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Accounting for Sustainability: Pollution

The sixth article in the Accounting for Sustainability series

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Introduction

Pollution represents a critical threat to both environmental and human health across multiple dimensions. As a primary driver of biodiversity loss and species extinction, pollution affects ecosystems by contaminating air, water, and soil simultaneously. In Europe, air pollution alone constitutes the single largest risk to human health, accounting for approximately 1 in 8 deaths annually across the EU, highlighting the negative impact of pollution. .[1]

In 2022 the Swiss government invested approximately 205 CHF per person in wastewater treatment, roughly twice the 106 CHF spent per person in England, reflecting a longstanding commitment to protecting Swiss water quality and cleanliness[2]. But Switzerland's environmental challenges are not limited to air and water.

Waste disposal represents a significant and often overlooked source of pollution, releasing greenhouse gases and air pollutants while simultaneously contaminating water, soil, and surrounding ecosystems. Paradoxically, despite its reputation for environmental excellence, Switzerland ranks among the world's highest waste-producing countries relative to population size.[3]

Pollution generates substantial risks for societies and businesses and makes it essential to seek solutions across all sectors of the economy. Companies must understand and plan for the effects of pollution to stay resilient against climate-related risks. This article explores pollution and how to account for its impacts under the International Financial Reporting Standards (IFRS).

The hidden costs of pollution

Over the past four decades Switzerland has faced multiple environmental crises that have fundamentally transformed its approach to pollution control and environmental protection. The most catastrophic crisis occurred in 1986, when a fire engulfed the Sandoz chemical facility in Schweizerhalle near Basel, unleashing more than 1,000 tons of hazardous substances, with pesticides and mercury among them, into the Rhine. The resulting ecological devastation was immediate and severe: the water turned red and aquatic ecosystems collapsed across a 180-kilometer stretch of the river, and drinking water supplies were contaminated[4]. This incident remains the country's most damaging chemical accident and ranks among Europe's worst environmental disasters.

In more recent years a different but equally troubling threat has emerged: PFAS (per- and polyfluoroalkyl substances), which are synthetic chemicals that persist indefinitely in the environment. Since their initial detection in groundwater around 2007-2008[5], PFAS have been found throughout Swiss water systems, with particularly alarming

[1] Pollution and waste: air, water and soil | Knowledge for policy
[2] From sewage and scum to swimming in 'blue gold': how Switzerland transformed its rivers | Environment | The Guardian
[3] Switzerland | Country profiles | Europe's environment 2025 (EEA)
[4] Sandoz Chemical Disaster | Environment & Society Portal
[5] PFAS in groundwater, Federal Office for the Environment FOEN.

concentrations in the Goms Valley (canton Valais)[6] and in the Rivers Ergolz and Birs near Basel[7], where industrial operations have accelerated contamination. All these incidents, ranging from sudden industrial catastrophes to gradual long-term contamination in the water, soil and air, underscore the high impact of pollution on society, and on human health.

The harm from pollution to the planet, human well-being, and business operations is transmitted in four ways[8]:

- Air pollution from industrial emissions, vehicle exhausts, and energy production releases particulate matter and toxic gases that damage human health and air quality. Greenhouse gas emissions drive climate change, with far-reaching impacts on health, economy, and ecosystems.
- Water pollution from industrial discharge, agricultural runoff, and untreated wastewater contaminates freshwater and marine ecosystems, compromising drinking water supplies and aquatic biodiversity. Toxins harm human health, while excess nutrients trigger eutrophication, degrading the productivity of fisheries.
- Soil contamination from mining, manufacturing, and chemical production degrades land productivity and creates long-term environmental liabilities costing hundreds of millions to remediate. Land degradation diminishes critical ecosystem services, including environmental regulation and livelihood support.
- Waste pollution, with the EU generating 2.5 billion tons of waste annually, poses severe environmental and health risks such as electronic waste that releases hazardous materials into ecosystems, affecting wildlife and societies.

Other notable pollution types include plastic pollution, PFAS and volatile organic compounds (VOCs), each presenting distinct environmental and health challenges:

- PFAS ("forever chemicals") are widely used in cleaning products, food packaging, and cookware. They accumulate in ecosystems and human bodies, causing liver damage, harm to the immune system, and increased risk of cancer. PFAS litigation, progressive regulatory bans in EU countries (including the proposed European Chemicals Agency restriction[9] and national bans), and rising consumer awareness are driving manufacturers to phase out PFAS in some applications.
- VOCs are organic chemicals released as gases from vehicle exhaust, industrial processes, paints, and cleaning products. They react in the atmosphere to form harmful ozone and smog.

The four channels of pollution are deeply interconnected. Air emissions can cause acid rain, contaminated water infiltrates soil, and microplastics contaminate all three environmental systems simultaneously.[10] To understand these impacts it's essential to acknowledge that business activities degrade natural capital in ways markets fail to price. As pollution regulations tighten globally, the "polluter pays" principle has emerged as a powerful mechanism compelling companies to take their environmental responsibilities seriously. This principle, central to the EU's zero-pollution hierarchy, shifts the financial burden of environmental damage from society to those responsible for causing it, incentivising companies to prevent pollution at source rather than remediate it afterward. The Packaging and Packaging Waste Regulation (PPWR)

[6] Research identifies 134 'forever chemicals' hotspots across Switzerland - SWI swissinfo.ch
[7] PFAS in watercourses
[8] Pollution and waste: air, water and soil | Knowledge for policy
[9] ECHA publishes updated PFAS restriction proposal, 20. August 2025
[10] Proactive Steps May Help Pharma, Medtech Mitigate PFAS Risk | Deloitte US, 28. February 2024

exemplifies this approach, using pricing mechanisms to reward environmentally conscious companies while penalising those with higher pollution footprints.[11]

Accounting for pollution

Regulatory restrictions on pollutants of substances of concern, such as PFAS and VOCs, represent a substantial compliance challenge for manufacturers of pharmaceuticals, chemicals, packaging and consumer goods. As regulatory bodies worldwide tighten controls on the use and emissions of substances of concern, companies must evaluate the financial impact of these restrictions on them. This section outlines how the IFRS Accounting Standards can guide pollution-related impairment testing, provisions, R&D costs, changes in the useful life of assets, and inventory valuation.

