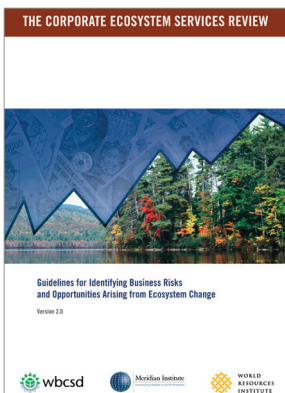




THE CORPORATE ECOSYSTEM SERVICES REVIEW CASE STUDY: CEMEX

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The Corporate Ecosystem Services Review (ESR) is a proven 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 study is an accompaniment to The Corporate Ecosystem Services Review Version 2.0 (2012). Available online at <http://www.wri.org/ecosystems/esr>

The global cement giant CEMEX used the Corporate Ecosystem Services Review (ESR) to uncover new ways to improve quarry rehabilitation that can increase the company's return on investment and better execute CEMEX's corporate-wide sustainability objectives.

A step-by-step description of their ESR process follows.

STEP 1: SELECT THE SCOPE

CEMEX applied the ESR at a 100-hectare gravel pit in the French Loire River Basin, in an area mainly composed of farmland and forests. The quarry was permitted after a full environmental impact assessment (EIA). Its rehabilitation plan aims at developing a mix of farmland, lakes, and forests. The ESR focused on the quarry's operation and rehabilitation activities over 25 years. They conducted the ESR in collaboration with Ligue pour la Protection des Oiseaux (LPO), the French BirdLife International partner, as an initiative jointly developed through the CEMEX-LPO national partnership.

STEP 2: IDENTIFY PRIORITY ECOSYSTEM SERVICES

During step 2 of the ESR, CEMEX used the ESR's dependence and impact assessment tool to systematically evaluate the extent of the company's dependence and impact on more than 20 ecosystem services, and determine the highest "priority" ecosystem services most relevant to the quarry's performance. CEMEX asked outside experts to help complete the tool's questionnaire to ensure the assessment was not biased. In addition, CEMEX adapted the tool to numerically score each ecosystem service, helping automate the prioritization of ecosystem services. Finally, CEMEX prioritized the following ecosystem services:

- CEMEX affects crop production by converting cropland to quarry, and removing vegetation and topsoil during quarrying. During the rehabilitation of

lands, CEMEX can have a positive impact on crops by implementing best practices for site rehabilitation and restoring the land's agricultural productivity.

- Freshwater is a major input to the aggregates production process. While CEMEX's water use is managed in a closed-loop system, the site still depends on and impacts water. In addition, CEMEX's quarrying activities dig below the water table, so the gravel pit fills with groundwater and forms lakes over time, changing regional surface water and aquifer systems, and locally altering water timing and flows.
- Because the Loire River Basin is known for its exceptional natural heritage and beauty, there is a high recreational value to the land. CEMEX has the potential to increase this ecosystem service by developing walkways, fishing, or boating activities around newly created lakes.
- CEMEX's performance can be significantly affected by bad weather events such as frost and storms. Rising temperatures also have an impact on freshwater availability, on which CEMEX depends. In turn, CEMEX impacts the ecosystem service of global climate stabilization by using diesel quarrying equipment. Furthermore, CEMEX's interventions associated with changes to land cover and topography have a probable but not totally understood impact on the regional climate.
- Finally, ethical values related to biodiversity were also identified as a priority because of their importance to CEMEX's stakeholders. The rehabilitated lakes can provide habitats of interest, since most of the regional landscape is intensively cultivated agricultural land. Over the years, and thanks to partnerships with environmental NGOs, CEMEX has acquired know-how about ecological engineering for quarry rehabilitation. However, denuded land during quarry operation is more sensitive to weedy invasive species, which may threaten the quality of rehabilitated areas and damage biodiversity in the long run.

