

# Measuring Progress Towards the WBCSD Statement of Ambition on Climate-Smart Agriculture

## Improving Businesses' Ability to Trace, Measure and Monitor CSA

Working Paper No. 199

CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS)

Sonja J. Vermeulen  
Snorre S. Frid-Nielsen



RESEARCH PROGRAM ON  
**Climate Change,  
Agriculture and  
Food Security**



Working Paper

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**Contact:**

CCAFS Coordinating Unit - Faculty of Science, Department of Plant and Environmental Sciences, University of Copenhagen, Rolighedsvej 21, DK-1958 Frederiksberg C, Denmark. Tel: +45 35331046; Email: [ccaafs@cgiar.org](mailto:ccaafs@cgiar.org)

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## **Abstract**

At the Paris climate summit in 2015, the World Business Council on Sustainable Development (WBCSD) announced a set of 2030 ambitions under the three pillars of climate-smart agriculture (CSA), namely productivity, resilience and mitigation. Based on work under WBCSD's workstream to improve businesses' ability to trace, measure and monitor CSA, this working paper provides (a) a simple framework, (b) sets of recommended indicators, and (c) a stock-take of the current status of CSA progress under each of the three pillars, both globally and among WBCSD member companies. The purpose is to inform future monitoring and reporting on CSA among member companies, both individually and collectively. For pillar 1, productivity, we are exceeding targets for global food production. However, we have less information on whether this food is nutritious, available and affordable, or whether we are achieving higher productivity per unit of input, and sustainable use of resources, not just higher production. For pillar 2, resilience, there is insufficient company or global data to monitor the resilience and welfare of agricultural communities and landscapes under climate change. A high priority is collection of activity data on provision and adoption of positive environmental (e.g. agroecological) and social (e.g. climate information and financial) approaches among farmers. For pillar 3, mitigation, we are falling behind targets for agricultural and food system emissions. While there have been some impressive improvements in emissions intensity for some foods and beverages, increasing levels of production mean that absolute emissions are rising. This early snapshot of progress can hopefully stimulate shared learning and renewed investment, ahead of future collective reporting by WBCSD.

## **Keywords**

Private sector, World Business Council on Sustainable Development, climate-smart agriculture, food systems, metrics, indicators

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## About the authors

Sonja J. Vermeulen is Head of Research of the CGIAR Research Program on Climate Change, Agriculture and Food Security. Her research focuses on the global context for achieving food security under climate change.

Snorre S. Frid-Nielsen is a Phd Fellow at the Department of Social Sciences and Business at Roskilde University. His research focuses on applying behavioural insights within public policy.

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## Introduction

Monitoring, evaluating and learning from CSA progress will motivate and empower companies and their partners to meet the WBCSD 2030 Statement of Ambition on climate-smart agriculture, thereby enhancing food security, building resilience to climate change in their value chains, improving natural resource use efficiency, and reducing environmental impacts.

This working paper informally presents progress under Action Area 3 of the WBCSD Action Plan on climate-smart agriculture. Action Area 3 works to improve businesses' ability to trace, measure and monitor CSA progress. As agreed in early 2016, the aim is not to provide a comprehensive new protocol for CSA measurement, but rather to support monitoring and evaluation of progress by building on metrics that businesses and other entities collect already.

Therefore this working paper provides (a) a simple framework, (b) sets of recommended indicators, and (c) a stock-take of the current status of CSA progress under each of the three pillars of productivity, resilience and mitigation, globally and among WBCSD member companies. The purpose is to inform future monitoring and reporting on CSA among member companies, both individually and collectively.

This working paper is organized as follows:

**WBCSD statement of ambition on climate-smart agriculture** is simply reproduced from the WBCSD CSA Action Plan launched in Paris at COP21 in December 2015. It is an important part of this working paper as it provides the exact definition and detailed parameters of the WBCSD 2030 ambitions for CSA. The WBCSD CSA definition and parameters differ in small but important ways from other definitions of CSA (e.g. FAO).

**Framework for tracking progress towards the global CSA ambition** provides a very simple framework for structuring measurement of the three CSA pillars by combining activity and outcome data, and company and global data.

**Stock-taking method** provides the rationale and methods used in this stock-take of progress under each of the three CSA pillars (productivity, resilience and mitigation) against the agreed 2010 baseline, combining global and WBCSD member company data.

**Pillar one: productivity, Pillar two: resilience and Pillar three: mitigation** provide recommend indicator sets for each pillar and the stock-take of current progress against the three pillars. Recommended indicators draw on other WBCSD processes and the formal indicators of the Sustainable Development Goals (SDGs) where possible.

**Ways forward** suggests how companies can apply and use the indicators and metrics in measuring progress towards the WBCSD statement of ambition on climate-smart agriculture at multiple levels from individual business unit to global levels.



# WBCSD statement of ambition on climate-smart agriculture<sup>1</sup>

The WBCSD's Low Carbon Technology Partnership initiative (LCTPi) is a joint public and private initiative to accelerate low-carbon technology development. Climate-smart agriculture is one of the solutions that the WBCSD and its member companies have identified as critical to reach the 2C target. Climate-smart agriculture (CSA), as presented by FAO at the Hague Conference on Agriculture, Food Security and Climate Change in 2010, integrates the three dimensions of sustainable development (economic, social and environmental) by jointly addressing food security and climate challenges. It has three main pillars:

1. Sustainably increasing agricultural productivity and incomes;
2. Adapting and building resilience to climate change;
3. Reducing and/or removing greenhouse gases emissions, where possible.

WBCSD members have built on this three pillar concept to prepare a Statement of Ambition taking into account the views shared by WBCSD and the CSA Working Group members to date, objectives set out for the Global CSA Alliance (of which WBCSD is a member), WBCSD's Action 2020 'Must-Haves' and Vision 2050, the current version of the UN Sustainable Development Goals, and extensive engagement and collaboration with farmers, the private sector, government, civil society organizations, NGOs and research institutes through multiple regional meetings during 2015. The Statement of Ambition for WBCSD CSA working group member companies is as follows:

## **Pillar 1: Productivity ambition**

Increase global food security by making 50% more nutritional food available<sup>2</sup> through increased production on existing land, protecting ecosystem services<sup>3</sup> and biodiversity, bringing degraded land back into productive use<sup>4</sup> and reducing food loss from field to shelf<sup>5</sup>.

<sup>1</sup> Taken from the WBCSD CSA Action Plan launched in Paris at COP21 in December 2015

<sup>2</sup> 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,

## **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%<sup>6</sup> of annual agricultural CO<sub>2</sub>e emissions against 2010 levels (aligned with a global 1.6 GtCO<sub>2</sub>e yr reduction by 2030).<sup>7</sup> 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 agriculture<sup>8</sup> through working to halt conversion of HCV<sup>9</sup> or HCF<sup>10</sup> forest and all grasslands, wetlands and peatlands by the sector (equivalent of a 2.1 GtCO<sub>2</sub>e reduction per year<sup>11</sup>).

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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/>).

<sup>3</sup> Ecosystem services are the benefits people obtain from ecosystems. These include provisioning services such as food and water; regulating services such as flood and disease control; cultural services such as spiritual, recreational, and cultural benefits; and supporting services, such as nutrient cycling, that maintain the conditions for life on Earth. Definition from Millennium Ecosystem Assessment (2003).

<sup>4</sup> In alignment with the WBCSD Action 2020 objective to restore at least 12 million hectares per year of degraded land

<sup>5</sup> Food losses up to the point of the consumer. This does not include post-consumer loss, which is considered outside the scope of CSA, and is being addressed through broader work within the WBCSD such as the Sustainable Lifestyles cross-sectoral group.

<sup>6</sup> This is the net GHG emissions reduction across a company's agricultural supply chains (GHG quantity emitted minus GHG quantity sequestered).

<sup>7</sup> 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 GtCO<sub>2</sub>e per year by 2030 (see Appendix 7.1). This represents a 30% reduction in CO<sub>2</sub>e emissions per year on 2012 CO<sub>2</sub>e emissions from agriculture (5.38Gt CO<sub>2</sub>e) 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.

<sup>8</sup> 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.

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 CO<sub>2</sub>e reduction ambition between agriculture (including reductions in food waste from field to shelf) and land use change is provided in the chart below:

**% distribution of Pillar 3 CO<sub>2</sub>e 2030 reduction ambition between agriculture and land-use change**



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 CO<sub>2</sub> emissions<sup>12</sup>, and the WBCSD Forests Solutions Group to achieve the restoration of 30% global forest cover (1990 levels) by 2050, with 45 Gt CO<sub>2</sub>e stored by 2030.

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<sup>9</sup> 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).

<sup>10</sup> 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).

<sup>11</sup> 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 CO<sub>2</sub>e removed or avoided in the ‘2030 Forest loss goal’ (Table 4, Page 9), which is 4.15 GtCO<sub>2</sub>e. 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).

<sup>12</sup> WBCSD (2015) Land Degradation Neutrality. A business perspective.

# Framework for tracking progress towards the global

## CSA ambition

Two principles shape the simple framework for tracking progress on CSA. The first is to include both activity and outcome indicators. Each of the three pillars of CSA is defined by WBCSD in terms of (a) outcomes and (b) activities to achieve those outcomes (Figure 1). For example, the intended outcome of pillar two is to strengthen climate resilience of agricultural landscapes and farming communities. The 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.

