

Advancing Value Creation and a Sustainable Transition by Capturing Stakeholders'
Perspectives – A Case Study

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Abstract

The objective of the research was to explore whether multi-dimensional, forward-looking sustainability indicators were effective value creation tools for capturing stakeholders' perspectives. The backdrop was the food sector with a \$1.2 Billion agri-food company (Food Co.) functioning as a case study. The research methodologies were materiality assessment and scenario analysis. The materiality assessment used an online survey for scoring stakeholders' perspectives on the materiality of 15 sustainable development indicators. The results indicated areas of alignment and disconnects between stakeholders. Using the UN Millennium Ecosystem Assessment scenarios (4), semi-structured interviews, stakeholders' insights were collected on each scenario's impact on their operations, potential adaptive strategies, risks and opportunities. The findings from the two methodologies indicated that when the insights were integrated, the most concerning disconnects in the materiality assessment, became in the scenario analysis, strategic priorities for Food Co.'s internal stakeholders. The findings might enable Food Co. to develop strategies for managing risk as well as a sustainable transition.

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1 – INTRODUCTION

CONTEXT

Human activity is rapidly drawing down on assets from the balance sheet of the world. Currently, humanity is using the resources of one and a half planets and if current consumption rates continue, the UN predicts that by 2030, two planets will be needed to support the world. The UN Millennium Ecosystem Assessment (MA) group which in 2000 conducted the largest audit in history on the state of ecosystems development warned in its publication, *Living Beyond Our Means* (2005) that “human activity is putting strain on the natural functions of Earth so that the ability of the planet’s ecosystems to sustain future generations can no longer be taken for granted”. The audit found that between five and twenty per cent of freshwater use exceeds long-term sustainable supply and that the agriculture sector which currently uses 90% of all fresh water will need an additional 19% to produce extra food. A 2015 study published in the journal *Science Advances* forecasts the worst drought conditions in more than 1,000 years for the U.S. Southwest and Central Plains after 2050 that will perpetuate because of global warming. Andrew Winston in his book, *The Big Pivot* quantifies this dilemma in dollars and quotes the total value that nature provides to be an estimated \$33 trillion annually. Put another way, the global economy is consuming or damaging natural capital, for free, to the tune of \$7 trillion dollars every year. If one embraces Jonas Salk’s sentiment that “ Our greatest responsibility is to be good ancestors”, then the business sector, as a critical actor in the health and wellbeing of the planet faces difficult challenges. Allen White of the Tellus Institute, the American research and policy institution, wrote “If financial wealth, the paramount metric of contemporary company

performance, is built on the unsustainable or unjust extraction of other forms of capital, the long-term prospect for business is grim. Assessing value creation in the global economy requires a holistic approach to how value accrues to different providers of capital, whether it is financial, human, social or natural.” (White, 2013) Capitalism 1.0 needs a re-boot.

The Research Opportunity

Financial modeling experts have provided evidence that standard metrics for capturing a company’s true value such as financial statements and stock prices no longer accurately reflect a company’s actual value. New models are emerging. Elkington and Zeitz in their book, *The Break-Through Challenge* (2014, p.2) argue that value creation “...requires us to co-evolve a shared vision of a radically better future – and to work out new ways to measure and incentivize.” They believe (2014, p.2) that:

“ We must build the foundation of tomorrow’s prosperity by expanding the focus of accounting and reporting from financial and manufactured forms of capital (for example, infrastructures, buildings and equipment) to embrace other forms, including intellectual (intellectual property, patents, tacit knowledge and intangible assets like brands), human (people’s competencies, capabilities and experience), social (shared norms, common values, key stakeholder relationships and an organization’s social license to operate), and natural (air, water, land, minerals, forests, biodiversity and wider ecosystem health) forms. “

The sustainability transition and a sustainable future means that the model for value creation needs to a shift away from an emphasis on economic value with its focus on quantity, to sustainable development which focuses on economic, environmental and social qualities. The UN Millennium Ecosystem Assessment Group states that the world needs agriculture to contribute to economic and social development. While the agriculture sector accounts for approximately three per cent of global GDP, it employs 2

billion people around the world, at least part-time. In addition, the world needs the agriculture sector to reduce its impact on the environment and natural resources in three areas- ecosystems, climate change and water. The models and systems to measure environmental, economic and social impacts as sources of valuation creation are currently, works in progress.

How will businesses in the food and agriculture sectors balance constantly diminishing natural resources, fresh water access, ecosystem breakdowns, supply chain instability and the effects from climate change with an increased demand for food to feed nine billion people? The current qualitative and quantitative tools for assessing businesses' impacts and future strategies in the agri-food sector do not embrace a holistic approach that integrates food, water and energy systems. Instead, according to The Economics and Ecosystems and Biodiversity initiative (TEEB, 2014) ecosystems, biodiversity and agricultural and food systems are typically evaluated in isolation from one another. In addition, when examining future strategies, Swart, Raskin and Robinson (2004, p.145) believe that "Often scenario exercises focus on a single dimension of sustainability, such as climate change, biological diversity, poverty, international security, demographics, water, agriculture and energy" and that " a systemic and integrated perspective will help - real key linkages that influence the focal problem". Further, qualitative perspectives, such as stakeholders' views on what is most important to them, which are critical for value creation, have not been integrated into ecosystem services assessments. The researcher believes that there is an opportunity to fill the gap in sustainable development approaches with qualitative and quantitative strategies that holistically engender multi-dimensional sustainable development values from stakeholders' perspectives. Those perspectives

could contribute to value creation and guide a sustainable transition in the agri-food sector going forward.

New Knowledge

The research focuses on the agri-food sector and how one company specifically (Food Co.) might create value through stakeholder relationships and drive its sustainable transition. The research framework explores value creation through two perspectives unique to Food Co.- its social, economic and environmental impacts and its relationships with its customers and supply chain of growers. Further, the research assesses possible linkages between the two perspectives, which might provide Food Co. with a roadmap to realizing a sustainable future. The perspectives are framed by two contexts: first, relevant agri-food social, economic, and environmental indicators developed by the Global Reporting Initiative (GRI), the de facto leader in sustainability reporting; and second, indicators from the multiple dimensions of the UN Millennium Ecosystem Assessment scenarios, the largest audit of the planet's ecosystems in history. The indicators are intended to identify Food Co.'s sustainable development priorities now and in the future. In terms of sustainable development, there may be examples of areas of alignment and disconnects between Food Co. and its external stakeholders that will impact the strength of Food Co.'s stakeholder engagement, its economic performance, and its ability to meet its sustainable development targets. The scenario analysis provides a qualitative context for the stakeholders to re-imagine the future and reassess their priorities. Potential outcomes might include Food Co. reconsidering its strategies to adapt new or different priorities to engage stakeholder groups in different locations or with distinct agendas such as income inequity and food security.

The research is intended to provide Food Co. with a strategic framework for managing stakeholder relationships as a critical source for creating value and being resilient in the near and mid-term.

Research Question

How might multi-dimensional, forward-looking sustainable development indicators that capture stakeholders' perspectives advance value creation and a sustainable transition in the agri-food sector?

Purpose Statement

The strategic intent of this research is to explore how stakeholder engagement in an agri-food company (Food Co.) might be impacted by two methodologies, materiality assessment (quantitative) and scenario analysis (qualitative) as tools that drive value and facilitate a sustainable transition in the mid to long-term.

2.0 METHODOLOGY

Introduction

Traditional financial tools used to reflect and generate value are falling short in capturing an accurate picture of the value of businesses in the 21st century. For publicly traded companies, value traditionally has been reflected in the stock price and the principal focus for management and the Board of Directors has been meeting shareholders' and analysts' expectations for the next quarterly earnings estimates.

The emerging valuation models embrace a different philosophical mindset – a collaborative vision including all stakeholder groups and a long-term time horizon.

Identifying areas of aligned interests and mutual concern with its most important stakeholders in terms of sustainable development enables a company to establish priorities and make strategic choices. Gathering that kind of business intelligence requires diagnostic and reporting tools. Perrini and Tencati (2006, p.305) state that, “one of the keys for a successful strategic management is the availability of sustainability accounting tools capable of monitoring and tracking corporate performance from a qualitative and quantitative viewpoint and particularly, the state, (i.e. the sustainability), of different stakeholder relationships.” Sustainable development by definition focuses on the long-term that requires forward-looking tools which are especially critical for business sectors such as food and agriculture that are so vulnerable to risks such as ecosystems breakdown, supply chain instability, freshwater access, climate change and disease pathogens emerging at anytime and anywhere. Change can be quick and recovery takes time. Swart *et al.* (2004, p.143) state, “Forward-looking analysis is the appropriate methodology if we want to explore how different plausible socio-economic trends would work out in the short-term future and how these might interact with changes in natural systems, taking into account all relevant scientific uncertainties.”

To address the research question the methodologies included:

1. Selection of an agri-food company (Food Co.), internal stakeholders, and external stakeholder groups, and
2. Materiality assessment.

Process:

- Selection of a set of sustainable development indicators (15) from the Global Reporting Initiative Guidelines (GRI4);

- An online survey of the indicators completed by external and internal stakeholders indicating the materiality of each indicator and
- An analysis of survey findings and creating graphs (Figure 2, Figure 3).

3. Scenario analysis

Process:

- From the Millennium Ecosystem Assessment Scenario documents, a synopsis of each scenario (4) for the period 2015-2030 was developed and distributed to each participant in advance of an semi-structured interview;
- Semi-structured telephone interviews with stakeholders that asked them for their interpretations on how each scenario impacted their organization's operations, potential adaptive strategies, risks and opportunities, and
- Syntheses of stakeholder interpretations.

Limitations

For reasons of time and resources the stakeholder groups were limited to internal and external stakeholders (customers, suppliers) of Food Co. that were based in North America. The name of company and the participants are kept confidential at their request.

A Case Study

While there are many generic guidelines and measures for sustainable development business models, there is no one size fits all solution. In the agri-food sector, companies in the same market niche might have similar product profiles but differ in size, marketing presence and supply chain networks. The sector reflects the dynamism and sustainability challenges of operating within the food-energy-water nexus. This research focused on one food company (Food Co.) and its external stakeholders, which included three

organizations that were Food Co.'s customers and two of its grower suppliers. The benefits of this case study approach include: collecting a variety of perspectives along Food Co.'s supply network; gaining insights into stakeholders' unique experiences; scanning for potential problems or opportunities for the sector, and identifying new collaborative ideas.

Food Co.

Food Co. is a publicly traded North American company with global operations focused on specialty food products and with annual revenues over \$1.2 Billion. It is a leading global company specializing in the sourcing, processing and packaging of natural, organic and specialty food products. It has a network of approximately 5,000 suppliers encompassing approximately 10,000 growers. The company's core natural and organic food operations focus on value-added grains, fiber, and fruit-based product offerings, supported by a global infrastructure. Approximately 300 customers use its food products worldwide, including some of the largest U.S. consumer-packaged food companies.

Internal stakeholders (5)

The internal stakeholders were selected from the following areas:

Treasury; risk management & internal audit; marketing; business development, and ingredient innovation.

External Stakeholders

Customers (3)

- The first customer is a \$ 500+ million publicly traded company that is the leader in natural and organic markets for macaroni and cheese, snack crackers, fruit snacks, and graham crackers. The product portfolio includes 135 products that

are sold in over 26,500 retail locations in the United States and Canada.

- The second customer is a privately held and employee-owned company that produces a dozen organic food and drink products and generates revenues of an estimated \$235 million. For the past ten years it has grown at an annual compounded growth rate of 17%. Its products are sold in Australia, Austria, Germany, Ireland, Canada, Japan, New Zealand, U.K., the U.S., and Switzerland. Seventy per cent of the company's purchased ingredients are certified organic.
- The third customer is a company that is majority owned by a European-based yogurt enterprise that produces organic yogurts, smoothies, soy yogurts, frozen yogurts, milk, and cream that are sold in supermarkets, natural food stores and colleges across the U.S. The company generates more than \$360 million in revenues. The products are made without the use of toxic persistent pesticides, artificial hormones, antibiotics or GMOs. The company is supported by a network of hundreds of organic family farms, thousands of organic cows, and over 200,000 organic acres.

Suppliers (2)

- The first supplier is a third generation, Minnesota based grower who manages a 2,300-acre farm, which grows organic alfalfa, soy and corn.
- The second supplier is a second-generation northern Minnesota farmer, who grows non-GMO wheat, corn, soy and beans on a 2,300-acre farm.

Food Co. and its external stakeholders in this research shared a commitment to responsible growing and production practices.

Quantitative strategy - Materiality Assessment

Typically, accountants have used materiality framework and have focused on historical data for accuracy and veracity. The Technical Protocol of the Global Reporting Initiative (2011, p.3) a leading organization developing sustainability metrics has described material aspects as those topics that “.... have a direct or indirect impact on an organization’s ability to create, preserve or erode economic, environmental and social value for itself, its stakeholders and society at large.” With sustainable development, companies need appropriate systems to assess whether they are responding to stakeholder concerns in an effective way as well as communicating and demonstrating outcomes of its stakeholder engagement activities. Sustainable development requires businesses to deepen the scope of business practices to include a framework of time, space (locations) and the context which means planning longer term as well as addressing the expectations of stakeholders. Metrics are change agents and the findings from this methodology might enable Food Co. to re-assess its stakeholder engagement strategies.

Materiality assessment:

- Identifies what long-term environmental, economic and social issues are important to internal and external stakeholders;
- Attains a broader perspective of the people whose actions influence performance, and
- Gains deeper insight into the information necessary for sound decision-making including financial and non-financial data as well as relevant forward-looking indicators.

