GREENING GLOBAL SUPPLY CHAINS

THE SUSTAINABILITY CONSORTIUM™

From Blind Spots To Hotspots To Action

2016 IMPACT REPORT

We want to thank McKinsey & Company, a global management consulting firm, for providing the underlying analytical support for this report.

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Denotes sidebar feature

A BIG PIVOT IN HOW CONSUMER GOODS COMPANIES OPERATE

FOREWORD

All products tell a story. The story used to be simple, but now people want much more information. The CEO of a large food and beverage company recently told me that, in the past, "a good product was one that tasted good and was safe." But now, he says, it has to be "sourced, manufactured, and distributed responsibly." Figuring out what that even means—and how to tell that story in an authentic way—is a big challenge. How can executives know, or prove, that they are successfully managing their products' biggest environmental and social issues?

First, companies have to identify the largest impacts throughout the value chain. The work of The Sustainability Consortium has helped big brands and retailers understand that the biggest sustainability issues fall mostly outside their direct control—the real impacts are upstream with suppliers. Now, with this report, TSC helps answer a critical question: how much visibility do companies really have into their supply chains?

The answer is hardly academic and the stakes are high. Since the label "consumer goods" covers nearly everything we use in our daily lives, the sector has deep connections to all of the world's biggest challenges, from climate change and water scarcity to food waste, child labor, and inequality. The scale of these challenges requires what I call a "big pivot" in how businesses (and society) operate. We need new strategies, including: focusing more on long-term value creation; setting bold science-based goals; asking heretical questions to drive new levels of innovation; making investment decisions differently to account for hard-to-measure intangible value; and collaborating radically in new ways with customers, governments, and even direct competitors.

TSC helps answer a critical question: how much visibility do companies really have into their supply chains?

If we have any hope of making a shift of this magnitude, the consumer goods sector will need to play a key role. It must innovate and help everyone consume smarter and better. More specifically, the pivot for retailers and manufacturers will mean getting far greater visibility into supplier operations. Then, armed with better information and more transparency, they can create aggressive and collaborative programs to reduce impacts and rethink production and consumption across value chains.

It's a significant and exciting challenge. But solving the world's biggest problems does make for quite a story. Together, we will write and tell a tale about new modes of sourcing, production, and consumption. A story of a more circular economy and a fundamental decoupling of human development from the impacts that threaten our collective well-being.

With its extensive set of partners and data, TSC offers a unique view on how progress toward sustainable consumption is actually going. All companies and executives should heed these lessons so they can tell a new story—one that people are demanding to hear.

ANDREW WINSTON

SUSTAINABILITY STRATEGY ADVISER AND AUTHOR OF *THE BIG PIVOT*

Dear readers, valued TSC members, partners,
and the “sustainability curious,”

I am pleased to bring you The Sustainability Consortium’s first-ever impact report.

This report marks a major milestone for The Consortium. It celebrates the work we’ve accomplished to date in creating a system that will serve as an important barometer for the entire Consumer Goods Industry globally. It also marks a significant transition for us as we turn our focus towards the incredible potential for impact we can have through the implementation of our work. Finally, it is a call to action for the key players along consumer goods supply chains to move forward.

We could not have accomplished this without our hundreds of members, our partners, and the individuals dedicated to sustainable consumer goods.

While I have worked in sustainability for most of my professional career, it is here as the chief executive of The Sustainability Consortium that I truly see an incredible and very tangible path towards accomplishing a more sustainable world. Much of this is through our research, our metrics, and our activation and implementation efforts around more sustainable consumer goods supply chains. I am proud to present the work of an organization dedicated not just to sustainability science, but also to the collaboration and collective action that will drive the entire industry forward.

Our goal with this report is a call for collective action to transform the measurement and tracking of product sustainability and, more importantly, to drive transformational change that will make a real difference for our planet. I hope you will join us.

Sincerely,
Sheila Bonini

SHEILA BONINI

CHIEF EXECUTIVE OFFICER
THE SUSTAINABILITY CONSORTIUM

DRIVEN BY SCIENCE INFORMED BY STAKEHOLDERS FOCUSED ON IMPACT

About The Sustainability Consortium

THE SUSTAINABILITY CONSORTIUM™

The Sustainability Consortium is a global non-profit organization working to transform the consumer goods industry by partnering with leading companies to define, develop, and deliver more sustainable products. TSC creates change through the implementation of its science-based, metrics-driven approach, and by collaborating with its broad membership base— which includes manufacturers, retailers, corporations, and NGOs—and other stakeholders to drive innovation for a new generation of products and more sustainable supply networks.

VISION

We envision a world in the near future where we can all experience the benefits of consumer products without causing harm to people or going beyond the environmental limits of our planet—a world where we enjoy sustainable products for a sustainable planet.

MISSION

Our mission is to transform the consumer goods industry so that the mainstream consumer goods we buy every day are better and more sustainable. We will achieve this by translating the best sustainability science into business tools, and by engaging stakeholders to implement these tools to engender change along supply chains and drive continual improvement across the entire product life cycle, to create more sustainable consumer products.

GLOBAL SCALE

The Sustainability Consortium has more than 100 members and there are over 2,000 users of TSC tools worldwide; it convenes more than 200 global organizations annually over an average of 75 networking opportunities.

HISTORY

Formed in 2009, TSC is jointly administered by Arizona State University and the University of Arkansas. It also has a European office at Wageningen University and Research Center, and a Chinese office in Tianjin, China.

Industry, civil society, and academia came together to form TSC, in order to create a consistent, science-based measurement and reporting system vetted by multiple stakeholders that would enable users to improve transparency in their supply chains and make progress towards their goals for addressing key environmental and social impacts in product supply chains. Given consumer demand for such transparency, but a reluctance to pay higher prices, stakeholders designed a simple, practical, collaboratively produced system to address both these imperatives—meeting consumers' demands while at the same time reducing the costs of investing in sustainability improvements to supply chains.

This unique measurement and reporting system benefits from the support and input of over 100 member organizations and other stakeholders. Based in the science of sustainability—and supporting sustainable sourcing decisions of buyers globally—TSC's system covers between 80 percent and 90 percent of the sustainability impacts of all consumer goods. In each category, the most material social and environmental issues are identified, wherever they may occur across the value chain.

TSC not only works on the creation and continual improvement of its metrics and reporting system, but also provides implementation services to assist users and their suppliers in making the most of the system. In addition, TSC collaborates with other organizations and initiatives to ensure capacity to respond to metrics and address key issues highlighted by the metrics.

GREENING GLOBAL SUPPLY CHAINS

From Blind Spots To Hotspots To Action

EXECUTIVE SUMMARY

Consumer goods bring countless benefits to society, dramatically improving lifestyles around the world. These benefits however come with an increasingly sizeable sustainability price tag—both for people and the planet. Global production and use of consumer goods accounts for more than 60 percent of all greenhouse gas emissions,[1] 80 percent of water usage,[2] and two-thirds of tropical forest loss globally.[3] With 2.5 billion more people joining the consuming class in the next few decades, we must address the production, use, and disposal of consumer goods: a sustainable world requires sustainable production and consumption.

While progress has been made to make some consumer products more sustainable, the real imperative and opportunity for impact is to make all consumer products more sustainable. The Sustainability Consortium (TSC) was created in 2009 to transform the consumer goods industry by partnering with leading companies, NGOs, universities, and government organizations to define, develop, and deliver more sustainable products.

TSC uses a market-based approach to drive change. We believe that, if one retailer incentivizes more sustainable products, it can make a difference—but if multiple retailers send the same market signal, the world can change. TSC and its members have created a sustainability measurement and reporting system that now covers 80–90 percent of consumer goods.[4] TSC uses science to identify the hotspots in different product categories' life cycles, alongside stakeholder engagement and strategic partnership with other leading sustainability initiatives to develop key performance indicators in the form of a manufacturer survey. In 2015, Walmart, Sam's Club, Kroger, and other retailers used these surveys to assess the state of sustainability of their products: this report summarizes those findings and provides recommendations towards action.

TSC research shows that, with most products, the most significant environmental and social hotspots exist largely upstream from the manufacturer in their supply chain or downstream from consumer use and product disposal. Responses from over 2,500 surveys and 1,700 suppliers indicate, however, that most manufacturers have limited visibility into their supply chains and their related sustainability risks. Nevertheless, by enabling retailers and procurement teams to send a market signal to such a broad range of manufacturers, TSC has helped transform what were once blind spots into hotspots. The next step is taking action on these hotspots: the data demonstrate how sustainability leadership in different product categories is both possible and already exists, and so the vision of making all products more sustainable is now a realistic one.

Three steps are needed to green global supply chains by moving from hotspots to actions. First, retailers should commit to a common platform to measure and track consumer product sustainability. Retailers and procurement teams are uniquely positioned to influence consumer products and their supply chains. Second, manufacturers should drive supply chain visibility and performance, which will also enhance their own business outcomes and reduce risk. Third, stakeholders should partner to align and drive scale: companies, NGOs, and other organizations can work together to create scale by harmonizing existing metrics and tools, and drive continued momentum by collaborating on shared initiatives to address key hotspots.

Our goal is to create a consumer-goods ecosystem that is sustainable using a common approach to measuring and tracking the product sustainability of $1 trillion of retailer sales over the next five years. We believe this is achievable and meaningful enough to tip the balance in consumer goods supply chains towards transformational change that also spurs innovation and growth.

Footnotes in Executive Summary

[1] Estimate based on McKinsey & Co's "GHG abatement cost curves" methodology, www.mckinsey.com/business-functions/sustainability-and-resource-productivity/our-insights/greenhouse-gas-abatement-cost-curves.

[2] United Nations Food and Agriculture Organization, http://www.fao.org/nr/water/aquastat/tables/WorldData-Withdrawal_eng.pdf.

[3] Forest Declaration Goal 2, http://forestdeclaration.org/goal/goal-2/.

[4] These numbers are based on Environmental Input-Output (EIO) data developed by TSC, and estimates of U.S. market size in different categories

THE TRUE BENEFITS AND COSTS OF CONSUMER GOODS IN THE 21ST CENTURY

As history over the past half-century has shown, consumer goods bring countless benefits to society, dramatically improving lifestyles around the world. From hand soap that prevents diseases, and packaging that preserves our food, to the electronic devices that are transforming our economies and societies, the conveniences we take for granted today began as niche products only the wealthy could afford; over time, falling prices and rising incomes have made them more widely available and accessible[1] (see also Exhibit 1). Indeed, through improved production methods that reduce costs, the penetration of consumer goods now reaches well beyond the middle class, and has accelerated rapidly.

As global economic development continues over the next few decades, nearly 2.5 billion people are expected to join the "consuming class." This means that the benefits provided by our consumer goods will come with an increasingly sizeable sustainability price tag—both for people and the planet. As technology accelerates product life cycles and enables "fast fashion" to trickle into nearly every product category, these impacts will only be exacerbated.

Global production and use of consumer goods accounts for more than 60 percent of all greenhouse gas emissions,[2] 80 percent of water usage (mostly due to agriculture),[3] and two-thirds of tropical forest loss globally[4] (Exhibit 2). A sustainable world requires sustainable production and consumption. Incentivizing and supporting manufacturers and their suppliers to adopt new methods and design more sustainable products is one of our biggest levers for driving sustainability globally.

BENEFITS TO SOCIETY OF CONSUMER GOODS

EXHIBIT 1

HOME APPLIANCES

Air-conditioning was central to worker productivity growth in the US in the 1950s and has enabled economic development in warm climates such as in South East Asia.[i]

PACKAGING

Ultrathin plastic film helps block transmission of oxygen, increasing shelf life of fresh meats to 21 days or more.[ii]

PERSONAL AND HOME CARE PRODUCTS

Hand washing helps avoid contracting diseases which cause 3.5 million deaths annually among children under 5 years of age.[iii]

APPAREL AND SHOES

Over 1.5 billion people are infected with parasitic diseases preventable by wearing proper footwear.[iv]

CELL PHONES

Thanks to mobile phones fishermen in India can now call several markets to determine the best price for their catch—reducing consumer prices by 4% and increasing fishermen profit by 8%.[v]

As global economic development continues over the next few decades, nearly 2.5 billion people are expected to join the "consuming class."

60%
GREENHOUSE GAS EMISSIONS

Consumer goods account for more than 60 percent of global emissions.

80%
WATER WITHDRAWALS

More than 80 percent of water withdrawals linked to consumer goods.

75%
FORCED AND CHILD LABOR

More than 75% of forced and child labor is embedded in consumer goods supply chains.

2.2 BILLION TONS
SOLID WASTE

2.2 billion tons of municipal solid waste is expected per year by 2025.

20%
INDUSTRIAL WATER POLLUTION

Nearly 20% of industrial water pollution comes from textile dying and treatment.

2/3
DEFORESTATION

Nearly two-thirds of tropical forest loss is due to agriculture.

THE POTENTIAL FOR LARGE-SCALE IMPROVEMENTS IS DRAMATIC

Due to its sheer size, the consumer goods sector represents one of the single biggest levers to address sustainability on a global basis, particularly because of the concentration of retail trade which sits at the end of the consumer goods supply chain. Overall retail sales in 2015 were $13.6 trillion[5]—a trillion of which is represented by fewer than ten of the largest global retailers.[6]

Analysis by McKinsey & Company shows that **if just $1 trillion of retail trade were on a path to decrease greenhouse gas emissions by 2 percent annually for ten years, it would remove the equivalent of France's entire annual greenhouse gas emissions from our atmosphere**.[7] Concentration in the global retail trade, combined with focused action, makes dramatic gains like this—including improvements in water, forestry, and labor practices—quite feasible if the industry embraces an aligned course of improvements.

The additional good news is that addressing the sustainability price tag of consumer goods doesn't have to raise the actual price tag of those products. Improving sustainability can reduce systemic costs and expected costs due to supply chain risks, and increases revenue and growth by opening up new markets for greener, better, and more innovative products. Consider the following:

- Energy, water, and waste management are all sources of cost for companies. For example, energy is one of the main contributors to climate change but can also represent as much as 30 percent of the cost of goods sold (COGS) of some consumer goods. For these companies, attending to improvements in their energy usage can drive 1–2 percent gains in their margins.[8]

- Reducing material usage through product and process design and a circular economy approach reduces natural capital impacts as well as production costs. For example, fertilizers can represent upwards of 25 percent of an agricultural product's cost, but methods like precision agriculture have been shown to cut fertilizer and pesticide use dramatically.[9]

- Product packaging is a major source of waste from consumer goods and accounts for up to 20 percent of their COGS. Reducing packaging can therefore contribute to reducing waste while also driving down costs. Designing packaging for recycling enables the resources to be recovered and reused rather than ending up in a landfill.

- Addressing critical social responsibility issues like labor rights can also reduce costs that can occur as a result of loss of reputation, markets, or resources. For example, research has shown that a publicly traded company loses on average 10 percent of its stock market value due to supply chain disruptions.[10]

Improving the sustainability price tag is essential to enable consumer goods to continue to grow in an increasingly resource-constrained world. For years, consumers have demonstrated that they favor more sustainable products, but don't necessarily want to pay more or sacrifice quality for sustainability. Moreover, consumers don't want to have to figure out what actually constitutes a more sustainable product; they want to trust that, when they buy their favorite brands or walk into their preferred retailer, all of the choices presented have been produced sustainably. Addressing the sustainability price tag systemically will unlock new value for consumers and help promote continued growth.

The annual growth forecast across the global consumer goods industry averages about 5 percent for the coming decades. Taking a capital markets view of this growth, some 50 percent of the market capitalization of publicly traded consumer goods companies is attributable to the expected future growth in earnings that results from this revenue growth. The demographics of the 2.5 billion emerging consumers mentioned above give a lot of credibility to this growth story.

