader initiatives in the region such as the deforestation-free cocoa commitment |
| 2019 milestones | <ul style="list-style-type: none"> • Receive funding and begin implementation of larger scale national or regional level program • Begin working with governments to help address enabling environment barriers e.g. land tenure insecurity for tenant farmers |
| 2020 milestones | <ul style="list-style-type: none"> • National/regional level program reaches full scale • Progress starts to be made with actions to improve the enabling environment alongside governments • Plan for 2020-2025 developed |
| Outcomes / Targets by 2020 | <ul style="list-style-type: none"> • 30,000 smallholders adopting CSA practices by 2020 |
| Road Test Region : Brazil | |
| 2018 milestones | <ul style="list-style-type: none"> • In the Matopiba region begin piloting a model for CSA expansion with farmers involving financial mechanisms, technical support, agricultural inputs and GHG monitoring. The objective is to have a replicable model that can be scaled-up throughout the country • Together with Rabobank finalize the financing mechanism to support farmers to adopt CSA • Continue updating the 2015 CSA financing guide in partnership with the National Bank Federation FEBRABAN, capturing a comprehensive range of financing opportunities for those seeking to invest in CSA in Brazil. The content will be inserted into a digital platform for easy access, search, update and insertion of new content; • Continue developing the GHG Monitoring White Paper in partnership with IMAFLORA, which will be used for advocacy purposes to encourage data sharing in order to make it viable for institutions such as EMBRAPA (Brazilian Agricultural Research Corporation) to produce reports on GHG captured by CSA. |
| 2019 milestones | <ul style="list-style-type: none"> • Matopiba pilot project reaches full scale • Potential sites for replication of Matopiba pilot identified • Roll out of financing mechanism to support farmers to adopt CSA • Begin implementation of the GHG monitoring approach in partnership with IMAFLORA |
| 2020 milestones | <ul style="list-style-type: none"> • Evaluation of Matopiba pilot project progress • Discussions started with partners in site for replication of Matopiba pilot • Continued roll out of farmer CSA financing mechanisms • Plan for 2020-2025 developed |
| Outcomes / Targets by 2020 | <ul style="list-style-type: none"> • 30% of the total number of farmers working with Monsanto (~50k) are targeted to be reached by the actions identified within the work program for Brazil by 2020. |

| Road Test Region : India | |
|-----------------------------------|--|
| 2018 milestones | <ul style="list-style-type: none"> • Further partnerships among member companies established to expand implementation of identified solutions. • Partnership initiated with IWMI to provide guidance on mid/long term science-based targets for solution scale-up • Partnership with 2030 Water Resources Group (WRG), Alliance for Water Stewardship initiated to demonstrate implementation of solutions at a regional scale, and provide business input into government-led smart-Agriculture projects (e.g. in Maharashtra) |
| 2019 milestones | <ul style="list-style-type: none"> • Develop and deliver training products as an enabler to scaling-up through companies' group learning and knowledge development • Partnerships between companies reach full-scale implementation • Partnerships with IWMI, WRG and Alliance for Water Stewardship fully established |
| 2020 milestones | <ul style="list-style-type: none"> • Continue to organize peer training between companies • Review of partnership implementation results • Plan for 2020-2025 developed |
| Outcomes / Targets by 2020 | <ul style="list-style-type: none"> • 140,000 smallholders adopting CSA practices by 2020 |
| Road Test Region : North America | |
| 2018 milestones | <ul style="list-style-type: none"> • Hold strategy meetings with NACSAA Co-Chairs to assess progress and define regional priorities going forward • Organize field visits between member companies and partners to learn about new CSA enabling tools and programs being implemented • Begin developing financial product to support row crop farmers to adopt cover cropping |
| 2019 milestones | <ul style="list-style-type: none"> • Roll out of financial product with farmers • Implement agreed collaborative actions with NACSAA Co-Chairs • Continue regular field trips |
| 2020 milestones | <ul style="list-style-type: none"> • Evaluate uptake and impact of financial product roll out • Continue collaborative activities with NACSAA Co-Chairs • Plan for 2020-2025 developed |
| Outcomes / Targets by 2020 | <ul style="list-style-type: none"> • Targets TBD during 2017 / early 2018 |
| Road Test Region : ASEAN | |
| 2018 milestones | <ul style="list-style-type: none"> • Submit large scale funding proposal at the regional level for the ASEAN-wide sustainable rice-inclusive landscapes program • Continue engagement on other priority CSA issues in the region, particularly on the implementation of deforestation-free supply chains |
| 2019 milestones | <ul style="list-style-type: none"> • If funding proposal is successful, begin implementation of this regional program • Continue engagement on other priority CSA issues in the region, particularly on the implementation of deforestation-free supply chains |
| 2020 milestones | <ul style="list-style-type: none"> • ASEAN sustainable regional program reaches scale • Progress starts to be made with actions to improve the enabling environment alongside governments • Plan for 2020-2025 developed |
| Outcomes / Targets by 2020 | <ul style="list-style-type: none"> • 150,000 smallholder farmers adopting CSA practices by 2020 |