Process

The objective of material assessment in this study was to identify from the results of an online survey, areas of alignment and differences between Food Co. and external stakeholders. This study used 15 indicators: four social indicators; five economic indicators and six environmental indicators which were drawn from the Global Reporting Initiative Guidelines (GRI, G4) as well as from the GRI food processing sector supplement. Participants completed the online survey (SurveyMonkey), in which they rated the importance of each indicator on a scale of one to ten, one being not important and ten being very important. Internal stakeholders scored how important each indicator was to Food Co. as well as how important they perceived each indicator was to the company's external stakeholders. External stakeholders scored the materiality of each indicator to their own operations as well as how important they perceived each indicator was to Food Co. The scores for Food Co.'s internal and external stakeholders were plotted on two graphs (Figure 2) and (Figure 3).

The expectation from materiality assessment in this research is to establish the current social, economic and environmental priorities of Food Co. and its external stakeholders and from those findings to gain insight through scenario analysis as to whether those priorities might change in the context of plausible futures. The findings could inform decision making for Food Co. on stakeholder engagement as well as its sustainable transition.

Qualitative strategy - Scenario Analysis

There are many examples of once powerful companies or industry sectors (e.g. Kodak, the music industry, print media) that have been disrupted or now reside in a corporate graveyard because senior management and the Board of Directors fell victim to willful blindness on the impact new technologies, emerging cultural trends and climate change would have on their industry sector and operations. The 21st century reality of constant change, volatility, exponential technology advances and relentless competition demand strategies that take management out of its comfort zone to confront “what if?” questions of the future and contemplate adaptive strategies that generate resilience. Foresight methods are useful tools to generate, present, manipulate, and evaluate information in the context of different future views that pose questions, such as –“ What may happen? ” ; “ What is most likely to happen? “; “What would we prefer to happen?” which leads to forming strategies to address the critical question of “What do we do now? ”. Foresight methods include: scanning; trend analysis; trend monitoring; scenarios; polling and brainstorming. Scenario planning is described as “...a description of a possible set of events that might reasonably take place.” (Jarke, Bui, Carroll.1998, p.2) This study used scenario planning as the approach to address the “what if“ because it addressed what Shoemaker (Shoemaker, 1995) stated as the “...two common errors in decision-making – under-prediction and over-prediction of change.” Scenarios are intended to augment understanding and inform good decisions. Scenario planning approaches this by dividing knowledge into two areas: things we believe we know something about and elements we consider uncertain or even unknowable. Scenario analysis contrasts with short-term futures analysis, which is predicated on a higher degree of predictability. Scenarios

typically serve two functions: risk management, where scenarios enable strategies and decisions to be tested against possible futures and generating creativity and sparking new ideas (Lang, 2001).

The dilemma of risk management is especially acute for the food and agriculture sectors because they depend on the health of ecosystems that support: human wellbeing with basic material needs such as food and shelter; individual health; security; good social relations, and freedom of choice. Key ecosystem services include: nutrient cycling; pest regulation; pollination and sustainable agriculture productivity. TEEB (2014) argues that ecosystems, biodiversity and agricultural and food systems are typically evaluated in isolation from one another. Swart *et al* finds that scenarios for the food and agriculture sectors typically focus on single issues. The objective of the UN Millennium Ecosystem Assessment Scenarios (MA) was to help decision-makers factor information about changes in ecosystems into their strategic planning. The MA scenarios offered an integrated, multi-dimensional perspective on the future of food and agriculture and it was for those features that they were selected for this research. In addition, for reasons of time and resources for this research, it would have been impossible to create four scenarios specific to the context of Food Co.

Process

The objective of scenario analysis in this study was to identify areas of alignment, differences, mutual concerns and adaptive strategies of Food Co.'s stakeholders within the context of the MA scenarios for the period 2015-2030. The four MA scenarios are Global Orchestration, Order From Strength, Adapting Mosaic, and TechnoGarden. The

data collection process included the distribution of a description of the framework of each scenario that included its world view as well as the state of the environment; energy use and production; availability of fresh water; food production etc. as well as potential risks and opportunities.

The researcher conducted semi-structured telephone interviews with each participant and asked *for their interpretations of and insights* on three basic questions for each scenario:

1. How might each scenario impact their company/operations? ;
2. What adaptive strategies might their company/operations undertake? , and
3. What risks and opportunities did the scenario present?

The researcher recorded participants' responses by taking notes. The information was aggregated for analysis.

Materiality assessment and scenario analysis: the quantitative and qualitative methodologies in this research process addressed the gaps in current tools for identifying the most critical sustainable development issues for Food Co. with a holistic framework that focused on stakeholder engagement as a critical element for generating value and facilitating its sustainable transition.

3.0 LITERATURE REVIEW

Introduction

The transition to a sustainable future is probably a long one. There are a lot of challenges and barriers in terms of accessing tools and strategic models to manage and measure impacts. While there is no consensus on how to define corporate sustainability Dyllick and Hockerts (2002, p.131) adapt the Brundtland Commission's definition with the statement " ...meeting the needs of a firm's direct and indirect stakeholders without

compromising its ability to meet the needs of future stakeholders as well.” Sustainable business model development includes consideration of all stakeholder groups such as customers, supply chain networks, NGOs, public institutions, investors, community groups and industry associations. Bob Willard, author, consultant and pioneer in sustainable development frameworks, outlines the five-stage journey to sustainable development (Willard, 2010):

Figure 1. The 5-Stage Sustainability Journey



Author: Bob Willard (2010) - Printed with permission

Stage 1 - Pre-compliance

- Companies cut corners and trying to elude getting caught in practices that are exploitative;

Stage 2 – Compliance

- Businesses manage their liabilities by obeying all labor, environmental, health, and safety regulations. Typically environmental and philanthropic social efforts are considered as costs;

Stage 3 – Beyond Compliance

- Companies become more pro-active and pursue operational eco-efficiencies after they realize that they can reduce costs;

Stage 4 – Integrated Strategy

- Companies adopt a sustainable borrow-use-return design that captures added value from breakthrough sustainability initiatives that benefit all stakeholders, and

Stage 5 – Purpose/Passion

- Companies are driven by a passionate, values-based commitment to improve the well being of the company, society, and the environment. They are motivated by a need to build a better world because it is the right thing to do.

Tracking and measuring progress through the five stages is challenging. What are the tools and frameworks for measuring and assessing progress throughout the five stages?

While there is consensus that “Capitalism 1.0 model ” is unsustainable and that intangible assets such as natural capital, human capital and stakeholder capital are driving value creation in the 21st century, the methods for quantifying those assets are in the early stages of development. The UN, in collaboration with a few other government bodies is

undertaking the first stage in developing ecosystem accounting. There are no internationally sanctioned standards of sustainability performance measurement although there are a number of organizations working toward it. Currently there are more than 100 rating systems evaluating various aspects of the environmental, social and governance performance of more than 10,000 companies using more than 400 issues and 2,000 indicators.

The objective of this research was to explore whether quantitative and qualitative strategies that integrate stakeholders' perspectives could drive a sustainable transition and identify opportunities to create value over the mid to long-term. To that end, the literature review explored research on:

- Value creation - the business models in the 21st century are undergoing fundamental change and intangible assets are driving value;
- Stakeholder engagement - stakeholder capital can impact companies' economic performance and sustainable transition;
- Materiality assessment - understanding the needs and expectations of stakeholder groups are critical to enabling organizations to meet sustainable development goals;
- Sustainability indicators - identifying areas of alignment and difference between stakeholder groups will facilitate organizations' sustainability journey;
- Scenario analysis - forward-looking strategies are critical to managing risk, strategic planning and innovation in the mid to long-term;
- The trends and drivers in the agri-food sector - understanding the externalities will frame corporations' strategic development and

- Trade-offs in corporate sustainability and ecosystem services - the dynamism of the agri-food sector will pose difficult decision making challenges to corporate managers to sacrifice gains and benefits in one area in order to support another.

Value Creation

Traditionally, value creation and corporate valuation models have been captured on financial statements, which reported earnings, assets and liabilities. Stock price performance of publicly traded companies was projected from past earnings performance, historical trends and asset models that were driven by earnings and the value of fixed assets. Shareholders were considered “the owners” of the company and all business activity was geared to satisfying their ROI expectations and meeting next quarter’s earnings estimates. One of the underlying themes for development and adoption of sustainable development business models is one of less top-down control, collaboration and engaging in more stewardship. This change in scope reflects the literature on value creation in the 21st century. Wallison and Litan (2000) state that as recently as the 1980s, financial statements were arguably capable of capturing 90 per cent or more of the true risk profile and value potential of major corporations. However, they found that increasingly these reports are becoming less relevant for accurate valuations. Their position is supported by the work of Professor Baruch Lev at New York University’s Stern Business School (2001), who found that around 15 years ago, the accuracy of value from financial statements valuation had dropped to less than 20 per cent on average. For projecting investment returns, Wallison and Litan (2000) argue that conventional financial statements do not provide sufficiently useful information. For example, in 2013

Apple's market valuation was \$505B, the value of tangible assets accounted for less than 25% of that number which meant that 75% of its value was generated by its stakeholder relationships. Managing and building the intangible asset base are critical for enhancing sustainable development. In *Investing in a Sustainable World*, Kiernan states that the most significant intangible drivers of value are four of the key pillars of sustainability: environment; human capital; stakeholder capital and, strategic governance.

With evidence that current valuation systems are not working, what new models are emerging? Sustainability researchers believe that new systems that account for a company's activities related to people, planet, and profit are the parameters for sustainable development models.

For Perrini and Tencati (2006), new evaluation and reporting systems should be broadening, integrating and improving the traditional financial/economic strategies that reflect corporate performance to include stakeholder needs and expectations. In addition, Elkington and Zeitz (2014) call for shared vision that is founded on longer-term thinking, strategy and investment that include broader metrics on the health and wellbeing of individuals, communities and ecosystems. Impactful stakeholder management is critical to enabling a sustainability transition.

Stakeholder engagement

Post, Preston, Sachs (2002, p.9) state that "the capacity of a firm to generate sustainable wealth over time, and hence its long-term value, is determined by its relationships with critical stakeholders". The Global Initiative Reporting (G4) Guidelines (2014, p. 92) defines stakeholders as "Entities or individuals that can be reasonably expected to be significantly affected by the organization's activities, products and services; and whose

actions can reasonably be expected to affect the ability of the organization to successfully implement its strategies and achieve its objectives.” McElroy (2013) defines a stakeholder in an organization as ” anyone to whom the organization believes it owes a duty or obligation to have, manage or refrain from having impacts on vital capitals of importance to their well-being. “

The implications for embracing stakeholder inclusiveness are that management must become vigilant and responsive to emerging stakeholder groups, know and understand stakeholder group concerns and changing priorities as well as becoming more sensitive to inter-stakeholder relationships and grasping the importance of mutually beneficial policies. However, managing stakeholder engagement has its challenges. Companies need appropriate systems to measure and control their own systems in order to assess whether they are responding to stakeholder concerns.

Perrini and Tencati (2006, p.299) point out that current strategies suffer from confusion and lack of clarity and that there is not an effective and clear approach to analyzing the sustainability efforts of companies. In addition, they argue that the most advanced methods are not designed to take a comprehensive approach to managing different stakeholder groups. These shortcomings raise challenges for companies to prioritize stakeholder groups and devote resources toward areas with the most impact. Perrini and Tencati (p. 305) believe that a comprehensive strategy including qualitative and quantitative information is critical to successful strategic management and that there is need for new systems that measure the corporate performance within a stakeholder framework. In terms of setting priorities for sustainable actions, Searcy (2009) states that

stakeholder management enables companies to set priorities and that those priorities must be explicitly addressed by the indicators and indices that measure progress at the level of the company and its supply chain.

Materiality Assessment

Materiality assessment forces a company to set priorities by deciding “yes”, “no” or “maybe” to sustainable development issues. In order to make those decisions, a company needs a thoughtful strategy. The consulting firm SustainAbility (2014) highlights some of the mistakes made commonly in materiality assessment as:

- Identification of too many issues, which fail to identify which issues are truly material to the business;
- Not taking a value chain approach, which could provide an accurate assessment of material issues;
- Using generic interview approaches which do not identify critical information that provide meaningful insights;
- Not identifying the knowledge experts, who are the sources of the best quality of input;
- Weak measurement tools that could generate inaccurate and misleading scoring;
- Plotting the results of the assessment in a manner which do not capture how some issues might be connected, and
- The materiality process falling victim to competing priorities within a business and critical issues falling between the cracks.

In addition, Murningham (2013, p.10) outlines the limits of materiality assessment maps

in terms of capturing future priorities as they relate to the changing environment. “While useful as a preliminary map, the effectiveness of materiality matrices is somewhat limited. That’s because they often don’t show the priorities of different groups, or the industrial benchmarks used by peers and investors to compare performance, or characteristics such as “innovation” that represent resilience and adaptability to changing times. They also don’t show key sustainability performance indicators within an industry, or provide for future disruptive events or changes in stakeholder priorities that may change the mix. “ Indicators reflect values and are necessary to manage the challenges and uncertainties in sustainable development. The art and science is selecting indicators that are meaningful.