At the same time, leaders worldwide have agreed to dramatically reduce the impacts of our society on the planet.[11] The only way for the consumer goods industry to pull its fair share of the load in meeting these global impact-reduction commitments—and yet simultaneously deliver the industry's benefits to billions more consumers—is for a "grand decoupling" to take place in the way products are made and used. In order for this to happen, consumer goods companies must push into their supply chains—as we will see, this is where the lion's share of the impact lies.

Footnotes in this chapter

1 "You are what you spend," New York Times, 2/10/2008, http://www.nytimes.com/2008/02/10/opinion/10cox.html.

2 Estimate based on McKinsey's "GHG abatement cost curves" methodology, http://www.mckinsey.com/business-functions/sustainability-and-resource-productivity/our-insights/greenhouse-gas-abatement-cost-curves.

3 United Nations Food and Agriculture Organization, http://www.fao.org/nr/water/aquastat/tables/WorldData-Withdrawal_eng.pdf.

4 Forest Declaration, http://forestdeclaration.org/goal/goal-2/.

5 Euromonitor International, http://www.euromonitor.com/retailing.

6 Deloitte, Global Powers of Retailing 2016, http://www2.deloitte.com/global/en/pages/consumer-business/articles/global-powers-of-retailing.html.

7 Estimate based on McKinsey's "GHG abatement cost curves" methodology, http://www.mckinsey.com/business-functions/sustainability-and-resource-productivity/our-insights/greenhouse-gas-abatement-cost-curves.

8 Walmart Sustainability Summit 2014, General Merchandise Factory Efficiency Workshop.

9 Ellen MacArthur Foundation, 2015, "Growth Within: A Circular Economy Vision for a Competitive Europe".

10 Hendricks, K. B., and Singhal, V. R. 2005, "Association between supply chain glitches and operating performance," Management Science, 51, 695-711.

11 The international political response to climate change began at the Rio Earth Summit in 1992, where the Rio Convention included the adoption of the UN Framework on Climate Change. This convention set out a framework for action aimed at stabilizing atmospheric concentrations of greenhouse gases. UNFCCC entered into force on 21 March 1994 and now has a near-universal membership of 195 parties, http://www.cop21paris.org/about/cop21.

Exhibit footnotes

i http://www.economist.com/news/international/21569017-artificial-cooling-makes-hot-places-bearablebut-worryingly-high-cost-no-sweat

ii https://globenewswire.com/news-release/2015/07/22/754191/10142646/en/Plastic-Packaging-Preventing-Food-Waste.html

iii http://www.who.int/mediacentre/factsheets/fs366/en/

iv http://www.un.org/apps/news/story.asp?NewsID=32556#.Vr4Of_l96M9

v http://www.economist.com/node/9149142

A MARKET-BASED APPROACH TO DRIVING MORE SUSTAINABLE PRODUCTS

To shift the consumer goods industry at scale, we need to focus on the mainstream: the things we all buy every day. How can we enable consumers to buy the products they love, from the retailers they love, and be assured that these purchases are sustainable? In order to make change across the mainstream, we need to transform and evolve the myriad supply chains underlying consumer goods. And that means understanding and addressing the complexities inherent in the modern global supply chain.

Supply chains are sometimes referred to as the arteries of global society. Today's global supply chains help companies deliver the best-quality, lowest-priced, freshest, and most-innovative products. To do this, supply chains have become incredibly efficient as well as complex, fast changing, and globally dispersed. In most supply chains, there are numerous small producers at one end and millions of consumers at the other end, with the two ends of the value chain many steps removed from one another.

The associated impacts of these global supply chains are themselves complex, based on an immense variety of products and their respective life cycles. To improve the sustainability price tag of consumer goods, we must define an actionable process for driving change across the entire global supply chain ecosystem (Exhibit 3).

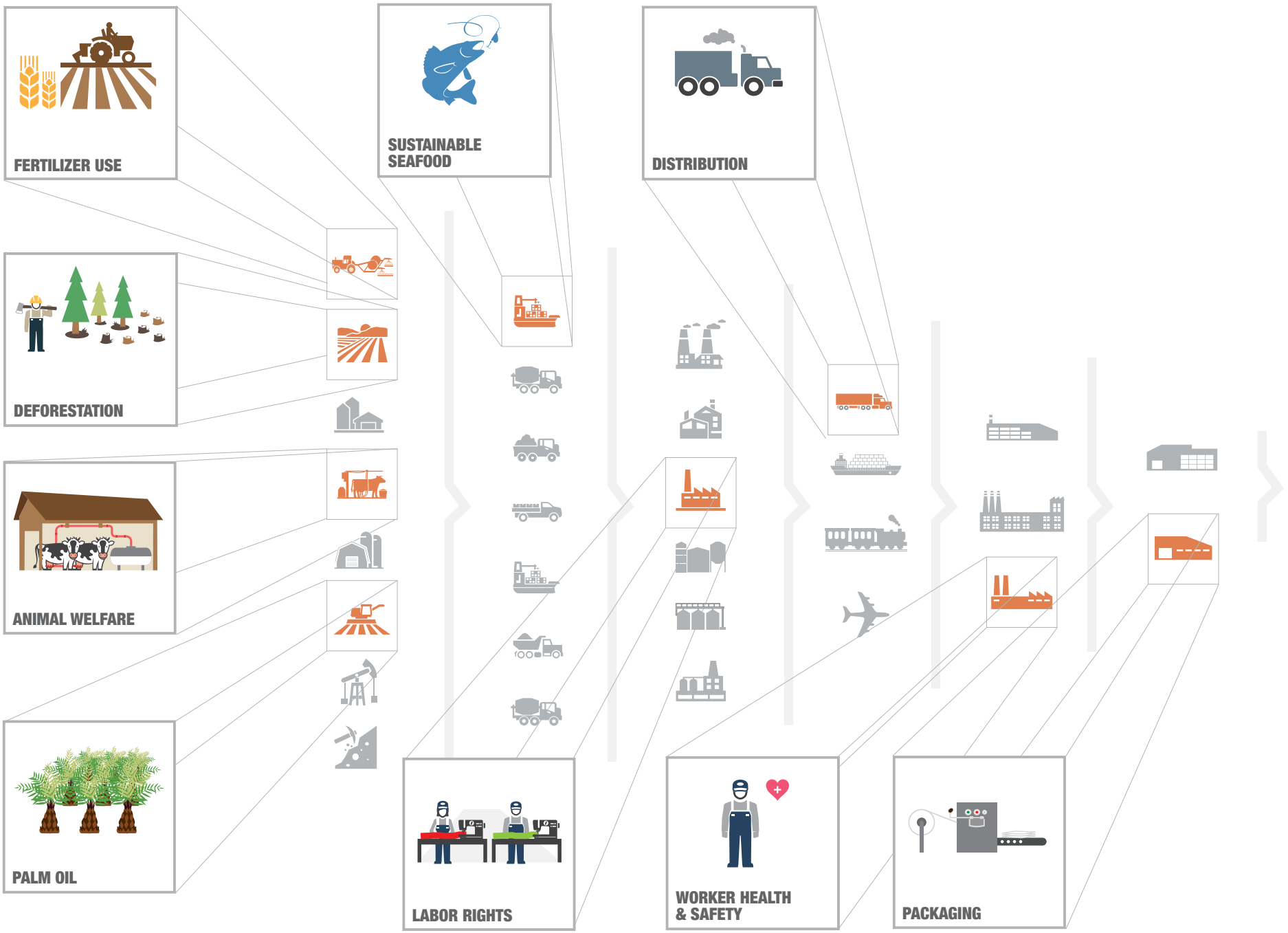
How can we enable consumers to buy the products they love, from the retailers they love, and be assured that these purchases are sustainable?

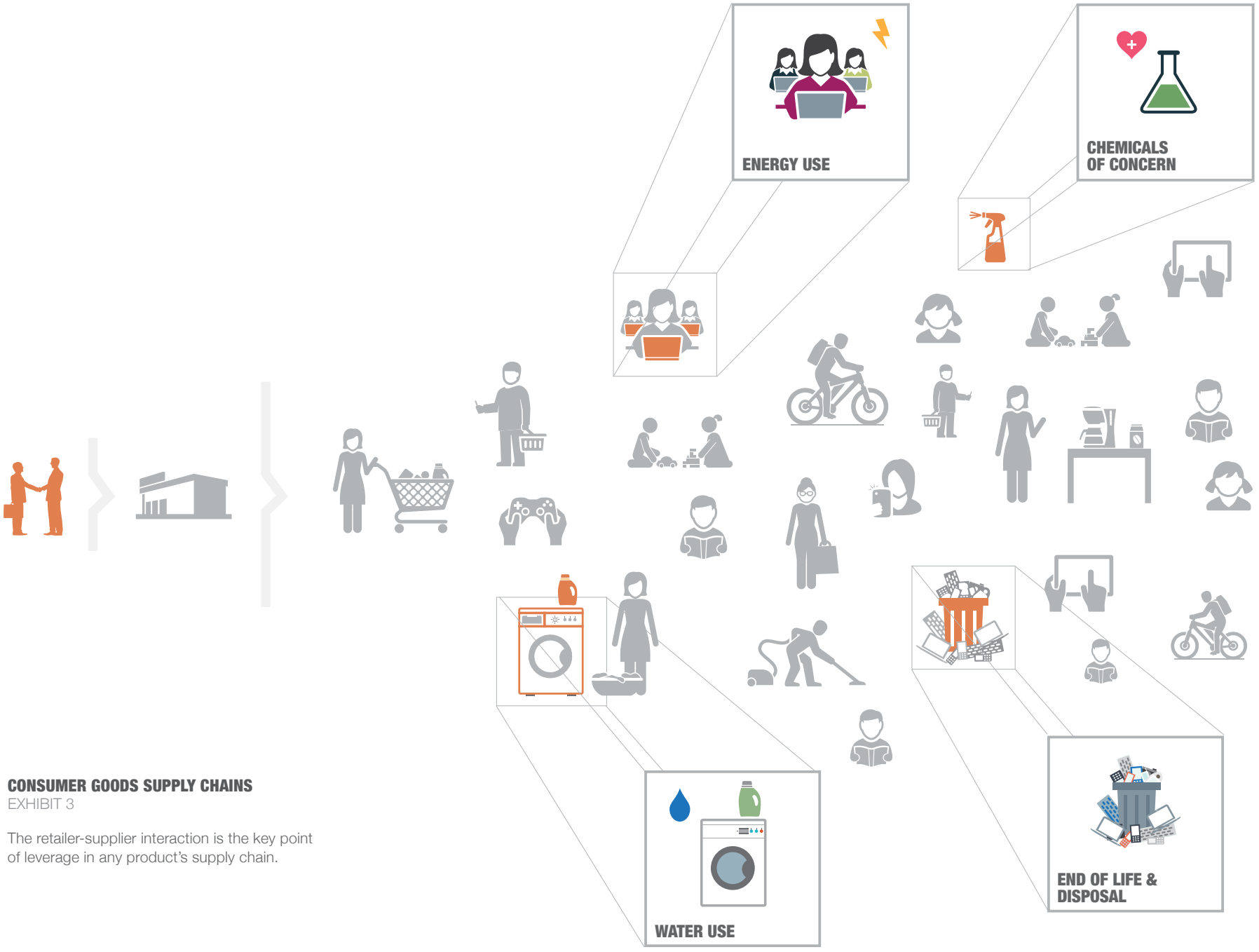
MULTIPLYING MARKET DEMAND SIGNALS TO CREATE A GLOBAL SHIFT

The retailer-supplier interaction is the key point of leverage in any product's supply chain. It is here that purchasing power is concentrated and decisions are made that dramatically shape upstream operations and downstream product use and disposal. The retailer not only decides which manufacturers' products to sell, but can also require minimum performance levels from suppliers and incentivize leadership. These decisions—historically made without much consideration of sustainability—are a major driver of the impacts that arise throughout the value chain.

The impact of any market signal is greatly multiplied if multiple retailers send the same signal to their respective supply chains, given there is often a fair amount of supplier overlap in the upstream supply chains. If one retailer shouts, a thousand suppliers listen. If many retailers shout the same signal, the world can change.

For any retailer, understanding, measuring, and tracking the variety of life cycle impacts associated with all of the different products they sell creates a practical challenge—given the inherent scale and complexity of this "ecosystem"—even if the desire and intent is there to "do the right thing." While some standards and tools exist, these lack both the scope and scalability for retailer merchants to use easily, thereby thwarting broader adoption and their resulting impact. How can we boil down the complexity of consumer product supply chains into something that a retailer can embed it into the day-to-day decision-making process and make part of its conversations with suppliers?

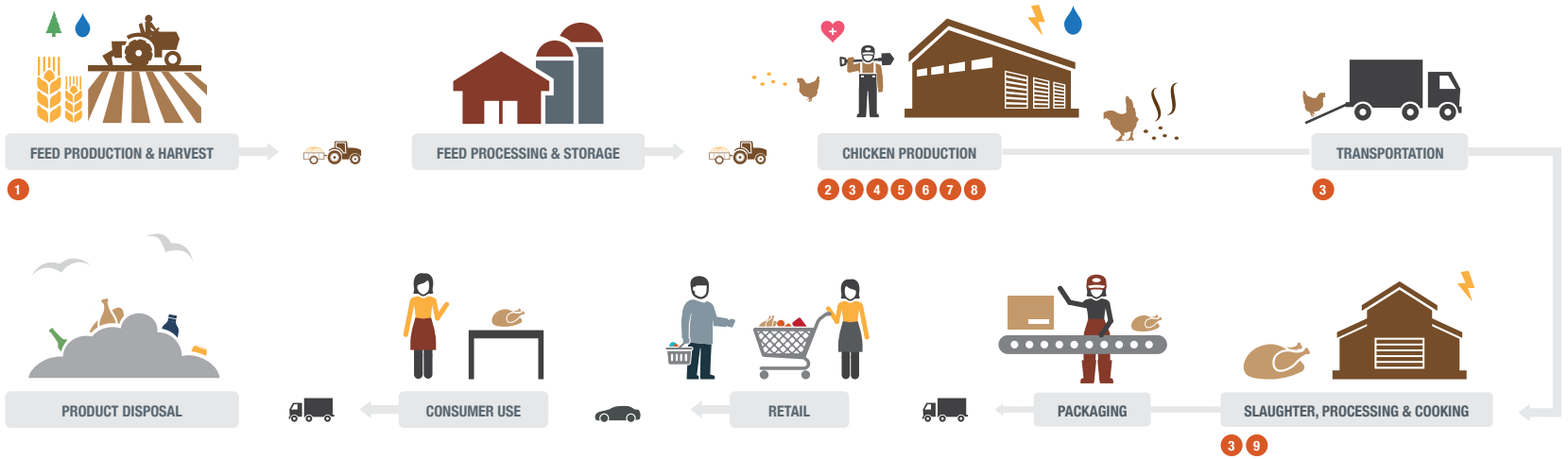

FERTILIZER USE
SUSTAINABLE SEAFOOD
DISTRIBUTION
DEFORESTATION
ANIMAL WELFARE
PALM OIL
LABOR RIGHTS
WORKER HEALTH & SAFETY
PACKAGING



CONSUMER GOODS SUPPLY CHAINS
EXHIBIT 3

The retailer-supplier interaction is the key point of leverage in any product's supply chain.