**Action Area 2:
Scaling-up investment in
CSA**

| | |
|------------------------|---|
| 2018 milestones | <ul style="list-style-type: none"> • Continue the development of the Rabobank financing collaborations in road test countries • Large donor funding application made in support of larger scale road test region implementation |
| 2019 milestones | <ul style="list-style-type: none"> • Rabobank road test financing collaborations reach maturity • Secure donor funding for larger scale road test region implementation and program implementation begun |
| 2020 milestones | <ul style="list-style-type: none"> • Evaluation of Rabobank road test financing collaborations • Plan for 2020-2025 developed |



**Action Area 3:
Improving businesses' ability
to trace, measure and monitor
CSA progress**

| | |
|------------------------|--|
| 2018 milestones | <ul style="list-style-type: none"> • Identify synergies with the International Centre for Tropical Agriculture (CIAT) and harmonize efforts with the road map on metrics being developed by the Global Alliance for Climate Smart Agriculture (GACSA). • Identify opportunities to better collect confidential company level data for WBCSD CSA monitoring, linking with LCTPi-wide efforts on collecting data from companies. • Initiate a work program of training workshops to enhance companies' capacity to do monitoring & evaluation, including through sharing of best practice. • Second business measurement and monitoring reporting period in late 2018. |
| 2019 milestones | <ul style="list-style-type: none"> • Identify means to better measure the resilience pillar of the Action Plan and introduce additional indicators for nutrition. • Ongoing work program of training workshops to enhance companies' capacity to do monitoring & evaluation, including through sharing of best practice. |
| 2020 milestones | <ul style="list-style-type: none"> • Companies' capacity for monitoring and measuring CSA progress is enhanced. • A coherent approach to CSA monitoring and measurement, linking with GACSA wide and LCTPi wide efforts. • Third business measurement and monitoring reporting period in 2020. |

Appendix 1: The core principles of agroecology

From IIED, 2014, *Agroecology: What it is and what it has to offer*.

Insurance characteristics that support CSA adoption

For farmers:

1. Planning

- Use a holistic approach to the identification, the analysis and the resolution of issues related to farming – the agro-ecosystem is regarded as ONE and its health as a whole is valued more than the productivity of single crops.
- Harmonize the farming system with the productive potential and the physical limits of the surrounding landscape.

2. Resource Use

- Recycle and optimize the use of nutrients and energy on the farm.

In particular:

- Enhance the recycling of biomass, with a view to optimizing organic matter decomposition and nutrient cycling over time.
- Minimize losses of energy, water, nutrients and genetic resources by enhancing the conservation and regeneration of soil and water resources and of agro-biodiversity.
- Avoid the unnecessary use of agrochemical and other technologies that adversely affect the environment and human health.
- Minimize the use of external, non-renewable resources (including fossil fuels).

