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Case Study

THE CORPORATE ECOSYSTEM SERVICES REVIEW CASE STUDY: DANONE-BRAZIL

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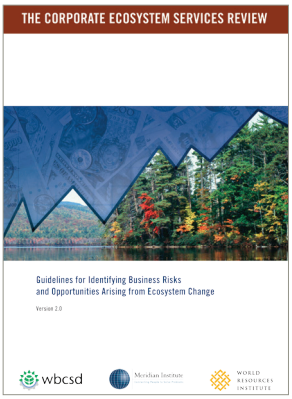

The Corporate Ecosystem Services Review (ESR) is a proven 5-step method to help managers identify business risks and opportunities arising from their dependence and impacts on ecosystem services. This case study describes one company's experience and results in applying the ESR.

This case is an accompaniment to The Corporate Ecosystem Services Review Version 2.0 (2012), which is available online at www.wri.org/ecosystems/esr. It was produced in association with CEBDS, GVces, and USAID.

WHY DANONE IS USING THE ESR

Danone (marketed in the United States as Dannon) is a multinational dairy company that is active in dozens of countries, with products ranging from fruit yogurt to baby formula. Danone products are inherently dependent on ecosystems for the goods and services they provide, including:

- healthy pastures for dairy cattle
- pollinator habitat for better strawberry production
- clean freshwater for milk processing operations.

Ecosystem change driven by climate change and pollution presents risks to Danone's productivity. At the same time, the company is well-positioned to capitalize on significant opportunities provided by more effective ecosystem management, such as improved nutritional quality of its products and lower operational costs. Aiming to capture these opportunities and improve the sustainability of its products' supply chains, Danone-Brazil investigated how it could leverage the systematic management of ecosystem services to improve corporate performance.

GETTING STARTED

In partnership with the Ipê Institute, a Brazilian nongovernmental organization, Danone implemented the Corporate Ecosystem Services Review (ESR) on several supply chain components of one of its most popular food products. Ipê's partnership contributed to the Danone ESR team's ability to dedicate time to the ESR, even amid competing demands. Ipê also brought technical expertise and an external perspective that stimulated other corporate divisions to contribute to the project.

To get the most value out of the ESR, Danone also joined a Brazilian business and ecosystems group called Parceria Empresarial pelos Serviços Ecosistêmicos (PESE). PESE is a partnership among companies and civil society to demonstrate the benefits of ecosystem services in Brazil. The eight companies participating in PESE executed ESRs at the same time. Periodic PESE meetings allowed the companies to discuss experiences and learn from each other.

In order to scale up insights from the local application of the ESR, Danone-Brazil's sustainability team timed the implementation of the ESR to inform a corporate-wide biodiversity strategy planning process. The Danoninho production and marketing team also supported the ESR study to examine opportunities to enhance biodiversity throughout the Danoninho production process. The team involved corporate leaders early in the process, which helped to stay focused on issues important to top management, as well as to mobilize other divisions and ultimately reach the robust results presented below.

STEP 1. SELECT THE SCOPE

To keep the ESR process focused and manageable, the first step is to select a scope of assessment that is strategic, timely, and internally supported by the company.

Danone focused its ESR on key inputs to strawberry-flavored Danoninho, a popular dairy snack for children in Brazil. Danone defined four assessment areas based on vital inputs to the Danoninho product line. Separate ESRs were applied to each area. This case study looks at three of these ESRs.

1. *Main production plant in Poços de Caldas, Minas Gerais.* The plant is located in a resort mountain town strategically located near a significant milk-producing area and relatively close to the hill regions in southern Brazil, where the company buys strawberries. The production plant was selected because of its known dependence on water supply and biomass fuel, two provisioning ecosystem services.

2. *Strawberry suppliers.* Danone chose to focus on the supply of strawberries, one of the most important ingredients in Danoninho. The strawberries come from a highly atomized chain of small farmers who sell to middlemen and processing plants before the fruit reaches Danone's factory. Danone has built a good working relationship with its main supplier over the years. This positive relationship made it easy to obtain information for the ESR.

3. *Dairy suppliers.* Milk, Danone's most important raw material, is produced on dairy farms located near Danone's plant in the southern part of the state of Minas Gerais. Danone enjoys close relationships with many of these farms, which increased the ease and effectiveness of the ESR implementation.

STEP 2. IDENTIFY PRIORITY ECOSYSTEM SERVICES

To focus on the ecosystem services most relevant to business performance, the second step of the ESR is to prioritize a few key ecosystem services by evaluating the degree of the company's dependence and/or impact on more than 20 ecosystem services relevant to the scope of assessment.

Danone used the ESR's dependence and impact assessment tool to systematically determine the ecosystem services most relevant to the ESR assessment areas. Researchers from Ipê and Danone gathered information through a series of interviews with suppliers and plant managers. After collecting the data, the Danone and Ipê teams determined the most significant impacts and dependencies for each assessment area, and selected their priority ecosystem services in a series of meetings with Danone's top management. The priority ecosystem services for each assessment area are summarized below.