CHICKEN SUPPLY CHAIN HOTSPOTS
EXHIBIT 4



OVERCOMING FRAGMENTED STANDARDS AND CERTIFICATIONS

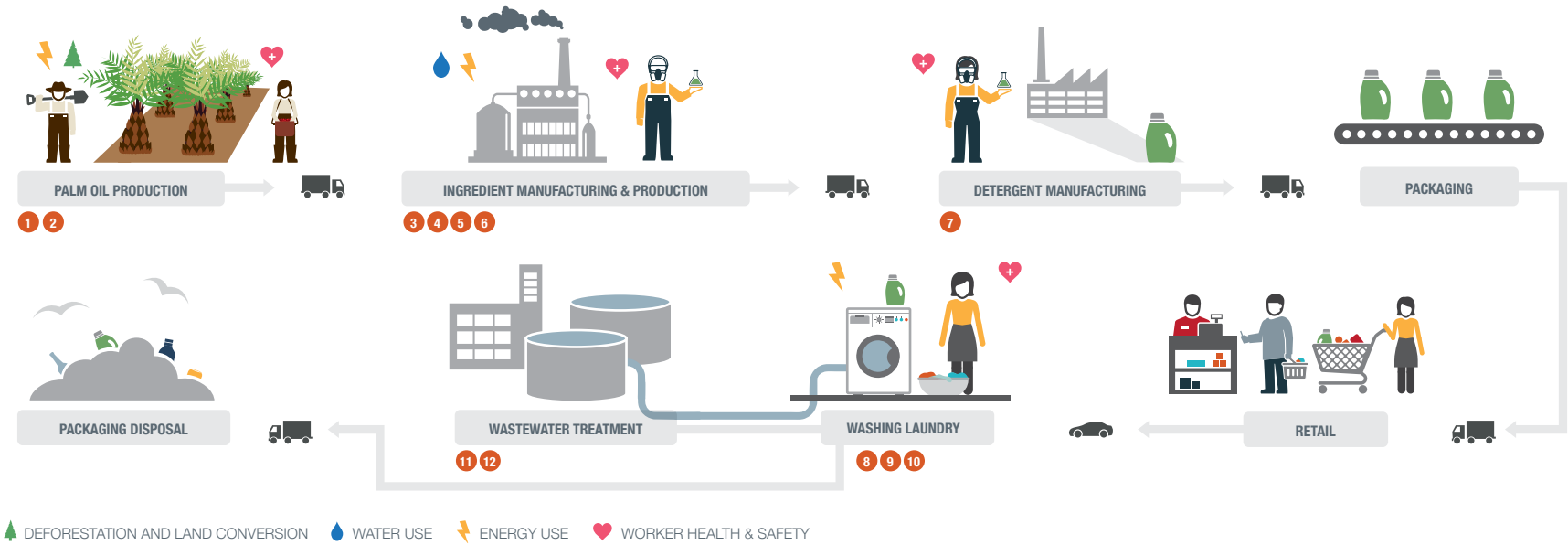
Addressing the sustainability of consumer goods is complicated given the broad and diverse set of categories of goods, each with its own supply chain and set of sustainability impacts. For each category of products, the sustainability impacts are different: for example, feed production and animal welfare are materially significant issues for products made with beef and poultry (Exhibit 4), whereas chemical safety and use-phase efficiency are critical for laundry detergent products (Exhibit 5). An individual retailer may have thousands of different products on its shelves, each with its own set of sustainability issues.

CHICKEN SUPPLY CHAIN HOTSPOTS

1. **ENVIRONMENTAL IMPACTS—FEED CULTIVATION**
   Improper management of soil, fertilizer, pesticides, water, and energy to grow feed causes pollution and affects workers, communities, climate, and natural resources. Clearing land for agriculture causes deforestation in some areas.
2. **AIR QUALITY—ANIMAL FARM OPERATIONS**
   Chicken manure releases ammonia that causes air quality issues for workers and communities.
3. **ANIMAL WELFARE**
   Chickens may face health issues related to improper housing, nutrition, handling, transportation, and slaughter.
4. **ANTIBIOTIC USE—ANIMAL FARM OPERATIONS**
   Chickens may need antibiotics to treat disease but overuse can cause antibiotic resistance in humans and affect the environment.
5. **ENERGY CONSUMPTION—ANIMAL FARM OPERATIONS**
   Chicken housing operations use electricity and fuel which lead to climate change and pollution.
6. **LABOR RIGHTS—ANIMAL FARM OPERATIONS**
   Workers, especially women and migrants, may face labor issues including unfair pay.
7. **MANURE MANAGEMENT—ANIMAL FARM OPERATIONS**
   Chicken manure releases greenhouse gases and can cause water pollution and climate change.
8. **WORKER HEALTH AND SAFETY—ANIMAL FARM OPERATIONS**
   Workers may be exposed to dust, chemicals, or other hazards on the farm.
9. **ENERGY CONSUMPTION—PROCESSING**
   Processing and cooking chicken uses electricity which leads to climate change and pollution.

LAUNDRY DETERGENT SUPPLY CHAIN HOTSPOTS

EXHIBIT 5



LAUNDRY DETERGENT SUPPLY CHAIN HOTSPOTS

1. **PALM OIL PRODUCTION—ENVIRONMENTAL IMPACTS**
   Palm oil cultivation uses agricultural inputs and energy, and causes deforestation.
2. **PALM OIL PRODUCTION—SOCIAL IMPACTS**
   Palm oil cultivation causes issues such as worker and community health and safety, labor rights, and indigenous rights.
3. **FOSSIL FUEL COMBUSTION—CHEMICAL PLANT OPERATION**
   Energy used for operating chemical plants depletes resources and releases emissions that can cause climate change.
4. **ELECTRICITY CONSUMPTION—CHEMICAL PRODUCTION**
   Electricity generated to power chemical plants can cause climate change and impact human health.
5. **WATER USE—CHEMICAL PLANT OPERATION**
   Producing chemicals can deplete water resources and generate wastewater.
6. **CHEMICAL USE—CHEMICAL PLANT OPERATION**
   Workers can develop respiratory difficulties and skin irritation from exposure to chemicals.
7. **WORKER SENSITIZATION AND ALLERGY—ENZYMES IN MANUFACTURING**
   Workers can develop occupational illnesses from exposure to enzymes.
8. **WATER HEATING AND USE—PRODUCT APPLICATION**
   Electricity generated to heat water for washing can cause climate change.
9. **ADVERSE HEALTH EFFECTS—PRODUCT APPLICATION, LAUNDRY DETERGENT**
   Consumers may experience health issues such as skin irritation or allergies when using detergent.
10. **ELECTRICITY CONSUMPTION—EQUIPMENT OPERATION, LAUNDRY CLEANING**
    Electricity generated to power washing machines can cause climate change.
11. **GREENHOUSE GAS RELEASE—PRODUCT FLUSH**
    Gases that are formed when detergent biodegrades can cause climate change.
12. **WASTEWATER GENERATION—PRODUCT FLUSH**
    Some detergent ingredients do not fully biodegrade and may accumulate in or cause toxicity to aquatic life.

Most sustainable purchasing solutions to date have used eco-labels and product certifications. Although some particular eco-labels and product-level certifications like ENERGY STAR or Marine Stewardship Council have shown to be effective in driving more sustainable supply chains and products, they have been developed relatively independently of one another and thus are not aligned around materiality or measurement standards. Moreover, certifications and standards often only cover certain impact areas or life-cycle stages, and do not exist for many product categories within the consumer product space.

The proliferation of these schemes also creates a confusing and sometimes paralyzing array of choices for companies. There are over 450 different product-level eco-labels,[1] with over 200 different ecological, ethical, or sustainability attributes for food,[2] and over 30 symbols and labels just for natural and organic cosmetic products alone.[3] The result is that companies are often drowning in data and toolsets from a multitude of initiatives addressing different impacts, sectors, or life-cycle stages with few having sufficient penetration to create the impact needed, or drive change as broadly and quickly as climate science tells us is required.

TURNING BLIND SPOTS INTO HOTSPOTS—AND COMPLEXITY INTO SIMPLICITY—FOR RETAILERS AND SUPPLIERS

Interviews with sustainability directors at numerous Fortune 500 companies[4] reinforce a central tenet of modern management: *you can't manage what you can't see*. For most consumer goods companies, the bulk of their impact lies in their supply chains, yet most companies currently have only limited visibility into those networks. The further upstream you go in the supply chain, the less visibility there is, and the greater the impacts that are hidden from view.

VISIBILITY AND PRIORITIES FOR ACTION

Creating greater visibility, followed by clear priorities for action, thus remain the two chief impediments to remediating and improving the sustainability and resilience of global supply chains. It is these twin imperatives that have guided the work of The Sustainability Consortium over the past five years.

TSC has sought to create the required visibility and identify priority actions by developing comprehensive and standardized metrics that cover a very broad set of categories and by convening key dialogues to garner commitments from global businesses and retailers to address mutual priorities—or "hotspots"—that have the potential for greatest impact.

Creating consensus behind these clearly defined hotspots is pivotal to driving the market demand signal that retailers send out, so that they may be integrated into everyday business conversations between retailers and manufacturers.

MODEL CAPTURES COMPLEXITY BUT IS EASILY INTERPRETED

TSC has developed a proven and tested model that is based in materiality and science to capture the complexity inherent in sustainability—addressing environmental, social, and economic impacts—while at the same time being simple enough to be discussed in a buying room by non-experts. This approach, coupled with TSC's coverage of more than 80 percent of the consumer goods space,[5] offers the potential for impact at scale and is defined below:

1. **PRODUCT CATEGORY SPECIFIC.** By focusing on specific product categories such as poultry or laundry detergent, the retailer can ensure that all products in a category become more sustainable, not just the outlier "green" product offering. It also greatly reduces the amount of sustainability data that retailers have to absorb, which eases implementation.

2. **HOLISTIC.** To address existing fragmentation of standards and tools, TSC examines all relevant social and environmental impacts across the entire life cycle of a product, from cradle to cradle.

3. **FOCUSED ON AREAS OF GREATEST IMPACT.** TSC's unique hotspot analyses help determine the most significant social and environmental impacts in any given product category's life cycle. This enables consumer goods companies to focus on the issues that matter most, where they matter most.

4. **DEEP COLLABORATION.** Many sustainability standards are informed by science but are ultimately decided upon by stakeholder debate. TSC brings science and stakeholders together in an integrated process. We apply published research to determine materiality of issues, and then we engage stakeholders to ensure that the tools and metrics we develop are practical and actionable by businesses today.

5. **A "MANY-TO-MANY" REPORTING PLATFORM.** TSC has partnered with SAP to become a part of their Product Stewardship Network. This allows a single supplier to use a single survey to respond to multiple retailers, which greatly reduces survey fatigue and enables a harmonious signal from multiple retailers to their respective suppliers.

Footnotes in this chapter

[1] Ecolabel index, http://www.ecolabelindex.com/ecolabels/.
[2] Organic Monitor, Jan 8th, 2013, http://www.organicmonitor.com/r0801.htm.
[3] Organic Monitor, September 11th 2015, http://www.organicmonitor.com/r1109.htm.
[4] Interviews conducted by McKinsey & Company and Citizen Group in preparation of this report.
[5] These numbers are based on Environmental Input-Output data (EIO) developed by TSC, and estimates of US market size in different categories.

TSC SUSTAINABILITY MEASUREMENT AND REPORTING SYSTEM

Sustainability measurement and reporting is a critical component of driving sustainability in consumer goods supply chains. Measurement links strategy to tactics and serves to incentivize—you get what you measure.

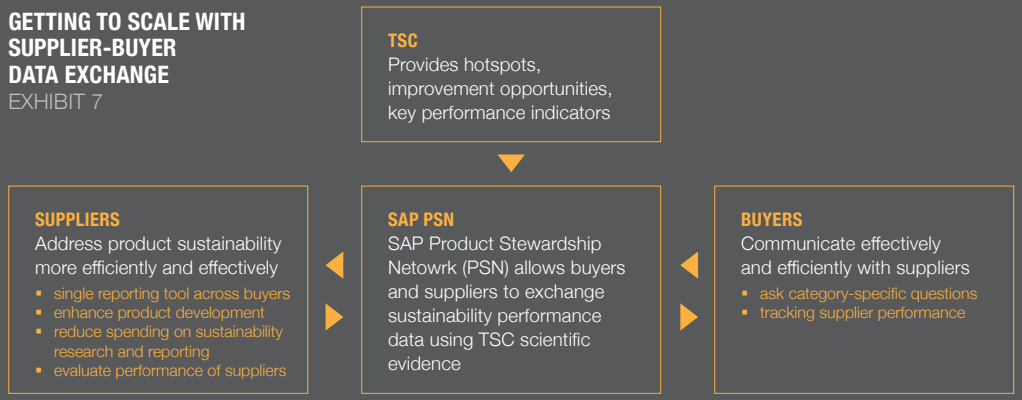
To create its measurement and reporting system, TSC uses a rigorous methodology to evaluate scientific knowledge and also to incorporate the input of a robust multi-stakeholder process.[1] TSC works with stakeholders to produce three elements that act as an integrated toolkit for each product category (Exhibit 6). Research first identifies the materially significant environmental and social issues—or "hotspots"—across the product life cycle; at the same time, practices are identified to address those hotspots: "improvement opportunities." Hotspots and improvement opportunities are then summarized in a category sustainability profile. Next, key performance indicators (KPIs) are developed in the form of survey questions that retailers use to measure a brand manufacturer's sustainability performance in a particular product category.

Sustainability, engineering, purchasing and supply-chain management, and product design teams within manufacturers and retailers use the category sustainability profiles and KPIs to prioritize their internal efforts and coordinate their supply chain (Exhibit 7). This, in turn, will help retailers identify top-performing suppliers as well as those that may be in need of supplier development support (Exhibit 8).

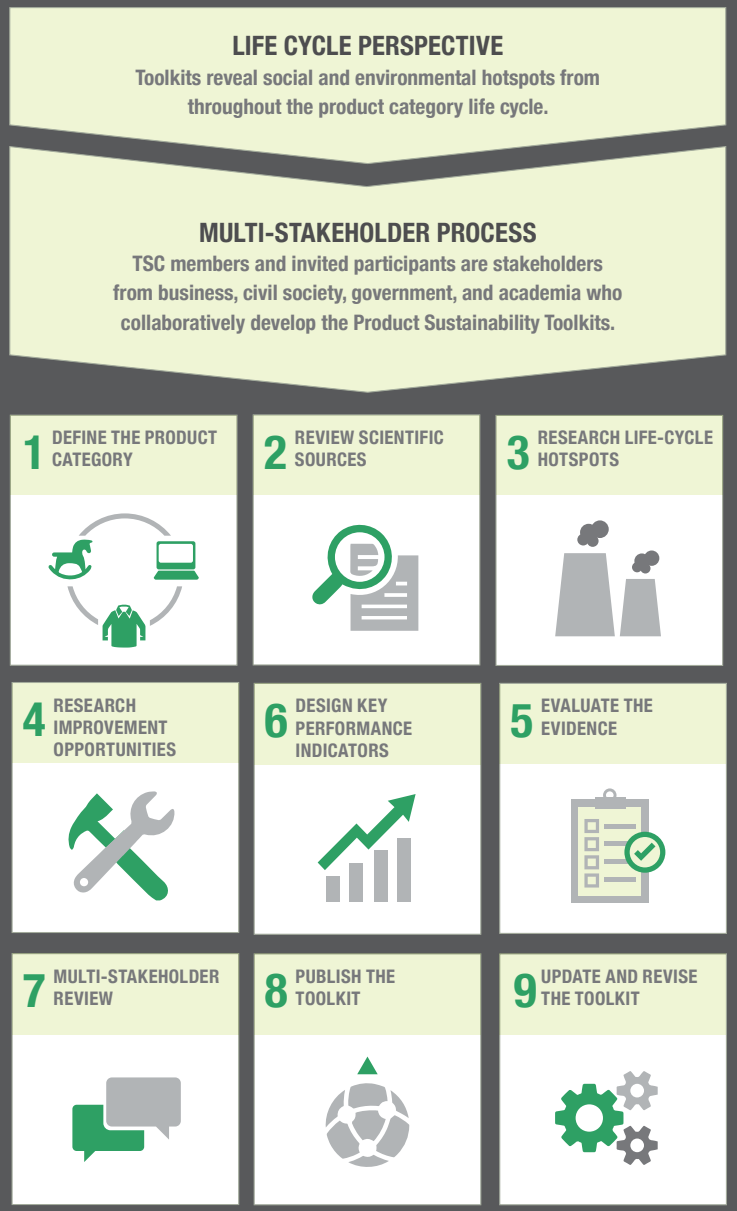
Footnote in this sidebar

[1] Dooley, K., and Johnson, J. (2015), "Product category-level sustainability measurement: The Sustainability Consortium's approach to materiality and indicators," Journal of Industrial Ecology, 19(3): 337-339.

