BSC BRIEFING PAPER

EXPLORING THE LINK BETWEEN RENEWABLE MATERIALS AND CLIMATE CHANGE MITIGATION

Conservation International's Business and Sustainability Council (BSC) seeks to understand and share innovations in corporate sustainability to harness private sector ingenuity to advance environmental and social solutions. In this paper, we look at the growing use of renewable materials —bio-based products sourced from plants, trees and marine systems— to understand their role in addressing global resource constraints and climate change.

Companies as varied as AkzoNobel, P&G, and BSC Members Coca-Cola and Tetra Pak have begun to source traditional and technologically advanced renewable materials such as paperboard, bioplastics and cellulosic fibers to build packaging and materials that are durable and sourced to meet environmental and social standards. At Conservation International (CI), we believe that sustainable management of natural resources is a critical means to ensuring a transition to a resource-efficient future in the face of climate change. Sustainable production and sourcing of renewable materials can offer a mechanism to complement forest conservation, green infrastructure and other nature-based solutions to climate change.

In this special BSC briefing, we discuss the role renewable materials can play in contributing to products and packaging that are resource conserving and socially supportive, while keeping the climate in balance.

Renewable Materials, Sustainable Management and Climate Change

With the ever growing demand for fiber, fuels and food, our society faces growing constraints of natural resources, heightened by global challenges such as deforestation and climate change. Meeting this increased demand will require innovative products and processing techniques along with environmental and social standards that prevent land degradation; protect watersheds and improve productivity on marginal agricultural lands (WBCSD 2015).

Renewable materials are composed of biological products, forestry materials or renewable domestic agricultural materials, including plant, animal and marine materials. They have the ability to be sustainably harvested and regrown over time.

SOURCE: SUMMARIZED FROM VARIOUS SOURCES, INCLUDING THE US DEPARTMENT OF AGRICULTURE AND EPA.

Many corporations and industries already have recognized the need for resource efficiency and improved management practices in order to ensure a sustainable supply chain while also tackling climate change. Many leading companies have

set climate goals focused on operational greenhouse gas reductions and other facility efficiency improvements and practices. Although many companies have also recognized and responded to the role of their supply chains in life cycle emissions, large companies with diverse suppliers and vendors are still challenged by the ability to achieve the scale that is necessary (CDP 2015).

Renewable materials offer a unique opportunity to contribute to corporate reduction goals and sourcing practices and, in doing so, contribute to sustainable production and climate change solutions.

Increased natural carbon stocks

The United Nations Environment Programme (UNEP) points to the "vital" contributions that ecosystems can make to the mitigation of greenhouse gas emissions that is needed if we are to avoid the worst effects of global climate change (Trumper 2009). Plant-based renewable materials, such as forests or sugarcane, are natural absorbers and storage centers of CO2. Managed forests have absorbed as much as 20 percent of annual global anthropogenic CO2 emissions (Bellassn and Luyssaert 2014). When materials are sourced from previously abandoned or recovered landscapes, they have the added value of increasing carbon mitigation. In fact, the largest potential carbon gains for plantations are on marginal agricultural land and degraded soils (Trumper 2009). Shifting to increased use of plant-based renewable materials, especially those grown on degraded and sustainably managed lands, has the potential to encourage development and well-being of these ecosystems.

Reduced energy intensity

Starting at the front end of the supply chain to source responsibly-managed bioplastics and wood composite materials offers important alternatives to unsustainable supply of raw materials and carbon-intensive processes. Within the manufacturing process, innovations that combine use of renewable materials with energy efficient processes and renewable energy systems have the potential to free up the use of fossil fuels and ultimately improve the carbon intensity of the product throughout its lifecycle.

More resilient landscapes

Sourcing, harvesting and production of renewable materials—such as paperboard and fiber from sustainably managed systems—has the potential to improve the resiliency of landscapes against climate change. By producing and sourcing materials in a way that seeks to improve watershed and soil management, maintain or expand forest and ground cover, and ensure the protection of environmental services critical for local communities, there is great potential to maximize the health and resiliency of landscapes to the impacts of climate change to benefit both nature and people (FAO 2010).

Managing Tradeoffs

Renewable materials offer an opportunity for companies to manage for resource scarcity, protect natural capital and tackle climate change. In order to realize their full potential, sourcing and production practices will need to manage for tradeoffs and develop synergies to meet the competing demands for fuel, food and fiber on the same lands.