3. Field and landscape management

- Enhance beneficial biological interactions and synergies among the components of agrobiodiversity, thereby promoting key ecological processes and services, rather than focusing on individual species.
- Diversify species and genetic resources in the agro-ecosystem (i.e. at field and landscape level) over time.
- Strengthen the 'immune system' of agricultural systems by enhancing functional biodiversity (natural enemies, antagonists, etc.); pests and diseases should be managed and prevented rather than controlled.
- Use local crop varieties and livestock breeds so as to enhance genetic diversity and adaptation to changing biotic and environmental conditions.
- Provide the most favorable soil conditions for plant growth, particularly by managing organic matter and by enhancing soil biological activity.
- In addition to the above the group supports the approach put forward by Pretty (2006) which states: "Systems high in sustainability can be taken as those that aim to make the best use of environmental goods and services whilst not damaging these assets. The idea of agricultural sustainability, though, does not mean ruling out any technologies or practices on ideological grounds".⁴⁹

Appendix 2: Further detail from the UN Global Compact Sustainable Agriculture Business Principles White Paper (2013)

The excerpt below provides further detail of each Sustainable Agriculture Business Principle. Please note that in this White Paper the Principle 'Aim for Food Security, Health and Nutrition' is numbered sixth as opposed to first in the principles published on the UNGC website.

Frame for SABP1: Be environmentally responsible

Businesses should build, support and operate agriculture systems that deliver sustainable intensification sufficient to meet global needs, together with environmental protection, restoration and enhancement and improved resource efficiency.

- The growing demand for food, fuel and fiber must be balanced with environmental needs and pressures to ensure long-term viability of agriculture systems.
- Intensification by increasing yields per hectare and cropping intensity produces more in less space and minimizes further land conversion. However, there are risks associated with the overuse of natural resources and degradation of ecosystems. The best available knowledge and technologies should be used to ensure that intensification delivers more without increasing environmental impacts.
- Academics and researchers have important roles to play in pursuing new technologies and better practices based on sound scientific principles for modern farming - regardless of whether in developed or developing countries.
- Solutions must always seek to optimize efficient use of natural resources such as soil, water and energy.
- Loss and waste throughout the value chain must be reduced.
- Environmental protection includes protecting biodiversity (including agricultural biodiversity), reducing greenhouse gas emissions and minimizing pollution.

Frame for SABP2: Ensure economic viability and share value

Businesses should ensure that agriculture systems are economically viable and share value across the entire value chain from farmers to consumers.

- Agriculture 'systems' encompass a wide range of production and farming organizational structures and practices. Smallholder agriculture is a significant proportion of these.
- There are typically many stages in an agriculture value chain from production to final use. The benefits at each stage - and across the value chain generally - are not necessarily distributed evenly or proportionately to the actors involved.
- Some groups face disproportionate challenges in getting access to markets and finance.
- Businesses must avoid unprofitable and unsustainable farming activities at any scale of operation. Creating an enabling environment for entrepreneurship is a key component for systemic viability.
- Sustainable agriculture is good for business and generates efficiencies and productivity that improves the economic viability of the grower, the farm and the local communities that depend on it - both now and for future generations.
- There is often a lack of transparency in supply chains. This makes it easier to source from unsustainable production and to propagate inequitable business models.
- Cooperatives and producer organizations are important for the support of small and disadvantaged producers.

Frame for SABP3: Respect human rights, create decent work and help rural communities to thrive

Businesses in agricultural systems should improve the lives of workers and farmers, respect the rights of all people, and provide equal opportunities that result in communities that are attractive to places work, live and invest.