GETTING TO SCALE WITH SUPPLIER-BUYER DATA EXCHANGE
EXHIBIT 7



HOW TSC CREATES A PRODUCT SUSTAINABILITY TOOLKIT
EXHIBIT 6



USING TSC METRICS TO ASSESS SUPPLIER PERFORMANCE

EXHIBIT 8

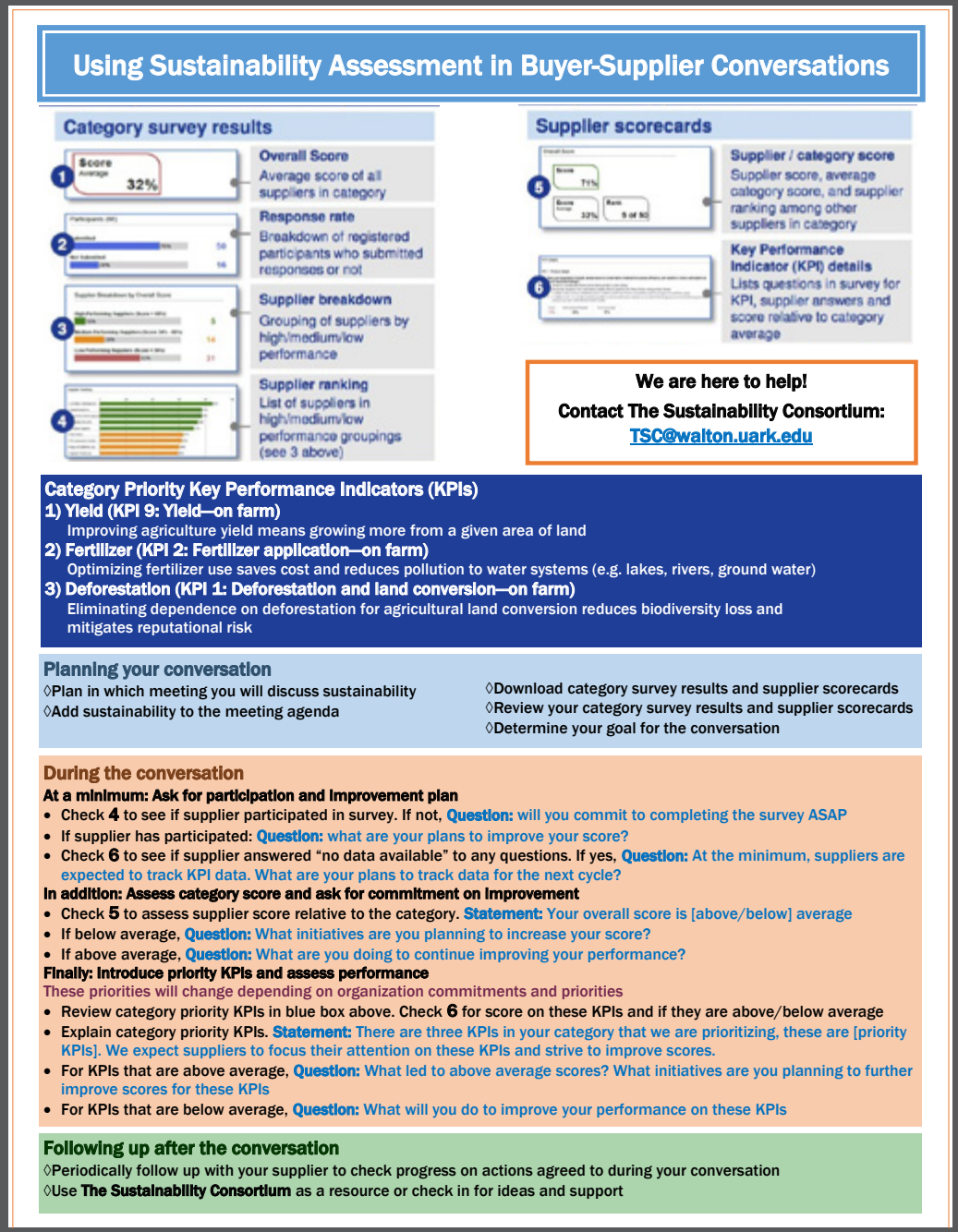
Retailers are using TSC metrics to assess their supplier performance on key sustainability issues. To drive market signals into their supply chains, retailers are equipping their buyers with practical tools that enable them to make quick business decisions regarding supplier performance on the retailer's sustainability priorities. By using a "cheat sheet" summarizing the outcomes of the sustainability assessment such as the one pictured here, buyers can quickly gauge the performance of their suppliers, ask questions that drive market signals about the importance of taking action on the sustainability issues, and decide how best to work with that supplier as a result of its performance on sustainability.

"There's no other group like TSC where you're actually doing work, brainstorming, and talking through ideas, fine-tuning research, sharing best practices and data in a large group setting. Going through the KPI creation process and getting it done is pretty impressive."

Miller Coors

"Metrics and supply chain pressure are critical to obtain better environmental outcomes. The level of dialogue between stakeholders has changed dramatically as a result of TSC's tools."

The Nature Conservancy



HOW TO IMPROVE THE STATE OF CONSUMER GOODS

In 2015, retailers used TSC's surveys to assess the sustainability of consumer products from over 1,700 suppliers globally, including many of the world's largest consumer goods companies.[1] The resulting data enable a first-time glimpse into the state of consumer goods from a full life-cycle perspective across multiple sustainable impact areas (Exhibit 9).

HEAT MAP OF IMPACT AREAS

EXHIBIT 9

LOWEST PERFORMING: 0 — HIGHEST PERFORMING: 100

RESOURCE EFFICIENCY	CLIMATE & ENERGY	ECOSYSTEMS & BIODIVERSITY	SOCIAL	
33	17	47	57	FRUITS AND VEGETABLES
19	22	23	39	ANIMAL-BASED FOODS
18	16	19	2	SPECIALTY FOODS
17	15	21	38	GRAINS AND LEGUMES
25	4	49	74	SEAFOOD
50	46	46	60	ELECTRONICS
34	36	46	57	HOME AND PERSONAL CARE
29	12	57	62	TOYS
26	18	33	37	GENERAL MERCHANDISE
33	50	60	61	PAPER PRODUCTS
	10	51	24	WOOD PRODUCTS
19	26	23	58	TEXTILES

In this chapter we start by exploring some of the general themes to emerge from this data across all industry sectors and impact areas. Secondly, we move on to consider some crosscutting issues in relation to particular impacts that apply across industry sectors: resource management, deforestation, social issues, packaging, and high-priority chemicals. Thirdly, we share some of the insights that arise from specific sectors: electronics, apparel, on farm, and seafood. Finally, we conclude with some thoughts around how the leaders are capitalizing on their better sustainability performance.

In general, the picture that emerges is mixed. Limited visibility means overall scores are low across the board, yet the picture is not all bad—there is significant differentiation of performance across crosscutting issues and across sectors. This highlights another important pattern: leaders are appearing across almost every product category, suggesting not only that there is a pathway to better sustainability performance, but also that there is a huge potential prize for those prepared to take it.

A few leading manufacturers have robust and rigorous sustainability efforts, but many have not taken even the initial steps toward measuring, tracking, and improving sustainability performance of their products and supply chains. This split between leaders and followers has three implications.

First, for firms that have chosen a leadership path, their competitive advantage on these issues is quite substantial and they can benefit from continuing to invest in product and supply-chain sustainability to retain that strategic positioning. However, the leaders have demonstrated that more sustainable products are both possible and profitable, signposting a path forward for the rest of the industry, wherein lies the largest potential for impact. In addition, we have begun to see—at least anecdotally—the significant impact that TSC's "market signal" can make in incentivizing industry to start measuring and tracking sustainability performance, including improving supply chain visibility in order to create meaningful impact where it matters the most.

The data lead us to make two key recommendations:

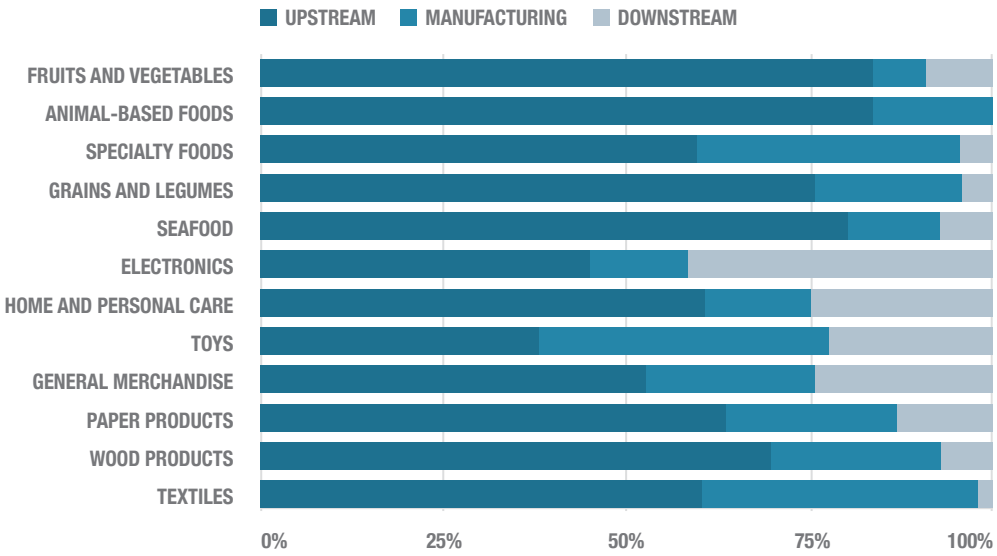
- Address impacts that mostly occur in a product's upstream supply chain.
- Improve visibility in current supply chains, which remains the greatest cause of inaction.

ADDRESS IMPACTS THAT MOSTLY OCCUR IN A PRODUCT'S UPSTREAM SUPPLY CHAIN

Across consumer goods, the bulk of the impacts exist upstream or downstream from the final manufacturer: that is, at the initial stages of the supply chain or in the product's use phase. According to the recent GreenBiz *State of Green Business Report*, for consumer goods over 90 percent of the natural capital impacts (i.e., those affecting air, land, soil, etc) are in consumer goods supply chains.[2] Similarly, in its recent report, CDP stated that over 80 percent of carbon impacts for the sector are in the supply chain. In fact, for most consumer goods, the upstream Scope 3 emissions are more than five times as large as Scope 1 and 2 combined.[3] CDP also reported that only about one quarter of companies engage their suppliers on their upstream Scope 3 emissions.[4] To the extent they do engage, they usually focus only on their first-tier suppliers' performance, which can create blind spots because many of the largest impacts are further upstream in supply chains.

Our findings align with those of others. TSC analyses of environmental and social hotspots across the life cycle of different categories of consumer products indicate that, for the most part, their impacts exist upstream or downstream from the final manufacturer. Specifically, across all consumer goods sectors, only 20 percent of the hotspots are in the manufacturing and packaging stage of the product life cycle, while 65 percent exist upstream and 15 percent are downstream (Exhibit 10).[5]

HOTSPOT DISTRIBUTION BY PRODUCT GROUPING
EXHIBIT 10



IMPROVE VISIBILITY IN CURRENT SUPPLY CHAINS, WHICH REMAINS THE GREATEST CAUSE OF INACTION

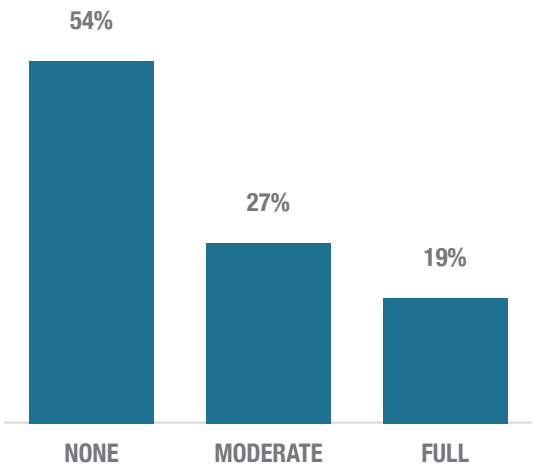
TSC analysis of over 2,500 surveys from 1,700 suppliers revealed several significant insights—perhaps the most important confirming that the majority of manufacturers lack visibility into the sustainability performance of their own supply chains (Exhibit 11). Given that so many of the hotspots exist upstream, this lack of visibility is a key barrier to further improvement. If you can't manage what you don't measure, you definitely can't manage what you can't even see. Increased visibility not only brings sustainability issues to the surface, it also enables organizations to focus efforts where they will have most impact.

Across all of the KPI questions that addressed environmental or social issues in the supply chain, the most common response was "Unable to determine" (54 percent); only 19 percent of responses indicated full supply chain transparency, with 27 percent indicating partial supply chain visibility. This lack of visibility impedes consumer goods manufacturers from engaging their supply chains to make necessary sustainability improvements where they matter most, in their supply chains.

The visibility is worse the further along the supply chain you move, and the more fragmented the supply chain. Food and agriculture products have the highest share of impacts far

upstream (typically on-farm) where visibility is extremely low. For example, only 20 percent of respondents collect data on fertilizer usage, greenhouse gas emissions, and soil erosion. This represents a significant potential risk, but also an equally large opportunity to improve both cost and sustainability.

DEGREE OF VISIBILITY IN SUPPLY CHAIN SUSTAINABILITY
EXHIBIT 11



HELPING TO IMPROVE VISIBILITY

TSC works with members to gain increased visibility into supply-chain risks using different tools and experiences.

COMMODITY MAPPING FOR SUSTAINABLE SOURCING

Many companies don't have visibility into the supply chains underlying their agricultural-commodity or forest-product purchases. TSC has developed a commodity mapping tool that combines data on global growing regions with commodity import-export data for over 100 commodities, in order to determine where supply chains are located.[1] Identifying source regions enables retailers and manufacturers to understand supply-chain risk exposure (such as biodiversity, child labor, or deforestation). For example, Campbell's used TSC's commodity mapping approach to assess water risk for select ingredients and found the tool useful in identifying supply-chain risks and providing data to help answer key retailer questions about their supply. They found the maps to be an effective way to communicate risks, as well as to find strategic partners in the same areas to tackle sustainability hotspots (Exhibit 12).