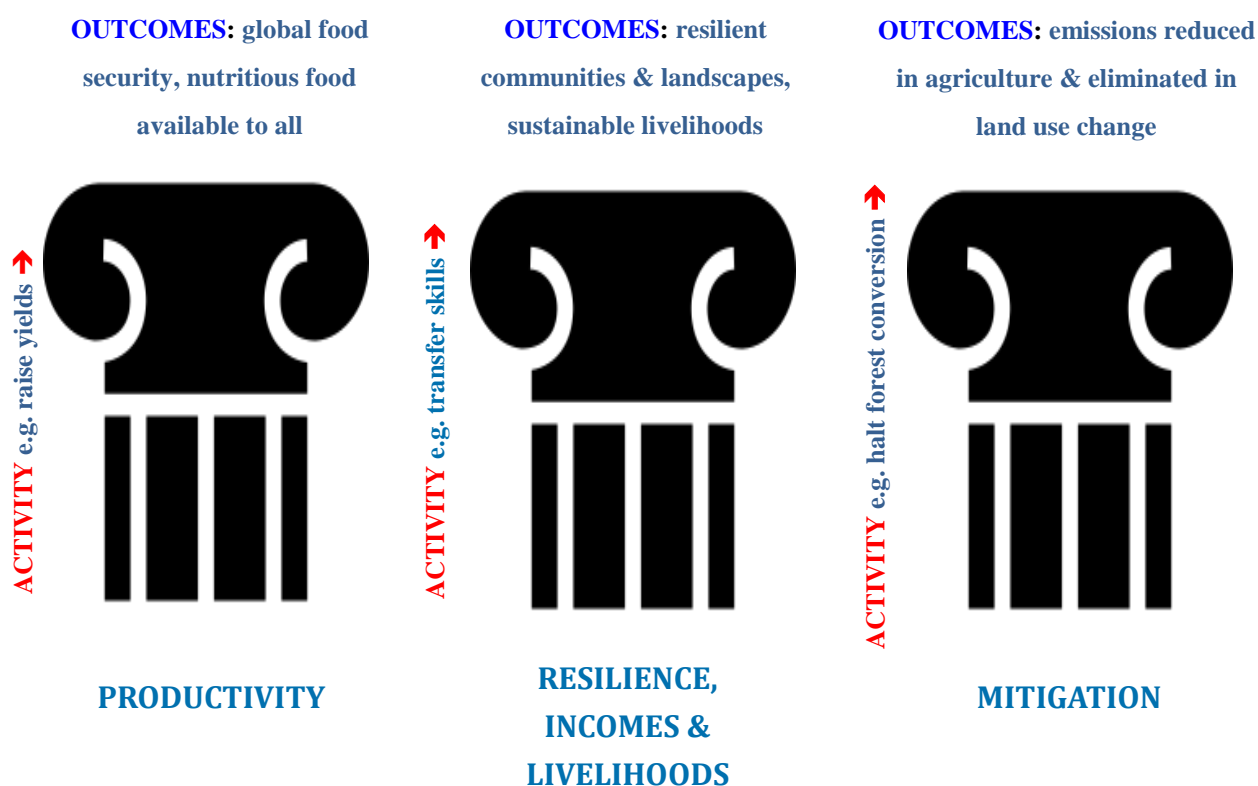
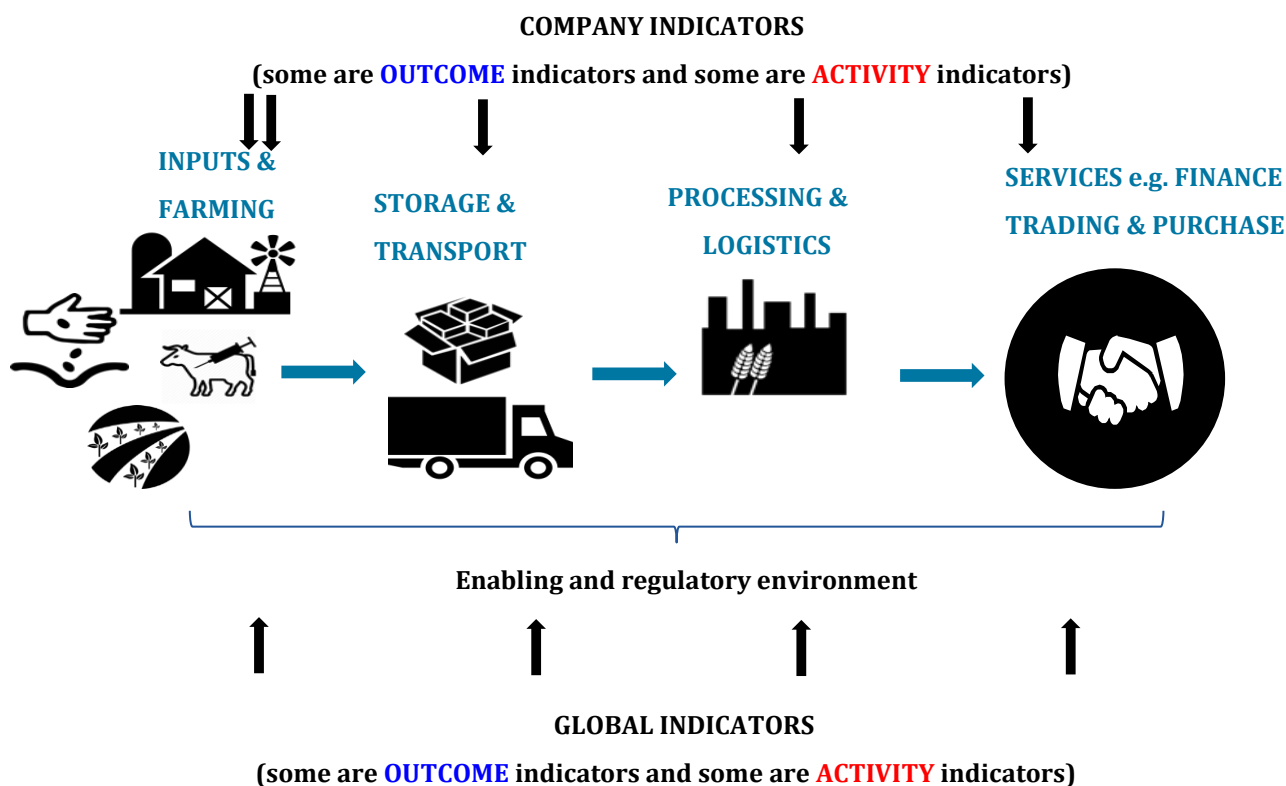


Figure 1 How activities lead to outcomes in the implicit theory of change for each CSA pillar

The second principle is to combine and triangulate information from WBCSD CSA member companies and from external sources, generally global. The WBCSD CSA Statement of Ambition is global, going well beyond member companies in its scope. Individual companies

will be seeking to improve their own performance on various metrics, and to track WBCSD collective contributions towards the global goal. They will also be looking to stimulate positive change across their own sectors and industries, as well as among governments, rural communities, consumers and other agents of change.



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

In some cases, there will be important scale effects or trade-offs that can only be accounted for meaningfully at a higher scale. For example, while emissions intensities in smallholder livestock systems tend to be very high (per kilogram of meat or per litre of milk), they do not add up to a major contribution to global agricultural emissions (scale effect), plus they make critical contributions to human nutrition, especially for vulnerable children (trade-off effect). Many of the most valuable advances in CSA are likely to come from collaboration across value chains and among partners from different sectors – for example in the WBCSD CSA road-test countries. Therefore we need to track progress using multiple data sources to give a global picture (Figure 2).

## **Stock-taking method**

This section outlines the approach used to take stock of WBCSD companies' progress on CSA targets from 2010-2015. We combine the bottom-up reporting available from companies with a top-down perspective using available global data sets to estimate progress towards 2030 targets and ambitions. By projecting global trends from 2010 to 2015, we can generate a simplified comparison between the current trajectory under business-as-usual and the WBCSD members' target performance.

### **Data sources**

Multiple data sources were searched, including the SDG indicators, World Bank, IFAD and FAO. The Food and Agriculture Organization of the United Nations Statistics Division (FAOSTAT) provides global datasets including: the quantity of food produced and yields (pillar 1), and direct agricultural emissions (pillar 3). However, pillar 2 targets are difficult to align with global data, as they apply to individual communities (e.g. livelihoods) and companies (e.g. farmer training) and are difficult to aggregate at the global level. Thus, no relevant data for pillar 2 were available at FAOSTAT.

In terms of company data, several companies report measures linked to CSA objectives within their own annual reports, corporate social responsibility (CSR) reports and sustainability reports, as well as through external initiatives such as the Global Reporting Initiative (GRI) and Carbon Disclosure Project (CDP). Companies track progress differently, in terms of which indicators are used, how the indicators are measured (i.e. absolute vs. relative progress), and how far back the reporting goes. These inconsistencies complicate the measurement of progress across the group of WBCSD CSA members, motivating us to establish a set of common indicators to allow for the most accurate assessment.

### **Identifying CSA indicators used by companies**

We identified CSA-related indicators for each company by searching keywords (e.g. yield, livelihood, emission) in recent company reports. Company representatives provided further insights and data via phone interviews and emails. We aligned indicators to the CSA pillars, giving a set of 17 common indicators across the three CSA pillars. Each of these indicators was mentioned by at least two companies. We created a database of quantitative measures for

each indicator for each company in both 2010 and 2015, if possible. If no quantitative data were reported in 2010, data from 2011-2012 were used, where available.