Production Plant

Danone prioritized the following ecosystem services:

- *Supply of freshwater.* Milk processing is highly dependent on a supply of clean freshwater, which requires cost-intensive treatment before use at the plant. Over 95 percent of the water used by the plant comes from a river that flows through the city of Poços de Caldas. The Step 2 interviews revealed that the local population, tourists, and other companies in the area also use the river as their primary source of water.
- *Water purification and waste treatment.* Any impurities in the water arriving at the plant must be removed through a cost-intensive treatment before milk can be processed. Danone benefits from the ability of the ecosystem upstream to filter pollutants and impurities from the river before the water reaches its facilities.
- *Ecotourism and recreational values.* A growing tourism industry in Poços de Caldas makes use of the river and nearby areas. The ESR team at Danone chose to examine how the factory could potentially impact these growing leisure areas.

Strawberries

Strawberries are a fragile crop and require specific growing conditions for a good yield. Danone knew that poor farming practices that deplete the soil or damage local biodiversity had the potential to diminish the natural ecosystem's ability to provide good long-term growing conditions. Danone prioritized the ecosystem services that influenced strawberries the most:

- *Supply of freshwater and regulation of water timing and flows*. Productivity is highly dependent on seasonal water availability for small-scale irrigation.
- *Water purification and waste treatment*. Farmland and surrounding forests have the ability to purify water that passes through. Strawberries rely on clean water for irrigation, and various strawberry farming practices can have positive or negative impacts on water quality.
- *Maintenance of soil quality*. Soil fertility is critical for strawberries and is impacted by farm management practices.
- *Pest mitigation*. Strawberries are highly vulnerable to pests, and therefore production benefits from the surrounding ecosystem's ability to reduce and control pest incidence.
- *Pollination*. The prevalence and health of pollinating insects is beneficial to the yield of strawberry crops.
- *Regional and local climate regulation*. Strawberry production is vulnerable to local weather variations; a stable local climate is critical for high yields.

Milk

Milk is by far Danone's most important raw material. The quality of the milk purchased from local dairy farmers is directly affected by livestock health and pasture quality. Danone prioritized the following ecosystem services for milk supply:

- *Livestock (dairy cows)*. Milk with a high protein content is the key input to Danoninho, so the livestock providing this resource are highly important to Danone.
- *Supply of freshwater*. Animal and pasture health depend on the supply of freshwater.
- *Water purification and waste treatment*. Danone relies on the upstream watershed's ability to provide clean water for the health of the animals and pastures.
- *Maintenance of soil quality*. The productivity of farms depends on soil quality; poorly managed farms also can negatively impact local biodiversity and soil fertility.

STEP 3. ANALYZE TRENDS IN PRIORITY ECOSYSTEM SERVICES

Step 3 of the ESR guides an analysis of the conditions and trends in the ecosystem services prioritized in the previous step, as well as drivers of environmental change that significantly influence those trends.

Danone and Ipê consulted several experts for each priority ecosystem service under each assessment area to determine the services' conditions and trends, and to fill any information gaps. Ipê also conducted a thorough scientific literature review and field investigations that added depth to the evidence uncovered by interviews and field visits.

Key Findings of the Trends Analysis for the Production Plant

Trends affecting water quality. The Ribeirão das Antas River supplies Danone's factory and many other users upstream, which could increase the risk of water contamination depending on watershed management practices (Knogge et al. 2013).

As a result of recent population growth, the local tourist town has expanded around Danone's facility (Knogge et al. 2013). Danone realized that the growing use of the river for leisure could raise sensitivity to any future impacts it might have on the river. Although the facility properly adheres to environmental regulations, this was a reason for further investigation and proactive wastewater management.

Danone determined that an existing local watershed committee could positively influence ecosystem management in the area but had not been active in recent times.

Key Findings of the Trends Analysis for Danone's Strawberry Supply

Trends affecting pollination. Field analyses found that in the area where Danone procured most of its strawberries, pollinator populations were on the decline (Knogge et al. 2013).The loss of pollinators has been correlated to lower strawberry yields.

Changes in the local climate. The team gathered that local climate change (shifting precipitation patterns affecting freshwater supply and increasing local temperatures) could be negatively affecting yields in traditional strawberry cultivation areas (Knogge et al. 2013). They drew this conclusion because of a correlation between changing climatic factors and the spread of a fungus infestation across strawberries in the region (Töfoli 2005). As further evidence, farmers have been relocating strawberry farms further south or at higher elevations with more favorable climate conditions. Calculations using local climate forecast models predicted production losses of 30 to 50 percent—or even a collapse of entire crops—over the next decades in the areas where Danone's strawberry supply chain was traditionally located (Knogge et al. 2013).

Key Findings of the Trends Analysis for Danone's Milk Supply

Pasture management. Ipê and Danone sampled several farms' soil biodiversity, water quality, and milk productivity conditions to ascertain how various pasture management practices can affect milk production and quality (Knogge et al. 2013). This led them to believe that poor management practices—such as faulty use of fertilizers and herbicides, inappropriate grass species for soil types, and overpopulation of livestock in a given pasture—not only damage the environment, but also product quality. Increasing milk demand by Danone and other local buyers drove some of these poor practices. Conversely, farms implementing sustainable pasture management had higher quality milk.