HELPING SUPPLIERS UNDERSTAND HOW THEY FIT IN THE SUPPLY CHAIN

As a result of the use of TSC key performance indicators by retailers, suppliers are finding it increasingly beneficial to build understanding of the stages of the supply chains in which they are involved. In an effort to respond to this increasing demand for supply chain understanding and visibility, TSC has organized field tours, including on-farm and plastics field tours in 2015.
In the summer of 2015, TSC partnered with AgriBusiness Resources to lead an intensive on-farm field school in Central Valley, California at the peak of harvest season, with participants from 17 diverse organizations. Participants came from academia, agribusiness, consultancies, food companies, investment banking, and software companies. The group visited 14 different crop-production types including peaches, citrus, almonds, grapes, and dairy, as well as processing facilities. Over a three-day period, participants met with growers, packers, processors, NGOs, and experts in California agriculture to learn about their experiences with sustainability hotspots and discuss reporting challenges and opportunities to improve sustainability on farm. Participants learned about common agriculture hotspots and improvement opportunities to address issues in their own organizations.

When asked about their most valuable learnings from the farm tour participants were enthusiastic. One said: "Reviewing TSC KPIs and hotspots after our field visits provided a great level of consolidation on the knowledge and really made it a learning experience." Others referred to the "empathy" gained as a result of hearing from farmers directly, the positive impact of "immersion into the impacts

of water stress on California agriculture" and the benefits of "forging connections with a diverse group of people and organizations interested in agriculture."

In October of 2015, TSC hosted a field tour of the plastics supply chain in the Houston and Freeport, TX areas. With the help of our sponsors—the American Chemistry Council, Dow Chemical, and Chevron Phillips Chemical—TSC guided a group of some 20 participants from the retail, packaged food, chemical, and textiles industries through facilities involved in the manufacture and recovery of plastics, with an emphasis on plastic packaging. The key objective of the program was to provide a learning and networking opportunity for sustainability professionals with an interest in plastics. It provided a bird's eye view of a large part of the supply chain, and demonstrated some of the challenges and opportunities present in converting plastic resins to products, and products back to plastic resins. Participants left with a better appreciation of these challenges and opportunities and will hopefully continue to collaborate to find more sustainable approaches to using and recovering plastics.

Footnote in this sidebar

[1] Joel Makower (2013), "Assessing supply-chain risk through commodity mapping," GreenBiz 11/4/13, https://www.greenbiz.com/blog/2013/11/04/assessing-supply-chain-risk-through-'commodity-mapping'.

"Trips organized by TSC have been helpful to Norcom. Since we are primarily involved with papers and paper-related organizations and suppliers, it can be a challenge to get top-line information and hands-on experience with respect to our other raw materials. For example, the Plastics Field Tour was excellent because we got to see the plastics life cycle complete with experts to answer questions and tours that provided visuals that reinforced learning. We don't need a doctorate in plastics—just a thorough understanding. TSC provided exactly that within a two-day session."

Norcom

COMMODITY MAPPING

EXHIBIT 12

1

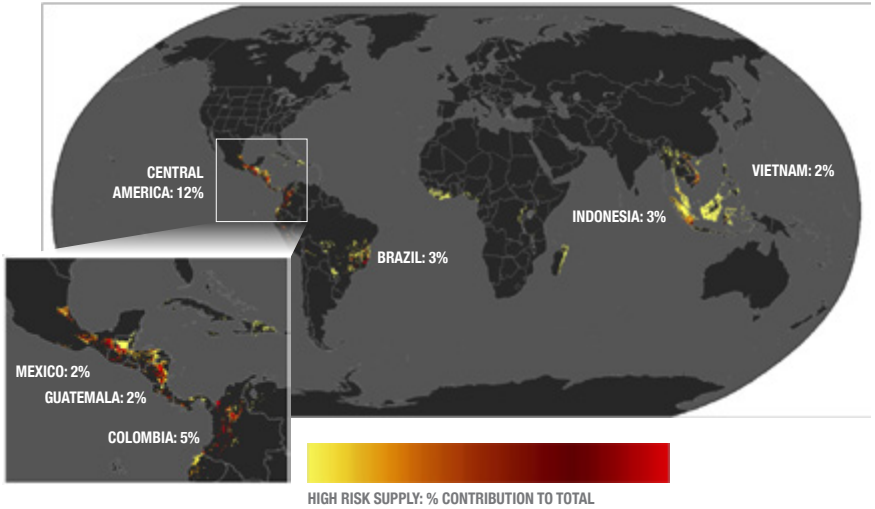
COMPANY SOURCE DATA | RISK DATA

2

TSC COMMODITY MAPPING TOOL

RISK	COMPANY COFFEE SUPPLY AT RISK
DEFORESTATION WITHIN BIODIVERSITY HOTSPOTS	20%

3



RISK TYPE	COMPANY RISK BY SUPPLIER	COMPARISON TO GLOBAL AVERAGE	REGIONS MOST AFFECTED
DEFORESTATION		HIGH: 3.1	1 COLOMBIA 2 BRAZIL 3 INDONESIA

Risk Data Sources: WRI Global Forest Watch & Conservation International

PROCESS

1 Gather company sourcing data and select commodities, risks, and issues to analyze

2 Use TSC Commodity Mapping Tool to identify company growing regions and calculate risk exposure

3 Analyze results to understand supply chain risks and how to address these issues using TSC KPIs.

Make the connection between commitments and commodity supply chains "on-the-ground"

Communicate extent that business is affected by sustainability issues

Prioritize regions and suppliers for increased scrutiny

Address risks and issues using TSC KPIs.

"One of the barriers to translating sustainability into business intelligence is the lack of deep understanding of supply implications. Through our work with TSC, we are now able to better visualize the supply chain with respect to water risk mapping of various ingredients. This has helped us understand and communicate key risks and opportunities."

Campbell's

ISSUES THAT CUT ACROSS INDUSTRY SECTORS

While many hotspots are specific to a sector or category, there are a number of issues that are common across sectors. The 2015 data allow us to have a first-time look across sectors at some of these crosscutting sustainability issues such as resource management, deforestation, social issues, packaging, and high-priority chemicals.

MANAGING RESOURCES AND CLIMATE, MATERIALS, WATER, AND ENERGY

Many companies have tended to focus on their own operations rather than their upstream or downstream supply chains when it comes to managing resources and climate. The data in fact show some encouraging signs; for example, more than half of laundry-detergent and surface-cleaner manufacturers sell products that are labeled for use with cold water, which reduces downstream energy resource consumption. Yet, for the most part, performance lags: for example, 66 percent of respondents across sectors do not have data on whether their suppliers track water-use intensity and 78 percent lack visibility on supply-chain greenhouse gas emissions (GHG).

The data indicate that there is a real opportunity for manufacturers to engage their supply chain on resources risk and efficiency, including energy, water, and waste where they are perhaps more experienced in their own operations (Exhibit 13). Given the potential cost savings from better management of resources, this should be a priority for all sectors.

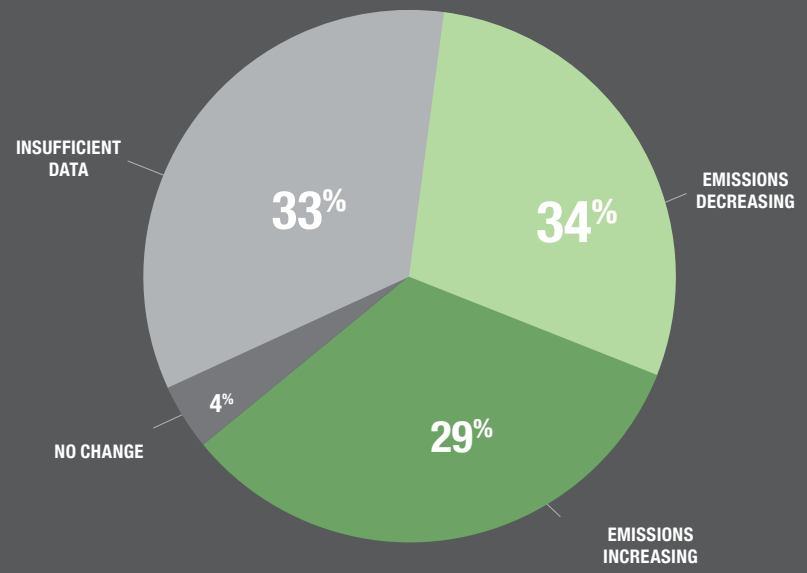
ENERGY AND CLIMATE SCORES BY PRODUCT GROUP AND LIFE CYCLE STAGE
EXHIBIT 13

	AGRICULTURE	INTERMEDIATE PRODUCTION	MANUFACTURING	DISTRIBUTION	USE
FRUITS AND VEGETABLES	12		45	16	
ANIMAL-BASED FOODS	19		28		
SPECIALTY FOODS	3	11	26	26	
GRAINS AND LEGUMES	5		28	16	
SEAFOOD	4			3	
ELECTRONICS		35	53		63
HOME AND PERSONAL CARE		37	54	20	
TOYS		14	10		
GENERAL MERCHANDISE		19	19	14	
PAPER PRODUCTS		56	62	19	
WOOD PRODUCTS			10		
TEXTILES		21	30		

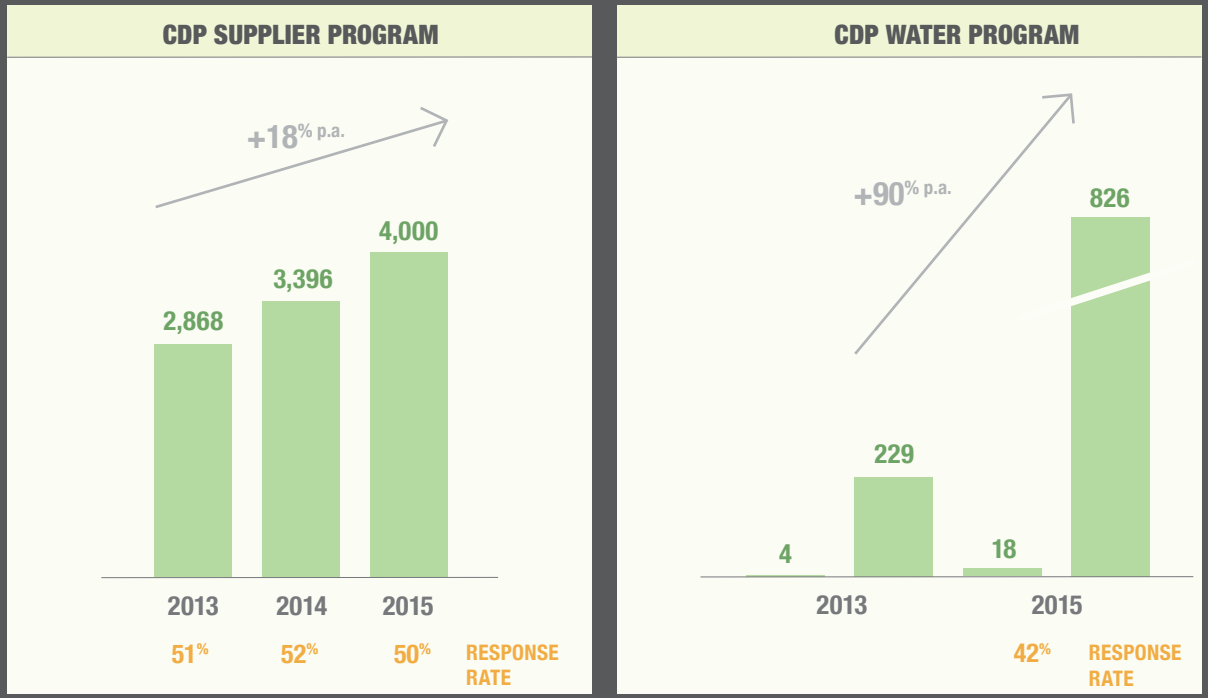
LOWEST PERFORMING: 0 — HIGHEST PERFORMING: 100

CDP REPORTING

TSC has worked closely with CDP, a non-profit organization that encourages organizations to report their corporate-level impacts on climate/energy, water stewardship, and deforestation. TSC has aligned its greenhouse gas emissions metrics associated with manufacturing energy use with CDP's Climate Change questionnaire to drive standardization across industries; this improves comparability of data and reduces measurement and reporting costs for all parties. The same metrics disclosed to CDP at the corporate level can be used to respond to TSC surveys, broken down at the product category level. With expanding awareness of these topics over the past few years, CDP's Supply Chain program has seen growth in companies reporting on GHG emissions and water, and many of them are now beginning to request similar data from their suppliers as well.



EMISSIONS AND WATER REPORTING HAS INCREASED STEADILY OVER THE YEARS WHILE TOTAL RESPONSE RATES AND OVERALL PERFORMANCE REMAINS LOW.
EXHIBIT 14



Source: CDP Supply Chain Reports 2014-2015, and 2015-2016

ADDRESSING DOWNSTREAM IMPACTS: TSC COLD-WATER WASH INITIATIVE

In the United States, heating water and running a washing machine account for approximately 2 percent of a household's annual energy use.[1] The average household washes five loads of clothes a week, 55 percent of which use hot or warm water.[2] Changing one load of laundry a week from warm or hot water to cold water can save 175 kWh of energy per year, which saves the carbon emission equivalent of driving 287 miles.[3] Alone, this is not a large contribution to reducing carbon emissions; however, considering that there are approximately 100 million US households that have a washing machine, a potential carbon emission savings of 17,500 million kWh per year could be realized nationally. This is roughly equivalent to the annual emissions of three coal-burning power plants—all delivered through a simple behavior change.

The challenge to realizing this huge benefit is overcoming the perceptions of consumers that cold water does not clean clothes as well as warm or hot water in most cases. In fact, for all but the dirtiest loads or those that have been used by ill people, cold water cleans as well as warm or hot water, and with less damage to clothing textiles.[4] Because of the different industries that intersect in the laundry room—detergents, clothing, washing machines, energy—collaborative efforts among the relevant stakeholders can help raise awareness and move the average household toward a more environmentally friendly wash. To spark this change, TSC has partnered with the American Cleaning Institute® to create a multi-industry initiative focused on developing a consumer messaging toolkit that can be used by all participants to talk about the benefit of using cold water for clothes washing. TSC's multi-sector focus was able to engage a broad set of stakeholders across industry sectors such as P&G, Henkel, Wrangler, Hanes, AHAM (Association of Home Appliance Manufacturers), and ENERGY STAR.

"TSC's effort to convene a dialogue on cold water washing is a great example of how we can take insights from category sustainability profiles and collaborate to try and drive meaningful change and impact."

P&G

Footnotes in this sidebar

1. Golden, J. S., Subramanian, V., Irizarri, G. M. A. U., White, P., & Meier, F. (2010). Energy and carbon impact from residential laundry in the United States. Journal of Integrative Environmental Sciences, 7(1), 53–73. http://doi.org/10.1080/19438150903541873.
2. American Cleaning Institute. (2015). Consumer Survey on Cold Water Washing Habits in the United States. Presented at the Cold Water Wash Initiative Session, The Sustainability Consortium Spring Summit, April 23, 2015, Washington D.C.
3. US EPA (2016), Greenhouse Gas Equivalency Calculator. Energy and Environment, US EPA. Retrieved from https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator.
4. Mars, C. (2016), Technical Brief: Benefits of Using Cold Water for Everyday Laundry in the U.S. Cold Water Wash Initiative, Home & Personal Care Sector, The Sustainability Consortium.

DEFORESTATION

While over 275 companies have made commitments to reducing deforestation according to Forest Trends,[6] TSC 2015 data indicate that we have yet to see these commitments translate into broad action.[7] For example, our data shows that only 22 percent of companies were meeting the Consumer Goods Forum commitment to source 100 percent certified palm oil.