Sustainability indicators

Most public companies have some form of sustainability program in place and publish their performance in terms of their energy consumption, water withdrawal rates, community impacts and greenhouse gas emissions in the previous year and some provide additional information on their progress toward stated five or ten year targets. These metrics within the context of global impacts are flawed because the indicators are typically internally generated, backward looking, peer related and extrapolate from the past. In addition, the state of sustainability metrics and sustainability reporting is fragmented, evolving, and confusing with many players using their own metrics systems. If the objective of sustainable development is to, in aggregate, address the planet’s capacity to sustain and support human well-being, then current indicators do not reflect an understanding of the social, economic and environmental impacts that each company is making within its own sphere of influence – location of operations, its supply chain

network, fresh water access and energy consumption. Willard (2013) states that the current rankings of companies on their sustainability progress is lulling companies into a false sense of security because of the absence of tools constructed on rigorous science-based performance benchmarks.

The Global Reporting Initiative (www.globalreporting.org) is a leading organization in the sustainability field. GRI supports and encourages the strategies of stakeholder inclusiveness, materiality assessment, and tools such as sustainability indicators for guiding companies on their road to sustainable development and publishing sustainability reports. The GRI guidelines are the de facto standard for public companies to report their sustainability performance and impacts. Over 11,000 companies now use the GRI framework as the basis of their reporting. The emerging measurement standards for corporate reporting of sustainability performance from the Global Reporting Initiative, International Integrated Reporting Council, Sustainability Accounting Standards Board and Global Initiative for Sustainability are attempts at consolidating standards.

Unfortunately, there are no generally accepted methodologies or performance indicators. Tahir and Darton (2010, p.1599) state that current indicator frameworks such as GRI are problematic because they focus on large companies and geographical areas and not on specific operational units. They believe that since interpretation and adaptation are not well defined, a set of indicators may not be adequately comprehensive enough for all the relevant issues or may not relate to the definition of sustainability. Another gap in current measurement frameworks is the absence of integrated indicators, which have been regarded by many institutions such as the OECD (2004) as fundamental in sustainability decision-making. The GRI framework provides guidance and protocols on how to

report on dozens of social, environmental and economic indicators, but not on how to integrate them. Gibson, Hassan, Holtz, Tansey & Whitelaw (2005, p. 113–118) argue that integration is important because: it allows decision-makers to keep all indicators visible; it recognizes their interconnectedness; it identifies mutually supportive benefits, and it better assesses the trade-offs among sustainability dimensions. In addition, different approaches preclude the ability to compare.

To address the need to establish targets within real world limits, a context-based approach is needed. Context-based sustainability (CBS) is a concept that focuses on identifying and quantifying aspects of the Earth's natural systems that present close-to-absolute thresholds that should not be crossed. The G4 Guidelines for sustainability context suggest an approach that captures “how an organization contributes, or aims to contribute in the future, to the improvement or deterioration of economic, environmental and social conditions, developments and trends at the local, regional or global level.” CBS differs from conventional (i.e. relative and absolute) measures, in that it reports impacts on vital resources in the world relative to norms, standards or thresholds and considers what such impacts would have to be in order to be sustainable. Baue (2014) states that:

“Currently companies are comparing year-on-year environmental and social performance for their own company, but *what really matters is measuring yourself against real-world limits and thresholds*. If we wish to be sustainable in our collective global impacts, we need to heed what science is telling us — not just for ourselves, but for the planet — as the line in the sand. In many ways we don't have a choice. Science and science-based goals are a proxy for what our world requires. Science-based metrics demonstrate in many cases how far we are from a truly sustainable business model that exists within biophysical limits.”

For all the sustainability metrics and reporting strategies available to publicly traded companies, Searcy's research (2009) into sustainability information published in annual

reports for Canadian corporations finds that none of the reports specifically described how sustainable development indicators are used at the Board level with respect to corporate decision-making. Endemic to context-based metrics is the notion of time and how the “context” of a company’s sustainability activities might change. Swart *et al* (2004, p.143) state that forward-looking analysis is the appropriate methodology if the objective is to explore the impact of different plausible socio-economic trends in the short-term future and how these might interact with changes in natural systems, taking into account all relevant scientific uncertainties. Scenario planning is a forward-looking tool that enables development of more targeted and sound forward-looking integrated assessments which enables the setting of priorities that reflect changes over time.

Scenario analysis

Jarke *et al* (p.2) define scenario analysis as “...a description of a possible set of events that might reasonably take place. The main purpose of developing scenarios is to stimulate thinking about possible occurrences, assumptions relating these occurrences, possible opportunities and risks, and courses of action.” Duinker and Greig (2007, p. 213) believe that “ Scenario-based approaches to forecasting environmental impacts offer a way to grapple with uncertainties inherent in predictive exercises that reach into the long-term future. If it is possible to launch serious challenges to relationships inside predictive models or to important contextual phenomena outside the model boundaries (i.e., challenges that would make us highly skeptical of the original forecasts), then scenario analysis is called for.” In addition, Lang (2001) argues, that “scenario analysis enables a company to manage its risk and sparks creativity and the potential for innovation”. Wilkinson and Kupers (2013) state, “Scenarios have the power to engage

and open the minds of decision makers so that they pay attention to novel, less comfortable, and weaker signals of change and prepare for discontinuity and surprise.”

They add:

“A sustained scenario practice can make leaders comfortable with the ambiguity of an open future. It can counter hubris, expose assumptions that would otherwise remain implicit, contribute to a shared and systemic sensemaking, and foster quick adaptation in times of crisis. Scenarios can build social capital within and beyond the organization. They can aid in navigating complexity and conflict—managing disagreement while avoiding the extremes of groupthink and fragmentation.”

Given that there is considerable research on the environmental risks that companies could face in the future, the survey conducted by Ernst and Young in 2013 found that only three in 10 companies indicated that they had run scenario analyses and 36% said they had no plans to do so. This means that fewer than half of those companies indicating that they have incorporated corporate sustainability into risk management have not conducted scenario planning. This situation implies that “...they are failing to integrate such risks, let alone develop confident appraisals of the costs and benefits of different adaptive responses.”

Like similar approaches to address complexity and uncertainty, scenario analysis is not without its problems. Duinker and Grieg (2007, p. 211) attribute weaknesses in both the scenario development process and content to:

- The quality of strategic thinking that is low in that it may be bureaucratic;
- Failing to gain early high-level support;
- Unrealistic goals and expectations of the process and product;
- Failure to develop a clear road map;

- Developing too many scenarios;
- Insufficient time for learning scenarios;
- Failing to link into the planning process;
- Inappropriate time frame and scope;
- Too limited a range of outcomes;
- Too much focus on trends;
- Internal inconsistencies in scenarios, and
- Insufficient focus on drivers.

Millennium Ecosystem Assessment Scenarios (MA)

The MA is a four-year international scientific assessment of the consequences of ecosystem change for human wellbeing that envisioned the status of climate change; water scarcity; biodiversity; regulatory environments; agro-terrorism; income inequities; food demand; food production; food prices and crop yields. In 2000, a multi-sector Board of Directors consisting of senior representatives from government, business, NGOs, U.N. agencies, academia, and indigenous peoples developed and managed the MA. It was the largest and most extensive audit of ecosystems in history and developed scenarios for the period 2000-2050. The assessment was conducted by 1,360 natural and social scientists from 95 countries and was comprehensively peer-reviewed by an additional 600 experts. It provided a state-of-the-art scientific appraisal of the condition and trends in the world's ecosystems and the services they provided. The MA scenarios address plausible future changes in ecosystems, in the supply of and demand for ecosystem services, and in the consequent changes in human wellbeing. The goal of the MA Scenarios is to inform

diverse decision makers about the potential futures of ecosystems and ecosystem services and how decisions can affect them. The purpose of the scenarios is to explore the consequences of the four future scenarios for ecosystem services and human wellbeing. The MA Scenarios found that ecosystems have declined more rapidly and extensively over the past 50 years than at any other comparable time in human history. In fact, 15 of the 24 ecosystem services evaluated have degraded over the past half-century. The MA projected further declines over coming decades, particularly in light of population growth, economic expansion, and global climate change. Left unchecked, this degradation could jeopardize future economic wellbeing, creating new winners and losers within the business community.

Trends and drivers in the agriculture and food sectors

The *Future of Food and Farming Executive Summary* (2011) from The Government Office of Science, London, *Creating A Sustainable Food Future*, a World Resources report and the *Global Risks 2014* report by The World Economic Forum, all published the trends that the world faces in the mid to long- term which will impact the lives of future generations and impact how they work and live. For Food Co. and its stakeholders, most if not all of those trends would impact their operations in some way. The following list of trends is extracted from these reports.

Population growth

Businesses can expect significant supply challenges and price volatility as a result of such a rapid growth in the number of people coupled with an increased use of resources.

Population growth will place intense pressures on ecosystems and the supply of natural resources such as food, water, energy and materials.

Energy, fuel

Fossil fuel markets are expected to become more volatile and unpredictable because of higher global energy demand.

Food scarcity

The World Resources report, *Creating A Sustainable Food Future* (2014) stated that the world faces a 69 percent gap between crop calories produced in 2006 and those most likely required in 2050. To close this gap through agricultural production increases alone, total crop production would need to increase even more from 2006 to 2050 than it did in the same number of years from 1962 to 2006.

Poverty of workers in the agriculture sector

Roughly 2 billion people are employed in agriculture, many of them poor. To address this situation, agriculture needs to grow in ways that provide economic opportunities to the poor especially for women.

Yield challenges

To meet projected crop needs just by increasing production and without expanding the annual area harvested, crop yields on average would need to grow by 32 percent more from 2006 to 2050 than they did from 1962 to 2006.

Ecosystem decline

The decline in biodiversity and ecosystems is making natural resources scarcer, more expensive and less diverse – increasing the costs of water and escalating the damage caused by invasive species to sectors including agriculture, fishing, food and beverages, pharmaceuticals and tourism.

Depletion of biodiversity

Croplands and pasture occupy roughly half the global land that is not covered by ice, water, or desert. The ongoing expansion of cropland and pastures is the primary source of ecosystem degradation and biodiversity loss. Between 1962 and 2006, crop-land and pasture expanded by roughly 500 million hectares—an area equal to roughly 60 percent of the United States.

Impacts of climate change

By the end of the century, climate change may be the dominant direct driver of biodiversity loss and changes to ecosystem services globally.

Water scarcity

The MA found that 5–20% of freshwater use exceeds long-term sustainable supply and is met by water transfer or unsustainable mining of groundwater. Roughly 15–35% of irrigation withdrawal is estimated to be unsustainable. Scarcity of water supply will affect all businesses either directly or indirectly, just as increases in the price of petroleum affect the state of the global economy.

Global risks

Structurally high unemployment/underemployment, income inequity, and fiscal crises in key economies are critical risks. Given the US's official public debt of more than 100% of its GDP, and Japan's of more than 230%, investors may at some point conclude that these levels are unsustainable.

The organic/ non-GMO food markets

Organic Food Market

The U.S. is the world's largest organic food market. The report "*United States Organic Food Market Forecast and Opportunities 2018*", published in January 2014, indicates

that the Western U.S. is the biggest driver. The organic food market contributed about 4% to the overall food market in terms of revenues in 2010. Demand for organic products is increasing, and about 81% of American families were reported to be purchasing organic food at least some times. Domestic organic food production has increased about 240% between 2002-2011 compared with 3% in the non-organic food market. The report projects a compounded annual growth rate for the organic food sector of 14% for the period 2013-2018. The predicted growth aligns with those found by Information Resources Inc. and SPINS which found that natural/organic retail sales reaching \$81.3 billion in 2012, an increase of 13.5% from the previous year. Organic farming is a powerful tool in the fight against global warming. It uses one third to one half less fossil fuels than conventional farming and stores carbon in the soil instead of releasing it to the atmosphere.

Estimates are that by 2017 the market for non-GMO products will make up around 30% of total food and beverage sales, with a value of about \$264 billion. A key element in the growth of the non-GMO segment of the overall food and beverage market will be the ongoing expansion in the demand for organic and natural foods, which is intertwined with the market for non-GMO foods.

A variety of factors, including the introduction of mandatory GMO labeling, could spur the development of non-GMO sales to a higher percentage of the total market.

Conversely, an economic downturn or the widespread acceptance of new GMO seafood, meat and poultry products are among the factors that could slow sales. There is widespread agreement within the scientific community that GMOs pose no threat to human health or the environment. Nevertheless, there is a broad base of concern among

advocacy groups about GMOs, a concern driven in part by fear of unknown ramifications.

Trade-offs in corporate sustainability

The anticipated 21st century uncertainties of the food-water-energy nexus will likely wreak havoc on the agri-food sector's sustainable development goals. Winn, Pinkse and Illge (2012) state that standard tools are not robust enough to facilitate management of corporate sustainability issues. They argue that the complexity and expanded scope of decision-making on sustainability strategies as well as business issues will mean that they will likely need to make trade-offs. There is no silver bullet. Byggeth and Hochschorner, (2006,p.1420) define trade-offs in corporate sustainability as "compromise situations when a sacrifice is made in one area to obtain benefits in another". Corporate management will be confronted with striking a balance between doing well for the company and doing well for society. These challenges are especially relevant for the agri-food sector where corporations will need to plan for the prospect of sudden and unexpected changes in ecosystem services and making "moral" judgments on human well-being. Hahn, Figge, Pinske and Preuss (2010, p3) state that the majority of research on corporate sustainability has focused on the "win-win" paradigm where economic, environmental and social sustainability objectives can be achieved simultaneously. Everybody benefits. The "win-win" strategy is a response to the argument that social and environmental activities are costs and that there was no justification for making sustainability a business imperative. Hahn *et al.* argue that the "win-win" paradigm has two major drawbacks because it limits:

- The scope of potential corporate responses and approaches to sustainable

development by not accounting for all potentially positive corporate contributions to sustainable development, and

- The analytical perspective by making judgments focused on generating more profit.