## **Assessing current progress and future projections**

To measure company CSA progress, we compared the percentage change from 2010 to 2015, for each indicator where sufficient quantitative data were available. There are major gaps in data availability, both across companies and for individual companies over time. Thus, company progress tracing is limited to the following indicators, where at least 5 companies (~40%) provide data for both 2010 and 2015: total waste to landfill (pillar 1), total water use (pillar 2); absolute Scope 1 & 2 emissions, and emissions intensity (pillar 3). We used simple linear regression to create business-as-usual projections up to 2030, based on the available global data from 2010-2014 on food availability (pillar 1) and greenhouse gas emissions (pillar 3). Business-as-usual projections were held up against target scenarios for 50% more food (pillar 1), and 30% fewer direct agricultural emissions (pillar 3). It was not possible to gauge progress relating to pillar 2, since the pillar has no quantifiable CSA target and lacks global data to support a projection for 2030.

## **Estimating WBCSD companies' contribution to global progress**

To bridge the gap between company and global data, we made some rough assumptions on the companies' share of global progress towards the WBCSD CSA Statement of Ambition. We estimated each company's share of their respective sub-sectors, based on 2016 sales revenue. First, we divided WBCSD members by sub-sector (value chain segment): agricultural inputs, food processing, and retail. Table 1 provides a list of companies that were included. The companies' estimated revenue share within their respective sub-sector (a proxy we used to be able to estimate global progress) is shown in Figure 3.

Since shares of global production are not readily available, we used revenue figures (from the 2016 Forbes Global 2000<sup>13</sup>) as a simple proxy for volume. A caveat of this approach is that it does not consider the different values of food items. For example, while global pork sales brought in twice the revenue of wheat in 2012, six times as much wheat was produced in the

<sup>13</sup> <http://www.forbes.com/global2000/>

same period<sup>14</sup>. Thus, calculating companies' shares of global food production in this manner may distort their role in contributing to food security, as sales do not directly translate to quantities of food produced nor number of people fed. Nevertheless, revenue provides *some* indication of volume, assuming that price reaches equilibrium across competing companies in a given year.

*Table 1 Companies included in the analysis*

<b>Company</b>	<b>Sub-sector</b>
Coca-Cola	Food processing
CP Foods	Food processing
Diageo	Food processing
DuPont	Agricultural inputs
Kellogg	Food processing
Monsanto	Agricultural inputs
Olam	Food processing
PepsiCo	Food processing
Starbucks	Retail
Syngenta	Agricultural inputs
Tyson Foods	Food processing
Unilever	Food processing
Yara	Agricultural inputs

For the agricultural input companies, the total sub-sector revenue consists of all top companies within the diversified chemicals sub-sector. While this overlooks smaller input suppliers, top 10 companies within seeds, fertilizers and pesticides make up 75%, 55% and 95% of their respective markets<sup>15</sup>. Within food processing, top companies make up a smaller portion of total sales (~25%). In the restaurant industry, top companies make up approximately 10% of global sales. This makes the previously employed method for estimating WBCSD share of production less accurate. Instead, total scales estimates for food processing are taken from an analysis by ETC Group<sup>16</sup> (USD 1.38 trillion), and Starbucks' revenue is held against estimates of global restaurant sales, (USD 1.85 trillion)<sup>17</sup>. While most of these food processing companies operate only in the food and beverage industry, Unilever

<sup>14</sup> <http://faostat.fao.org/site/339/default.aspx>

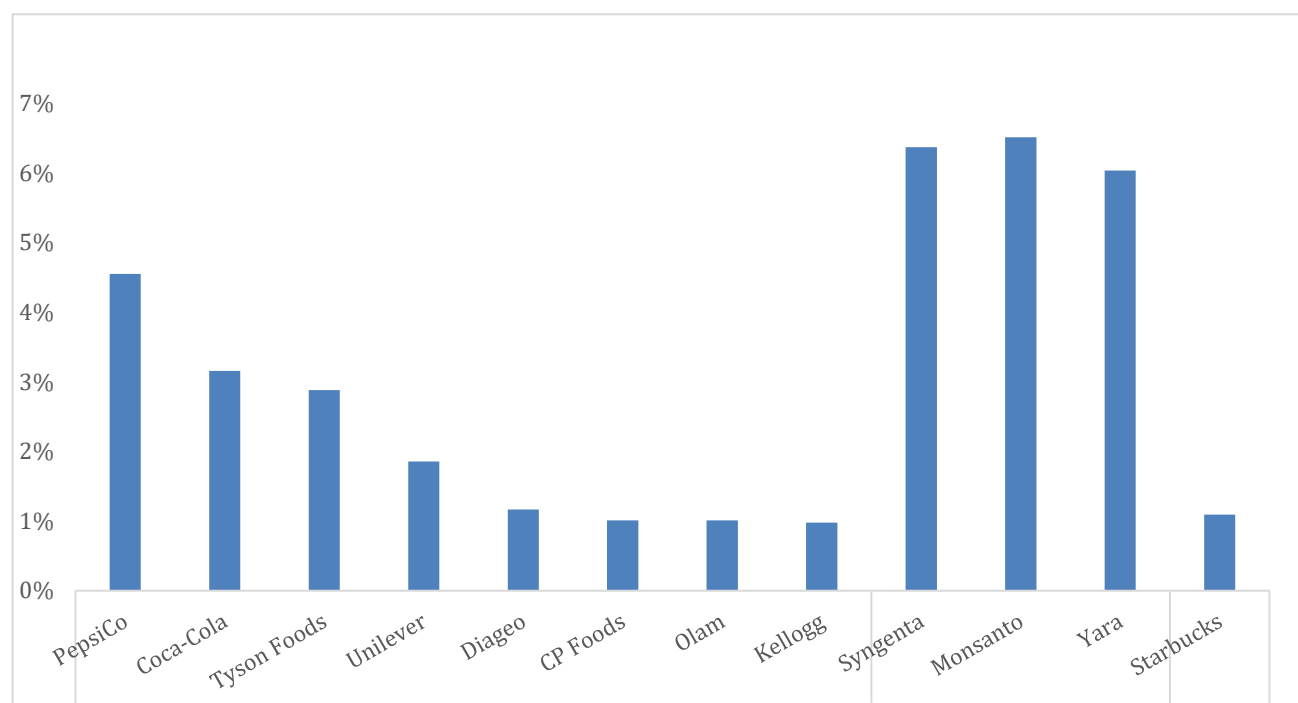
<sup>15</sup> [http://www.econexus.info/sites/econexus/files/Agropoly\\_Econexus\\_BerneDeclaration.pdf](http://www.econexus.info/sites/econexus/files/Agropoly_Econexus_BerneDeclaration.pdf)

<sup>16</sup> [http://www.etcgroup.org/sites/www.etcgroup.org/files/publication/pdf\\_file/ETC\\_wwctge\\_4web\\_Dec2011.pdf](http://www.etcgroup.org/sites/www.etcgroup.org/files/publication/pdf_file/ETC_wwctge_4web_Dec2011.pdf)

<sup>17</sup> [http://www.forbes.com/forbes/welcome/?toURL=http://www.forbes.com/2007/11/11/growth-agriculture-business-forbeslife-food07-cx\\_sm\\_1113bigfood.html&refURL=&referrer=](http://www.forbes.com/forbes/welcome/?toURL=http://www.forbes.com/2007/11/11/growth-agriculture-business-forbeslife-food07-cx_sm_1113bigfood.html&refURL=&referrer=)



also produces home and personal care products. Based on a breakdown of Unilever net sales for 2012<sup>18</sup>, 43% of revenue was derived from food and beverages. This percentage is used to modify Unilever revenue figures to include only food and beverage sales.



*Figure 3 Estimated company revenues as % of total sub-sector*

## General issues with the stock-take

Issues with data exist across all three WBCSD pillars, both across companies and within companies over time. Data gaps greatly limit our ability to make generalisations about company progress from 2010 to 2015. While the WBCSD set 2010 as a starting year for establishing a baseline, from what we have been able to gather, there are considerable gaps in the publicly available data. In many cases, companies report progress on the same indicator but using dissimilar metrics. For example, companies report yield gains variously as a percentage of progress towards an unquantified goal, or comparison to national averages, or tonnes per hectare, and so forth. The lack of like terms makes it difficult for us to draw generalised conclusions on progress across companies.

<sup>18</sup> <https://www.statista.com/statistics/269200/revenue-of-the-unilever-group-worldwide-by-product-segment/>

We also encountered challenges in clearly assessing progress within companies. Factors such as increased market share, recovery from the financial crisis, and mergers can distort measures such as absolute emissions, and total water usage. In some cases, companies take these factors into account, and adjust their past reporting to reflect restructuring of their businesses. However, in cases where data dating back to 2010 were not adjusted, we relied on older annual reports, which may not be wholly accurate.

# Pillar one: productivity

## 1. Recommended framework and indicators

The target for productivity in the WBCSD Statement of Ambition 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”. To identify indicators, we separate out the components as shown in Table 2.