- Respect for human rights is core to the United Nations and the Global Compact.
- Agriculture has many sector-specific issues relating to seasonal work, migrant workers and health and safety risks.
- Thriving rural communities develop and offer opportunities for all community members including women, youth, indigenous people and other marginalized groups.
- The community has control over its own future.
- Gender equality and empowerment are fundamental to the welfare of women and children.

Frame for SABP4: Encourage good governance and accountability

Businesses should avoid corruption, respect the law, recognize resource and land rights and be transparent in agricultural systems.

- Weak governance and poor use of land works against long-term sustainability in agriculture.
- While businesses cannot make or enforce laws, they can support governments to do this better, and align their strategies and operations with national action plans. As they do so, businesses should encourage and support the inclusion of a wide range of stakeholder groups wherever necessary.
- Unclear or inequitable land and resource use rights are major challenges to long-term sustainable agriculture. The ability to resolve such issues are not generally within the purview of businesses, but their actions can support, influence or undermine any process to do so.
- Key stakeholders including farmers, rural communities and those with claims of rights to land or resources must be meaningfully involved in discussions on land governance.
- Transparency is central to good governance.

Frame for SABP 5: Improve access to and transfer of knowledge, skills and technology

Businesses should promote access to information and skills, adopt effective and innovative approaches and invest in new technologies for better agricultural systems.

- Improving access to information and skills is vital but can be challenging, particularly for small-scale producers.
- It is important to work in partnership with governments, cooperatives and other groups, such as research bodies.
- Good practices should be adapted for adoption in local contexts.
- Developing new technologies requires partnerships between academic and research organizations and intended users.
- Effective public-private partnerships could help to bridge gaps in development where access to finance is difficult.
- When good practices and new technologies are developed, they should be relevant to both small and larger scale producers and processors.

Frame for SABP 6: Aim for food security, health and nutrition

Businesses should aim to develop agriculture systems that provide enough food and proper nutrition for every person on the planet.

- Sustainable agriculture systems should contribute to national food security and ensure that populations have access to healthy and nutritious foods.
- Women play an important role in managing household nutrition and diets, particularly for children and youth. Closing the income gap between men and women can significantly improve access to more and higher-quality food.
- Good hygiene and sanitation contribute to healthy lifestyles.
- Developing better food distribution and trade networks, and transport and storage infrastructure both internationally and domestically can significantly improve global, regional and local access to food. It will also reduce waste along the entire agriculture value chain - from harvest, to storage, transport and consumption.
- Local food markets are a way to provide access to more affordable food.
- Building agricultural systems that are adaptive and resilient to climate change is important for food and livelihood security.

Appendix 3: Cross-cutting themes within the Action Areas

Regional perspectives

We strongly acknowledge that the priorities for CSA, and the role of business to participate and contribute, will differ significantly between regions depending on:

- Predominant forms of agricultural production and biophysical constraints;
- Levels of economic development and industrialization;
- Profile of smallholders, medium and large farmers within the farming population;
- Social and cultural characteristics of the population engaged with agriculture and agribusiness; and
- The broader economic and climate change planning goals of local and regional government, amongst other factors.

We place priority emphasis on the views of farmers' groups both in developing the Action Plan and during implementation. In the development of the Action Plan member companies have been bringing forward views given to them during field engagement (e.g. Olam's consultations with sugar farmers in India, Kellogg's consultations with Bolivian quinoa growers on what social investments are needed, and Monsanto's farmer engagement process as part of their landscape level conservation programs with farmers in Brazil and Indonesia). As the Action Plan Working Paper evolves, additional consultation with farmer organizations, the private sector, government, civil society organizations, NGOs and research institutes is needed.