Testing for impairment due to regulatory restrictions on pollutants:

- Regulatory restrictions taking place during the period or in the near future on substances of concern, such as PFAS and VOCs, can be an indicator of impairment.[12] In our article Accounting for Sustainability: Stranded Assets we explained how climate-related risks are causing more assets to be stranded due to environmental degradation, technological disruption, and regulatory tightening that is making carbon-intensive assets less economically viable.[13] Pollution-related regulatory restrictions can also be a driver for asset stranding, potentially leading to impairment. Assets that may significantly decline in value due to a transition away from polluting substances and processes, such as manufacturing facilities dependent on PFAS-based production or equipment relying on VOC-emitting technologies, may indicate that assets are impaired.

- As described in our article[14], sensitivity disclosures are required for impairment testing of Cash-Generating Units (CGUs) or groups of CGUs that contain significant goodwill, or intangible assets with indefinite useful lives. These disclosures are necessary where a reasonably possible change in key assumptions would cause the CGU's carrying amount to exceed its recoverable amount, thereby indicating impairment. Even if a CGU does not contain goodwill or intangible assets with indefinite useful lives, additional disclosures may be required under IAS 1 or IAS 8 (when applying IFRS 18) to help users understand the key judgements and estimates affecting the financial statements.[15]

- If anticipated government actions are expected to impact cash flows in the medium to long term, these effects must be incorporated when estimating the future cash flows that support the carrying amount of an asset. Management is required to exercise judgement in determining whether the expected government actions will influence cash flow projections and whether these impacts should be included in the cash flow estimates used for the Value in Use calculation in impairment testing.[16]

Environmental damage provisions

[11] Packaging waste - Environment - European Commission
[12] IAS 36 – Impairment of Assets | DART – Deloitte Accounting Research Tool
[13] Sustainability: Stranded Assets | Deloitte Switzerland
[14] Accounting for Sustainability: Stranded Assets
[15] IAS 36 – Impairment of Assets | DART – Deloitte Accounting Research Tool
[16] A10 Impairment of assets | DART – Deloitte Accounting Research Tool

IAS 37 is crucial for recognising and measuring obligations arising from climate-related environmental damage. A provision for environmental damage remediation is recognised when the following criteria are met: a legal or constructive obligation exists from a past event, it is probable that an outflow of resources will be required to settle the obligation, and a reliable estimate can be made of the amount of the obligation. Obligations from environmental policies and laws may also generate levies or fines for failing to meet pollution control standards, regulatory requirements to remediate environmental damage, contractual obligations, or product modifications required to comply with pollution thresholds. [17]

Internal R&D costs for substituting restricted substances

Substitution of pollutants and substances of concern typically involves substantial development costs and extended research timelines. Under IAS 38, development costs must be capitalised if specific criteria are met, including technical feasibility, intent to complete, ability to use or sell the asset, and probable future economic benefits, among others. Costs incurred during the research phase should be expensed. However, companies must exercise significant judgement in determining whether development activities meet the recognition criteria, particularly regarding the probability of future economic benefits and the technical feasibility of the alternative solution.[18]

Changes in useful life of polluting assets

As described in our previous article,[19] IAS 16 sets out the accounting treatment for property, plant, and equipment (PP&E). Pollution-related regulatory restrictions can affect the depreciation of PP&E through changes in their useful lives or residual values. If environmental regulations impose restrictions on the use of certain production lines or equipment due to pollution concerns, the expected usage of these assets may be reduced, necessitating a reassessment of their useful lives.

The impact of regulatory changes on inventory valuation

Pollution-related regulatory changes can negatively affect the net realisable value of inventories under IAS 2. This may occur if regulatory restrictions make a product containing substances of concern obsolescent, or if completion costs rise due to the need to reformulate products to comply with new pollution standards. Should the cost of inventory become not recoverable under these circumstances, IAS 2 requires that such inventories be written down to their net realisable value.[20]

A practical example of inventory that may have been impacted by restrictions related to plastic pollution was when the EU Single-Use Plastics Directive (2019/904) came into force in 2023. The Directive progressively restricts the sale and distribution of single-use plastic products such as bags, straws, cutlery, and food containers. Under IAS 2, inventories of single-use plastic products that can no longer be legally sold or distributed must be written down to their net realisable value, reflecting the loss of commercial viability due to regulatory ban.[21]

Explore the complete series

[17] IAS 37 – Provisions, Contingent Liabilities and Contingent Assets | DART – Deloitte Accounting Research Tool
[18] A9 Intangible assets | DART – Deloitte Accounting Research Tool
[19] Sustainability: Stranded Assets | Deloitte Switzerland
[20] Accounting for Sustainability: Climate Risks | Deloitte Switzerland
[21] Directive - 2019/904 - EN - SUP Directive - EUR-Lex

This article is the sixth and last in the Accounting for Sustainability series. To develop a comprehensive understanding of how climate-related matters influence financial reporting, we encourage you to explore the complete series here: Climate & Sustainability | Deloitte Switzerland.

Get in touch

Whether you are developing sustainability disclosure strategies or seeking to understand how IFRS standards apply to your specific environmental challenges, our team of experts is here to help.

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