*Table 2 Recommended and current indicators for pillar 1*

Component of WBCSD pillar 1	Recommended indicators that align with WBCSD processes or SDGs	Other recommended indicators	Currently available indicators among two or more WBCSD CSA member companies
1.1 Improve the supply of nutritious food (OUTCOME)	- Prevalence of moderate or severe food insecurity in the population, based on the Food Insecurity Experience Scale (SDG indicator 2.1.2)	- Food production across range of key food groups - Affordability of nutritious food e.g. hours of labor to buy daily nutritional needs	None
1.2 Sustainably improve production on existing land (ACTIVITY)	- Proportion of agricultural area under productive and sustainable agriculture (SDG indicator 2.4.1) - Production per labour unit by classes of farm size (SDG indicator 2.3.1) - Change in water-use efficiency over time (SDG indicator 6.4.1)	- Production of food (tonnes, calories, nutrition) per unit nutrient, water, land and energy	Percentage yield change Total water use (see pillar 2)
1.2 Protecting ecosystem services and biodiversity, and bringing degraded land back into productive use (ACTIVITY)	- WBCSD Action 2020 objective to restore at least 12 million hectares per year of degraded land - Proportion of important sites for terrestrial and freshwater biodiversity that are covered by protected areas, by ecosystem type (SDG indicator 15.1.2) - Freshwater withdrawal as a proportion of available freshwater resources (SDG indicator 6.4.2) - Proportion of degraded land in total land area (SDG indicator 15.3.1)	- Other ecosystem services indicators, such as prevalence of natural pollinators	Percentage of sustainable sourcing and certified raw materials
1.3 Reduce food loss from field to shelf (ACTIVITY)	- WBCSD Food Loss and Waste Accounting and Reporting Standard - Global food loss index; halve food waste (SDG indicator 12.3.1)	- End use other than human food or animal feed (kg) – see the WBCSD Standard for more detail	Waste (not food) to landfill (kg)

The footnotes to the WBCSD Statement of Ambition for pillar 1 note that nutritious food means a range of macro-and micro- nutrients, that ecosystem services follow the Millennium Ecosystem Assessment definition and thus include cultural as well as ecological services, and that food loss is up to the point of the consumer.

## 2. Global data sets and analysis

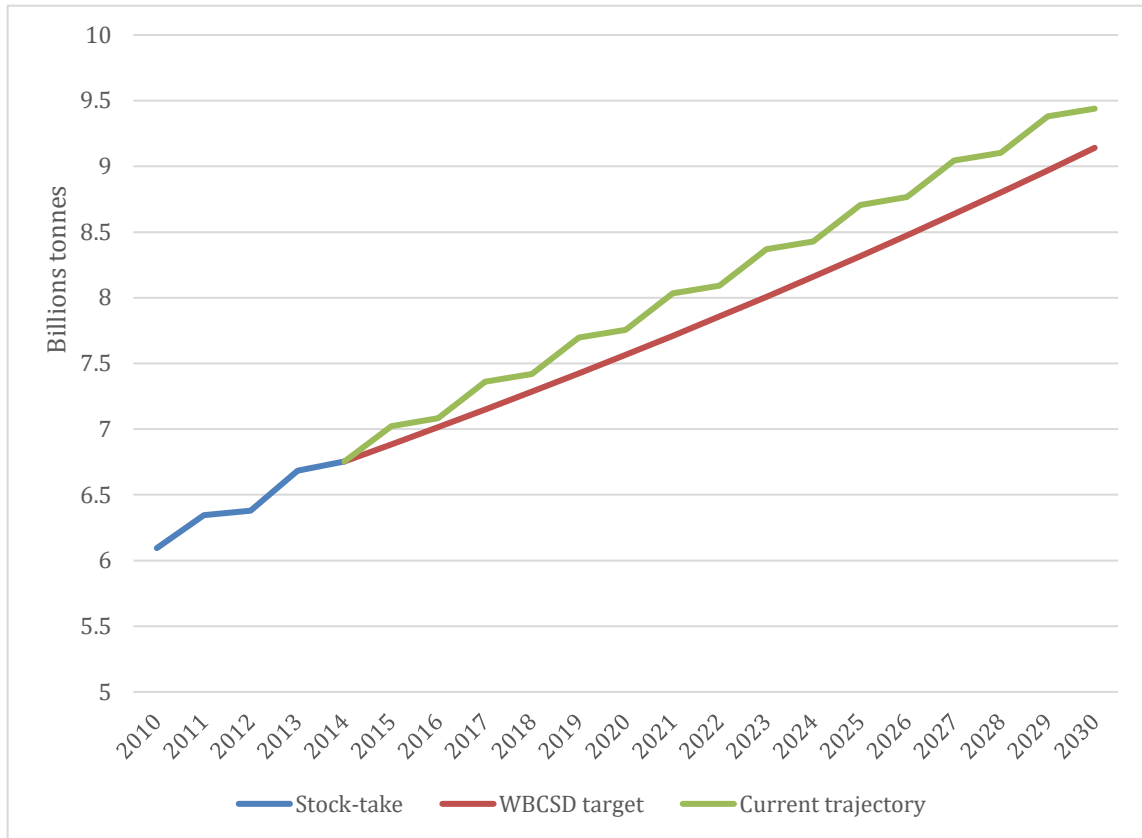
Table 3 summarizes the main findings. Between 2010-2014<sup>19</sup>, global average production quantity and yield of important food groups (cereals, vegetables, roots and tubers, fruit, meat, and milk) increased 10.8% and 2.7% respectively. To reach the 2030 food production target, food production must increase approximately 1.9% per year.

*Table 3 Summary of pillar 1 results for global production data*

Quantity of major food types produced, 2010 (tonnes)	6,094,375,990
Quantity of major food types produced, 2014 (tonnes)	6,753,782,383
2030 target of 50% more food (tonnes)	9,141,563,985
Average change in food production of major crops, 2010-2014 (%)	10.8%
Average change in yield of major crops, 2010-2014 (%)	2.7%
Annual production increase needed for 50% more food, 2014-2030 (%)	1.9%

Figure 4 projects global production of major food groups to 2030, based on data from 2010-2014, compared to the target of increasing food production 50% relative to 2010 levels. All else equal, if the current food production trajectory continues, it may slightly exceed target of 50% food production compared to 2010 levels.

<sup>19</sup> [http://faostat3.fao.org/download/Q/\\*/\\*E](http://faostat3.fao.org/download/Q/*/*E)



*Figure 4 Projected production of major food groups between 2010 and 2030: WBCSD target versus current trajectory*

### 3. Company data sets and analysis

Table 4 provides a summary of the state of company data for pillar 1. We established three common indicators based on company reporting: farm yield and agricultural input efficiency (1.2); sustainable sourcing/certification of raw materials (1.2); reduction of waste (1.3).

Although several companies report on yield, there was a high level of variation in the transparency, scale, and units of the data. CP Foods highlights a 10-15% increase in corn yields among suppliers compared to the national average in their 2015 annual report.

Monsanto reports progress towards doubling food availability in select crops against a 2000 baseline. Olam reports on yield gains for select crops, but the timescale and units vary.

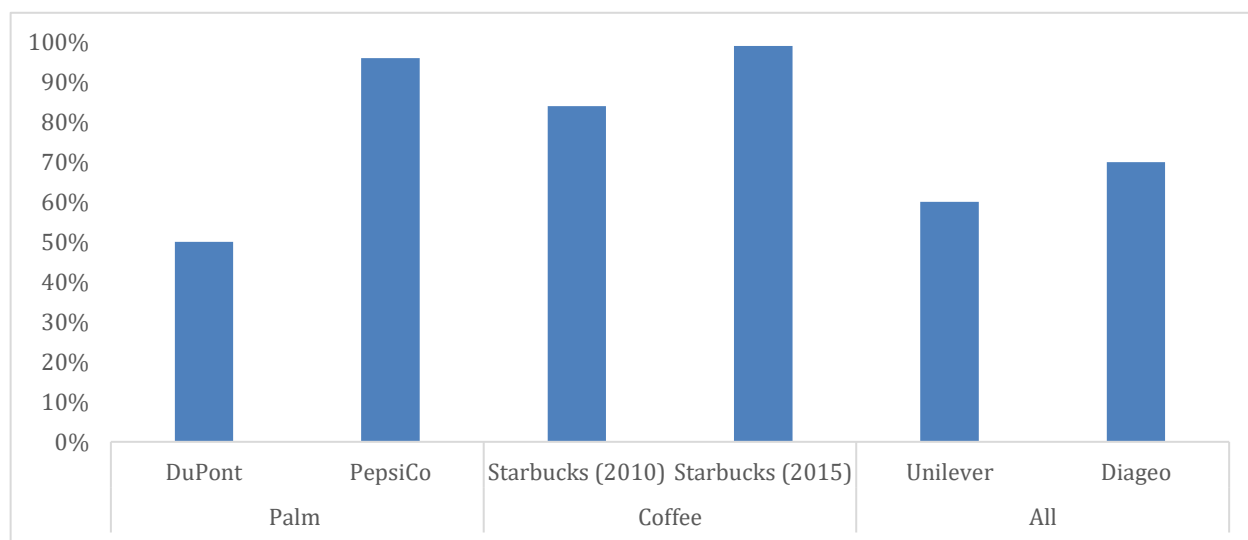
Syngenta is the only company to report yield gains and agricultural input efficiency at the aggregate level, recording a 2% increase in yields in 2015 compared to 2014. Syngenta provides open data access via their website, though data for 2010 are not available. Due to the lack of cohesive reporting on yields, it is not possible to measure progress across companies.