Progress on addressing deforestation varies substantially from category to category, and we observe lower visibility as a function of supply-chain length. For example, TSC data shows that in the berry, apple, and grape categories, nearly two-thirds of survey respondents could determine whether their suppliers had sourced crops from farms with zero conversion of High Conservation Value (HCV)[8] or High Carbon Stock (HCS)[9] lands in the past five years. Conversely, fewer than one-quarter of pork, chicken, beef, dairy, and egg suppliers could make that same determination for their feed supply. For paper products, while most paper companies obtain some or all of their virgin fiber from low-risk sources, only 40 percent can report zero conversion of HCV, and less than 25 percent can report zero conversion of HCS lands to plantation or non-forest land uses.

Fewer than half of companies purchasing palm oil can report what percentage of their supply was certified by the Roundtable on Sustainable Palm Oil (RSPO) or an equivalent organization; and even among those that could, less than half purchase 100 percent certified palm oil.

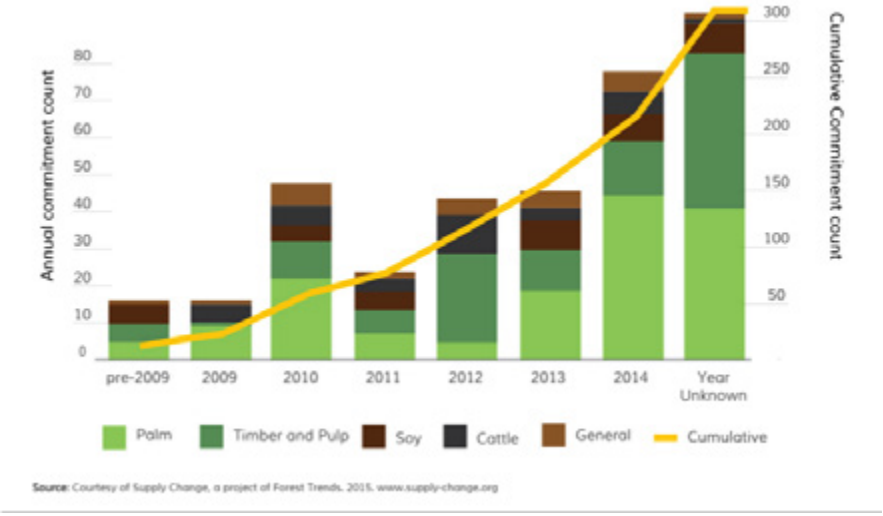
While there is clearly more work to be done, retailers and manufacturing companies can start today using TSC metrics to track their performance on deforestation commitments. See sidebar: “Roadmap for deforestation commitments.”

ROADMAP FOR DEFORESTATION COMMITMENTS

In 2010, under the stewardship of the Consumer Goods Forum (CGF), over 400 companies committed to zero deforestation by 2020. The challenge was that most signatories did not have a clear method to achieve this goal or to measure progress. TSC and its members, in collaboration with the Environment Defense Fund (EDF) and World Wide Fund for Nature (WWF), developed deforestation metrics in alignment with the CGF commitments in such a way that these could be used to maintain accountability and enable companies to use the TSC metrics to track progress on their commitments. TSC has drawn on the data from these metrics in a report co-authored with the New York Declaration on Forests to establish the need for action and further buttress renewed corporate commitments to end deforestation (Exhibit 15).[1]

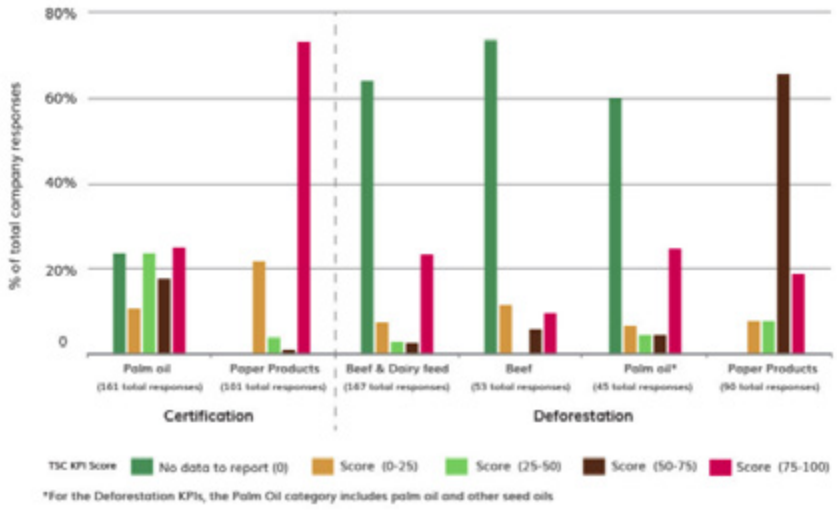
CORPORATE COMMITMENTS ON DEFORESTATION AND PROGRESS TO DATE
EXHIBIT 15

Commitments
number of commitments



Source: Courtesy of Supply Change, a project of Forest Trends, 2015, www.supply-change.org

Retailer supplier responses and scores related to commodity-specific deforestation commitments
% of total responses



*For the Deforestation KPIs, the Palm Oil category includes palm oil and other seed oils

Footnote in this sidebar
[1] Climate Focus (2015), Progress on the New York Declaration on Forests – An Assessment Framework and Initial Report, http://forestdeclaration.org.

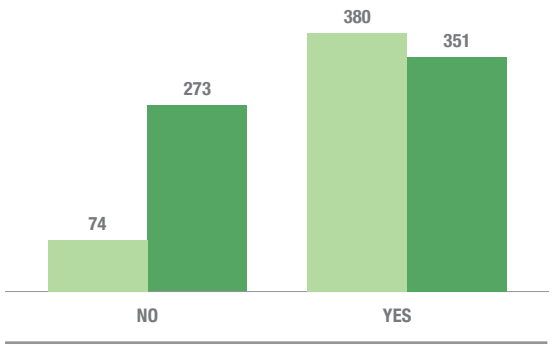
SOCIAL

Issues such as forced labor, child labor, poor working conditions, low wages, and human-rights violations are also embedded in consumer-goods supply chains. The conditions are worst deep in the supply chain, and in informal settings (for instance, children in factories, individuals collecting used electronics and appliances to sell for scrap, or workers producing clothing within their homes), making it particularly difficult to uncover and remediate issues via audits, which serve as the default assessment tool.

It is not surprising to see that companies across a variety of product categories do a better job of tracking labor rights protections within their own manufacturing facilities than across their supply chains (Exhibit 16). For example, over 80 percent of respondents in the textile manufacturing industry had data on the health and safety conditions of their own facilities but fully 40 percent of respondents had no data on their suppliers' operations.

SOCIAL ISSUES
EXHIBIT 16

Can you determine what % of your manufacturing facilities/your suppliers' operations were assessed against international labor standards, with corrective action taken where needed? (# of Respondents)



Across sectors, progress is somewhat better on the most egregious abuses, with three-quarters of respondents able to determine whether their ingredients suppliers were assessed for the "worst forms" of child labor,[10] with corrective action taken where needed. Of those that could determine the assessment rate, 60 percent sourced ingredients exclusively from suppliers that had been assessed and had taken corrective action where needed.

There is particularly low visibility into worker health and safety, labor rights, and community rights "on-farm." For example, only 56 percent of manufacturers were able to determine what percentage of their crop supply is provided by farms that were assessed for risk of forced labor and the worst forms of child labor in the past year, with corrective action taken where needed. Even among those that could make that determination, only 60 percent sourced exclusively from such farms. There is a clear need to increase tracking and quickly move to action to improve working conditions.

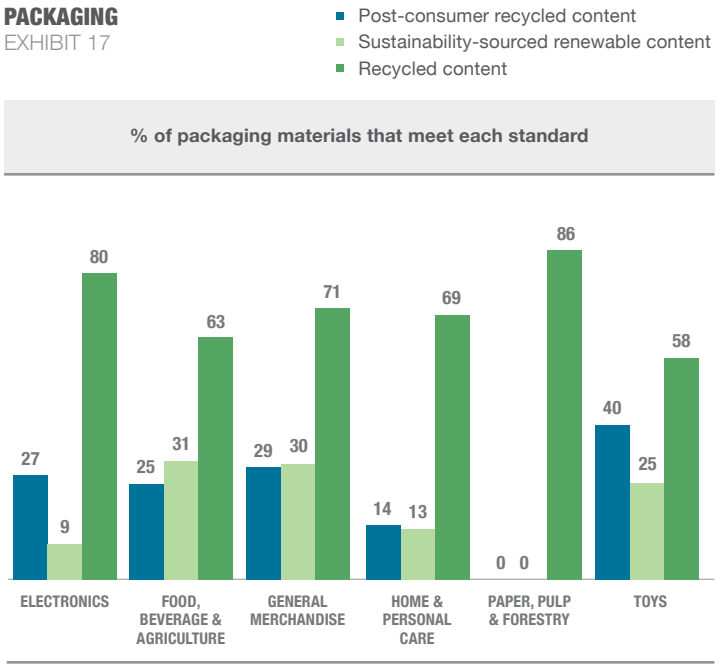
PACKAGING

Packaging is a significant hotspot in about half of consumer product categories assessed by TSC. Reduction in packaging represents cost savings and a reduction in environmental impact visible to consumers, which may explain why we see greater awareness and action around sustainable packaging opportunities than other impact areas. TSC data show that more than half of companies track the recyclability, post-consumer content, and renewable content of their packaging. On average, across TSC categories, consumer product packaging has 67 percent recyclable content, 24 percent renewable content, and 23 percent post-consumer recycled (PCR) content. Different sectors scored highest on different attributes: electronics packaging averaged 80 percent recyclable content; food, beverage, and agriculture, and general merchandise packaging averaged 30 percent renewable content; and toys packaging averaged 40 percent PCR content (Exhibit 17). We see only moderate correlation between sustainable design attributes, implying that packaging designs tend to vary significantly in their sustainability profile.

While three-quarters of manufacturers provide tools or training to designers in order to assess packaging sustainability, fewer than 10 percent have set goals and are able to demonstrate quantified packaging improvements over time.

Of those companies that incorporate sustainable packaging design and measure impacts, more sustainable solutions are achieved most of the time (92 percent). This suggests that a concerted effort to improve packaging can lead to major impact.

PACKAGING
EXHIBIT 17



TSC COMMON CHEMICALS CRITERIA TASK FORCE

The demand for more sustainable home and personal care products has highlighted the need for consistent, transparent, and credible guidance for the evaluation of chemical ingredients used in home and personal care products. To this end, TSC has convened chemical companies, manufacturers, NGOs, and retailers to develop a set of common chemical criteria for the evaluation of chemicals. Once developed, these criteria can be used to identify, prioritize, and manage chemicals of concern in the home and personal care industry. TSC is working with its members and invited participants to develop this common chemical framework with a multi-stakeholder process that aims to balance viewpoints across the entire chemical value chain (including chemical suppliers, brand manufacturers, retailers, and NGOs). The goal of the task force will be to provide the greatest leverage to make further impact on chemical hotspot issues in the home and personal care space (Exhibit 18).

HIGH-PRIORITY CHEMICALS

TSC metrics dealing with priority chemicals—those ingredients in products that pose potential risks to human health and the environment—focus on suppliers' abilities to:

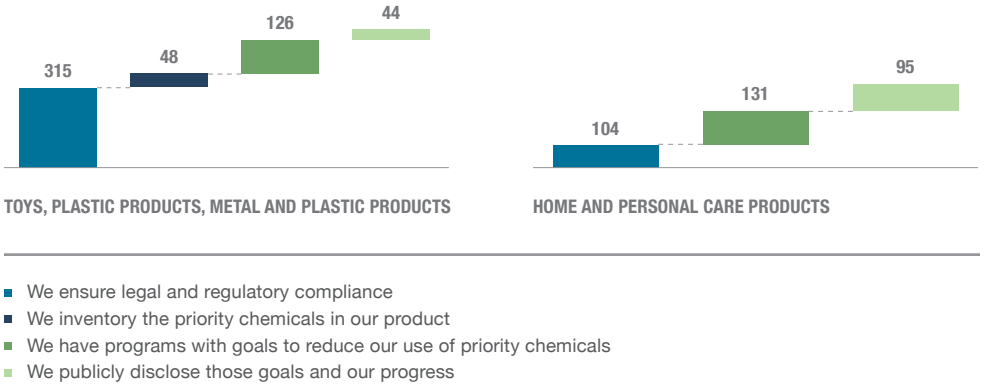
1. Understand what is in their products
2. Improve product safety using rigorous risk assessments
3. Improve product safety through a system of continuous improvement that is indicated by company initiatives to reduce, eliminate, or restrict chemicals of concern

The data indicate that manufacturers vary significantly in their approach to managing priority chemicals in their products (Exhibit 18). Approximately half only do what they are legally obliged to do, while about half have set concrete goals to reduce their use of priority chemicals. Amongst those actively managing priority chemicals, about one third of them have publicly disclosed their goals and progress towards meeting them.

Manufacturers more commonly require their own suppliers to disclose the substances in the product material they supply. About half of manufacturers require suppliers to disclose all substances contained in their supply, whether intentionally added or not.

PRIORITY CHEMICALS
EXHIBIT 18

What is your organization's approach to managing priority chemicals in your products? (# of Respondents)

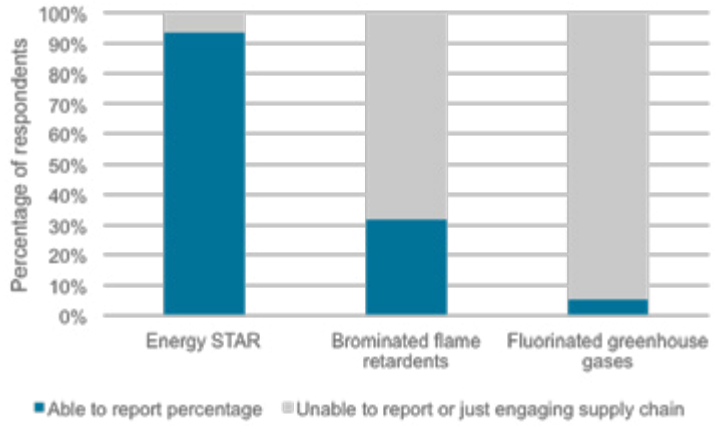


SELECTED SECTOR INSIGHTS

ELECTRONICS

The data indicate that electronics companies are making progress on several key issues. All manufacturers report they are in the process of mapping their material supply chain to check where risk from "conflict material" may exist, and about one-sixth claim to have conflict-free supply chains. Comparison of survey responses between 2014 and 2015[11] showed about a 50 percent increase in products without brominated flame retardants (BFRs), and a 10 percent increase in ENERGY STAR-certified products. An emerging issue in the sector, emissions of fluorinated greenhouse gases (F-GHG)[12] during manufacturing, shows a much lower level of progress, which is illustrative of how responses differ on mature issues versus emerging ones. For example, the number of respondents able to report what percentage of products sold meet the identified criteria in the three KPIs mentioned above is much greater for issues the industry is already actively engaged in, such as ENERGY STAR certification, compared with the more complex issue of BFR elimination, and the new issue of F-GHG emission reduction (Exhibit 19). Fewer than 10 percent of electronics manufacturers reported sourcing all components from suppliers that abate all of their F-GHG emissions in at least half of their facilities. TSC is working with the Center for Corporate Climate Leadership at the US Environmental Protection Agency to target where the industry is today, and will evolve the KPI as the industry makes progress on this issue and determines better ways to measure these emissions.