Gender and vulnerable groups

Research shows that women in many places are more vulnerable to climate impacts than men, for many reasons, including their greater dependence on natural resources for livelihoods; responsibility for securing food, water and fuel for their households; more limited assets, and social, cultural and political barriers that restrict their decision-making power, access to information, and even mobility⁵⁰. Gender inequality can also hinder adaptation to climate change, including the adoption of climate smart strategies. For example, the TerrAfrica partnership found that insecure land tenure, lack of capital and limited farm inputs – all common problems for women farmers – were all major barriers to the adoption of conservation agriculture in sub-Saharan Africa.⁵¹

Vulnerable groups including youth, the elderly, disabled and ethnic or religious minorities also face additional barriers to adopting climate smart agriculture. Typically, they do not have access to decision-making power, but for some groups such as youth, they make up substantial portions of the farming population in developing countries. In developing countries 60% of the population is under 25 years of age⁵². However, migration trends show a preference for young people to move away from rural to urban areas, and by 2030 60% of the world's population is projected to live in urban areas⁵³. Therefore, it is vital that the Actions included in this Plan seek to engage with young rural people and consider how to make these Actions attractive for them in particular.

This issue is made more pressing considering that the global average age of a farmer is 60 years old⁵⁴, and as farmers get older they are less likely to make significant changes to their production methods or make significant new investments. Older farmers are likely to hold substantial knowledge on adapting to climate changes and traditional farming techniques which align with CSA, and the Actions promoted within this Plan should make sure this knowledge is leveraged.

Disabled community members can be limited in their ability to contribute the physical labor necessary for CSA activities at farm level, but may be equally able to engage in processing and other value-adding activity to agricultural products, as well as transport and marketing.

Ethnic and religious minorities frequently face further challenges due to insecure land rights, discrimination in public policy and lower levels of government service provision, amongst other challenges. Please see Appendix 4.4 for further information on how we propose to address insecure land rights issues via the implementation of the UN Global Compact's Food and Agriculture Business principles.

All the issues outlined above should be taken into account during the design and implementation of CSA Actions to 2020, in order to help address rather than exacerbate them. To this end a rights-based approach should be taken, whereby the duty bearers (e.g. member companies) empower the rights holders (e.g. women and vulnerable groups) during the implementation of this Action Plan.

Linking to other Low Carbon Technology Partnership Initiative groups

The WBCSD CSA Working Group recognizes the connections and potential areas for collaboration with other LCTPi Working Groups – in particular the Forests and Forest Products as Carbon Sinks and Advanced Biofuels groups:

- **Forests and Forest Products as Carbon Sinks:** We will seek to complement and support the objectives and policy recommendations of this group, in particular under Action Area 4: Implementing Agriculture-driven Deforestation and Sustainable Land-Use Commitments. Wherever appropriate we will combine to amplify our influence in making public policy recommendations.
- **Advanced Biofuels:** We will take a similar approach as above, and also work with this group to help 'Climate Smart' agricultural bio-fuel production and share our analytical work and lessons to help maximize the GHG mitigation potential of agricultural biofuels.

Social and environmental principles

The WBCSD CSA WG propose that the group and its member companies apply the UN Global Compact's Food and Agriculture Business principles⁵⁵ when implementing the Actions detailed below. These are selected as a result of a broad stakeholder engagement process comprising over 20 consultations globally and including over 1,000 businesses, UN agencies and civil society organizations. These incorporate the following principles, further detailed in Appendix 4.4 from the UN Global Compact Sustainable Agriculture Business Principles White Paper.

1. Aim for Food Security, Health and Nutrition

Businesses should support food and agriculture systems that optimize production and minimize waste, to provide nutrition and promote health for all people.

2. Be Environmentally Responsible

Businesses should support sustainable intensification of food systems to meet global needs by managing agriculture, livestock, fisheries and forestry responsibly. They should protect and enhance the environment.

3. Ensure Economic Viability and Share Value

Businesses should create, deliver and share value across the entire food and agriculture chain from farmers to consumers.

4. Respect Human Rights, Create Decent Work and Help Communities to Thrive

Businesses should respect the rights of farmers, workers and consumers. They should improve livelihoods, promote and provide equal opportunities.