*Table 4 Summary of company data for pillar 1*

Component of WBCSD pillar 1	Indicator categories used 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"> <li>Yield data in numbers (e.g. total tonnes, calories, protein etc.) not percentages</li> </ul>
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"> <li>Data focused on important or high-risk crops (e.g. corn, soy, palm)</li> <li>Absolute yield gains (e.g. per hectare)</li> <li>Percentage increases against a shared baseline year</li> <li>More companies reporting</li> </ul>
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"> <li>Aggregate data</li> <li>Data focused on important or high-risk crops (e.g. corn, soy, palm)</li> <li>Linking sourcing to outcomes</li> </ul>
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"> <li>Data on food waste specifically</li> </ul>

Reporting on certification and sustainable sourcing of raw materials is also limited and varied (Figure 5). Only two companies quantify the aggregate level of sustainable or certified sourcing across their full business, while other companies report for specific high-risk or crucial materials. Only Starbucks reported the overall percentage of certified sourcing for 2010 and 2015. A key challenge of this indicator is that while improving certification and sustainable sourcing are laudable outputs, this measure alone does not provide a direct indication of beneficial outcomes relating to ecosystems, biodiversity, and degraded lands. For example, PepsiCo links this indicator to the number of farmers covered by the Sustainable Farming Initiative, and Starbucks measures it through a percentage of coffee sourced through its own C.A.F.E. Practices certification process. These measures are difficult to hold up

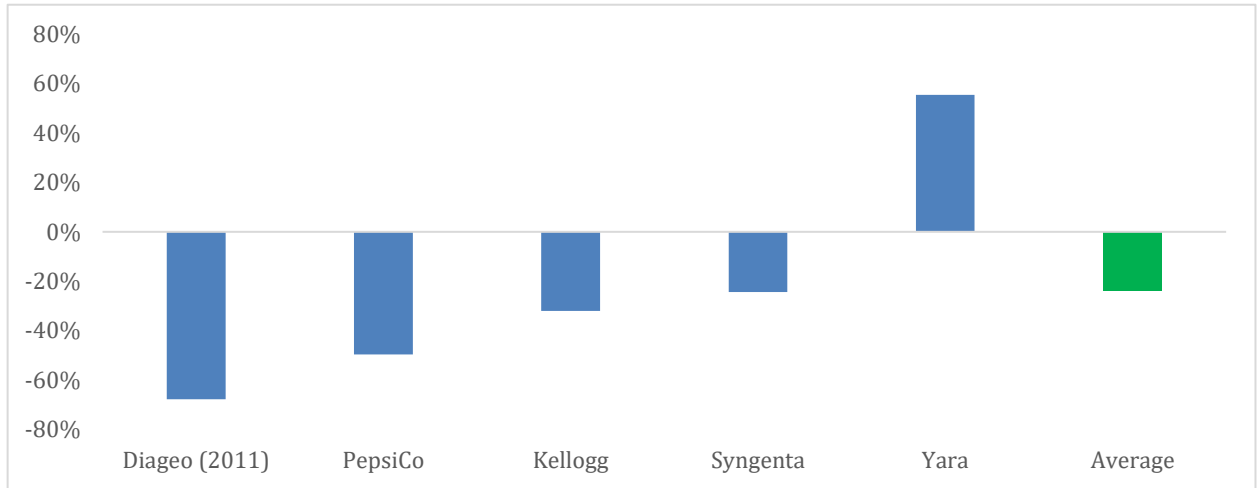
against each other and do not directly indicate sustainability progress. Furthermore, indicators relating to sustainable-sourcing are reported across all three pillars: the concept of sustainability can be linked to environmental, social, and economic factors, making it difficult to separate outcomes related to these factors when the only measurement is the percentage of certified materials.



*Figure 5 Company reporting on percentage of raw materials that are sustainably sourced or certified*

Company reporting on food loss is also limited. Olam provides some aggregated data on product loss across the supply chain. Kellogg refers to overall progress on Sustainable Development Goal of halving food waste. Monsanto ties into food loss using microbial technology for increasing pest and disease resistance, but only reports the number of farms employing the technology, rather than estimating the amount of loss avoided. Instead, over half of the companies track waste to landfill in 2015. Five of these companies also measured this in 2010 (see Figure 6). On average, companies tracking this indicator reduced their total waste to landfill by 24% from 2010-2015. A promising new development is the Champion 12.3 initiative, under which companies will track and report progress towards the SDG ambition of halving food loss and waste.<sup>20</sup>

<sup>20</sup> <https://champions123.org/2016-progress-report/>



*Figure 6 Company reporting on percentage change in waste to landfill, 2010-2015*

#### **4. Conclusions on progress**

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. Though we do not have direct evidence that this food will be equally or more nutritious, all major food groups are included in this rate of growth.

The four WBCSD agricultural input companies (Monsanto, Syngenta, Yara, DuPont) make up an estimated 31% of total sales in the specialised chemicals sub-sector, giving an indication of their contribution to yield gains. However, this estimate does not consider potential yield gains in farming due to innovations and efficiency improvements other than specialised chemical inputs.

The food processing companies (PepsiCo, Coca-Cola, Tyson Foods, Diageo, CP Foods, Olam, Unilever and Kellogg) make up 16.5% of sales in their sector, but this estimate does not consider the total amount of nutritious food produced by these companies.

Although some companies report improvements in yields, more efficient farming, more sustainably sourced their raw materials, and reductions their total waste to landfill, 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.



## Pillar two: resilience

### 1. Recommended framework and indicators

The aim for resilience in the WBCSD Statement of 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. 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.” There are no quantitative targets. To identify indicators, we separate the components as shown in Table 5.

*Table 5 Recommended and current indicators for pillar 2*

Component of WBCSD pillar 2	Recommended indicators that align with WBCSD processes or SDGs	Other recommended indicators	Currently available indicators among two or more WBCSD CSA member companies
2.1 Improve rural incomes and livelihoods (OUTCOME)	<ul style="list-style-type: none"> <li>- Number of people below international or national poverty line (SDG indicators 1.1.1 and 1.2.1)</li> <li>- Average income of small-scale food producers, by sex and indigenous status (SDG indicator 2.3.2)</li> </ul>	<ul style="list-style-type: none"> <li>- Welfare among supplier farmers and wider community, e.g. number hungry months, % children at school, number of doctors per head</li> </ul>	Headcount of improved livelihoods (undefined)
2.2 Implement agroecological approaches (ACTIVITY)	<ul style="list-style-type: none"> <li>- Proportion of local breeds classified as at risk, not-at-risk or at unknown risk of extinction (SDG indicator 2.5.2)</li> </ul>	<ul style="list-style-type: none"> <li>- Extent of agroecological approaches (ha, % operations, % supply)</li> </ul>	Total water use
2.3 Maintain long-term fair relationships with smallholder suppliers (ACTIVITY)	None	<ul style="list-style-type: none"> <li>- Percentage of smallholder suppliers who have entered a fair labour agreement</li> <li>- Provision of services to farmers, e.g. percentage covered by climate information services or financial services</li> </ul>	None (one company tracks the percentage of farmers who have entered a fair labour agreement)
2.4 Empower women in smallholder farmer communities (ACTIVITY)	<ul style="list-style-type: none"> <li>- (a) Proportion of total agricultural population with ownership or secure rights over agricultural land, by sex; and (b) share of women among rights-bearers (SDG indicator 5.a.1)</li> <li>- Proportion of individuals who own a mobile telephone, by sex (SDG indicator 5.b.1)</li> <li>- Proportion of women in managerial positions (SDG indicator 5.5.2)</li> </ul>	<ul style="list-style-type: none"> <li>- Percentage of smallholder suppliers who are women</li> <li>- Income and/or assets of women compared to men</li> <li>- Representation of women in producer organizations and other bodies (% members and % leaders)</li> </ul>	Number of female farmers trained
2.5 Transfer skills and knowledge to smallholder farmers (ACTIVITY)	None	<ul style="list-style-type: none"> <li>- Number and percentage of smallholder farmers trained</li> <li>- Demonstrable outcomes from training e.g. higher quality of product, reduced losses</li> </ul>	Number of farmers (not smallholders) trained

The simplest approach to measure progress on pillar 2 would be to collect some simple activity data on both social and environmental aspects. On the social side, this might be the number of farmers adopting improved practices or provided with climate-smart services such as user-friendly weather forecasts or weather-index insurance products. On the environmental side, it might be number of hectares covered by agroecological approaches. The term “agroecological approaches” (like “climate-smart approaches”) is open to multiple interpretations. Agroecology can be understood as a scientific discipline, a movement or a set of practices.<sup>21</sup> WBCSD has adopted IIED’s description of agroecology<sup>22</sup>, which includes the key functions of increasing functional biodiversity and reinforcing biological regulation. Agroecological approaches are holistic and multi-scale and often rely on highly cooperative institutional arrangements to achieve outcomes across landscapes. The forward linkages from these activities to ultimate outcomes for livelihoods (the theory of change) would need to be tested through research, but not at every site and for every company.

## **2. Global data sets and analysis**

Global data sets on rural poverty can provide a metric towards the overall intended outcome of pillar 2, but are not especially useful for the WBCSD CSA initiative because they do not link to climate change or to private sector activities. On the other hand, the actual WBCSD pillar 2 sub-components are difficult to aggregate and align with global data, as they apply to individual communities (e.g. livelihoods) and companies (e.g. farmer training). FAOSTAT does not have relevant data for that match the WBCSD sub-components of pillar 2.