It is also important to get ahead of the potentially unintended consequences of increased demand such as illegal or unsustainable harvesting, rural displacement and ecosystem degradation from the biofuels market. Companies, in particular, should build transparency and reporting for themselves and their suppliers regarding how materials were grown, harvested and produced. It will also be important to work with certification bodies and suppliers to ensure that the benefits that renewable materials offer to business, society and the climate are appropriately evaluated, and standards and safeguards are met. Finally, the demand for better harmonized standards, clear criteria, full transparency and a level playing field are key to taking sustainable sourcing to the next level. Industry plays a major role in driving this dialogue.

We already are seeing trends and indications that show we are headed in the right direction:

- Increasingly stakeholders—investors, retailers and consumers—are asking for more accountability and transparency from suppliers about the sourcing and management of resources.[1]

- More third-party industry assessments place highest value on use of materials with recyclable and renewable content.[2] (TSC 2015)

Improvement and innovation is at the heart of addressing climate change. At Conservation International, we believe it is in the enlightened self-interest of businesses to unite and collaborate to resolve the climate challenge, and nature-based measures are some of the most economic, sustainable and effective means available. Increased use of sustainable production and renewable materials has the potential to contribute multiple benefits to help our society adapt and endure.

This special briefing by CI's Business & Sustainability Council is part of a series that explores emerging issues in sustainability focused on resource conservation, environmental excellence and social impact. We would like to acknowledge Tetra Pak for providing important insights that contributed to the development of this paper.

Notable numbers:

- Planted forests in 2010 covered around 264 million hectares (about the size of Argentina) can absorb an estimated 1.5 gigatons of carbon from the atmosphere each year (the equivalent of taking 316 million cars off the road).

- The global market for nanocellulose, used for composites, cosmetics, and paperboard is projected to approach US$ 277.7 million in 2019—up from nearly US$ 47 million in 2014 (BCC Research 2015).

About the Business and Sustainability Council:

CI established the Business & Sustainability Council (BSC) in 2003 for companies committed to environmental and business leadership. Currently comprised of global leaders including Barrick Gold, Chevron, The Coca-Cola Company, Disney, ExxonMobil, Hewlett-Packard, Keurig Green Mountain, Monsanto, Northrop Grumman, NRG Energy Rabobank International, Shell, Starbucks, Starwood Hotels & Resorts ,Tetra-Pak, United Airlines Walmart BSC member companies represent total combined revenues of more than US$ 2.2 trillion and 4 million employees. The BSC focuses on convening CI's network of scientists and other issue experts with corporate partners for interactive dialogues on key sustainability issues and further advancement of business and environmental goals.

BELLASSEN, V; LUYSSAERT, S. FEBRUARY 2014. CARBON SEQUESTRATION: MANAGING FORESTS IN UNCERTAIN TIMES.

NATURE NEWS, VOL 506, P. 153.

CDP. 2015. SUPPLY CHAIN SUSTAINABILITY REVEALED: A COUNTRY COMPARISON. A SUPPLY CHAIN REPORT 2014-15.

FAO.2010. MANAGING FORESTS FOR CLIMATE CHANGE. I1960E/1/11.10

[1] NOTED BY FOUR KEY DISCLOSURE INITIATIVES, INCLUDING GLOBAL PROTOCOL ON PACKAGING SUSTAINABILITY 2.0 (GPPS 2.0), GLOBAL REPORTING INITIATIVE (GRI) (G4 GUIDELINES) CARBON DISCLOSURE PROJECT, AND FORESTS THE SUSTAINABILITY CONSORTIUM

[2] THE SUSTAINABILITY CONSORTIUM IN THE UNITED STATES MEASURES THE SUSTAINABILITY PERFORMANCE OF PACKAGING BASED ON THE PERCENTAGE OF RENEWABLE (OR RECYCLED) CONTENT AND THE RECYCLABILITY OF THE PACKAGING. TODAY, KEY RETAILERS SUCH AS WALMART, AHOLD AND SAFEWAY STARTED USING THOSE PACKAGING KPIS.

TRUMPER, K., BERTZKY, M., DICKSON, B., VAN DER HEIJDEN, G., JENKINS, M., MANNING, P. JUNE 2009. THE NATURAL FIX? THE ROLE OF ECOSYSTEMS IN CLIMATE MITIGATION. A UNEP RAPID RESPONSE ASSESSMENT. UNITED NATIONS

WBCSD. 2015. FORESTS & FOREST PRODUCTS AS CARBON SINKS. LOW CARBON TECHNOLOGY PARTNERSHIP INITIATIVE.

ALL THOSE TOOLS/ORGANIZATIONS TRACK AND MEASURE COMPANIES EFFORTS ON RESPONSIBLE SOURCING / CERTIFICATION