MATURITY OF ISSUES FOR ELECTRONICS CATEGORY RESPONDENTS
EXHIBIT 19



TSC ELECTRONICS AND THE CIRCULAR ECONOMY

Moving to a circular economy means evolving business models from the traditional take-make-waste linear system to a regenerative one that circulates materials through multiple life cycles at their highest utility and economic value.[1] One recent study by the Ellen MacArthur Foundation estimates that in Europe alone, there is a potential resource benefit of €1.8 trillion (US$1.98 trillion) achievable by the year 2030 through the implementation of circular-economy models.[2] A cornerstone of creating circularity is reusing, refurbishing, or recycling products rather than throwing them away or storing them in a garage or closet when they reach the end of their first useful life. With electronics in the United States, this is a major challenge due to the fractured infrastructure, lack of communication and transparency between actors, and the lack of holistic methodologies to assess used-electronics management program success and forecast types and quantities of materials that are expected to enter the waste stream over time.

For the electronics and electronics recycling industries, metrics and forecasting will be needed to help initiate evolution to a circular economy model. In addition, three key areas of improvement are necessary: education for all actors on the issues faced by other actors in the materials management space; improved collection systems; and innovation around reuse, repair, and cost-effective technology for material recovery. System support solutions, such as metrics and forecasting tool development, would be joined by collection solutions, such as reorganizing the reverse product-collection system to act more like forward distribution systems in retail, and innovation solutions, such as incubators for new business models or technology, to enable electronic products to realize a true circular life cycle.[3] TSC looks to continue its collaboration with the Closed Loop Foundation and other actors in this space to leverage TSC's expertise in science-based measurement and work in used electronics management system research to create the much-needed frameworks for program assessment, and collaborate with a broad range of stakeholders to test and implement this work.

Footnotes in this sidebar

[1] Ellen MacArthur Foundation. (2012). Towards the Circular Economy Volume 1: Economic and business rationale for an accelerated transition. Retrieved from http://www.ellenmacarthurfoundation.org/publications.

[2] Ellen MacArthur Foundation. (2015). Growth Within: A Circular Economy Vision for a Competitive Europe. Ellen MacArthur Foundation and McKinsey Center for Business and the Environment. Retrieved from http://www.ellenmacarthurfoundation.org/publications.

[3] Mars, C., Nafe, C., & Linnell, J. (2016), Electronics Recycling Landscape Report, Closed Loop Foundation, National Center for Electronics Recycling, and The Sustainability Consortium. In press.

WALMART AND TSC SEAFOOD PRINCIPLES

In 2013, Walmart stated that all fresh, frozen, wild and farmed seafood sold by Walmart U.S. and Sam's Club store would require Marine Stewardship Council (MSC) or equivalent certification. The company also stated that it would source from fisheries that are involved in Fishery Improvement Projects, with plans to move towards certification in the future.

However, the notion of MSC equivalency was not defined and became a concern for stakeholders in the fishing industry. To resolve the issue, Walmart asked TSC to help mediate among stakeholders and develop equivalency principles.

One of the challenges was that some of the organizations followed ISEAL Alliance sustainability standards whereas others followed Food and Agriculture Organization of the United Nations (FAO) for guidance on certification. Additionally, several initiatives were already ongoing such as Ahold's work with other retailers, several fish companies, and the Global Seafood Sustainability Initiative (GSSI). TSC worked with all stakeholders to develop a set of principles bridging the various approaches and providing clarity on equivalency among certification schemes. The principles were then refined and endorsed by stakeholders through a series of workshops.[1]

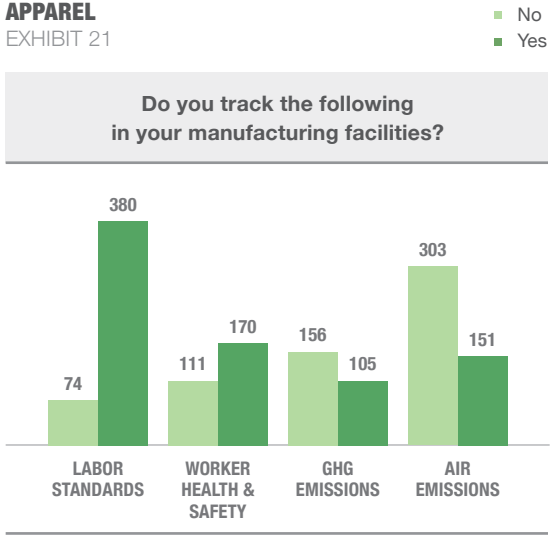
Footnote in this sidebar

[1] Green Retail Decisions (2014), "Walmart updates sustainable seafood policy," 1/30/14, https://www.sustainabilityconsortium.org/seafood-principles/.

APPAREL

Apparel companies are making strides to improve worker health and safety, but performance on environmental-impact improvement lags (Exhibit 21). More than 80 percent of manufacturers were able to report the percentage of their facilities assessed against international labor standards, with 60 percent performing such assessments at all their facilities, including corrective action taken where necessary. Fewer than half of manufacturers (40 percent) knew the greenhouse gas emissions intensity of any of their own facilities, and only 15 percent knew the emissions data for all of their facilities. Similarly, nearly two thirds of manufacturers were not able to report any information about their suppliers' tracking of key wastewater quality metrics; just over 10 percent were able to obtain this information from all of their suppliers.

APPAREL
EXHIBIT 21



ON FARM

Agricultural supply chains represent an important opportunity to gain visibility, and efforts are underway to harmonize existing programs and build capacity at the farm level to improve transparency. In general, food producers are able to report greater awareness around social issues than environmental issues. For example, fewer than 20 percent of companies reported collecting data on fertilizer usage, greenhouse gas emissions, or soil erosion in farming operations. In contrast, approximately half of respondents tracked labor rights, community rights, and forced or child labor in their agricultural supply chain.

There were a couple of bright spots concerning environmental issues in agricultural supply chains. For example, 40 percent of companies reported being able to determine how much

of their crop supply came from converted high conservation value (HCV) or high-carbon stock (HCS) forests; of those, over half sourced no crops from recently deforested areas. In addition, one-third of companies that rely on bee pollination for crop supply have verifiable pollinator-conservation programs in place.

SEAFOOD

Seafood companies perform well on issues that are highly salient for them, like by-catch reduction and overfishing, but have much less data on environmental impacts that apply to many industries. More than 80 percent of companies responding to the surveys reported having a by-catch reduction program in place, and over 90 percent reported having data on whether their fish come from stocks within biologically sustainable levels. In contrast, fewer than 10 percent of companies knew whether their fish came from operations that report their Scope 1 and Scope 2 GHG emissions. Seafood companies are also making strides on ecosystem degradation, with three-quarters of respondents having an approach to the issue, and half harvesting all of their fish under a verifiable program. Seafood companies perform well on broadly applicable social metrics, with almost 90 percent of respondents tracking performance on community rights in their supply chain and over 80 percent conducting worker health-and-safety assessments within their supply chains.

LEADERS APPEARING ACROSS SECTORS, SHOWING THE WAY FORWARD

While the overall scores are low across the board, we see in several sectors a clear pattern of some companies taking a leadership position. It is these organizations that are showing the way forward.

Among electronics industry respondents, for example, fewer than half of respondents currently assess their products for energy efficiency or participate in energy-efficiency programs. However, of those companies that sell products with energy-efficiency attributes or certifications, more than three-quarters exclusively sell such products.

Fewer than 40 percent of food, beverage, and agriculture companies could determine whether their crop supply was grown on fields with zero conversion. But for those that could, more than half reported that they sourced crops exclusively from such fields.

Across categories we see a similar pattern, indicating that leadership is possible. This suggests that once on a path to leadership, companies find sufficient benefits to pursue this path wholeheartedly. Moreover, it underlines that successful companies have demonstrated that making products more sustainably is not only a viable but a profitable path forward—potentially bestowing significant competitive advantage, an issue that we discuss further in the following chapter.

Footnotes in this chapter

[1] The Sustainability Consortium (2015), Product Sustainability Toolkits V4.0, K. Dooley, C. Slay, J. Ginger, J. Reijs, M. Lyon, and C. Helt (Eds.), Tempe, Arizona: Author. Note that while most responses are likely from North American manufacturers, the patterns noted here are corroborated by other data collected from European manufacturers; and in many cases, manufacturers share the same supply chain regardless of their location.

[2] Joel Makower (2016), "The State of Green Business," 2/2/16.

[3] Scope 1 refers to an organization's direct greenhouse gas (GHG) emissions; Scope 2 those emissions from direct purchase of energy; and Scope 3 the indirect emissions (not included in Scope 2) that occur in the value chain of the reporting company, including both upstream (supply chain) and downstream (customer) emissions.

[4] CDP (2016), From Agreement to Action: Mobilizing Suppliers Toward a Climate Resilient World, https://www.cdp.net/CDPResults/CDP-Supply-Chain-Report-2016.pdf.

[5] TSC hotspots are supposed to be actionable by manufacturer, so they may not exactly match the external data on impact, although we assume the two are close.

[6] Forest Trends (2015), Corporations, Commodities, and Commitments that Count.

[7] Ibid.

[8] The Sustainability Consortium (2015), Category Sustainability Profiles. High Carbon Value (HCV) forests are forested areas that support natural concentrations and distribution of species including significant species and ecosystems (e.g., endemic or endangered species, refuges), provide the basic services of nature in critical conditions (e.g., watershed protection, erosion control), and are fundamental to meeting the basic needs and traditional cultural identity of local communities.

[9] The Sustainability Consortium (2015), Category Sustainability Profiles. High Carbon Stock (HCS) forests are forested areas with a significant amount of carbon stored within the vegetation and soil. Burning and clearing HCS forests releases stored carbon as greenhouse gas emissions. Different initiatives have set thresholds for identifying High Carbon Stock forests.

[10] The Sustainability Consortium (2015), Category Sustainability Profiles, https://www.sustainabilityconsortium.org/product-sustainability-toolkits/. Worst forms of child labor is labor that negatively affects a child's health, safety, morals, or reasonable ability to receive an education. This includes forced labor, prostitution or pornography, labor for illicit activities, and hazardous work. Hazardous work activities include work that is abusive, work underground, underwater, at dangerous heights or in confined spaces, work with dangerous machinery and tools, work with heavy loads, work involving hazardous substances and environments, work for long hours, work at night, or work in which the worker is unreasonably restricted from movement outside the premises.

[11] Many of the questions used in the 2015 survey were changed from their 2014 version so the data are not comparable, but a few questions were consistent such as the ones cited here. We cannot verify the respondents were the same in 2014 and 2015 so these observed improvements should be treated with caution.

[12] The Sustainability Consortium (2015), Category Sustainability Profiles. Fluorinated greenhouse gases (F-GHG) are a particularly "powerful" type of greenhouse gas.

HARNESS THE POWER OF COLLECTIVE ACTION

The Sustainability Consortium, through its members and stakeholders, has developed a coordinated market-based approach to drive more sustainable products and supply chains, by identifying and reducing the social and environmental price tags embedded in their current practices.

SUSTAINABLE DEVELOPMENT GOALS (SDGs)

The United Nations Sustainable Development Goals (SDGs) were approved in 2015 and many businesses have linked their strategic sustainability plans to the SDGs in order to contribute to the a shared vision of a sustainable world. Companies can use TSC's KPIs to track their performance against the many SDGs that relate to environmental and social impacts in supply chains. TSC as an organization is also proud to play a key role itself in supporting these goals. Specifically, TSC's broad impact across markets and supply chains is driving Goal 12, "Ensure sustainable consumption and production patterns," and Target 12.6, "Encourage companies, especially large and transnational companies, to adopt sustainable practices and to integrate sustainability information into their reporting cycle."

This approach recognizes that the sustainability challenges we all face are urgent and pressing, and will not go away. We simply cannot afford to change one company at a time, and move in different directions with different agendas. Collective action through collaboration is imperative so we can focus on shared priorities and all pull in the same direction. TSC recommends three clear steps:

1. **RETAILERS COMMIT TO A COMMON PLATFORM TO MEASURE AND TRACK CONSUMER PRODUCT SUSTAINABILITY.** While TSC's work is already making a difference, the impact realized thus far is small compared with its potential. As more and more retailers adopt TSC's common approach to measuring and tracking consumer product sustainability, the "market signal" becomes ever clearer and more efficient. Ultimately, meaningful change will be both broader and happen faster.

2. **MANUFACTURERS DRIVE VISIBILITY AND PERFORMANCE.** Manufacturers commit to enhance visibility into sustainability hotspots and drive continual improvement in sustainability performance across the life cycle of their products.

3. **STAKEHOLDERS PARTNER TO ALIGN AND DRIVE SCALE.** Companies, NGOs, and other organizations work collaboratively to create scale by harmonizing existing metrics and tools, and drive continued momentum by collaborating on shared initiatives to address key hotspots.

"TSC KPIs have played a key role in simplifying the company's reporting to a wide range of organizations. The KPIs are comprehensive, which enables Norcom to collect and calculate data once, then easily tailor the information for each specific report or assessment."

Norcom

RETAILERS COMMIT TO A COMMON PLATFORM TO MEASURE AND TRACK SUSTAINABLE PROGRESS

Retailers are uniquely positioned to influence consumer products and their supply chains. As the interface between consumers and manufacturers, they are best positioned to create the incentives for change. However, this market signal is only as strong and clear as the number of voices that are joined in unison behind it. If retailers continue to use fragmented and different ways to measure and track product sustainability, market signals will remain disjointed and noisy, and manufacturers will be pulled in different directions.

For retailers, a system that creates a common market signal improves the likely effectiveness of that signal and allows them to focus on

their core business operations rather than spending time developing proprietary solutions for product-sustainability measurement and reporting. Retailers can and should develop their own consumer-facing sustainability strategies, but by underpinning it with a common platform that harmonizes data collection covering the life cycle of the products they sell, they can ensure that their efforts will create real impact.

TSC's retail members have played a key role in the creation of the TSC surveys and have been early leaders in "owning" their supply chains. Examples include:

- By 2014, **Kroger's** natural and organics store brands—Simple Truth® and Simple Truth Organic®—reached $1.2 billion in annual sales within two years of launch. Kroger is also actively seeking to influence positive change in its supply chain through sourcing sustainable seafood, palm oil, dairy, and flowers.[1]

- Engaging suppliers is a core part of the **Marks and Spencer** sustainable value creation model. M&S's Plan A sustainability program has won awards for its comprehensive and far-reaching goals to create step changes in its global supply chain. In 2015, 32 percent of food came from suppliers that met the Plan A Silver Sustainability Standard.[2]

- Through its "Reshaping Retail" strategy, **Ahold** is committed to continuously improving its supply chain and sourcing sustainably with goals to source 100 percent of the six critical commodities for own-brand products in accordance with industry certification standards.

- In 2005, **Walmart** introduced three bold goals. The third goal, to sell products that sustain our resources and the environment, is arguably the hardest. Yet, according to GreenBiz, it is the goal "with the biggest world-changing impact, given Walmart's vast reach."[3] (See sidebar on Walmart's Sustainability Index.)

These companies have all come to the table under the auspices of TSC, and are engaging their suppliers and leveraging TSC tools in different ways as part of their journey to improve the sustainability of consumer goods.

"The Sustainability Consortium really helped us solve a big challenge, which was how do we get our arms around our total supply chain? And how do we really focus for impact in our supply chain with our partners? TSC is really helping us shape the issues, coming at it from a science-based conversation, and helping us bring the right parties around the table to move forward with action."