## **3. Company data sets and analysis**

Table 6 provides an overview of company reporting relating to pillar 2 sub-components. We identified eight common indicators: total water use (2.1); livelihoods improved and farmer loans (2.2); fair labour agreements (2.3); female farmers trained (2.4); farmers and smallholders trained, and youth engagement (2.5).

<sup>21</sup> Wezel, A., and V. Soldat. 2009. A quantitative and qualitative historical analysis of the scientific discipline of agroecology. *International Journal of Agricultural Sustainability* 7 (1):3-18.

<sup>22</sup> IIED 2014. *Agroecology: What it is and what it has to offer*.

*Table 6 Summary of company data for pillar 2*

Component of WBCSD pillar 2	Indicator categories used 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.	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 (m <sup>3</sup> ) for both 2010 and 2015.	Reporting of e.g. hectares covered by agroecological practices
2.3 Maintain long-term fair relationships with smallholder suppliers	Farmer loans	One company measures total value of loans (USD) for 2010 and 2015.	More companies reporting
2.3 Maintain long-term fair relationships with smallholder suppliers	Fair labour agreements	One company tracks the percentage of farmers who have entered a fair labour agreement.	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.	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.	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.	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.	More companies reporting Clearer distinction between farmers/smallholders

Notably absent in pillar 2 reporting are common indicators relating to agroecology. Following Schaller (2013)<sup>23</sup>, agroecological approaches involve increasing natural, farmed or bred functional biodiversity and reinforcing biological regulation. At present, WBCSD CSA companies do not appear to be explicitly tracking activities within this frame or under the wider IIED definition. Rather, most companies report total water use – the most widely reported indicator across pillar 2 – and companies tended to self-report this indicator under the agroecology sub-component of pillar 2. While reducing water use is indeed important for CSA, this indicator is perhaps a better fit for productivity; more efficient water use could fit

<sup>23</sup> Schaller, N. 2013. Agro-ecology: different definitions, common principles.  
<http://agreste.agriculture.gouv.fr/IMG/pdf/analyse591307anglais.pdf>

well under the pillar 1 goal of producing more food with less inputs. However, on average, total water use rose 13% across the reporting companies (see Figure 7).

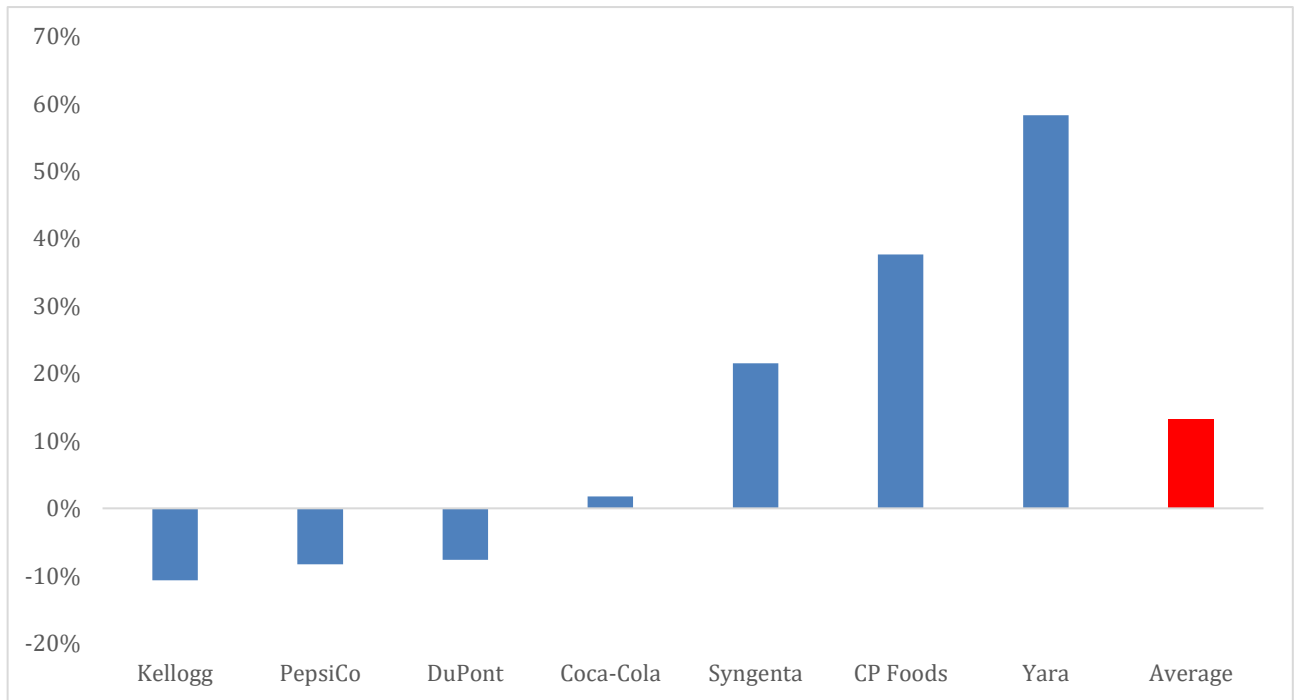
Reporting on rural incomes and farmer livelihoods is seldom quantitative. Monsanto reports a “measurable improvement” in the incomes of resource-poor farmers but no actual numbers. Kellogg tracks and conducts impact assessments on smallholder farmers<sup>24</sup>, and farmer livelihoods in general, but there is little information showing progress compared to 2010. DuPont quantifies the number of farmers, more than doubling the number of households with improved livelihoods between 2012 and 2015, but the extent of these livelihood gains is not specified. Starbucks reports a 46% increase in the value of loans granted to farmers from 2010-2015.

In terms of long-term fair relationships with farmers, Syngenta’s open data set provides measures of seed supply farms covered by their Fair Labor Program, but data are only available dating back to 2014. Olam’s Livelihood Charter appears to be tracking this indicator, but the data are not accessible.

The only commonly reported metric for women’s empowerment is the quantity or percentage of female farmers trained, reported by three companies. No companies reported the number of women trained in 2010, limiting our ability to gauge progress. Additionally, it is also questionable to what extent the indicator measures women’s empowerment. Linking training to outcomes such as improvements in e.g. in wages and income compared to men, share of assets, land tenure, and representation in key decision-making bodies could be more illuminating.

Finally, companies track skill and knowledge transfer in terms of both farmer and smallholder training, and youth engagement. Three companies tracked smallholder training (Syngenta, Monsanto and Olam) and three tracked general farmer training (CP Foods, Olam, and Syngenta) in 2015. In the baseline year of 2010, Syngenta was the only company reporting smallholder training, while CP Foods, Olam, and Syngenta were the only companies reporting farmer training. DuPont and CP Foods quantified youth engagement in 2015, but only DuPont provided data for the baseline year of 2010.

<sup>24</sup>[http://www.kelloggcompany.com/content/dam/kelloggcompanyus/corporate\\_responsibility/pdf/2015/KelloggSmallholdersandWomenImpactAssessmentFINAL.pdf](http://www.kelloggcompany.com/content/dam/kelloggcompanyus/corporate_responsibility/pdf/2015/KelloggSmallholdersandWomenImpactAssessmentFINAL.pdf)



*Figure 7 Company reporting on percentage changes in water use, 2010-2015*

#### **4. Conclusions on progress**

There are no quantitative CSA targets for pillar 2, 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. Total water use, the most widely reported pillar 2 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 pillar 2 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).

# Pillar three: mitigation

## 1. Recommended framework and indicators

The target for mitigation in the WBCSD Statement of Ambition is to “reduce GHG emissions by at least 30% of annual agricultural CO<sub>2</sub>e emissions against 2010 levels (aligned with a global 1.6 Gt CO<sub>2</sub>e/yr reduction by 2030).” This target includes both agricultural emissions (and carbon sequestration on agricultural land) and emissions in the non-agricultural segments of food supply chains, including input manufacture, transport, processing and retail – but not emissions past the point of the consumer’s purchase of the food. A substantial portion of these reductions may be achieved through reducing food waste. To identify indicators, we separate out the components of this target as shown in Table 7.

