The CERN Environment Report

James Gillies, EIROforum ComG, 24 February 2020
How it all began…

“I want CERN to be a role model for environmentally responsible research”
The Global Reporting Initiative

• GRI, is an independent organization established in 1997 to promote standardisation in sustainability reporting.
• A succession of guidelines (G1-G4) have evolved into the GRI Standards.
• The GRI Standards are the leading framework for sustainability reporting world-wide.
• 93% of the world’s largest 250 corporations report on their sustainability performance.
Why GRI?

- GRI is modular and flexible
- It allows us to report only on environmental aspects (General disclosures plus GRI300)
- The key principle is materiality: report only on what is relevant for CERN and major stakeholders

- GRI is compatible with other standards (ISO)
- GRI is compatible with the EU directive on non-financial reporting
- GRI can formally be linked to the SDGs
- GRI is endorsed by many CERN MS, UNEP, OECD…
Materiality

Internal stakeholders:
• Heads of CERN Departments;
• Administrative, finance and procurement officers;
• Personnel responsible for aspects of external relations;
• Representatives of the User community and Staff Association;
• Senior management;
• CERN Council President and members;
• Personnel with responsibility for environmental aspects.

External stakeholders:
• Host State participants in meetings held under the tripartite agreement on radiation protection and radiation safety;
• Host State participants in meetings held under the tripartite committee for the environment;
• The Mayors of some local communities with a strong CERN presence;
• Energy suppliers;
• Representatives of Host-State media;
• Sustainability consultants.
Materiality

Significance for external stakeholders

- Natural resources & biodiversity
  - Non-radioactive waste
    - Sewer system
      - Legionella treatment
    - Soil protection
- Water consumption
- Hazardous substances
  - Effluent quality
- Radioactive waste
  - Mobility
- Environmental impact of procurement
- Material consumption
- Noise
- Non-ionising radiation
- Ionising radiation
- Prevention of environmental accidents
- Greenhouse gas emissions
- Energy consumption

Significance for CERN

- High impact on sustainable development
- Moderate impact on sustainable development
About CERN

>17,900 people

CERN employs around 3,000 people and some 12,500 scientists from around the world use the Laboratory’s facilities. The remainder is largely made up of associates and students (page 6).

Energy

1251 GWh

CERN consumed 1,251 GWh of electricity and 84.4 GWh of fossil fuel. The Laboratory commits to limiting rises in electricity consumption to 5% up to the end of 2024, while delivering significantly increased performance of its facilities (page 12).

Emissions

223,800 tCO₂eq

CERN’s direct greenhouse gas emissions were 192,100 tonnes of CO₂ equivalent, tCO₂eq. Indirect emissions arising from electricity consumption were 31,700 tCO₂eq. CERN’s immediate target is to reduce direct emissions by 28% by the end of 2024 (page 14).

Ionising Radiation

< 0.02 mSv

People living in the vicinity of CERN received an effective dose of between 0.7 and 4.8 mSv per year, mSv, from natural sources. CERN’s activities added under 0.02 mSv to this, less than 4% of the naturally occurring background (page 16).

Waste

57% recycled

CERN eliminated 59,958 tonnes of non-hazardous waste, along with 1,158 tonnes of hazardous waste. Some 57% of non-hazardous waste was recycled. CERN’s immediate objective is to maintain this level (page 18).

Environmental Compliance

146 monitoring stations

CERN has a state-of-the-art environmental monitoring system consisting of 146 monitoring stations. The Organization reports quarterly on environmental issues to host State authorities. No serious environmental incidents were recorded in 2018 (page 23).

Biodiversity

15 species of orchid

There are 15 species of orchid growing on CERN’s site. CERN land includes 259 hectares of cultivated fields and meadows, 136 hectares of forest and three wetlands (page 22).

Water and Effluents

3,477,000 litres

CERN drew 3,477,000 litres of water, mostly from Lake Geneva. The Laboratory commits to keeping its increase in water consumption below 5% up to the end of 2024, despite a growing demand for water cooling of upgraded facilities (page 20).

Knowledge Transfer

18 domains

CERN’s 18 technology domains have several environmental applications including reducing air and water pollution, environmental monitoring, and more efficient energy distribution using superconducting technology (page 24).

Noise

70 dB(A)

CERN has invested resources to keep noise at its perimeters below 70 dB(A) during the day and 60 dB(A) at night. This corresponds to the level of conversational speech (page 17).
### GRI INDEX

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Next steps

- Secure GRI organizational mark
- Small number of copies to be printed (200 each English/French)
- Dedicated space for the Environment being developed on the HSE website
- Report to be delivered to the CERN Council in March and made public
- Comprehensive communications campaign to follow
- Work to begin on the next report this summer – to cover 2019 and 2020, and be published in 2021.
- Potential to work with GRI being investigated
- Potential to produce full sustainability report