

Case Study “PenCil Ltd.”

Introductory Remarks

The following case study of the hypothetical PenCil Ltd. is purely fictional. Although it is inspired by publicly available information about the Faber-Castell Group, including the company’s 2022 sustainability report and the real case study “Sustainable Forest Management for Biodiversity and Climate Protection” on the Faber-Castell Group, various facts and figures have been omitted, altered, exaggerated, or supplemented for the purposes of this case study. Therefore, the case study of PenCil Ltd. does not in any way reflect the circumstances and sustainability performance of the Faber-Castell Group. The sustainability performance of the Faber-Castell Group is significantly better than that of the exemplary Pencil Ltd.

Background

PenCil Ltd. is one of the world’s largest manufacturers of colored and graphite pencils. A large portion of the pencils are wood-cased, which creates a very high demand for the natural resource of wood. Wood is a crucial resource for humanity: it is renewable, versatile, and abundant. Additionally, wood plays a key role in the global carbon cycle, as trees store CO₂ and thereby contribute to mitigating the effects of climate change. Between 2000 and 2020, 100 million hectares of forests were destroyed worldwide. This not only has immediate effects on the carbon cycle and climate change but also has devastating effects on biodiversity, as the habitat of many plant and animal species continues to be increasingly restricted. In other words, global biodiversity is at risk.

Global biodiversity is essential for maintaining planetary cycles, such as those involved in air and water purification. It contributes to a resilient environment and helps maintain the balance of ecosystems. Economically, humanity relies on biodiversity as it forms the basis for food, medicine, and raw materials – which is particularly true for the resource of wood.

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PenCil Ltd. produces large quantities of colored and graphite pencils per year; if these pencils were laid end to end, they would stretch a distance equivalent to from the Earth to the Moon. Thus, PenCil Ltd. has a special responsibility to source wood in a climate- and biodiversity-friendly manner. For this purpose, the company manages approximately 12,000 hectares of company-owned forests. The company’s goal is not only to utilize the environment but also to protect it simultaneously.

Objectives and Implementation Approach

PenCil Ltd. aims to reduce its company-wide CO₂ footprint by 60% by 2030 compared to the base year of 2020. The company’s own forests, planted approximately 40 years ago, also contribute to this goal. By converting CO₂ into biomass, the trees clean the atmosphere and simultaneously sustainably secure PenCil Ltd.’s wood demand. To maintain the climate-protecting factor of the commercially managed forests in the long term and ensure future wood supply, approximately 350,000 seedlings are planted annually. These forests consist of various generations of trees coexisting side by side. During their growth phase of just over 20 years, the trees sequester CO₂ from the air. Afterward, they are harvested and processed into pencils in a controlled manner.

Approximately two-thirds of the 12,000-hectare forest in southeastern Brazil consists of Caribbean pine. This species is particularly well-adapted to tropical and subtropical climatic conditions. The risk of forest fires is particularly high during dry periods, which is why firebreaks, watchtowers, an in-house fire brigade, and awareness training for residents are part of PenCil Ltd.’s prevention measures. Such measures for forest fire prevention are important because fires release approximately eight billion tons of CO₂ annually worldwide. In addition to the dramatic effects on the global climate, forest fires result in the loss of nutrients and raw materials, the destruction of ecosystems, and the destruction of biodiversity.

The protection and preservation of biodiversity play an important role in PenCil Ltd.’s forestry operations. Approximately one-third of the forest in southeastern Brazil is left untouched and protected. As a result, this part of the forest has become a habitat for native and rare animal

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and plant species. Since 2001, various programs have been implemented to establish the company-owned forest as a refuge for native biodiversity. Additionally, 45,000 native trees have been planted, including 457 native species from 27 different tree families. Furthermore, through the programs, early measures are taken against potential water contamination, and the soil conditions of the forest are mapped, with efforts made to counteract erosion processes.

Results

According to a study by a renowned certification institute, the forest in southeastern Brazil sequesters approximately 1.1 million tons of CO₂. These sequestered emissions offset the annual climate-relevant CO₂ footprint of all PenCil Ltd.’s production sites. Additionally, due to regular reforestation, approximately 20 m³ of wood grows in the company’s forests every hour, roughly equivalent to a truckload. This allows PenCil Ltd. to source almost 90% of its global wood demand from resources within its own forest. The woods used by PenCil Ltd. for production are all FSC or PEFC certified.

Positive developments regarding biodiversity have also been observed in PenCil Ltd.’s forests. More than 735 native animal species now inhabit the protected part of the forest – in 1990, there were only 165. The forest’s biodiversity consists of 275 bird species, 263 ant species, 82 mammal species, 42 fish species, 36 amphibian species, and 37 reptile species. Over 50 of these species are threatened elsewhere. Additionally, there has been a steady increase in plant diversity and improved water flow throughout the entire 12,000-hectare forest.

Further Information

PenCil Ltd. employs over 6,000 people at 12 production sites on five continents (see Figure 1). The development of various environmental indicators is summarized in Figure 2).