*Table 7 Recommended and current indicators for pillar 3*

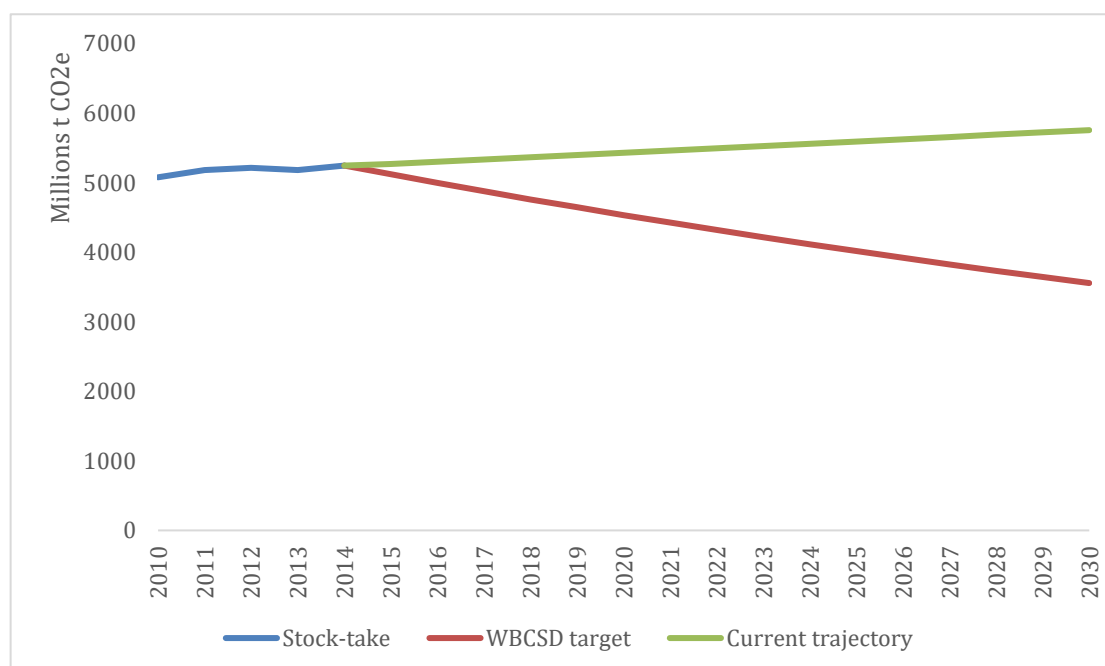
Component of WBCSD pillar 3	Recommended indicators that align with WBCSD processes or SDGs	Other recommended indicators	Currently available indicators among two or more WBCSD CSA member companies
3.1 Direct agricultural emissions (OUTCOME)	- WBCSD Greenhouse Gas Protocol - Important to report total emissions (and fluxes), rather than emissions intensity, to align with the Paris Agreement	- Total emissions from farming systems (CO <sub>2</sub> e) - Scope 1&2 emissions from farms or farming business units (CO <sub>2</sub> e)	- Scope 3 emissions from agricultural inputs, food processing & retail companies (CO <sub>2</sub> e)
3.2 Food supply chain emissions (OUTCOME)	- Emissions per unit of value added (SDG indicator 9.4.1)	- Scope 3 emissions from agricultural inputs, food processing & retail companies (CO <sub>2</sub> e)	- Scope 1&2 emissions from agricultural inputs, food processing & retail companies (CO <sub>2</sub> e) - Emissions intensity of products (CO <sub>2</sub> e per kg) - Use of resource-efficient packaging
3.3 Deforestation and other land use change (OUTCOME)	- Forests Solutions Group zero deforestation commitment plus commitment to restore 30% global forest cover (1990 levels) by 2050, storing 45 Gt CO <sub>2</sub> e	- Total emissions from land use change (CO <sub>2</sub> e)	- Sustainable sourcing/certification of forestry-based goods

## 2. Global data sets and analysis

Table 8 summarizes FAOSTAT data on global direct agricultural emissions, highlighting a 3.3% increase in emissions from 2010-2014. If total agricultural emissions are to be reduced 30% compared to 2010 levels by 2030, emissions will need to decrease at a rate of approximately 2.4%, year on year, from 2015. Figure 8 demonstrates projected BAU agricultural emissions based on the past five years, versus a trajectory where total agricultural emissions are reduced the necessary 2.4% per year, to reach a 30% reduction of emissions compared to 2010 levels. This constitutes a total difference of over 2 gigatonnes, between BAU and best case (target) scenarios. While the companies with baseline data have a 1.6% share of the 2015 emissions burden, even if companies reduce their emissions footprint in line with the 2030 target this will only provide a reduction equivalent to only .7% of total global direct agricultural emissions.

*Table 8 Summary of pillar 3 results for global emissions data*

Global agricultural emissions 2010 (tonnes CO <sub>2</sub> e)	5,077,484,950
Global agricultural emissions 2014 (tonnes CO <sub>2</sub> e)	5,245,823,200
Percent change in emissions, 2010-2014	3.3%
Company share of global ag emissions, 2015	1.2%
Needed annual reduction in emissions to reach goal	2.4%



*Figure 8 Projected total agricultural emissions between 2010 and 2030: WBCSD target versus current trajectory*

### 3. Company data sets and analysis

Table 9 gives an overview of company data covering pillar 3. We established five common indicators for pillar 3: Scope 3 emissions (3.1); Scope 1 & 2 emissions, emissions intensity and resource efficient packaging (3.2); sustainable sourcing/certification of forestry-based goods (3.3). Since none of the companies are solely agricultural companies (and only Olam separates processing and farm emissions), Scope 3 emissions are assigned to sub-component 3.1. Likewise, Scope 1 & 2 emissions fall under sub-component 3.2, concerning food supply chain emissions.

*Table 9 Summary of company data for Pillar 3*

Component of WBCSD pillar 3	Indicator categories used 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.	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.	Data from all companies, in 2010 and 2015.
3.2 Food supply chain emissions	Emissions intensity	Calculated based on Scope 1+2 emissions divided by sales in USD.	The emissions intensity measure used here does not take into account margins. Alternatively, could use e.g. emissions per tonne of food produced.
3.2 Food supply chain emissions	Resource-efficient packaging	Two companies report for 2015.	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.	Harmonization of metrics, e.g. percent covered by FSC. Alternatively, tonnes of C (or CO <sub>2</sub> e) avoided or sequestered.

While nearly half of the companies reported their Scope 3 emissions in 2015, only three companies reported in 2010. Only one of these companies reported Scope 3 emissions in both periods, limiting our ability to trace progress over time. A further complication is that some



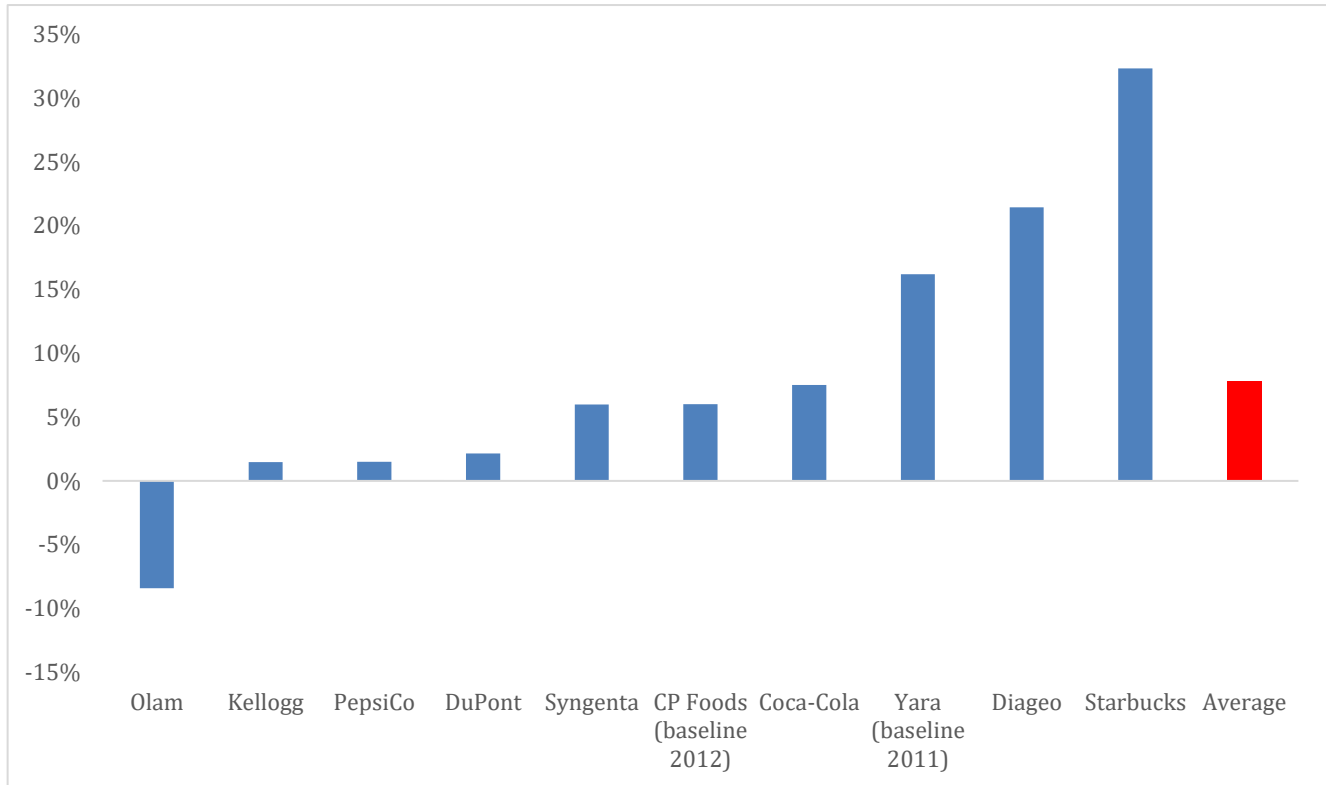
companies were not able to holistically report their Scope 3 emissions. For example, DuPont's 2015 CDP report states that the uncertainty regarding emissions from use of sold products, expected to be the most important Scope 3 category, is too significant to report<sup>25</sup>.

Except for Tyson Foods, all companies reported Scope 1 & 2 emissions in 2015. Monsanto, Tyson Foods and Unilever did not report this indicator in 2010. While some companies directly reported emissions intensity, there were discrepancies. For example, some companies calculated intensity based on emission per kilo product, while others calculated it based on revenue. To harmonize intensity, we calculated emissions intensity for all companies that provided Scope 1 & 2 emissions, based on emissions divided by total revenue (from Forbes).