5. Encourage Good Governance and Accountability

Businesses should behave legally and responsibly by respecting land and natural resource rights, avoiding corruption, being transparent about activities and recognizing their impacts.

6. Promote Access and Transfer of Knowledge, Skills and Technology

Businesses should promote access to information, knowledge and skills for more sustainable food and agricultural systems.

Endnotes

1. United Nations Framework Convention on Climate Change

2. Subsidiary Body for Scientific and Technological Advice (<http://unfccc.int/bodies/body/6399.php>)

3. Nationally determined contributions to achieving the Paris Climate Agreement

4. <http://www.globalforestwatch.org/about/about-gfw>

5. See <https://www.kukua.cc/> for further information. Subject to contract agreement.

6. CCAFS partners with nearly 700 diverse organizations, including governments, research organizations and farmer networks to bridge the gap between research and action. Their partner list is available on our website <https://ccafs.cgiar.org/partners>

7. As an example, see Section 5 for a summary of our global partnerships

8. All figures are in relation to a 2010 baseline. The 2050 target assumes land use change emissions remain at zero and the reduction in agricultural emissions is 50% in alignment with WBCSD's Vision 2050. Together this represents a reduction of 2.62 GtCO₂ equivalent + 2.1 GtCO₂ equivalent per year, equalling 4.72 GtCO₂ equivalent. This is 65% of the overall 2010 emissions of 5.24 GtCO₂ equivalent + 2.1 GtCO₂ equivalent equalling 7.34 GtCO₂ equivalent.

9. WBCSD (2015) Low Carbon Technology Partnerships initiative: Climate Smart Agriculture <http://lctpi.wbcsd.org/wp-content/uploads/2015/12/LCTPI-CSA-Action-Plan-Report.pdf>

10. The Sustainable Development Goals can be read in full at: <https://sustainabledevelopment.un.org/?menu=1300>.

11. Goal 1: End poverty in all its forms everywhere; Goal 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture; Goal 5: Achieve gender equality and empower all women and girls; Goal 6: Ensure availability and sustainable management of water and sanitation for all; Goal 12: Ensure Sustainable Consumption and Production Patterns, Goal 13: Take urgent action to combat climate change and its impacts. Goal 15: Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss

12. WBCSD (2015) Low Carbon Technology Partnerships initiative: Climate Smart Agriculture <http://lctpi.wbcsd.org/wp-content/uploads/2015/12/LCTPI-CSA-Action-Plan-Report.pdf>

13. Includes milk & dairy, meat & fish, vegetable oils, fruit & vegetables, oilseeds and products, pulses, sugar, roots and tubers and food cereals available for consumption by the global population after food waste is taken into account. All food will be produced in accordance with rigorous safety standards. Nutritional food, in accordance with the WHO Guidelines on Nutrition, should include protein, energy, vitamin A and carotene, vitamin D, vitamin E, vitamin K, thiamine, riboflavin, niacin, vitamin B6, pantothenic acid, biotin, vitamin B12, folate, vitamin C, antioxidants, calcium, iron, zinc, selenium, magnesium and iodine (<http://www.who.int/nutrition/topics/nutrecomm/en/>).

14. This is the net GHG emissions reduction across a company's agricultural supply chains (GHG quantity emitted minus GHG quantity sequestered).

15. Aligned with the IPCC supply-side mitigation options and potential for the agricultural sector presented in its Fifth Assessment Report (AR5). Table 11.2 in: IPCC, 2014: Climate Change 2014: Mitigation of Climate Change identifies a mitigation potential from land-based agriculture of 1.6 GtCO₂e per year by 2030 (see Appendix 7.1). This represents a 30% reduction in CO₂ equivalent emissions per year on 2012 CO₂e emissions from agriculture (5.38 Gt CO₂e) reported by FAOSTAT. As companies do not constitute 100% of global agricultural emissions the Vision aligns itself with an equivalent % reduction in emissions by companies and is also extended to agricultural supply chain emissions reductions.