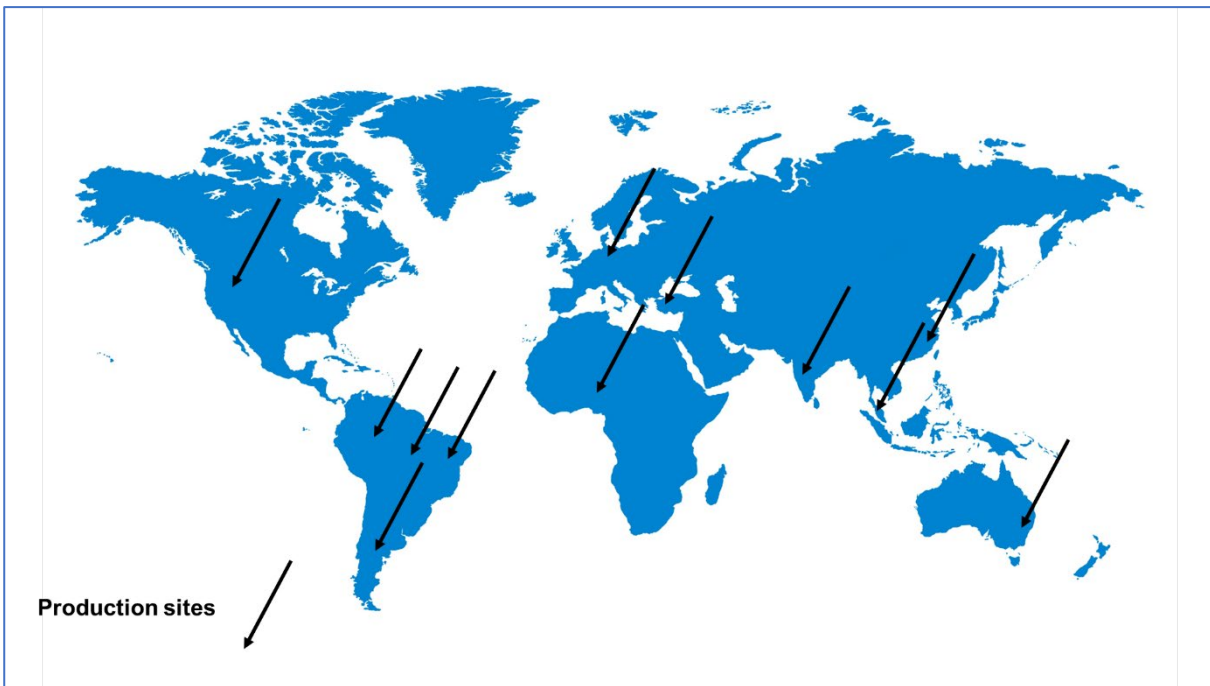


Figure 1: Overview over production sites of PenCil Ltd. [derived from Faber-Castell (2022)].

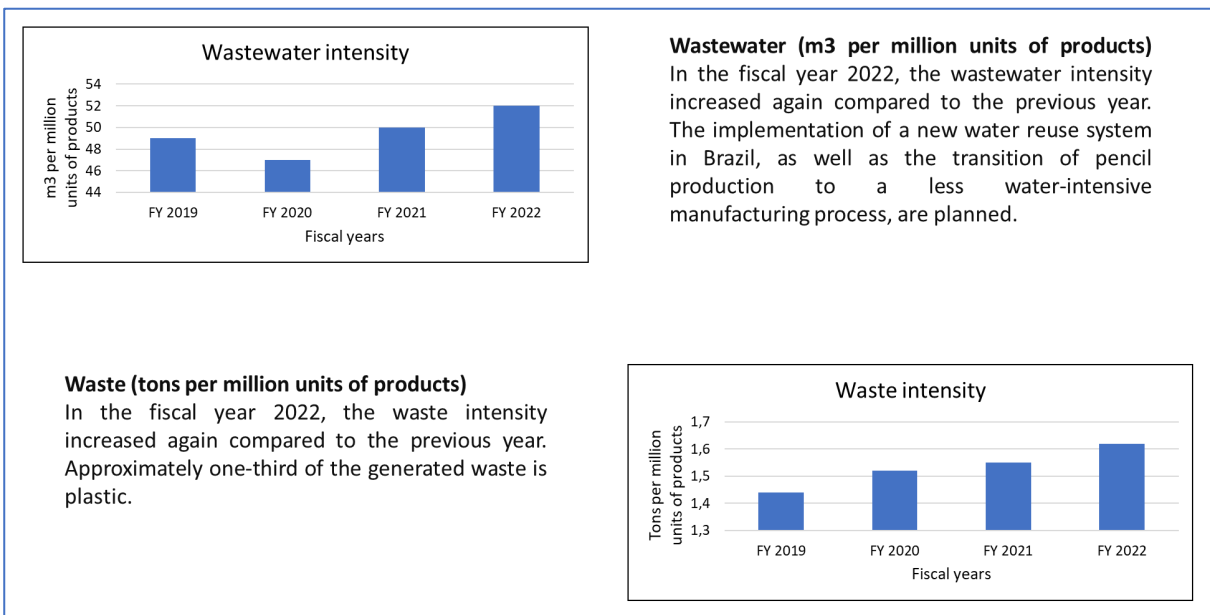


Figure 2: Overview over different environmental KPIs of PenCil Ltd. [derived from Faber-Castell (2022)].