Few companies reported on improved packaging efficiency. The companies that reported on this indicator used varying metrics: percentage of total packing reduced, reduction in packaging weight, and reduction in fibre usage. Sustainable sourcing of wood-based materials faced similar problems, with companies reporting measures such as net deforestation link to products, percentages of key crops sourced in areas where deforestation is not a risk, and percent of cardboard materials derived under certification. Due to the lack of similar measures and data from 2010, we could not assess progress for either of these indicators.

To measure progress within Pillar 3, we calculated the percentage change in Scope 1 & 2 emissions across companies, comparing the latest data against available baseline data. Figure 9 depicts percentage change in Scope 1 & 2 CO<sub>2</sub>e emissions from 2010-2015, across the ten companies. Except for Olam, absolute Scope 1 & 2 CO<sub>2</sub>e emissions increased for all companies with available data from 2010-2015. Companies' Scope 1 & 2 emissions are not directly comparable to global agricultural emissions; for most WBCSD member companies, agricultural emissions will be Scope 3 emissions. We can see that companies' Scope 1 & 2 emissions are rising faster than agricultural emissions. On average, company emissions increased approximately 9%, compared to global direct agricultural emissions, which increased only 3.3% from 2010-2014.

<sup>25</sup> <http://www.dupont.com/content/dam/dupont/corporate/our-approach/sustainability/documents/DuPont-ProgrammeResponseClimateChange-2015.pdf>



*Figure 9 Company reporting on percentage change in Scope 1+2 emissions, 2010-2015*

However, solely examining absolute CO<sub>2</sub>e emissions provides a limited perspective on company progress. For example, as the global economy recovers from recent financial crisis, overall sales and production are likely to be greater in 2015 compared to 2010, bringing larger absolute emissions. Alternatively, companies may have increased their market share or carried out mergers within the period, which can be assumed to be associated with a heavier total emissions output due to increased production capacity. Even if companies improve their carbon efficiency, a larger production may obfuscate potential efficiency gains when looking at absolute emissions. Instead, evaluating relative emissions intensity (i.e. tonnes CO<sub>2</sub>e per USD in revenue) provides a more nuanced picture.

Figure 10 demonstrates that while total emissions increased from 2010-2015, emissions intensity decreased in the same timeframe for most companies. This indicates that progress is being made in increasing efficiency and reducing emissions, with companies achieving varied levels of success.

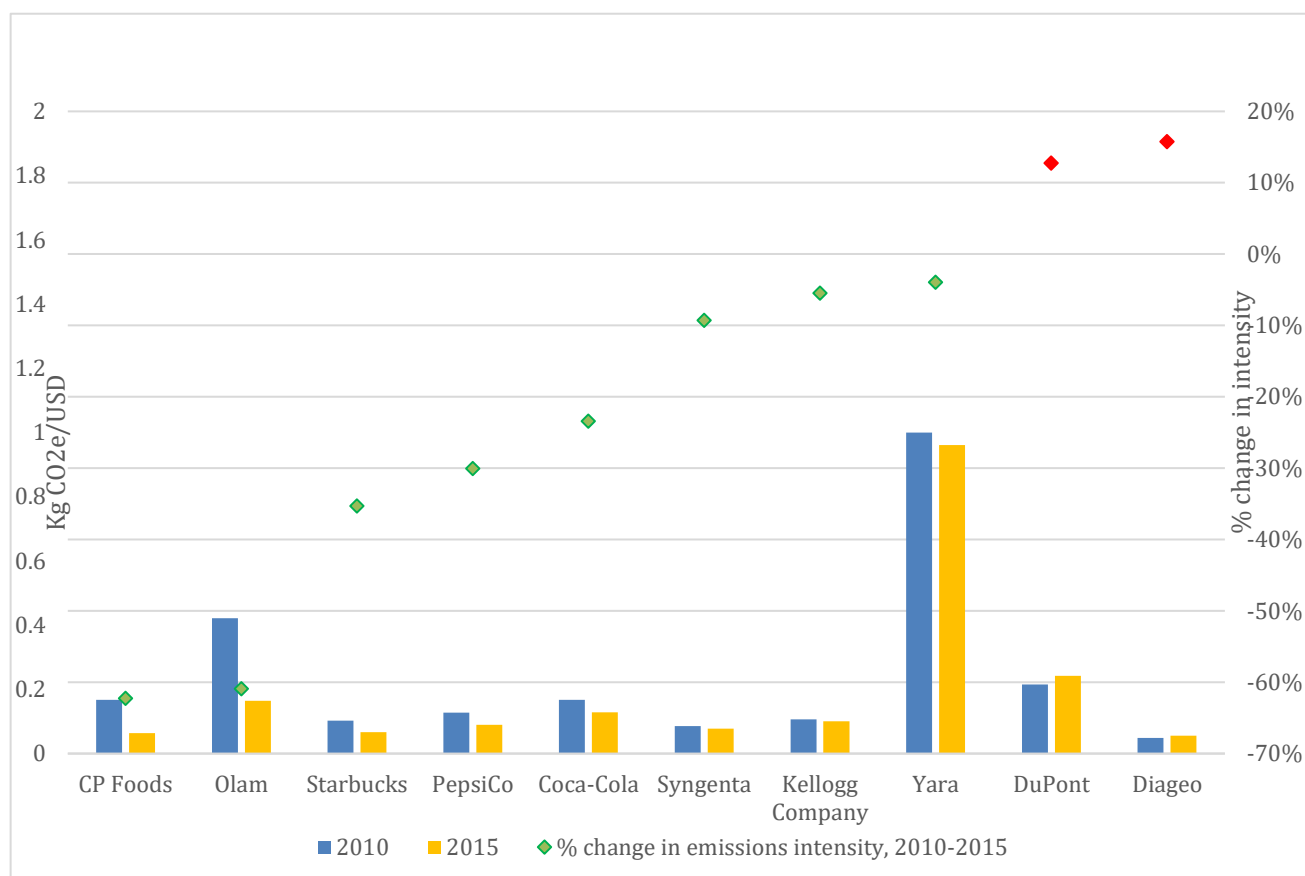


Figure 10 Company reporting on Scope 1 & 2 emissions intensity, 2010-2015

#### 4. Conclusions on progress

Between 2010 and 2015, global direct agricultural emissions and company Scope 1 & 2 emissions increased, 3.3% and 9% respectively. 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.

## Conclusions and ways forward

### **Opportunities for companies: building CSA metrics into regular practice**

Climate change is an increasing risk for companies operating in agriculture and food systems. There may be strong rationale to build climate risk assessment into current systems, not as a standalone “CSA” initiative but simply through integration of a few additional indicators into regular monitoring and evaluation protocols. The sections above on each CSA pillar provide recommendations of indicators, drawing directly from the SDGs and existing WBCSD work where possible.

An important consideration for any company is how any activity or intervention will lead to desired outcomes for productivity, resilience and mitigation, taking into account scale effects and trade-offs. Several tools now exist to help farming operations and rural development projects to weigh up options for agricultural investment. A useful resource, particularly at the level of farm operations, is the CSA Planning and Indicator Tool (<https://ccafs.cgiar.org/csa-programming-and-indicator-tool>). This guides the user through a process to: consider how an intervention will perform on each CSA pillars, to compare the scope and CSA intentionality among different project designs, and to select CSA indicators. The tool includes a database with information and links for more than 350 CSA indicators that are currently used by international development agencies, the private sector, NGOs and research institutes.

### **Opportunities for road-test countries: shared measurement across value chains**

Food systems are complicated, with many interconnections and feedback loops. Real progress towards the Statement of Ambition on CSA will benefit from systems-wide action and collaboration, going well beyond what companies can do individually. For a nutrient supply company, for example, helping to raise smallholder productivity might involve higher company-level emissions as more mineral fertilizer is manufactured to meet demand, but a value-chain and landscape approach might demonstrate how this is more than offset by gains in local livelihoods and resilience, coupled with reduced deforestation. For an insurance company, the returns to a crop weather insurance product might increase dramatically if

issued with lower premiums for farmers who use agroecological approaches, climate-adapted breeds or other proven CSA practices.

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.

## **How are we doing? Progress and outlook on the global Statement of Ambition**

The WBCSD CSA working group plans to report in 2018 on progress towards the global Statement of Ambition. The snapshot of progress we have for each pillar between 2010 and 2015 is that:

For pillar 1, productivity, we are exceeding targets for global food production. However we have less information on whether this food is nutritious, available and affordable. We also need to know more about whether we are achieving higher productivity per unit of input, and sustainable use of resources, not just higher production.

For pillar 2, resilience, we know very little indeed. Neither companies nor global datasets are keeping track of the resilience and welfare of agricultural communities and landscapes under climate change.

For pillar 3, mitigation, we are falling behind targets for agricultural and food system emissions. While there have been some impressive improvements in emissions intensity for some foods and beverages, increasing levels of production mean that absolute emissions are rising.

In short, a lot of work needs to be done – on measurement of course, but more importantly on action. WBCSD member companies have rightly set out an ambitious statement of intent to address the massive climate challenges that global society faces together. This early snapshot of progress can hopefully stimulate shared learning and renewed investment.



RESEARCH PROGRAM ON  
**Climate Change,  
Agriculture and  
Food Security**



The CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS) is a strategic initiative of CGIAR and Future Earth, led by the International Center for Tropical Agriculture (CIAT). CCAFS is the world's most comprehensive global research program to examine and address the critical interactions between climate change, agriculture and food security.

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