Following completion of the dependence and impact assessment tool, CEMEX chose to double-check the list of priority ecosystem services by mapping the types of ecosystems present at the quarry site, the ecosystem functions associated with on-site ecosystems, and finally the ecosystem services likely produced on the site. This cross-check helped CEMEX staff confirm that their list of priority ecosystem services were the most relevant to the site.

STEP 3: ANALYZE TRENDS IN PRIORITY ECOSYSTEM SERVICES

Step 3 of the ESR evaluated the condition and trends in the priority ecosystem services, as well as drivers of these trends. CEMEX leveraged data from corporate land use plans and an EIA, combined with extensive literature reviews and expert interviews, to determine the condition and trends for each priority ecosystem service. In addition to highlighting new issues the company could consider, going beyond a typical EIA, the trends analysis helped CEMEX identify some data gaps. For example, the ESR confirmed a dearth of available information on local aquifers, raising questions about long-term access to groundwater. Consequently, CEMEX has decided to collect more sophisticated data on aquifers to better adapt quarry rehabilitation works.

STEPS 4 AND 5: IDENTIFY BUSINESS RISKS AND OPPORTUNITIES, AND DEVELOP STRATEGIES

Step 4 of the ESR is to evaluate the business implications of ecosystem change, and step 5 is to develop strategies that minimize risks and maximize opportunities identified in step 4. CEMEX staff conducted steps 4 and 5 in tandem over the course of two workshops. These workshops were valuable for CEMEX in and of themselves by providing a new approach to project management. The ESR team first presented findings from steps 1–3 of the ESR, then brainstormed with staff and outside experts to develop a long list of business risks, opportunities, and related strategies. In the second workshop, the team prioritized the strategies that best align with corporate competencies and goals. CEMEX prioritized the following strategies:

- *Provide technical assistance to improve watershed health.* CEMEX has long-term relationships with the farmers that lease their land for quarrying. These farmers can enhance or degrade ecosystem services, depending on their farming practices. In particular, agriculture in the region is liable to degrade the local watershed that CEMEX and others depend on. Chemicals and nutrient runoff may lead to eutrophication of the quarry's rehabilitated lakes and damage the newly restored habitats. Because CEMEX has an increasing expertise in ecosystem services management, CEMEX

can provide technical assistance to farmers on how to improve their farming practices. Helping farmers reduce watershed degradation safeguards business interests and also enhances ecosystem services that underpin the region's agriculture, wildlife habitats, and leisure activities.

- *Ramp up invasive species control.* CEMEX will implement rigorous invasive species management throughout the quarrying operation and simultaneous rehabilitation. Better managing invasive species will help conserve local biodiversity and maintain the quality of the rehabilitation works. Such practices can also markedly improve recreational opportunities and water quality.
- *Enhance ecosystem services that underpin local tourism.* CEMEX will give added attention to ensuring the quarry rehabilitation plan provides ample recreational opportunities for locals. The new lakes created through quarrying can be made accessible to fishers, hikers, and cyclers, and can complement a network of cycling pathways that are being developed as part of a local tourism initiative.
- *Quantify the carbon benefits of restoration.* Finally, CEMEX will audit their quarry rehabilitation efforts as part of their carbon accounting efforts. The ESR team determined that quarry rehabilitation efforts across the company can have a positive impact on CEMEX's net greenhouse gas emissions balance. By systematically quantifying the carbon benefits of site rehabilitation, the company can better identify opportunities and best practices to enhance carbon sequestration.

ABOUT WRI

The World Resources Institute is a global environmental think tank that goes beyond research to put ideas into action. We work with governments, companies, and civil society to build practical solutions to urgent environmental challenges. WRI's transformative ideas protect the Earth and promote development because sustainability is essential to meeting human needs and fulfilling human aspirations for the future.

ABOUT CEMEX

CEMEX is a global building materials company that provides high-quality products and reliable service to customers and communities in more than 50 countries throughout the world. CEMEX has a rich history of improving the well-being of those it serves through its efforts to pursue innovative industry solutions and efficiency advancements and to promote a sustainable future.

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