For companies in the agri-food sector, “win-win’ situations are highly unlikely given that ecosystem services interact in complex, often unpredictable ways. According to the MA (2005), ecosystem services trade-offs arise from management choices made by humans, who intentionally or otherwise change the type, magnitude, and relative mix of services provided by ecosystems. To better understand ecosystem services interactions, the MA suggests an approach that includes three axes: spatial scale which involves whether the impact of the trade-offs are local or distant; temporal scale which considers the speed at which the effects will occur - relatively rapidly or slowly and thirdly, irreversibility which is a judgment of the likelihood that the ecosystem service might return to its original state. The MA scenarios indicate that numerous trade-offs exist that are unknown and unexpected. The MA offers some strategies to mitigate trade-offs which include: creating redundant approaches to providing similar ecosystem services within each ecosystem which will improve resilience; incorporating redundancy by developing a network of multiple protected areas within a broader ecosystem and learning by doing, allowing lessons learned from unanticipated effects to be applied to future decisions. Klapwijk, *et al.* (2014, p.113) argue that qualitative and quantitative approaches can be useful tools for managing trade-offs. They argue that participatory approaches provide critically important information that can be used to inform quantitative tools, for example, through the development of participatory scenarios and the identification of

key objectives of the stakeholders. Participatory approaches, such as fuzzy cognitive mapping, resource flow mapping, games and role-playing are powerful ways to identify relevant objectives and indicators. Quantitative methods include simulation models where the dynamism of trade-offs is explored and outcomes can either be short-term or long-term and optimization models such as mathematical programming, using multi-criteria analysis can assess whether a trade-off curve can be mitigated through new interventions. The trade-off situations that management will encounter means that they will need a set of skills and tools that enable them to make trade-off decisions that balance economic benefits with sustainable development strategies.

Sustainable development has become a core business value. Making a sustainable transition requires a multi-dimensional strategy that embraces stakeholder relationships as key drivers to value creation. The challenges are to develop tools and systems that include quantitative and qualitative information to support informed decision-making.

4.0 IMPLEMENTATION

Introduction

The objective of the research was to explore how sustainable development indicators within a framework of quantitative and qualitative future-focused strategies might identify areas of aligned perceptions and differences between Food Co. and its stakeholders that would provide Food Co. with insights for creating value through linking stakeholder relationships with management of its social, economic and environmental impacts. The research used material assessment as the quantitative strategy and scenario analysis as the qualitative strategy. The composition of the participants was diverse by

design and reflected Food Co.'s entire supply chain— internal stakeholders with different job functions and working at a variety of geographic locations; customers with a range of revenues, ownership and product profiles, and growers with different operating models.

Limitations

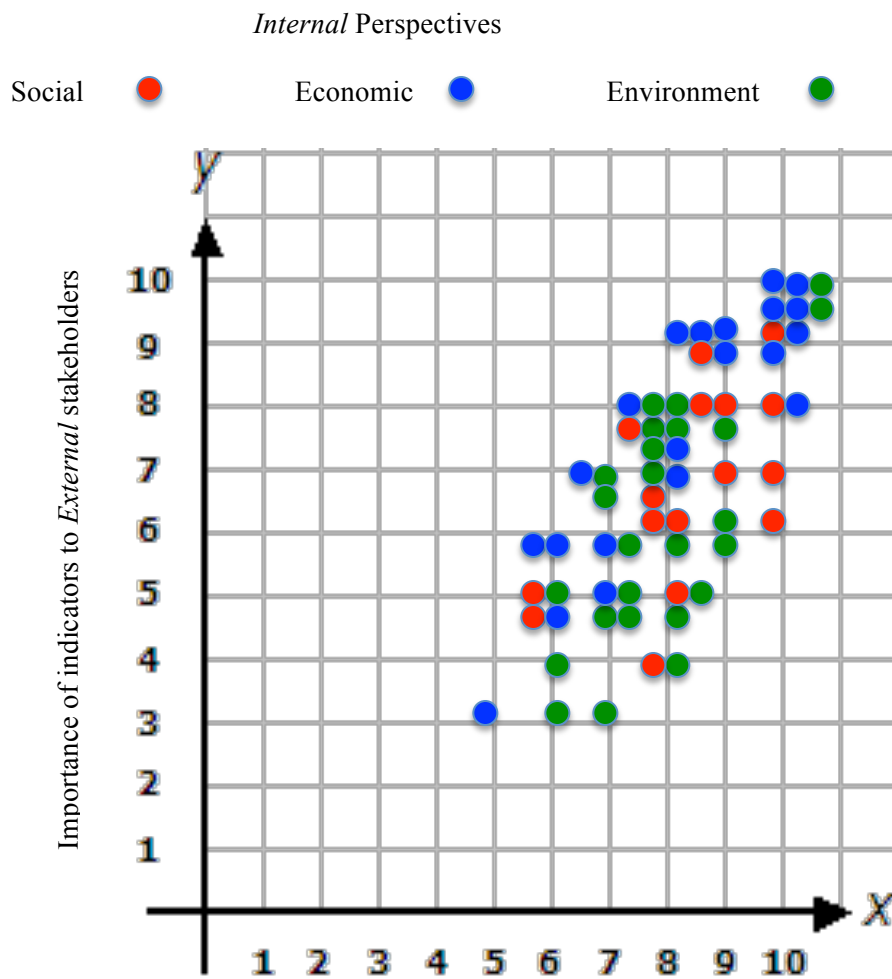
Food Co. has operations and customers in over 65 countries. The sample of opinions from the participant pool (10) was small and all participants were based in North America. While it was anticipated that five Food Co. internal stakeholders and five external stakeholders would be contributing to the material assessment and scenario analysis, for the materiality assessment, four internal stakeholders and four external stakeholders completed the online survey. Also, while Food Co. has a network of 5,000 suppliers around the world, the suppliers were two growers, both based in the U.S. Midwest. This research did not qualify a “stakeholder” which makes generalizations difficult.

Materiality Assessment

The researcher used 15 indicators, four social indicators (4), five economic indicators (5) and six environmental indicators (6) drawn from the Global Reporting Initiative (GRI, G4) guidelines as well as the GRI Food Processing supplement. The information below reflects the scores from the online survey where each participant scored on a scale ranging between 1 and 10 (10 being very important and 1 not important), the level of importance of each indicator. Food Co. participant scores indicated how important each indicator was to Food Co. and how important they believed it was to the company's external stakeholders. External stakeholder scores reflected how important each indicator was to their operations and how important they believed it was to Food Co.

The scores were captured in two graphs, one reflecting the scores for internal stakeholders (Figure 2) and one reflecting the scores for external stakeholders. (Figure 3)
 The scores were presented in clusters of social, economic and environmental indicators.

Figure 2. Graph of Internal Perspectives



Importance of indicators to *Internal* stakeholders of Food Co.

The next section describes each indicator, the scores of internal and external stakeholders in terms of the materiality of the indicator to their operations and perceived materiality of the indicator to Food Co. or external stakeholders as well as insights on the scores.

Social indicators

This set of indicators covered: sourcing policy; human rights assessments of suppliers, and customer health and safety.

Indicator #1 *“Percentage of purchased volume from suppliers compliant with company's sourcing policy”*

The focus is the supply chain and identifies whether companies are working with suppliers that are compliant with their sourcing policy.

Scores:

- Materiality for Food Co. -10, 8, 5, 9
- Materiality for customers – 10, 10
- Materiality for suppliers – 10, 6

How important did Food Co. and its stakeholders perceive this indicator to be?

- Food Co.'s perception on how important this indicator is to external stakeholders - 8, 7, 5, 8
- Customers' perception how important this indicator was to Food Co. – 8,10
- Suppliers perception on how important this indicator was to Food Co. – 7,7

Insights

Food Co.'s customers manufacture and sell organic food products and the organic grower

supplies crops to Food Co. Both stakeholder groups are subject to strict compliance standards. It was not surprising that they scored this indicator as highly important. The score “5” by one Food Co. stakeholder on the importance of its sourcing policy as well as the “5” on its perceived materiality to external stakeholders was attributed by Food Co. to a lack of understanding internally of its sustainability strategies and priorities as well as reflecting a disconnect on the relationship between sourcing and sustainable development on its supply chain.

Indicator # 2 *“Percentage of purchased volume, which is verified as being in accordance with credible, internationally recognized responsible production standards, broken down by standard”*

This indicator addresses risk management and implies that by complying with these standards, basic levels of sustainability are guaranteed on a large number of issues.

Scores:

- Materiality for Food Co. - 10,9,8,9
- Materiality for customers –10, 10
- Materiality for suppliers – 5,10

How important did Food Co. and its stakeholders perceive this indicator to be?

- Food Co.’s perception on how important this indicator was to external stakeholders - 9,8,7,7
- Customers perception on his important this indicator was to Food Co. – 8,10
- Suppliers perception on how important this indicator was to Food Co. – 8,6

Insights

Complying with standards and regulations in the agri-food sector are a business imperative and are especially critical for those in organic food products. There was little surprise in the results that all of Food Co.'s stakeholders and three of its external stakeholders scored very high. The low score from one supplier, the conventional grower, may have been because they were not subject to comparable production standard requirements as the organic grower.

Indicator # 3 *“The percentage of significant suppliers and contractors that have undergone screening on human rights and actions taken.”*

Screening is part of risk management and the percentage indicates how regularly an organization takes this particular risk into consideration.

Scores:

- Materiality for Food Co. - 10,8,8,5
- Materiality for customers –10,10
- Materiality for suppliers – 4,9

How important did Food Co. and its stakeholders perceive this indicator to be?

- Food Co.'s perception on how important this indicator was to external stakeholders - 6,6,5,5
- Customers perception on how important this indicator was to Food Co. – 10,8
- Suppliers perception on how important this indicator was to Food Co. – 4,4

Insights

The high survey scores showed that three of Food Co.'s stakeholders and three of its

external stakeholders shared opinions on the importance of human rights screening to their operations. These results reflected their commitment to responsible production, maintaining high levels of social capital. As well, they source internationally where human rights violations are more prevalent. Food Co. had made a conscious decision that the current international standards and regulations that are in place for itself as well as in the partnership agreements with external stakeholders include sufficient protection against human rights violations. Food Co. interpreted the score of “5” by one of the internal stakeholders as well as the middling scores by internal stakeholders on their perceived importance of this indicator to external stakeholders as a reflection of their confidence in its own operations as well as that of their suppliers.

Indicator #12 *‘Addressing life cycle stages in which health and safety impacts of products and services are assessed for improvement, and percentage of significant products and service categories subject to such procedures.’*

Assessments of products and services (including packaging) should account for environmental and social impacts. This is especially relevant in the food-processing sector, given the downstream reach of the value chains in this sector.

Scores:

- Materiality for Food Co. - 10,9,7,8
- Materiality for customers - 5,10
- Materiality for suppliers -7,6

How important did Food Co. and its stakeholders perceive this indicator to be?

- Food Co.’s perception on how important this indicator was to external stakeholders - 7,8,4,6

- Customers' perception how important this indicator was to Food Co. - 5,10
- Suppliers perception on how important this indicator was to Food Co. - 8,6

Insights

The business relationships between Food Co., its customers and suppliers are built on the foundation of trust as well as the health and safety of their products. These factors accounted for the consistently high scores by internal stakeholders. The score of “5” from one customer was unexpected since their company has been built on promoting organic food systems. As well the same customer scored a “5” on their perception of how important this indicator was to Food Co. These scores needed an additional conversation with the customer to clarify their decisions. The middling scores of “4” and “6” by Food Co.'s internal stakeholders on the perceived importance of this indicator to external stakeholders is a reflection that that life cycle issues are operational matters which are not shared with Food Co.'s external stakeholders.

Economic Indicators

This set of indicators covered: the impact of climate change; interaction with local communities; third party certification; labeling of sustainability impacts and incidents of non-compliance.

Indicator #4 *“Quantifying financial implications and other risks and opportunities for the organization's activities due to climate change.”*

As governments enact regulation to manage activities that impact climate change, organizations and sectors that are directly or indirectly responsible for emissions face regulatory risks and opportunities.

Scores:

- Materiality for Food Co. - 10,10,7,7
- Materiality for customers - 10,6
- Materiality for suppliers - 6,8

How important did Food Co. and its stakeholders perceive this indicator to be?

- Food Co.'s perception on how important this indicator was to external stakeholders - 9,9,5,6
- Customers' perception how important this indicator was to Food Co. - 10,6
- Suppliers perception on how important this indicator was to Food Co. - 7,5

Insights

Climate change has an enormous impact on the entire food chain and while Food Co.'s internal stakeholders found this highly material, it is a little puzzling that one of Food Co.'s customers scored a "6" since their company was committed to addressing climate change and donated to organizations that were actively engaged in addressing it. The conventional grower who scored "6" appeared to have minimized the prospect that he was less likely to be impacted by regulations. In terms of perceptions of importance to external stakeholders, the score of "5" by one internal stakeholder was unexpected. A direct conversation might have clarified the reasoning for that choice.

Indicator #5 *"The development and impact of infrastructure investments and services provided primarily for public benefit through commercial, in-kind, or pro-bono engagement."*

Indirect impacts such as participation and contribution to the health and wellbeing of

local communities are important for building an organization's reputation and enhancing its social license to operate.

Scores:

- Materiality for Food Co. - 6,6,5,6
- Materiality for customers - 10,5
- Materiality for suppliers - 2,8

How important did Food Co. and its stakeholders perceive this indicator to be?

