Environment

As an integrated chocolate company with suppliers, operations, and customers around the globe, we are very conscious of the environmental impacts of our value chain and are making our best efforts to reduce these impacts within our power. Our work encompasses a range of activities, from sourcing cocoa in ecologically sensitive regions, to energy use in processing and distribution of chocolate products. Our Global Environmental Policy, developed in 2009, defines our priorities for reducing environmental impacts throughout our production facilities and transportation network.

Key challenges
- Efficiency increases
- Rising energy prices
- Reducing carbon footprint and energy consumption

Environmental impacts and initiatives across the Barry Callebaut value chain

Area	Risks & Impacts	Initiatives
Production	Energy and material-intensive manufacturing. Waste from by-products.	Goals and action plans for energy use, renewable energy, and carbon emissions reduction. Waste minimization practices.
Transportation	Energy and carbon emissions from fleet and outsourced transport and packaging.	Initiatives to reduce miles, increase load per shipment, defensive driving and reduce packaging.
Customers	Demand for sustainable products, from ingredient sourcing to lighter and more transparent product "footprint."	Participation in industry sustainability initiatives (i.e. World Cocoa Foundation). Ability to meet third-party sustainability standards such as the Rainforest Alliance and FLO (see "Markets" section).

Responsibility for meeting these objectives is managed at all levels of the organization: outreach to suppliers and customers, training of individual staff, facility-level reporting and action plans, regional coordination, and final responsibility at the level of the Executive Committee (ExCo). To date, we are well on track to meet and in some cases exceed our ambitious goals for addressing key issues: carbon and energy reduction, as well as better management of materials, water, and waste.

Progress against environmental sustainability goals through fiscal year 2011/12

Goals	Progress
20% energy use reduction from 2008/09 levels by 2013/14*	Achieved – 2010/11, plus an additional 5%
20% reduction in CO_2 from 2008/09 levels by 2013/14*	On target (19%)
20% of energy from renewable sources	On target (16%)
20% reduction in water use from 2010/11 levels (goal set in 2011)*	Started measurement and reduction planning

*Goals set on a "per tonne of activity" basis

At the moment, the company is monitoring technological advances in the production of green energy and is in the process of evaluating how we ourselves can produce such green energy efficiently and cost-effectively.

Protecting resources, minimizing waste

Most of our products rely on pure raw materials extracted from renewable natural resources through agriculture. These materials include cocoa, sugar, dairy products and fats and oils. As our main business is cocoa, we focus our activities on protecting the cocoa trees through programs that train suppliers in sustainable farming techniques, in order to grow a resilient and higher-yielding crop. More information on this can be found in the "Cocoa" section of this chapter.

In our factories, we minimize waste through efficient production and continuous improvement. For example, in some of our cocoa processing plants, discarded cocoa bean shells are burned as fuel, and projects are executed to reduce chocolate waste. As issues surrounding water scarcity become more urgent, we have set a goal of reducing water use 5% per tonne of activity per year across all our plants for this year. Our objectives for the future also include implementing more robust data systems in order to better monitor and minimize waste.

Mitigating climate risks

Climate change is a global challenge, and also holds particular risks for Barry Callebaut, as an energy-intensive and agriculturally dependent company. We have identified risks such as more stringent regulatory reporting, rising operational costs from energy use, and physical risks to our supply chain. Since cocoa is grown in tropical regions, changes in temperature and precipitation could impact crop yields through increased disease, drier soils, and other harmful effects.

To play a role in the protection of our climate, we carefully monitor and, where possible, reduce our carbon emissions in our internal value chain. Our carbon footprint is, we consider, primarily the result of energy use in our manufacturing processes. This includes "direct" energy use, such as natural gas consumption for production, as well as more minor diesel fuel use for back-up generators and heating applications. To reduce fossil fuel use, we also burn cocoa shells to generate energy for bean roasting: this fiscal year, approximately 10% of cocoa shells from production were burned at facilities in cocoa origin countries, fulfilling 90–100% of steam requirements for roasting at those sites. Our "indirect" energy consumption, in the form of electricity, is primarily for liquid chocolate production. Among all energy consumed at Barry Callebaut, we have estimated the overall percentage of energy generated from renewable sources as 16%.

Energy action plans

We have instituted energy-saving plans at all of our plants, and appointed a member of staff to oversee energy and greenhouse gas reduction efforts. Managers are expected to report key performance indicators (such as energy consumed, water consumed, renewable energy produced, waste produced), and are given bonuses for good performance. As a result, we are on target to meet our goals and have begun to see energy conservation efforts pay off. These initiatives include:

- An energy-monitoring system to track usage in production
- Identifying areas where energy load can be reduced during periods of inactivity
- Facility and process improvements
- Operational best practices and awareness training
- Pilot projects to test biogas production from fermented cocoa shells and waste, and solar energy for electricity and water heating.

Optimizing transportation

We take a project-based approach to improve our environmental impacts from transportation. This includes centralizing distribution centers, consolidating and maximizing load per shipment, and optimizing direct routing to reduce miles and packaging. Also, we select the most efficient, least emissions-intensive transit modes and intermodal transport whenever possible. We train our staff on fuel-efficient, defensive driving techniques, such as reducing speed, leading to a fuel use reduction of 2.5% in Europe during the fiscal year.

A good example of this project approach is in our North America operations where a centralized, energy-efficient warehouse was built to replace six external warehouses, leading to transportation cost savings of USD 500,000 per year. Extending to our logistics providers, all carriers in this region must also be certified under the SmartWay program of the U.S. Environmental Protection Agency.

Environmental performance overview

Our mission is to produce high-quality cocoa and chocolate products for customers in the food manufacturing industry in an environmentally sensitive manner. The following tables illustrate our environmental performance. By optimizing environmental management along our value chain, cascading benefits are extended to our customers, helping them achieve their goals for efficiency and sustainability.

Carbon Footprint (in units of $MTCO_2e$)*

Emission source	2011/12	2010/11	2009/10	2008/09 (base year)
Scope 1 Emissions				
Natural gas	59,000	63,471	60,029**	53,423**
Heating oil	3,409	1,593		
Biomass: cocoa bean shell	4,025	3,500	2,940	Not available
Scope 2 Emissions				
Imported electricity	155,916	145,665	168,219	138,527
Total Scope 1 & 2 (excluding biomass)	**218,325**	**210,729**	**228,248**	**191,950**

* GHG emissions were calculated for operations under our operational control, using "The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard", and covering greenhouse gas emissions using global warming potentials from IPCC Fourth Assessment Report (AR4 – 100 year). Electricity emissions are based on IEA average emission factor. We have excluded scope 1 and 2 from sales offices, head office, and outbound transport. Emissions from biomass (cocoa shell burning) are also excluded due to insufficient data availability.

** Only total scope 1 data available up to 2009/10

Energy use (in units of GJ)

Energy source	2011/12	2010/11
Direct energy (GJ)		
Natural gas	1,131,643	1,233,244
Diesel	45,464	21,247
Biomass: cocoa bean shells	64,451	65,045
Indirect energy (GJ)		
Electricity	1,762,190	1,691,751
Energy savings*	**159,512**	**589,248**

* Energy savings per tonne of activity multiplied by total activity