16. This term refers to the production of crops and farm animals for sale, which could enter the supply chains of WBCSD member companies – as opposed to subsistence agriculture, the product of which does enter these supply chains.

17. High Conservation Value Forests – Defined as forests of outstanding and critical importance due to their high environmental, socio-economic, biodiversity or landscape values. From WWF (2007) High Conservation Value Forests: The concept in theory and practice.

18. High Carbon Stock - The HCS approach distinguishes natural forest from degraded lands with only small trees, scrub, or grass remaining. It separates vegetation into 6 different classes (stratification) through the combination of analysing satellite images and field plots. The Indonesian descriptions of these are: High Density Forest (HK3), Medium Density Forest (HK2), Low Density Forest (HK1), Old Scrub (BT) 3, Young Scrub (BM), and Cleared/Open Land (LT). HCS forest includes the vegetation classes of BT and above (HK1, 2 & 3). The HCS threshold between BT and BM is largely determined by the vegetation structure and density difference, where BT can be described as - Mostly young re-growth forest, but with occasional patches of older forest within the stratum, and BM as - Recently cleared areas, some woody re-growth and grass-like ground cover. Below this, BM (young scrub) and LT (cleared/open land) would be considered of low carbon stock and potentially suitable for development. From Greenpeace (2013) Identifying High Carbon Stock (HCS) Forest for Protection.

19. This quantification uses the 'FAO and Climate Advisors (2014) Quantifying Benefits of the New York Declaration on Forests' report as a detailed and recent analytical resource, though this does not represent a formal alignment with the Declaration. We use the average CO₂ equivalent removed or avoided in the '2030 Forest loss goal' (Table 4, Page 9) which is 4.15 GtCO₂ equivalent. We then divide this by 2 which represents an estimate that commercial agriculture is responsible for 50% of tropical deforestation. This estimate is derived from the range of figures presented by analyses in Hosonuma et al (2012). An assessment of deforestation and forest degradation drivers in developing countries. Environmental Research Letters, Volume 7, Number 4; European Commission, (2013). The impact of EU consumption on deforestation: Comprehensive analysis of the impact of EU consumption on deforestation; and Forest Trends (2014). Consumer Goods and Deforestation: An analysis of the extent and nature of illegality in forest conservation in agriculture and timber plantations.