- Food Co.'s perception on how important this indicator was to external stakeholders - 6,5,3,6
- Customers' perception how important this indicator was to Food Co. - 8,5
- Suppliers perception on how important this indicator was to Food Co. - 2,7

Insights

For approximately the past 15 years, Food Co.'s growth strategy has focused on acquiring established companies that fit its sourcing, processing and packaging portfolio. There have been activities focused on assisting communities where Food Co. has a presence around the world. The low scores by Food Co.'s internal stakeholders on the importance of community outreach as well as the perceived importance to external stakeholders indicates to Food Co. that the information around its activities are not sufficiently acknowledged throughout the company. Food Co. expends extensive efforts to help the communities in its supply chain. For example, in Vietnam, Food Co. pays for workers' health insurance.

Indicator #13 *“The percentage of production volume manufactured in sites certified by an independent third party according to internationally recognized food safety management system standards.”*

This indicator enables companies to report on the extent to which they are ensuring the safety of their products by disclosing the extent of their implementation of food safety management systems.

Scores:

- Materiality for Food Co. - 10,10,9,10
- Materiality for customers - 10,8
- Materiality for suppliers - 6,8

How important did Food Co. and its stakeholders perceive this indicator to be?

- Food Co.’s perception on how important this indicator was to external stakeholders - 10,10,9,8
- Customers’ perception how important this indicator was to Food Co. - 10,8
- Suppliers perception on how important this indicator was to Food Co - 8,8

Insights

Food Co., its customers and the organic grower are committed to responsible business practices, which includes adhering to internationally recognized food management standards. This commitment probably accounted for their actual and perceived alignment and high scores in the importance of this indicator. The lower scores by suppliers on the perceived importance of this indicator to Food Co. needed an additional conversation for clarification.

Indicator # 14 *“The type of product and service information required by procedures and percentage of significant products and services subject to such information requirements (e.g. labeling)”*

This indicator indicates the extent to which information and labeling addresses impact on sustainability by a company’s product.

Scores:

- Materiality for Food Co. - 10,9,8,8
- Materiality for customers - 10,7
- Materiality for suppliers - 10,6

How important did Food Co. and its stakeholders perceive this indicator to be?

- Food Co.’s perception on how important this indicator was to external stakeholders - 10,9,8,7
- Customers’ perception how important this indicator was to Food Co. - 10,7
- Suppliers perception on how important this indicator was to Food Co. - 9,10

Insights

Food Co., its customers and suppliers are deeply engaged and committed to operating responsibly as well as communicating their responsible business practices that may have accounted for the high scores.

Indicator #15 *“Total number of incidents of non-compliance with regulations and voluntary codes concerning products and service information and labeling by type of outcomes.”*

This indicator may indicate improvements or deterioration in the effectiveness of a company’s internal controls.

Scores:

- Materiality for Food Co. - 10,9,7,9
- Materiality for customers - 10,10
- Materiality for suppliers - 7,10

How important do Food Co. and its stakeholders perceive this indicator to be to each other?

- Food Co.'s perception on how important this indicator was to external stakeholders - 10,9,7,9
- Customers' perception how important this indicator was to Food Co. - 9,10
- Suppliers perception on how important this indicator was to Food Co. - 9,9

Insights

The nature of the business models of Food Co., its customers and suppliers require that they embrace trust and ensure health and safety. Their high scores reflected the alignment.

Environmental Indicators

This set of indicators covered: recycled input materials; direct energy consumption; indirect energy consumption; water withdrawal, and logistics.

Indicator #6 “ *Addressing the percentage of materials used that are recycled input materials.* ”

This indicator reveals an organization's progress in reducing its dependence on natural resources.

Scores:

- Materiality for Food Co. - 8,6,7,7
- Materiality for customers - 10,7
- Materiality for suppliers - 2,9

How important did Food Co. and its stakeholders perceive this indicator to be?

- Food Co.'s perception on how important this indicator was to external stakeholders - 8,4,3,5
- Customers' perception how important this indicator was to Food Co. - 8,6
- Suppliers perception on how important this indicator was to Food Co. - 3,7

Insights

Food Co. and its stakeholders share a commitment to responsible business practices and managing impacts. It is not surprising that that they, with the exception of the conventional grower, considered this indicator important. The range of perceptions between Food Co.'s internal stakeholders that this indicator was of lesser importance to external stakeholders might have been a reflection of weaknesses in communication.

Indicator # 7 *“Addressing direct energy consumption by primary energy source.*

Energy consumption has a direct effect on operational costs and can increase exposure to fluctuations in energy supply and prices.

Scores:

- Materiality for Food Co. - 10,7,7,9
- Materiality for customers - 10,8

- Materiality for suppliers -2, 9

How important did Food Co. and its stakeholders perceive this indicator to be to each other?

- Food Co.'s perception on how important this indicator was to external stakeholders - 10,4,7,6
- Customers' perception how important this indicator was to Food Co. - 10,6
- Suppliers perception on how important this indicator was to Food Co. - 5,7

Insights

Direct energy consumption is critical for operations at Food Co., its customers and organic grower. There was little surprise that this was reflected in the high scores with the exception of the conventional grower. Further dialogue with the conventional grower might have shed light on the reasons for their “2” score. To Food Co. the low “4” describing the perception by one internal stakeholder that this indicator is not material to external stakeholders is a reflection that they do not fully understand the impact of direct energy consumption on economic performance of its supply chain.

Indicator # 8 *“Addressing indirect energy consumption by primary energy source.”*

Tracking and reducing energy consumption outside a company's operations could positively impact the overall life-cycle performance of products and services.

Scores:

- Materiality for Food Co. - 8,6,5,8
- Materiality for customers - 10,9
- Materiality for suppliers - 3,9

How important did Food Co. and its stakeholders perceive this indicator to be to each

other?

- Food Co.'s perception on how important this indicator was to external stakeholders - 8,3,5,7
- Customers' perception how important this indicator was to Food Co. -10,6
- Suppliers perception on how important this indicator was to Food Co. -5,7

Insights

The lower scores from Food Co.'s internal stakeholders in terms of perceived importance of this indicator to external stakeholders may reflect a lack of understanding of the impact of indirect energy consumption on suppliers as well as gaps in communication between Food Co. and its stakeholders about its priorities around reducing its footprint.

Indicator # 9 *“Addressing total water withdrawal by source.”*

This indicator captures the overall scale of potential impacts and risks associated with an organization's water use. Water use can also indicate the level of risk posed by disruptions to water supplies or increases in the cost of water.

Scores:

- Materiality for Food Co. - 10,7,8,9
- Materiality for customers - 10,7
- Materiality for suppliers -1,8

How important did Food Co. and its stakeholders perceive this indicator to be to each other?

- Food Co.'s perception on how important this indicator was to external stakeholders - 10,5,8,6
- Customers' perception how important this indicator was to Food Co. -10,9

- Suppliers perception on how important this indicator was to Food Co. - 4,6

Insights

Food Co. has been very proactive in implementing water conservation in its processing facilities around the world and was one of the founding corporations of the UN CEO Water Mandate initiative in 2007. The high scores for this indicator reflected the materiality of fresh water supply for Food Co., its customers as well as for its organic grower. The low score, “1” by the conventional grower might have reflected their interpretation of the indicator as risk focused. Their farm is located in Minnesota, an area where there is a low risk of water scarcity. In terms of the perception of the importance of this indicator to external stakeholders, Food Co.’s efforts in water management have been focused on its operations. The company interpreted the mixed scores by internal stakeholders on the importance of this indicator to external stakeholders as a reflection of those internal stakeholders’ job functions, which typically do not put them into direct contact with customers and suppliers where water management might be discussed.

Indicator #10 *“Addressing water sources significantly affected by withdrawal of water.”*

This indicator measures the scale of impacts associated with the organization’s water use in terms of relations with other users of the same water sources and enables an assessment of specific areas of risk or improvement, as well as the stability of the organization’s own water sources.

Scores:

- Materiality for Food Co. - 9,8,7,8
- Materiality for customers - 10,10

- Materiality for suppliers - 1,10

How important did Food Co. and its stakeholders perceive this indicator to be?

- Food Co.'s perception on how important this indicator was to external stakeholders - 8,5,5,7
- Customers' perception how important this indicator was to Food Co. -7,8
- Suppliers perception on how important this indicator was to Food Co. - 2,7

Insights

As the previous indicator revealed and for similar reasons, the impacts of fresh water use was considered important by all of Food Co.'s stakeholders and three of its external stakeholders except for the conventional grower. With respect to the perception by two of Food Co.'s internal stakeholders that this indicator was not important to external stakeholders, this score (as in Indicator # 9 previously) was explained by Food Co. by stating that its water management issues and strategies are focused mainly on its own operations.

Indicator #11 *“Addressing significant environmental impacts of transporting products and other goods and materials used for the organization's operations and transporting members of the workforce.”*

This indicator represents the environmental impacts associated with logistics that may represent a major part of an organization's environmental footprint. It reflects an organization's comprehensive approach to planning environmental management strategies.

Scores:

Materiality for Food Co. - 8,7,7,8

Materiality for customers - 10,9

Materiality for suppliers - 3,8

How important did Food Co. and its stakeholders perceive this indicator to be?

- Food Co.'s perception on how important this indicator was to external stakeholders - 8,5,6,6
- Customers' perception how important this indicator was to Food Co. - 10,6
- Suppliers perception on how important this indicator was to Food Co. - 7,4

Insights

Food Co.'s field-to-table business model is a mix of processing, storage and freight services, which probably accounts for the high survey scores by Food Co.'s stakeholders and three of its external stakeholders. Food Co. interpreted the middling scores by its stakeholders on the perceived importance of this indicator to external stakeholders as a reflection of a limited internal understanding of the impact of changing logistics on external stakeholders' environmental footprint.

Analysis of materiality assessment findings

The objective of this methodology was to identify the value to Food Co. and its external stakeholders of 15 sustainable development indicators and their perceived value by internal and external stakeholders. The materiality assessment uncovered areas of alignment as well as disconnects between Food Co. and external stakeholders that might influence decisions in multiple areas, including stakeholders communications, collaboration and potential value creation opportunities, as well as establishing priorities.

Alignment

The survey revealed alignment in materiality between Food Co. and external stakeholders in areas that were based on compliance such as standards (Indicator #2), economic areas such as regulatory issues (Indicator #14, Indicator #15), and certification (Indicator #13). These findings indicated the Food Co. and its stakeholders shared the same values and commitments to responsible business practices, which was solid evidence for continuing productive and collaborative working relationships as the regulatory environment changes over time.

Outlier

The consistent outlier was the conventional grower who grows non-GMO crops, was not subject to the same compliance standards and regulations as his organic grower counterpart, and differed from the external stakeholders whose modus operandi was organic food and responsible sourcing practices and food production. These differences are captured in the circle on Figure 3 that indicates the relevance (or irrelevance) of the environmental indicators to the conventional grower. Food Co. believes that the conventional farmer's perspectives are not a reflection of the majority of its conventional farmers network.

Disconnects

Food Co. attributes the disconnects from the materiality assessment to a corporate culture which, because of frequent M&A activities, is focused on local community impacts, low awareness from an information perspective and an under appreciation and lack of awareness on the linkages between the sustainable development priorities of the company and their impacts on Food Co. and its stakeholders. The challenge for Food Co. going

forward is to decide, which indicators are critical in the short and medium term, and taking steps to address the disconnects.

The following is a review of the seven indicators which were the most concerning findings and the implications for managing stakeholder engagement.

- Indicator #1- Sourcing policy. Not fully appreciating the materiality of sourcing to Food Co.'s operations by internal stakeholders as well as its relationship to its supply chain directly impacts Food Co.'s future economic performance and ability to strengthen its stakeholder relationships;
- Indicator #5- The very low awareness by Food Co.'s internal stakeholders as well as its external stakeholders on its outreach activities to support local communities diminishes the potential growth of Food Co.'s social capital (e.g. employee recruitment, answering critics) as a driver of value creation.
- Indicator #7- Direct energy consumption. The apparent weak understanding of the importance of this indicator by Food Co.'s internal stakeholders on its supply chain impedes Food Co.'s opportunities for strengthening stakeholder engagement and managing risk.
- Indicator #8 – Indirect energy consumption. Under-appreciation by Food Co.'s internal stakeholders of the impact of energy consumption levels on its suppliers could, by extension affect Food Co.'s own environmental footprint.
- Indicator #9, Indicator #10 – Water management. Not appreciating the importance of water management to its external stakeholders could affect Food

Co.'s opportunities to work with suppliers to address water security issues at its locations around the world as well as its relationships with emerging stakeholder groups that could challenge its social license to operate.

- Indicator #11 - Logistics. Not understanding the role of logistics in the operations of its external stakeholders could affect Food Co.'s environmental footprint and operational efficiencies/margins.

The survey findings could have been deepened by additional insights that included:

- Greater focus on its international operations, by expanding the participant pool participating in the research to include Food Co. internal stakeholders, who live and work outside of North America;
- Participants from other Food Co. customer groups, such as large packaged food companies that are leaders in their sector. Food Co. provides them with products that are grown by conventional as well as organic growers;
- Indicators that are more selectively relevant to particular stakeholders, e.g. conventional grower, organic grower etc.

Scenario Interpretations and Implications

The capricious nature of ecosystem services poses enormous challenges to Food Co. and its stakeholder groups. There are gaps in understanding the robustness of ecosystems generally, when or where ecological processes interact, how quickly they can recover from breakdowns or if some breakdowns are irreversible. The inextricable relationship between the health of ecosystem services and the challenges faced by Food Co. and its suppliers to prosper and make a sustainable transition will drive risk management and all sustainability development strategies for the agri-food sector in the future and requires

strategies and tools that help companies to become more resilient.