Heat stress in livestock. Existing scientific research shows that heat stress in cattle can negatively impact the dairy farming business, especially through reduced milk production and increased cattle health costs (St. Pierre et al. 2003).

STEP 4. IDENTIFY BUSINESS RISKS & OPPORTUNITIES

Step 4 of the ESR evaluates how trends in ecosystem services can impact the company, either positively or negatively.

With the most important trends in priority ecosystem services identified in Step 3 for each assessment area, Danone managers were able to pinpoint the following business risks and opportunities arising from ecosystem change:

Production Plant

Water treatment costs. The declining quality of water supplied to the production plant could mean rising costs for in-house water treatment and filtration. With a growing tourism industry nearby, the risk of perceived impacts on water quality is growing.

Opportunity to engage stakeholders to improve watershed management. Danone realized that by working with local groups—such as local residents, schools, and the watershed management committee—it could influence watershed use and strengthen its relationships and reputation with local stakeholders.

Strawberries

Impact of local climate change on strawberry farms. Local climate change has been shifting temperature and precipitation patterns in areas where Danone traditionally procures strawberries. This threatens the location of strawberry farms in the area and may force migration of the farms to areas with more favorable climate conditions.

Pollinator decline. If the global decline of pollinators extends to Brazil, Danone's strawberry suppliers could suffer a drop in yield that would force the company to procure strawberries from unaffected regions. This shift would entail increased artificial pollination and more intensive care by strawberry farmers.

New Brazilian forest code. The enactment of new national forest and land management legislation opened opportunities for increased engagement with farmers and landowners on collaborative approaches to landscape management in strawberry cultivation areas (Government of Brazil 2013).

Milk

Dairy management and demand for milk. Danone realized that poor management practices on local dairy farms posed a growing threat to the quality and price of its milk supply. Moreover, increasing milk demand from Danone and its competitors in an area with limited land for dairy expansion was leading to overcrowded farms and degraded pastures.

STEP 5. DEVELOP STRATEGIES

Step 5 of the ESR focuses on creating new business strategies that address the risks and opportunities identified in the previous step. Actions can be grouped under three categories: internal changes, external engagement with stakeholders or sector players, and public policy engagement.

Production Plant

The ESR highlighted the importance of regional water quality issues for the production plant, which could be addressed both through internal changes at the facility and through external stakeholder engagement. Ideas for new strategies to manage this issue include:

- *Support development of improved water quality monitoring* along different points in the Ribeirão das Antas watershed.
- *Work with other stakeholders in the watershed* and participate in deliberations on issues requiring joint decisions.
- *Improve the wastewater treatment facilities at the plant,* both to reduce operational costs related to water intake and to improve the level of the plant's effluents. Through these improvements, Danone could minimize risks that arise from public perception of downstream water quality.

Strawberries

The ESR uncovered significant regional changes that threaten Danone's strawberry supply in ways the company does not control. Danone can work with farmers to develop better management practices to yield benefits for the ecosystem.

Milk

Danone's ESR built an evidence base showing that ecosystem service management can be a cost-effective way to improve pasture productivity and milk quality. Sustainable pasture management also brings cobenefits to habitat, soil, and water filtration that underpin long-term pasture viability. For Step 5, Danone focused on how it could constructively engage its suppliers to increase farms' ability to manage ecosystem services.

Danone has a program that provides technical assistance to its milk suppliers on grass and soil compatibility, soil management, and other sustainability practices. The ESR team recommended expanding this program to provide assistance on reforesting marginal pastureland. Reforesting pastureland has multiple benefits to the farms, to Danone, and to the environment, including:

- Reducing operational costs and increasing product quality by creating adequate shade to reduce the potential of livestock heat stress.
- Contributing to soil fertility, water filtration, erosion control, and the long-term productivity of the land.
- Promoting habitat connectivity through wildlife corridors.
- Complying with the National Forest Code, which requires maintaining a portion of natural forest habitat on working lands. This creates a window of opportunity to increase engagement with farmers on the business benefits of reforesting their land (Government of Brazil 2013).

NEXT STEPS

The ESR project provided insights into Danone's interaction with ecosystem services, and also deepened the company's understanding of the operational inner workings of its supply chain. The ESR has already motivated further discussions and investigations in Danone's sustainability, marketing, and procurement divisions.

The Danone and Ipê team created conditions for their success by:

- Defining a clear set of ESR deliverables for the business, spotting value-added opportunities from a bottom-line perspective.
- Welcoming leaders from other company divisions to co-create a vision for how to best apply the ESR's results.
- Collaborating with corporate peers who were concurrently implementing the ESR.
- Inviting expert feedback to bring external validity to the team's findings.

Following completion of the ESR, the team presented results to numerous corporate divisions and garnered broad support for next steps. The Danoninho production and marketing teams, which already implement many biodiversity stewardship and education initiatives, are supporting development of the ESR action plan and considering how to associate the brand with next steps. The company is currently forming a plan to carry forward a selection of strategies generated from the ESR.

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