Walmart

THE WALMART SUSTAINABILITY INDEX

Walmart launched its sustainability index in 2009 in collaboration with TSC to help the company deliver sustainable products to its customers. It enables Walmart to deliver powerful tools to its buyers and suppliers. In fact, the index is now being used to evaluate the sustainability performance of over 1,700 suppliers that cut across over 1,000 product categories, which are managed by over 260 buyers. Last year alone, Walmart used TSC tools to evaluate the sustainability performance of over $135 billion in goods sold and launched its Sustainability Leaders Store on Walmart.com. Leveraging the index, the retailer identified leaders in a category (such as televisions) and marked them with a Sustainabiltiy Leaders Badge.[i]

According to Walmart, the index helps retailers and their suppliers:

- Improve the sustainability of the products their customers love
- Integrate sustainability into the business of buying and selling merchandise
- Reduce cost, improve product quality, and create a more resilient supply chain
- Strengthen customers' trust in Walmart and the brands they carry[ii]

Footnotes in this sidebar

[i] http://corporate.walmart.com/global-responsibility/environment-sustainability/sustainability-index-leaders-shop.

[ii] Ibid

"We need to come up with honest and educated solutions. This requires extensive collaboration; by working with TSC stakeholders, NGOs, universities, suppliers, and retailers, it creates trust and credibility to ensure collective success."

Henkel

MANUFACTURERS SUPPORT RESPONSIBILITY, VISIBILITY, AND PERFORMANCE

Companies that have taken responsibility for their upstream and downstream impacts build sustainability into their product design, and have seen benefits from doing so. Companies such as Henkel, Unilever, and Dell have been able to deliver more sustainable products to their customers, without raising the price tag, and in some cases, creating real financial value at the same time:

- **Henkel** adds sustainability information about raw materials into its formula-development system for beauty-care products, enabling key information such as carbon footprint and renewables content to be identified along with other important attributes such as performance and cost. For example, Henkel has significantly reduced the carbon footprint and substantially increased renewables content for its Dial® Complete® Foaming Hand Soap and other products, while still meeting the high standards of performance that consumers have come to enjoy from the Dial brand.[4] Henkel benefits from giving consumers increased sustainability, at the same price and quality.

- Through its Sustainable Living Plan, **Unilever** aims to double its sales and halve its impact. Understanding and managing product life-cycle impacts is crucial for Unilever to achieve this ambitious goal.[5] This helps guide product developers during the innovation process and requires the organization to work across the full life cycle of its products, leading to innovations like dry shampoo, which significantly reduces water impact.

- Technology company **Dell** has achieved significant savings through addressing key hotspots by integrating sustainability into its product and packaging: for example, engaging with its plastics supply chain to create a certified closed-loop recycled plastic housing for the Optiplex computer system, which requires a high degree of coordination across the supply chain. The system processes plastics reclaimed from electronics recovered as part of the company's "take-back program" for reuse in new electronics products— this decreases the need for virgin plastics and reduces the carbon footprint of the manufacturing supply chain.[6] Since 2014, savings from closed-loop activities have amounted to more than $250,000. Since 2009, the company's sustainable packaging initiatives have saved $53.3 million, while energy efficiency has saved customers $450 million over the period 2012–15.[7]

TSC surveys enable retailers to integrate sustainability into their purchasing decisions, and by doing so, they benefit those manufacturers that show sustainability leadership by creating differentiation and a brand growth opportunity; this is in addition to the other significant benefits that accrue from better supply chain management, including security of supply, reputation management, and cost savings.

Moreover, adoption of TSC's standardized approach to measuring and tracking sustainability requires manufacturers to look at the impacts across the full life cycle of their products. This enables them to focus on the commonly agreed hotspots and ways to demonstrate progress against each of them, year on year.

TSC has depended extensively on its manufacturing members to help identify relevant science to determine hotspots and create key performance indicators that are high quality. As retailers are now implementing TSC's work, our engagement with manufacturers is evolving. TSC members increasingly find value in using TSC to:

- Better understand which sustainability issues their retail customers are concerned about
- Help build internal and external capacity to take action on key hot spots
- Take action in product development, key initiatives with NGO partners, material sourcing opportunities, and collective action opportunities

TSC manufacturing members have been taking leadership in their sectors with a variety of sustainability initiatives:

- **BASF** was the first chemical company to join TSC in 2010. Companies further upstream (such as BASF) need a better understanding of the end customer's sustainability needs in order to create better inputs. BASF uses TSC's hot spots and KPIs to determine how chemistry can bring benefits to those areas through its Sustainability Solutions Steering™ program.

- **Wrangler**, one of the world's largest denim brands, recently joined TSC and has used TSC metrics to engage suppliers as well as its own leadership. Wrangler developed a supplier training program based on TSC metrics, covering each individual hotspot.

- **Mars** is developing sales team training aimed at interactions with Walmart buyers on sustainability, using TSC materials. Mars's sourcing strategy is increasingly informed by TSC tools.

"TSC KPIs are useful because we know that our customers are being asked questions from retailers around safety, water use, and those questions will come to us at some point. Knowing what they are gives us a head start in ensuring that we are able to provide the answers."

Novozymes

TSC AND THE PRODUCT ENVIRONMENTAL FOOTPRINT (PEF) INITIATIVE

TSC makes every effort to align with other leading sustainability initiatives, whether they are sector-specific, issue-specific or general programs across multiple issues and products. TSC has already refined hotspots and KPIs based on the work of the Consumer Goods Forum, CDP, AISE, Sustainable Apparel Coalition, and the US Environmental Protection Agency to name but a few.

The Product Environmental Footprint (PEF) initiative led by the European Commission is an important initiative covering products consumed in the European Union, but it inevitably covers production systems way beyond the EU's borders. TSC has been working on alignment for over three years.

The main aim of the PEF initiative is to develop a system that allows consistent measurement, communication, and comparison of the environmental footprint of products so that consumers can make more sustainable choices. The initiative has developed a new methodology for standardized product life cycle assessment and is now working with groups of companies and other stakeholders to develop supplementary product category specific rules. From 2017 onwards, the European Commission will move into an evaluation phase and then make recommendations on potential new policy options for the EU market. These could range from simple industry recommendations on how to conduct life-cycle assessments (LCAs), through to fiscal incentives, or even mandatory product labeling.

Despite differences in objectives and approach, the scale and scope of the PEF initiative means TSC has a strong incentive to align with the PEF work where feasible. Over the past two years, TSC staff have shared results with two PEF pilot product categories—the laundry detergent and dairy projects—to assess similarities and differences in results, and to identify ways to improve both initiatives. Both pilots are now sufficiently advanced for initial conclusions to emerge. A forthcoming TSC white paper will describe these in full, and they can be summarized as follows:

- Using their different approaches, TSC and PEF have identified the same hotspots in both pilots, with only minor differences in results.

- TSC can already include results and citations of PEF studies in its work. Improvements to TSC's evidence base have already been implemented, as well as minor updates to some TSC KPIs and user-guidance documents.

- PEF-style "cradle to grave" impact indicators are not the best fit for TSC applications because of challenges in comparability, supplier differentiation, and the potential inefficiencies for companies having to report and then manage non-material parts of the supply chain.

- There are benefits to TSC's users from an increase in quantitative impact indicators, especially for the early stages of the supply chain—for instance, milk production in the dairy value chain and raw materials production in laundry detergent. These can be LCA-based or impact/activity based. Often they provide useful information to allow differentiation between suppliers, and also help those suppliers identify where to target improvements. However, LCA-based impact indicators are often harder to gather data for, and so they should only be used where there's a marked increase in the usefulness of the information versus other impact/activity-based indicators or more qualitative data.

- When LCA impact indicators are used by TSC, it is important to refer to PEF methodology so that all respondents use the same methodology and results are more comparable.

- TSC will continue to use activity-based KPIs where LCA-style quantitative impact indicators are not applicable or robust—this is often the case with social issues and some environmental issues not yet well covered by suitable LCA indicators.

Overall, TSC is committed to continued alignment and collaboration where it fits with TSC's approach and will benefit TSC's Members and users.

STAKEHOLDERS ACTIVELY COLLABORATE TO ALIGN GOALS AND DRIVE SCALE

While it is the corporate actors in supply chains that need to drive change, this cannot happen without the support of an active ecosystem of partners—those providing tools and solutions, as well as NGOs and civil-society organizations that work together with companies on the ground to achieve impact. In an arena where there are too many fragmented solutions, it is essential to harmonize objectives and align as closely as possible everywhere else in order to inspire clear standards for action.

TSC engages with several key metrics partners to ensure alignment and help drive efficiency for companies reporting across supply chains. Examples include:

- TSC worked closely with **CDP** to ensure alignment of greenhouse gas and water-use KPIs with CDP's standardized metrics. CDP's incorporate-level questions are referenced within TSC's survey at the product-category level. The collaboration has resulted in clearer messaging on how to quantify and communicate the sustainability of products and suppliers.

- The **Sustainable Apparel Coalition (SAC)** manages the Higg Index, comprising a series of detailed self-assessment tools to measure environmental, social, and labor impacts in textile manufacturing facilities. The TSC-SAC collaboration has focused on developing alignment between the two systems to enable textile manufacturers to use facility data to answer TSC KPIs and allow for harmonized facility-level and product category-level sustainability improvements.

- TSC has worked with many leading international sustainable agricultural organizations (including **Field to Market**, the **Stewardship Index for Specialty Crops**, **Cool Farm Alliance**, **Sustainable Agriculture Initiative**, **Innovation Center for U.S. Dairy**, and **U.S. Roundtable for Sustainable Beef**) to align KPIs with existing measurement and reporting initiatives in food supply chains. TSC promoted the existing work of these organizations in order to drive even greater awareness of their efforts and create further demand for harmonization. TSC facilitated workshops to convene these groups in order to drive alignment and provide a common venue for engagement. TSC has partnered with Field to Market to map alignment and is using pilots and case studies to streamline usability and reporting.

- TSC has coordinated closely with **ENERGY STAR** and the **US Environmental Protection Agency** on KPIs related to carbon emissions in electronics and durable goods supply chains. The fluorinated greenhouse gas KPI, for example, was written as a measure of leading-edge performance in collaboration with US EPA's Climate Leaders program for electronics.

"There is nothing else like The Sustainability Consortium. TSC pulls in academic and NGO expertise and ensures collaboration across various sectors, product categories, geographies. It's very unique."

Environmental Defense Fund

TRANSLATING METRICS INTO ACTION

Finally, this is our opportunity to move beyond simple measurement and towards advancing real-world outcomes—the key to generating impact and making consumer goods truly more sustainable is to ensure that metrics translate into action. TSC nonprofit members play a key role in working collaboratively with companies to drive impact:

- **Environmental Defense Fund (EDF)** works together with consumer goods companies extensively to green consumer goods

> "Metrics and supply chain pressure are critical to obtain better environmental outcomes. The level of dialogue between stakeholders has changed dramatically as a result of TSC's tools."
>
> The Nature Conservancy

supply chains with individual partnerships and efforts in agriculture, deforestation, and chemicals. For example, EDF has launched a collaborative initiative to eliminate fertilizer pollution as a major environmental concern in the United States. The effort will engage farmers and businesses throughout the supply chain to transform the way fertilizer-dependent grain crops are grown and sourced.

- **WWF** fosters collaboration by creating opportunities for businesses to improve the production of more sustainable commodities. WWF helps preserve the planet while influencing the production of the products that impact it the most. It engages with major companies, like **Coca-Cola**, and their supply chains to change the way global commodities are produced, processed, consumed, and financed worldwide. WWF seeks to reduce the negative impact that these commodities and sectors have on the most ecologically important places and species on Earth. Transforming how goods are sourced and processed provides benefits to our planet and can result in tangible gains for businesses by securing their means of production and access to raw materials over the long term.[8]

- **PepsiCo**, **The Nature Conservancy** and **MillerCoors** joined forces to make sure there are as many opportunities for people to recycle as possible—on the road, at home, and while on vacation—by expanding the availability of recycling bins all over the United States. This is a prime example of collective action, where the world's largest conservation organization and two of the largest food and beverage companies have coordinated to increase recycling and protect drinking water at its source. TSC's collaborative environment helped contribute to the synergy of this project.

Some of the worlds most respected nonprofits are members of TSC, and TSC works actively with its nonprofit members and actors across the supply chain to address key issues such as deforestation, chemicals of concern, and on-farm metrics.

SUMMARY

TSC's system will serve as a barometer of the changing state of sustainability of consumer goods. The system will help catalyze progress by highlighting future priorities and opportunities. TSC members are the early adopters who have forged the path forward and show what the collective action can look like when we bring together science with companies, NGOs, and government organizations all with a shared commitment to drive change and make consumer goods more sustainable.

> "I do believe that the TSC has created the supplier engagement process. It could potentially become a new norm."
>
> Wrangler

Footnotes in this chapter

1 ability.kroger.com/supply-chain.html.
2 Plan A Report 2015, M&S http://corporate.marksandspencer.com/media/6e633a181b124309bab60137c8171017.
3 https://www.greenbiz.com/article/walmart-sustainability-10-assessment
4 Spinatsch, M, Henkel Consumer Goods, Inc. , Vice President, Beauty Care R&D, North America. Personal Interview.
5 https://www.unilever.com/sustainable-living/the-sustainable-living-plan/our-strategy/about-our-strategy/lifecycle-assessments.html.
6 Dell Design for Environment: http://www.dell.com/learn/us/en/uscorp1/corp-comm/closed-loop-recycled-content.
7 Sarda, B. Personal interview.
8 https://www.worldwildlife.org/initiatives/transforming-business.

THE GREATEST IMPERATIVE FOR ACTION—SUSTAINBLE GROWTH

The inescapable truth is that consumer products—and the companies that manufacture them—can only continue to provide benefits to society if, together, we adopt more sustainable means of production and consumption.

The Sustainability Consortium has developed a unique system to drive continuous improvements in consumer-goods supply chains; this is being implemented today by some of the world's largest retailers and is primed to scale so as to impact the global economy. TSC's approach creates a common market signal and the necessary incentive for change along the entire value chain. Ultimately, this market signal influences business practices and investments in a way that minimizes sustainability impacts wherever they exist in the life cycle of a product. TSC's system serves as a powerful barometer charting the changing state of sustainability of consumer goods globally. The system helps catalyze progress by highlighting future priorities and opportunities. TSC members are the early adopters who have forged a path forward and show what collective action looks like when we bring together science with companies, NGOs, and government organizations, all with a shared commitment to drive change and make consumer goods more sustainable.

We challenge leading retailers and consumer goods manufacturers to own and take responsibility for the full life cycle of their products, and to use TSC's science-based system to gain visibility into their products and supply chains. Our goal is to create a consumer-goods ecosystem using a common approach to measuring and tracking the product sustainability of $1 trillion of retailer sales over the next five years. We believe this is achievable and meaningful enough to tip the balance in consumer goods supply chains towards transformational change that also spurs innovation and growth.

Creating this tipping point requires companies to act now and will offer tremendous opportunity to those that do.

Produced by The Sustainability Consortium
2016 Impact Report

Lead Designer: Giada Mannino, The Sustainability Consortium
Photography: Shutterstock, Inc.

About The Sustainability Consortium
The Sustainability Consortium (TSC) is an independent, global non-profit organization working at the intersection of science and business to create transparent tools, methodologies and strategies for product and supply networks that address environmental, social, and economic imperatives. TSC collaborates with more than 100 members from civil society, NGOs and corporations, such as Unilever, Campbell's, P&G, and Walmart.

TSC is jointly administered by Arizona State University and the University of Arkansas, with additional operations and support at Wageningen UR in the Netherlands, and in Tianjin, China.

For more information, please visit:
www.sustainabilityconsortium.org/2016-impact-report

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