Factsheet for experts

The eco-points

To assess environmental impacts, the Life Cycle Assessment (LCA) method is applied. This systematic analysis captures the potential environmental impacts of food products throughout their entire life cycle. All stages are considered, from raw material extraction and production to transportation, usage, and disposal. Various methodological approaches are available for evaluating environmental impacts. In the case of the MSI (Menu Sustainability Index), the ecological scarcity method 2021 is used.

The ecological scarcity method evaluates environmental impacts by assigning eco-factors to emissions, waste, and resource consumption. These eco-factors are based on Switzerland's environmental policy goals. The more current emissions or resource consumption exceed these target values, the higher the eco-factor, expressed in eco-points. The following environmental impacts are considered (Figure 1):

- **Resources:** Water resources, energy resources, mineral primary resources, land use (loss of biodiversity), marine fish resources
- **Emissions:** Climate change (e.g. CO_2, methane), ozone layer depletion (e.g. CFCs, halons), major air pollutants and particles, carcinogenic substances in air, heavy metals in air, water pollutants (including hormone-active substances), heavy metals in water, persistent organic substances in water, pesticides in soil, heavy metals in soil, radioactive substances in air, radioactive substances in water
- **Waste**: Waste in landfills (non-radioactive), radioactive waste in final disposal

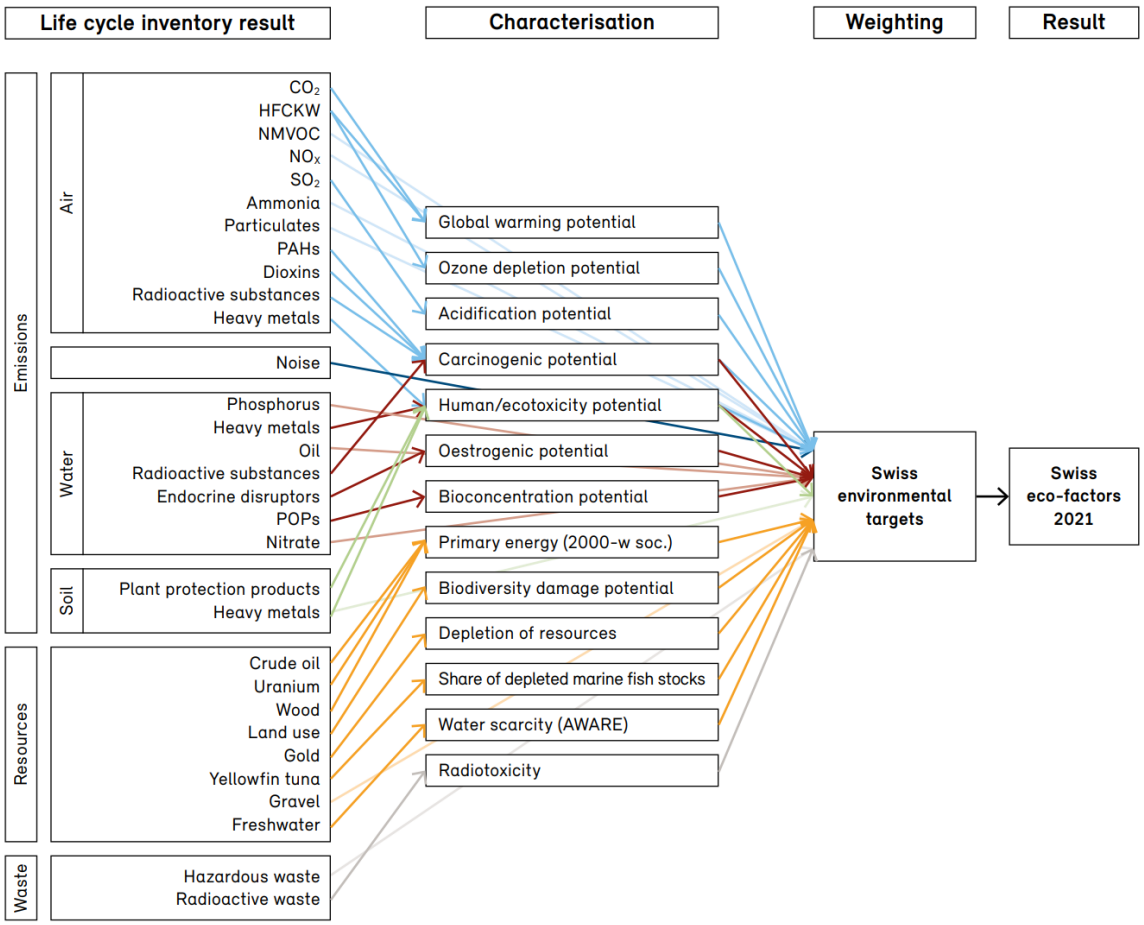

Figure 1: *Basic diagram of the ecological scarcity method (Swiss eco-factors 2021) including the inventory analysis result, characterization and weighting (BAFU, 2021).*

In a first step, all emissions, resource consumption, and waste are documented in an inventory (Figure 1). For the life cycle inventory, data from the Ecoinvent background database are used (Wernet et al., 2016). Next, pollutants that contribute to specific environmental issues, such as climate change, are evaluated based on their impact using a characterization factor. For greenhouse gases, this is done by calculating their greenhouse gas potentials (CO_2-eq) in accordance with the IPCC guidelines. Following this, the normalization process calculates the proportion of a given pollutant or resource usage relative to the total annual environmental impact of a region, in this case, Switzerland.