The Millennium Ecosystem Assessment Scenarios (MA) embrace an integrated perspective on the future of food and agriculture which includes perspectives on multiple dimensions such as energy consumption rates; fresh water services; the state of the environment; food production rates; food consumption patterns; technology advances, and regulatory as well as trade policies. Swart, Raskin and Robinson (2004, p.145) argue that, “ ... a systemic and integrated perspective will help reveal key linkages that influence the focal problem”. The MA scenarios fill the gap for a holistic, future focused strategy for addressing sustainable development which material assessment doesn't meet.

Murningham (2013,p.6) argues that materiality assessments do not anticipate future events or capture priorities as they emerge in changing environments.

The MA scenarios' framework focuses on two critical uncertainties:

- What degree of ecological complexity is needed to provide reliable, ecological services, and
- To what degree can people use technology to substitute for the role of relatively understandable ecosystems in the provision of services?

The two critical drivers of the MA scenarios are:

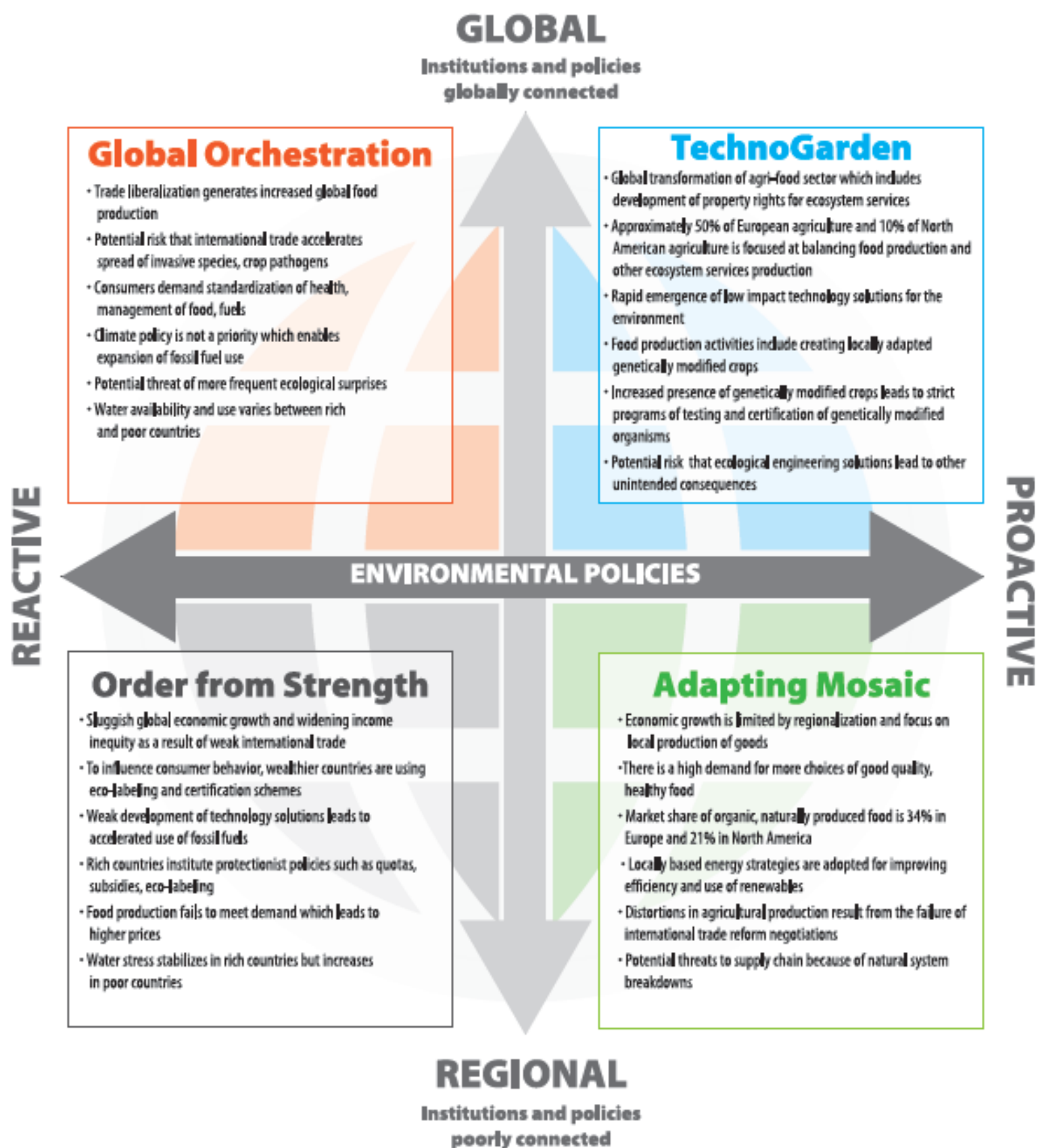
- The consequences for sustainable development trade policies and strategies made by national and international institutions which were engaged or not engaged in ecosystem management, and

- The resultant condition - fragility or robustness of ecosystem services.

The scenarios are given emblematic titles:

- Global Orchestration;
- Order from Strength;
- Adapting Mosaic, and
- TechnoGarden.

Figure 4 Millennium Ecosystem Scenarios Worldview Synopsis -2015-2030



The objectives of using the Millennium Ecosystem Assessment Scenarios for the period 2015-2030 in this research are: exploring how Food Co. and its stakeholders interpret the impacts of each scenario on their operations; collecting insights on adaptive strategies that might be chosen; and ultimately identifying areas of alignment and differences between stakeholders and their perceptions of the risks and opportunities. In aggregate, the information might enable Food Co. to address under a variety of probable situations the question “ What do we do now? ”, and to possibly enact strategies to prioritize and address the most critical prospective issues in collaboration with stakeholders.

The next section provides a narrative of each MA scenario for the period 2015-2030 which includes: the two critical drivers; a synopsis of the scenario’s worldview; syntheses of stakeholders’ interpretations of the scenario in terms of its impacts on their operations; what strategies might be adapted in response, and perceived opportunities and risks as well as differences in stakeholders’ evaluation.

Scenario - Global Orchestration

The two critical drivers in this world are:

- The impact of the trend of international trade liberalization as a priority, climate change and other environmental related issues not priorities, and
- The robustness of the health of ecosystem services.

Scenario Synopsis (2015-2030)

This world is framed by extensive cooperation and collaboration between governments and large institutions that generate broad trade liberalization activities around the world.

Healthy economic activity leads to rapid increases in fossil fuel use. International

climate change policies are weak. Growing urbanization, population growth and trade liberalization contribute to robust food production. Technology advances enable agriculture, food production and energy generation to flourish. Population growth causes a 40% increase in fresh water withdrawal rates. Fresh water access varies with wealthier economies having better access than poorer economies that are supporting growing populations. Potential impacts include: higher frequency of ecological surprises; unexpected consequences of weak climate change policies which might result in water scarcity and irreparable damage to local and regional ecosystem services; high levels of trade and mobility introducing invasive species and crop pathogens into the agriculture sector; declining agricultural soil fertility; declines in natural controls of pests, and diseases and eventual loss of wetlands and their biodiversity.

Figure 5

**Scenario: 2015-2030
Global Orchestration**



Implications

Internal Stakeholders of Food Co.

- open markets, improved food standards would be positive benefits for expanding product profile
- the company's revenues from organic products would thrive with growing middle class
- company's supply chain would be impacted by open markets and potential invasive diseases on crops at local, regional and national levels
- the company would need to monitor ecosystem deterioration in developing world in terms of yield levels and crop accessibility
- company might be vulnerable to food security challenges with trade liberalization, weak climate change regulations

External Stakeholders of Food Co.

Customers

- income inequity might impact the communities where the company operates
- the weak focus on climate change would negatively impact the company's growth opportunities
- would continue to promote the benefits of organic food and organic agriculture

Suppliers

- climate change could enable longer growing season and higher yields
- customized nutrient management practices would preclude soil degradation
- organic growers in the short-term might be negatively impacted by the expansion of fossil fuels and deterioration of ecosystems but in the long-term open markets could lead to cooperation and idea sharing that might benefit the food sector

Adaptive strategies

Internal Stakeholders of Food Co.

- provide additional support to growers "would focus on growers in developing economies where the company's supply chain is vulnerable to water scarcity and the impacts of climate change"
- focus on working with its growers on alternate sustainable farming practices such as shelter belt farming
- participating in public policy development at a regional level
- re-think its product profile in the organic food sector that better matches the expectations of the Lifestyles of Health and Sustainability (LOHAS) demographic
- reconsider product profile which addresses potential changes commodity prices and its supply chain
- increase the supply of organic ingredients that are less vulnerable to disease and crop pathogens
- reconsider its product profile which addresses commodity prices and supply chain
- increase the supply of organic ingredients that are less vulnerable to disease and crop pathogens

External Stakeholders of Food Co.

Customers

- be more mindful of marginalization and consider different sourcing strategies
- be aware of impact of environmental challenges on its communities
- be better informed about the impact of technology on organic farming practices
- engage in activities that protect organic farmers
- work to advance the benefits of organic food and agriculture through education and working with government agencies

Suppliers

- would continue to grow organic food
- would continue crop rotation
- longer growing season might enable more crop variety

Risks an Opportunities

Internal Stakeholders of Food Co.

Opportunities

- leveraging its organic food product profile and build its brand to take advantage of growing middle class, demand for higher food standards and for organic food
- identifying new opportunities and extend its reach of suppliers
- establishing stakeholder partnerships at the local, regional levels particularly in the central U.S.

Risks

- supply chain could come under pressure from high risks of water scarcity

External Stakeholders of Food Co.

Customer Opportunities

- promote organic farming as better for food production in times of drought and supports biodiversity
- seek out any opportunities to be activists

Customer Risks

- higher operational might initiate scaling down of operations
- technology advances might threaten organic food production

Supplier Opportunities

- continuing to work to meet its commitments as a supplier
- taking advantage of new technologies | (GPS,drones) to manage operations
- generating higher crop yields

Supplier Risks

- N/A

Insights

Topics of alignment - Increased urbanization, robust food production and a growing middle-class implied a healthy market for Food Co. and its external stakeholders.

Issues of mutual concern - Weak environmental controls, impacts from climate change and threats to fresh water access would challenge the supply chains and food security of Food Co., which would also impact its customers' economic performance.

Value creation opportunities through stakeholder engagement – Food Co. and its customers would work to expand and stabilize their supply chain networks. Food Co. would provide support to its growers on alternate sustainable farming practices. It would also provide support to growers in developing economies.

Divergent Perceptions - Food Co. as well as its customers perceived weak climate policies as a threat to food security, while the organic grower anticipated that strategies eventually would emerge to address the threats and the conventional grower welcomed the prospect of a longer growing season in Minnesota.

Scenario - Order From Strength

The two critical drivers are:

- How successful local and regional organizations are at managing environmental problems, and
- The robustness of the health of ecosystem services.

Scenario Synopsis (2015- 2030)

This scenario envisages a world with low levels of international co-operation and trade that include agreements for climate change management. There are low rates of technology advances, weak controls over greenhouse gas emissions and increased use of fossil fuels. Consequently, local and regional government are left to manage their environmental challenges. Economic growth is sluggish. International food prices rise as a result of food production falling below demand. Advanced economies impose tariffs and quotas to protect their agri-food markets. Eco-labeling and certification programs are used to incentivize consumers toward preferred producers. Income inequities widen. Accelerating rates of climate change heighten the risk of natural systems breakdown. Fresh water access and withdrawal rates are stable in rich countries but are deteriorating in poor countries. Potential impacts include: agricultural yields could be adversely impacted by the deterioration of ecosystems services which are under pressure from the combination of population increases; weak technology developments, and neglect of environmental challenges.

Figure 6

**Scenario: 2015-2030
Order From Strength**



Implications

Internal Stakeholders of Food Co.

- eco-labeling trends would be positive development because “certified organic would be positive for company’s revenues”
- widening gaps between rich and poor countries would threaten its sourcing ability internationally
- agro-terrorism would affect health of supply chain
- infrastructure (e.g. storage silos, transportation strategies) comes under pressure from climate change acceleration and the effect on wetlands
- company could continue to grow and be competitive, contingent on healthy demand from company’s international customers in Asia and Europe

External Stakeholders of Company X

Customers

- product profile sales would come under pressure from acceleration of climate change and increased food prices
- increased use of eco-labeling would be positive
- sourcing strategies for fruit and sugar could change from the impact of climate change, ecologic surprises

Suppliers

- relatively little impact
- reduced yields could negatively impact operations
- if certain crops are managed and in demand, crops could sell at premium prices
- quotas/tariffs might impact on the type of crops grown for export markets

Adaptive strategies

Internal Stakeholders of Food Co.

- buying farms in order to protect its supply chain
- changing presence in countries where it sources in order to mitigate impacts of inequity gaps, water scarcity
- re-examining plant locations
- replacing rail transportation with JIT trucking
- exploring areas where its product profile is aligning with its export markets
- being actively engaged as a member of the community to align with focus on local markets
- working closely with public institutions (e.g. USDA) to address the pressing issues

External Stakeholders of Company X

Customers

- putting added focus on becoming energy independent and using renewable energy sources would address prospects of ecosystem breakdown and ensure a sustainable supply chain of organic materials enabling resilience of its transportation links
- take steps for a stable ingredients supply chain to mitigate impact of income inequities and weak international cooperation
- prospective changes in product profile due to threat to sourcing ingredients

Suppliers

- continuing to grow its major crops
- planting different crops to meet demands of export markets that are not subject to quotas/tariffs
- growing value added to meet local markets demand
-

Risks an Opportunities

Internal Stakeholders of Food Co.