20. WBCSD (2015) Land Degradation Neutrality. A business perspective.
21. CCAFS (2015). Sustainable intensification will not keep us within the 2-degree goal for 2030. Available online: https://ccafs.cgiar.org/blog/sustainable-intensification-will-not-keep-us-within-2-degree-goal-2030#Vh_5lvViko
22. Zero deforestation is used to be consistent with Pillar 1 to increased production on existing land, whereas 'net' zero deforestation allows for conversion of new land for agricultural production. Zero deforestation is also likely to result in greater GHG mitigation impact and ecosystem services, biodiversity and livelihoods protection and enhancement than 'net' zero deforestation, as described in Brown, S and Zarin, D (2013). What does zero deforestation mean? Science, 15 November 2013, Vol.342 no.6160 pp.805-807.
23. We Mean Business Website: <https://www.wemeanbusiness-coalition.org/about> (Last accessed 8th August 2017)
24. CGIAR CCAFS website: <https://ccafs.cgiar.org/about-us#WYhS24TyteM> (Last accessed 8th August 2017)
25. WBCSD Fresh website: <http://www.wbcd.org/Projects/FReSH> (Last accessed 8th August 2017)
26. GAA website: <http://globalagribusinessalliance.com/who-we-are/> (last visited 7th August 2017)
27. GACSA website: <http://www.fao.org/gacsa/about/en/>. (last visited 7th August 2017)
28. UN Climate Initiatives Platform (2015). North American Climate Smart Agriculture Alliance (NACSAA). Available from: [http://climateinitiativesplatform.org/index.php/North_American_Climate_Smart_Agriculture_Alliance_\(NACSAA\)](http://climateinitiativesplatform.org/index.php/North_American_Climate_Smart_Agriculture_Alliance_(NACSAA))
29. Sustainable Food Lab website: <http://www.sustainablefoodlab.org/initiatives/climate-smart-agriculture/>. (last visited 7th August 2017)
30. CIAT website: <http://dapa.ciat.cgiar.org/building-climate-resilient-cocoa-value-chains-in-ghana/>. (last visited 7th August 2017)
31. Earth Genome website: <https://www.earthgenome.org/>. (last visited 7th August 2017)
32. BSR website: <https://www.bsr.org/en/about/story>. (last visited 7th August 2017)
33. IIED and Oxfam (2012). Tipping the balance: Policies to shape agricultural investments and markets in favour of small-scale farmers.
34. Ibid
35. CCAFS (2015). Scaling up index insurance for smallholder farmers: Recent evidence and insights. CCAFS Report No.14.
36. <http://www.globalforestwatch.org/about/about-gfw>
37. Carrington, D. (2016). Four billion people face severe water scarcity, new research finds. Retrieved 07 21, 2017, from https://www.theguardian.com/environment/2016/feb/12/four-billion-people-face-severe-water-scarcity-new-research-finds?utm_source=inshorts&utm_medium=inshorts_full_article&utm_campaign=inshorts_full_article
38. Indian Network for Climate Change Assessment. (2010). India: Greenhouse Gas Emissions 2007. New Delhi: Ministry of Environment and Forests, Government of India.
39. Available online from: <http://www.wbcd.org/Clusters/Water/News/Becoming-water-smart>
40. See <https://www.kukua.cc/> for further information. Subject to contract agreement.
41. Available online from: <http://wbcsdpublications.org/project/efficient-agriculture-stronger-economies-in-asean-private-sector-perspectives-for-policy-makers/>
42. ASEAN+3 is a forum that functions as a co-operation between the Association of Southeast Asian Nations and the three East Asia nations of China, Japan and South Korea.
43. US Global Change Research Program (2014) The National Climate Assessment. Available online: <http://nca2014.globalchange.gov/report/our-changing-climate/introduction>
44. The Risky Business Project (2014). The Economic Risks of Climate Change in The United States: Executive Summary. Available online: <http://riskybusiness.org/reports/national-report/executive-summary>
45. Brazilian Coalition on Climate, Forests and Agriculture (2017). A movement for low-carbon economy. Available online: <http://www.coalizaobr.com.br/2016/index.php/en/>
46. Matopiba is an acronym that uses the first two letters of the four states Maranhão (MA), Tocantins (TO), Piauí (PI), and Bahia (BA).
47. See <http://www.imaflorea.org/> for further information.
48. Rabobank, (2015). Facts & Figures: Banking for Food.
49. Pretty (2006). Agroecological Approaches to Agricultural Development.
50. WOCAN (2013). Chapter 9 'Gender in Climate Smart Agriculture' in Swedish International Agricultural Network Initiative (SIANI) 'Transforming Gender Relations in Agriculture in Sub-Saharan Africa'.
51. TerrAfrica (2011). Sustainable Land Management in Practice: Guidelines and Best Practices for Sub-Saharan Africa. Field Application. Prepared by WOCAT; coordinated by the Food and Agriculture Organization of the UN, Rome, Italy. <http://www.fao.org/docrep/014/i1861e/i1861e.pdf>. At pp.76–81.
52. UN Department of Economic and Social Affairs (2013) World Population Prospects – The 2012 Revision.
53. Ibid
54. International Food and Agribusiness Management Association (IFAMA) (2012) Where are the future Farmers to Grow Our Food? International Food and Agribusiness Management Review, Volume 15, Special Issue A
55. United Nations Global Compact (2014). Food and Agriculture Business Principles.



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