The weighting step represents the relationship between the current pollutant emissions or resource consumption (current flow) and the target values for emissions or consumption set by political policies (critical flow). The resulting eco-factors, expressed in eco-points per kilogram of pollutant or resource, are then multiplied by the emission and consumption quantities recorded in the product's inventory. This provides eco-points, enabling comparisons across various products (BAFU, 2021). To determine the overall environmental compatibility of a menu, the eco-points of each ingredient are added together and combined with the eco-points of the preparation process.

The classification of results per portion follows the scale shown in Table 1. The threshold values of the scale are based on the FOEN report on Switzerland's environmental footprint (Nathani et al., 2022). In 2018, the average environmental impact per person was 25.8 million UBP per year. Of this, 25 % was attributable to food, corresponding to 6.45 million UBP per person per year, or 17,671 UBP per person per day. Spread over three meals, this amounts to around 5,890 UBP per portion. However, this impact is significantly above the environmentally sustainable level. According to FOEN (Nathani et al., 2022), a reduction of total environmental impact by 78 % is required to remain within planetary boundaries. A 78 % reduction corresponds to 3,888 UBP per person per day, which translates to a target value of 1,296 UBP per portion. This value of 1,296 UBP per portion defines the lower threshold of the scale. Below this value, a main dish falls into the category of highest environmental compatibility, i.e., lowest environmental impact. The upper threshold corresponds to today's average of 5,890 UBP per portion. At or above this point, a recipe is classified into the category of lowest environmental compatibility, i.e., highest environmental impact.

Table 1: *Scale for assessing the environmental compatibility of menus in MSI based on Eco-points.*

Eco-points	**Scale for assessing the environmental** compatibility **of the menus** *(changes with method updates)*
0 – 1'296	very high environmental compatibility
1'296 – 2'827	high environmental compatibility
2'827 – 4'359	medium environmental compatibility
4'359 – 5'890	low environmental compatibility
> 5'890	very low environmental compatibility

Sources

- BAFU (2021): Ökofaktoren Schweiz 2021 gemäss der Methode der ökologischen Knappheit. Methodische Grundlagen und Anwendung auf die Schweiz. Bundesamt für Umwelt, Bern. Umwelt-Wissen Nr. 2121: 260 S. https://www.bafu.admin.ch/bafu/de/home/themen/wirtschaft-konsum/publikationen-studien/publikationen/oekofaktoren-schweiz.html
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Source: BAFU (2021): Ökofaktoren Schweiz 2021 gemäss der Methode der ökologischen Knappheit. Bundesamt für Umwelt BAFU. Ökofaktoren Schweiz 2021 gemäss der Methode der ökologischen Knappheit.