Opportunities

- leveraging supply shortages to negotiate lower prices with growers which would enable margin expansion
- being active and part of the solution in the community for example by providing assistance in water management
- increasing the number of growers who have access to an infrastructure system where they can efficiently harvest, store and transport their products
- developing a global strategy

Risks

- having effective strategies to manage its supply chain against prospects of agro-terrorism, conversion of lands into energy related uses and water scarcity
- revenues could decline if the company doesn’t adapt to policies in other countries
- potential of facing increased domestic competition

External Stakeholders of Food Co.

Customer Opportunities

- investing in regional infrastructure to support its operations
- engaging in more collaborative relationship with other private or public organizations
- increasing brand loyalty and organic food awareness from eco-labeling and certification

Customer Risks

- threats of agro-terrorism would impact its product profile

Supplier Opportunities

- in the event of agro-terrorism, the organic sector would flourish
- growing different crops that are value added

Supplier Risks

- product profile sales would come under pressure from acceleration of climate change and increased food prices
- genetic drift of insecticides would be very damaging
- growing crops for export market with declining demand

Insights

Topics of alignment – With the threat of supply chain instability, Food Co.’s customers and suppliers perceived the need to change product profiles. For growers, this world’s challenges included quotas, impacts of climate change, increasing food prices and declining demand for food for export.

Issues of mutual concern –For Food Co. and its customers, the impact of climate change along with concerns about the health of ecosystems, income inequities threatened supply chain stability. In addition, for customers, climate change threatened revenue streams and posed the threat of ecological surprises. Both Food Co. and its customers feared the prospects of agro-terrorism.

Value creation opportunities through stakeholder engagement – Food Co. would work with communities to share its knowledge of water management. Food Co. would seek opportunities to work with local communities.

Value creation opportunities addressing the environment-

Both Food Co. and its customers would take action and invest in improving efficiencies of their infrastructure systems. Food Co. would build resilience in its transportation methods and customers would seek out renewable energy sources to better manage their transportation systems. Suppliers would grow value added crops to mitigate risks to rising food prices and smaller demand. Food Co. would build resilience in its transportation methods and customers would seek out renewable energy sources to better manage their transportation systems.

Divergent Perceptions- With increasing regulation, the organic grower was confident that they could continue to operate while the conventional grower contemplated

changing their crop mixture to circumvent the imposition of quotas and tariffs.

Scenario - Adapting Mosaic

The two critical drivers in this world are:

- The strategies adopted by local and regional organizations to proactively manage environmental challenges, and
- The robustness of the health of ecosystem services.

Scenario Synopsis (2015- 2030)

The focus in this world is regionalization. There are tensions and frustration due to the lack of global climate change policies and concerns about environmental degradation. Failure to reform international trade agreements leads to distortions in agriculture production. Climate change is blamed for major water scarcity challenges in some regions of the world. North America attempts to reduce greenhouse emissions from 3% to 1%. Environmental technologies are developed to address regional/local needs and conditions. Local approaches are adopted for improving energy efficiency. Food markets increase activities and interest in local production. The market share of organic and non-organic food is 34% in Europe and 21% in North America. Crop areas expand with little focus on improving yields. Low investment in yield enhancing technologies leads to food supply falling short of demand. Potential impacts are: that natural system breakdowns would put supply chains at risk; outbreaks of new diseases and limited growth at the macro-economic level.

Figure 7



**Scenario: 2015-2030
Adapting Mosaic**

Implications

Internal Stakeholders of Food Co.

- would benefit from a focus on local food production, demand for healthy food, increased market share for organic food, and consumer demand for greater diversity of choices
- would be challenged by food supply shortages and staying competitive with the trend for new market expansion
- need to identify the best opportunities around the world
- because the company sources internationally, the focus on local food production would pose a challenge
- with the focus in on local production, the company's markets internationally would be challenged and the capacity utilization capacity of its processing plants would decline

External Stakeholders of Food Co.

Customers

- might have to consider changes in its product profile to meet market demand for local organic food products
- growing market share of organic food would be a positive
- demand for high quality, healthy food would increase the company's market presence as an organic food producer

Suppliers

- new disease outbreaks, natural systems breakdowns would threaten its commitments as a food producer
- the focus on local markets might trigger the operations to move away from large scale farming (for export) and focus meeting the local food market

Adaptive strategies

Internal Stakeholders of Food Co.

- exploring emerging product opportunities, adding to its supply chain to meet consumer demand for wider food choices
- finding alternate sources/countries which are better equipped to address water scarcity
- gauging how climate change, pathogens, ecosystem breakdowns would impact crop yields, prices and international supply chain, *"considering that it sources internationally, the company would need to gauge its risks on crop yields and prices"*
- identifying gaps where the organic food market might fill gaps in locally sourced food products
- *"communities cannot survive on locally sourced products exclusively"*
- *"the company would need to identify gaps in the organic food market it could fill with for example, its product profile of frozen fruit and vegetables from South America"*
- right sizing production facilities to increase capacity utilization

External Stakeholders of Food Co.

Customers

- Identify alternative sources of energy to meet local focus on improving energy use
- working with local communities to contribute to promoting local solutions
- establishing additional community sites in collaboration with its parent company

Suppliers

- using natural products to address certain diseases
- changing its product profile or production system
- beginning the growing the season early (March) with Hoop greenhouses and grow vegetables
- tapping network of specialists and scientists for a solution for emerging new diseases

Risks an Opportunities

Internal Stakeholders of Food Co.

Opportunities

- the increased demand for organic food would mean a lower sourcing risk and enable the company to convince more farmers to become organic
- delivering training and education strategies for grower co-ops
- increase its private label production to provide supermarkets with bacteria resistant organic food
- develop new disease resistant products or aggressively sell products which would not typically be impacted by disease

Risks

- supply chain would be impacted by climate change at a number of its international sites
- supply chain could be impacted significantly by water scarcity at it international sites
- may need to abandon some of its product profile that is no longer profitable

External Stakeholders of Food Co.

Customer Opportunities

- identifying organizations that are supporting renewable energy solutions
- exploring or conducting its own R& D to identify where it might increase productivity, new possibilities for organic food and the impacts on the land and soil
- not allowing the market to compromise principles
- establishing new production sites and broadening its product profile with more seasonal products
- promoting the benefits of organic agriculture and organic food

Customer Risks

- N/A

Supplier Opportunities

- if there is a growing market for organic food, the grower might revert back to organic farming with a different crop mix on a smaller scale which would be easier to manage

Supplier Risks

- with focus on local production, operation's financial resources would be under pressure
- bouncing back might involve one season or several years
- the challenges of dealing with new insects might impact the product profile and the order rotation of crops

Insights

Topics of alignment – Food Co. and its customers would work with local communities to help them to meet the growing market for organic food.

Issues of mutual concern – The focus on local food production was a concern for Food Co. and its conventional grower because it posed challenges for the robustness of product sales in international markets. Food Co. and the organic grower feared the impact of ecosystem breakdowns on operations and product profile.

Value creation opportunities through stakeholder engagement – Food Co. would expand its supply chain network to explore changes in its product profile that would enable it to offer more food choices. Food Co. would deliver training and education strategies to grower co-ops.

Value creation opportunities addressing the environment – Food Co. would seek alternate sources to address water scarcity challenges.

Divergent Perceptions: The focus on local production for one customer could lead to expanding the number production sites while Food Co.'s international production sites might have excess capacity and facilities would need to be downsized.

Scenario - TechnoGarden

The two critical drivers in this world are:

- The impact of trade policies and international cooperation that make sustainable development a priority, and
- The robustness of the health of ecosystem services.

Scenario Synopsis (2015-2030)

This world offers conditions for a major transformation of the agriculture sector as a result of international cooperation, regulations and dedicated efforts to finding solutions for environmental issues. There is an increased focus on regulating many global and regional ecological commons. Fifty per cent of agricultural activity in Europe and 10% of agricultural activity in North America is working to balance food production with regeneration of other ecosystems. Large corporations devote research and development resources focused on new technologies to restore, produce or enhance ecosystem health. In this scenario, there are anticipatory strategies for environmental problems and being proactive in finding solutions. The international community adopts a goal to limit global temperature increases to 2% Celsius by 2100. There is more use of “zero-carbon” energy sources and low-carbon fuels. Water scarcity risks are lower due to a low rate of climate change. In terms of food production, agricultural entrepreneurs in North America and Europe are breeding new varieties of existing crops and locally adapted genetically modified crops and farming systems. Advanced economies demand safe, ecologically friendly production processes. Crop yields improve. Potential impacts: ecological engineering could lead to environmental surprises with huge impacts; strict testing and certification of genetically modified crops, and investments in environmental technology which lead to underfunding of other sectors.

Figure 8



Scenario: 2015-2030
TechnoGarden

Implications

Internal Stakeholders of Food Co.

- the increased profile of GMO products could be a threat to the organic food market
- the growth of the GMO market which cannot solve food demand needs would not threaten the organic food market
- the company's organic food strategies would be impacted by technology advances
- the company will continue to be a supplier to its customers which are the Top 10 – Top 20 consumer packaged goods companies
- improvement on water scarcity issues would lower the company's water supply risks
- potential suppliers of organic crops would be challenged by the increased use of biofuels with more land devoted to corn production

External Stakeholders of Food Co.

Customers

- would need to determine the impact of technology throughout its supply chain
- the increased presence of GMO crops is a real threat
- balance between food production and eco-systems services would align well with the company's values and mission
- increased demand for safe, ecologically friendly production methods would provide more stable cost of goods sold

Suppliers

- the growth of GMO crops would threaten the viability of organic farms
- the potential of insecticide drift would threaten certification of organic farms
- the growth of the GMO market will be of little impact on non-GMO growers because the out comes from testing and certification will discourage consumption
- crops could sell at premium prices
- quotas /tariffs might impact on the types of crops grown for export markets
- quotas /tariffs might impact on the type of crops grown for export markets

Adaptive strategies

Internal Stakeholders of Food Co.

- with more R&D on ecosystems, the company might benefit from new technologies that improve its processing, packaging and sterilization processes
- monitoring the impact of technology on other parts of the ecosystem
- conducting due diligence to mitigate the down -side risk of the impact of new technologies
- identifying seed modifying ingredients that are more drought tolerant, produce more yield if climate change continues to threatens the agriculture sector
- to participating in policy decisions made by the FDA and other related organizations to challenge increased presence of GMO crops
- finding/acquiring expertise in public policy strategies and becoming more active, "the company would need to participate in policy decisions made by the FDA and other related organizations".

External Stakeholders of Food Co.

Customers

- balancing the impact of technology advances with benefits to people
- looking into alternate methods to plant breeding enabled by technology advances
- continuing to promote the benefits of organic food and organic agriculture

Suppliers

- becoming a conventional farm
- rethinking business model

Risks an Opportunities

Internal Stakeholders of Food Co.

Opportunities

- engaging in ecosystem management, re-evaluating its core goals and objectives into order to become restorative and embrace the principles of the circular economy
- technology could impact the company's organic food strategies
- with more R&D of ecosystems, the company might benefit from new technologies that improve its processing, packaging and sterilization processes
- continuing to be proactive in finding and collaborating with partners who can contribute to the company's product profile
- combining geo-mapping and fertilizers with new technologies, might generate higher yields for the company's mid-size growers
- influencing changes in regulations by being at the table
- thwarting the unintended consequences of political incentives and weak research, the company could provide its expertise

Risks

- the company's supply chain could come under pressure because of increased regulation in water management and the environment
- would pose challenges to growers' success
- the increased use of biofuels would put a strain on potential supplies of organic crops
- company would need to become more knowledgeable about risks from ecological engineering in the regional sites where they have a presence, make decisions to stay or move on and focus on geographic diversity
- a biological event could impact its supply chain

External Stakeholders of Food Co.

Customer Opportunities

- prudent investing in technologies and failing fast
- pursuing legal action against chemical companies for polluting crops
- taking advantage of any improvement in ecosystem services

Customer Risks

- threats of agro-terrorism would impact its product profile

Supplier Opportunities

- pursue opportunities to form partnerships with third parties to conduct R&D on supporting the organic food sector

Supplier Risks

- N/A

Insights

Topics of alignment – The significant presence of GMO food could be a risk to Food Co., its customers and growers.

Issues of mutual concern – For Food Co. and its customers – they were uncertain about the impact of new technologies on their supply chains or organic food strategies. They were also concerned about the prospects of biological events.

Value creation opportunities through stakeholder engagement – Food Co. would identify and acquire knowledge in public policy to influence regulatory changes. Food Co. would collaborate with suppliers who could contribute to changing its product profile.

Divergent Perceptions - While most of the stakeholders view GMO food as a threat, one Food Co. stakeholder didn't believe that it was a significant threat to the organic food market because it would not be able to fill the gaps in global food needs.

Insights from integrating the findings from materiality assessment and the scenario analysis

The materiality assessment identified a number of indicators, which to Food Co. were valued differently between its internal and external stakeholders regarding the perceived importance of these indicators. This implied that efforts were needed to address the misalignment in perceptions and to build stronger stakeholder relationships. The literature on materiality assessment argues that, while it is an effective methodology for setting

priorities, it does not account for future disruptive events and changes in a company's priorities over time, such as adapting to the impact of technology advances or ecosystem breakdown in the agri-food sector. Scenario analysis can be a viable solution to address this issue.

An interesting outcome from integrating the findings of the materiality assessment and the scenario analysis in this study was that the most concerning disconnects that were identified from the relatively abstract format of an online survey, in the context of four scenarios framed by multi-dimensional attributes - became in fact strategic priorities for Food Co.'s internal stakeholders. Value creation opportunities were also identified and are included in the Insights section of each scenario description in the Implementation chapter. These insights might enable Food Co. to develop strategies for managing risk and to make decisions regarding its sustainable transition in the mid to long term. Some examples are provided below:

Materiality assessment- Indicator #1- Sourcing policy

The materiality assessment scores implied that Food Co.'s internal stakeholders did not fully appreciate the materiality of sourcing to its operations as well as to external stakeholders.

Scenario strategies

Food Co.'s internal stakeholders' strategies to address challenges in the scenarios reflected an increasing understanding that relationships with its supply chain would be critical to managing risk and generating innovation.

Value creation strategy in Global Orchestration

- Food Co. and its customers would work to expand and stabilize their supply

chain networks.

Value creation strategy in Order From Strength

- Food Co. would expand its supply chain network.

Food Co. would expand its supply chain network to explore changes in its product profile that would enable it to offer more food choices.

Materiality assessment - Indicator #5- Community support

The limited awareness by Food Co.'s internal stakeholders on the breadth of the company's support of local communities where it has a presence as well as the perceived importance of helping its external stakeholders diminishes the potential for Food Co.'s social capital to contribute to creating value as well as sustaining its social license to operate.

Scenario Strategies

In the scenarios, Food Co.'s internal stakeholders demonstrated a willingness to provide help and support to its suppliers.

Value creation strategy in Global Orchestration

- Food Co. would provide support to its growers on sustainable farming practices.
- Food Co. would assist growers in developing economies that are threatened by water scarcity and impacts from climate change.

Value creation strategy in Adapting Mosaic

- Food Co. would deliver training and education strategies to grower co-ops.

Materiality Assessment - Indicator #9, Indicator #10 – Water management

Food Co.'s internal stakeholders not appreciating the importance of water management to its external stakeholders could affect its relationship(s) with stakeholder groups that could challenge its social license to operate in the countries and communities where Food Co. has a presence.

Scenario Strategies

The scenarios revealed that Food Co. would reach out to external stakeholders to address water scarcity issues.

Value creation strategy in Order From Strength

- The company would work with communities to share its knowledge of water management.

Value creation strategy in Adapting Mosaic

- Food Co. would seek alternate sources to address water scarcity challenges.

Materiality assessment -Indicator #11 - Logistics

The materiality assessment indicated that Food Co.'s internal stakeholders did only perceive this indicator as somewhat important to external stakeholders, which by extension would impact Food Co.'s environmental footprint.

Scenario strategies

The scenarios revealed that Food Co. would take steps to collaborate with external stakeholders to manage its footprint.

Value creation strategy in Order From Strength

- Both Food Co. and its customers would take action and invest in improving

efficiencies of their infrastructure systems.

- Food Co. would build resilience in its transportation methods.

5.0 CONCLUSION

“Everything that can be counted does not necessarily count; everything that counts cannot necessarily be counted.” - Albert Einstein

Objectives

This study undertook to address a gap in sustainable development approaches by using qualitative and quantitative strategies that holistically engender multi-dimensional sustainable development values from stakeholders’ perspectives. The research objectives were to explore whether stakeholders’ perspectives could contribute to value creation and guide a sustainable transition for one company (Food Co.) in the agri-food sector going forward.

Chapter One addressed the critical role that the private sector plays in addressing the threats to human wellbeing and emphasized the need for a paradigm shift in business models from one of quantity to one of quality and values. The notion of a collaborative vision including all stakeholder groups requires that the agri-food sector needs analytical tools that integrate food, water, and energy systems. The typical approaches used to address sustainable development solutions in the agri-food sector do not account for such linkages and in fact are silo strategies. The purpose of the research was to explore in a case study format, whether materiality assessment and scenario analysis might be effective methodologies for impacting stakeholder engagement and creating value for a company (Food Co.)

Chapter Two, Methodology, addressed the importance that sustainability accounting tools be capable of monitoring and tracking corporate performance from a qualitative and quantitative viewpoint, particularly for stakeholder relationships. Stakeholder relationships were explored with materiality assessment (quantitative) and scenario analysis (qualitative) leveraging holistic, multi-dimensional economic, social and environmental indicators. These tools in aggregate, helped identify opportunities for Food Co. to create value and drive its sustainable transition.

Chapter Three, Literature review, presented the framework of research that encompassed the multiple dimensions of a sustainable transition for Food Co. The review included:

- Bob Willard's outline on the five stage journey to sustainable development;
- Evidence that value creation has undergone a dramatic change and that intangible assets were driving value;
- Insights on how stakeholder capital impacted companies' economic performance and facilitated a sustainable transition;
- The role of materiality assessment to understanding the needs and expectations of stakeholders;
- The impact of sustainability indicators in identifying areas of alignment and difference between stakeholder groups;
- How forward-looking strategies such as scenario analysis were critical to managing risk, strategic planning and innovation in the mid to long-term;
- The trends and drivers in the agri-food sector, and
- The challenges of making trade-offs for ensuring maintenance of

ecosystem services.

Chapter Four, Implementation presented the findings.

The materiality assessment found that Food Co. and external stakeholders were aligned on issues related to responsible business practices and compliance such as standards, economic areas such as regulatory issues and certification. The materiality assessment also revealed areas of disconnects between Food Co.'s internal and external stakeholders on the perceived importance of: sourcing; community outreach; water management; direct and indirect energy consumption, and logistics. Food Co. attributed the disconnects to lack of awareness, a corporate culture that focuses on local operations, and issues such as water management and life cycle management which are viewed from an operational perspective and does not include interaction with external stakeholders.

The most revealing insight was that by integrating the findings of the materiality assessment, (specifically the indicators representing disconnects) and Food Co.'s adaptive strategies to the MA scenarios, the disconnects from the materiality assessment emerged as priorities in Food Co.'s strategies to adapt to the challenges of the scenarios.

These insights demonstrate that through this combined approach Food Co.'s internal stakeholders gained better understanding and higher appreciation of the value and impact of future-oriented indicators on stakeholder engagement, risk management, and shared value creation. This enables Food Co. to better manage its environmental, social and economic impacts.

Were the research objectives met?

The objective of the research was to investigate whether qualitative and quantitative methodologies within a holistic framework of sustainable development might be

effective in enabling Food Co. to create value through understanding the priorities of its external stakeholders. The findings identified areas across social, economic and environmental dimensions where Food Co.'s values and those of its external stakeholders were aligned and others where there were disconnects. The latter presented Food Co. with opportunities to address the gaps. The scenario analysis gave Food Co. insights on how priorities might change over time and with different socio-economic trends, which enabled it to perhaps reassess its strategic planning. The results provided Food Co. with information and insights on how it might strengthen stakeholder engagement, which is key to generating shared value, good economic performance, improved resilience, and transition to sustainability.

Takeaways from the research

Quick wins

While Food Co. does share information about its priorities and activities within the company regularly through various communication channels, the research revealed information and knowledge gaps. Food Co. might consider a training/education strategy that addresses some of the gaps.

Challenges for value creation

This research focused on stakeholder relationships as a source of value creation. Other sources of value creation are natural capital, human capital and knowledge capital. Food Co. might determine which one(s) of the other capitals might be appropriate additional sources of value creation.

Changing behavior

Sustainability is a process of transformation, which takes time, commitment and

leadership. Role models can be helpful in changing behavior and probably the most notable leader today in sustainable business practices is Paul Polman, the CEO of Unilever. The company is considered to have the most comprehensive strategy of enlightened capitalism of any global firm. One of the most controversial decisions he has made as CEO was to end quarterly earnings guidance to the investment community because he believes that “short-termism” is responsible for many of problems that are plaguing corporate innovation. Unilever’s stock price fell eight per cent on the day it announced the end of quarterly earnings guidance but since then has risen by 40%. He has aligned management incentives for the long term and invested heavily in R&D to build Unilever’s innovation pipeline.

6.0 RECOMMENDATIONS

“Sustainability is not a trend or a tally but a transformation.” – Anna Clark

A sustainability- oriented company adopts methods and uses tools that allow it to improve its impacts on human, social and natural capital. A company’s sustainability is driven by the sustainability of its stakeholder relationships. The following recommendations for Food Co. focus on opportunities for generating value from managing its impacts and its stakeholder relationships. They are actionable and intended to function as a “roadmap” to guide Food Co.’s sustainable transition.

The recommendations include:

- A review of Food Co.’s position on the 5-stage sustainability journey that will inform the company on the steps needed to move from Stage 3 to Stage 4

which integrates sustainability into the company;

- An audit of Food Co.'s environmental and social impacts that measures Food Co.'s performance against real world limits and thresholds;
- Establishment of a stakeholder advisory panel that could assist Food Co. to make decisions about sustainable development priorities, and
- Developing a corporate sustainability accounting system that could enable Food Co.'s decision makers to manage stakeholder relationships.

1. A review of the steps toward an integrated sustainability strategy

Figure 9. The Five-Stage Sustainability Journey

Author : Bob Willard 7.0(2010) -Printed With Permission



The transition from Stage 3, which is unsustainable, to Stage 4 requires organizations to internalize - “baking” sustainability throughout its operations in four intermediate steps.

Food Co. might already have some of these processes in place but this roadmap affirms

its activities and processes going forward.

Stage 3.0: Eco-efficient processes and products. In this stage, Food Co. captures energy, water, materials, and waste handling eco-efficiencies within current operations. In addition, Food Co. increases its engagement with employees and other stakeholders. Suppliers are encouraged—or coerced—into cleaning up their acts, or risk losing its business relationship.

Stage 3.1: Improved supply chain conditions. Food Co. works with its suppliers to help them reap the same eco-efficiencies and stakeholder engagement that it has achieved in its own operations.

Stage 3.2: New eco-effective processes and products. Food Co. re-designs its products and re-engineers its processes to be radically more productive. It co-creates new green products and services with diverse stakeholders. The company re-invents itself, providing useful products and services in existing markets and in new, strategic markets. The company saves money because it uses less energy. Revenue grows as Food Co. captures a larger share of current and new markets and realizes more stakeholder engagement.

Stage 3.3: Sustainable governance. Sustainability is core to Food Co.'s decision-making, its policies, and its culture. Food Co. imbeds sustainability principles into its financial measurement and management systems. It aligns its recognition, reward, evaluation, and remuneration systems to ensure that everyone understands: sustainability considerations are important. Executive teams and boards revamp the company's governance system to assess—and transparently report on—how it is contributing to a sustainable global economy, society, and the environment.

2. Audit of current environmental and social impacts

Food Co. sources over 150 products from approximately 65 countries with each country having specific conditions based on locations and current circumstances. The literature review revealed that context based measurements were the most accurate means to assess impacts. Food Co. needs a science-based benchmark on which to build targets and set priorities. There are a couple of different choices for measuring context- based impacts that are particularly relevant to Food Co. such as water metrics and social metrics. The frameworks have been developed by Mark McElroy, an expert in context-based indicators and Executive Director of the Center for Sustainable Organizations (www.sustainableorganizations.org.)

- a) Water metrics - Is a watershed-centric approach where consumption is measured against an allocation of available renewable supplies at the facility level. The steps include: identifying watershed in which facilities have impact; determining net renewable water supplies in watersheds of interest and allocating proportionate shares to facilities and determining net water consumption by facilities in watersheds of interest .
- b) Social Footprint captures organizational behaviors. It is an application of context-based sustainability and is an implementation of what GRI calls “sustainability context.” It is a measure of organizational impacts on the quality and sufficiency of vital anthro capital (human, social and constructed) relative to norms, standards, or thresholds for what such impacts would have to be in order to be sustainable.

3. Stakeholder advisory panel

A stakeholder panel could help Food Co.'s senior management to make decisions about its sustainability priorities, identify opportunities that would directly impact the company's strategies, and address an identified gap in collecting qualitative assessments on ecosystem services. The panel would provide advice on specific issues facing the company and impacting the stakeholders such as climate change, ecological surprises, etc. A stakeholder panel could also help develop strategies to mitigate potentially costly confrontations with critics. Creating an effective stakeholder panel would involve: a clear idea on its purpose and focus; securing internal support; defining the panel's mandate; establishing ground rules; recruiting members that represent major stakeholder groups, and following through on commitments and measuring success.

4. Corporate sustainability accounting system

While there may be a number of management tools that include social and environmental reporting and key performance indicators, there is an integrated approach called the Sustainability Evaluation and Reporting System (SERS) which Food Co. might find helpful in managing its stakeholder relationships.

SERS is composed of three modules:

- a. The overall reporting system, which includes: the annual report; the social report which measures the impact of the company and its activities on the different stakeholder; the environmental report which is a tool a company uses to manage and control corporate activities and support communication with stakeholders and a set of integrated performance indicators which allows a company to

check and report the annual overall corporate performance;

- b. The integrated information system is a satellite accounting system focused on social and environmental performance and connected with other information systems which provides decision-makers with the ability to assess the company's overall performance, and
- c. The key performance indicators for corporate sustainability, which could focus on the financial, operating, marketing, environmental, social and cross cutting aspects of a company. The indicators could be organized by categories, aspects or indicators related to a specific issue that could be quantitative, qualitative or economic.

The SERS methodology enables a company and its management to manage the stakeholder relationships and address the information needs and the economic, social, and environmental concerns of various stakeholder groups.

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