German Environment Agency

Umwelt Bundesamt

How to measure sustainability in international chemicals management?

Potential Sustainability Indicators for GFC D-Targets

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Project: A future-oriented contribution to GFC

Develop proposals for indicators for the strategic objectives and targets for SMCW beyond 2020.

1. **Focus on progress through sustainable chemistry**
2. Framework conditions for the development of sustainable chemistry are created
3. Basic requirements for SMCW

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cscp COLLABORATING CENTRE ON SUSTAINABLE CONSUMPTION AND PRODUCTION

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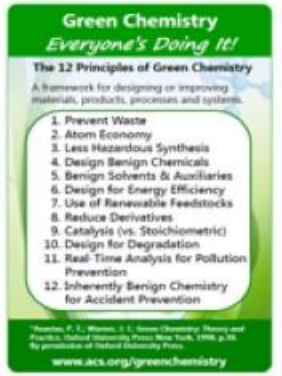
Selection of General Criteria A - G

- Suitability of indicators for the SAICM process
- **SMART-like** features (Specific, Measurable, Achievable, Realistic, Time-bound)

A) Specific	The indicator must be precise and unambiguous.
B) Established	The indicator is already in use by other systems, e.g. SAICM, Conventions.
C) Determinable	The collection of the data needed for reporting in the respective sector is easy and cost-efficient.
D) Measurable	Measurable: Either quantities, thresholds or qualitative properties are applicable.
E) Reliable and transparent	The data associated with the indicator are trustable and traceable.
F) Dynamic	Progress over time, a difference in the data associated with the indicator can be measured.
G) Pertinent	The indicator covers relevant aspects for the respective sector and / or area of application.

Selection of Sustainability Criteria

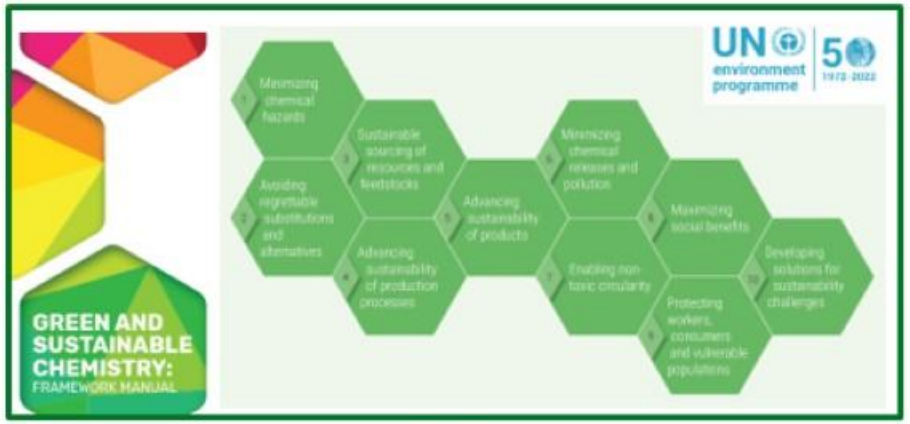
- Sustainability Criteria were revised several times
  - discussions with experts from all UN regions in interviews and five workshops
  - application tests to assess the usability
- Linkage to Sustainable Chemistry as well as sustainable development
- Interfaces with global issues like health, climate, biodiversity, energy, and potential conflicts, like extraction of chemicals from renewable raw materials.



ISC3 International Sustainable Chemistry Collaborative Centre

10 Key Characteristics of Sustainable Chemistry

https://www.isc3.org/en/about-isc3/sustainable-chemistry.html



https://wedocs.unep.org/bitstream/handle/20.500.11822/37340/AOGCGSC.pdf?sequence=3&isAllowed=y
https://stg-wedocs.unep.org/bitstream/handle/20.500.11822/34338/GSCF.pdf?sequence=2

Special criterion focusing on Sustainable Chemistry

H) Sustainability	Systems thinking is the prerequisite to reach the goals of the Agenda 2030: Potential **trade-offs** can be identified and managed with **systems thinking**. Sectors dealing with chemical entities[1] contribute to Sustainable Development in compliance with the respective SDG principles and the following subcriteria.

[1] With the term "chemical entities" we comprise chemicals, substances, intermediates, materials, products, waste and recyclates as well as, if appropriate, those entities in (raw material) extractions, processes and applications.

UNEP Green and Sustainable Chemistry Objectives:

- 10: Developing solutions for sustainability challenges.

ISC3 10 Key Characteristics of Sustainable Chemistry:

- 1: Holistic
- 3: Systems Thinking
- 10: Life Cycle

Sub-criteria focusing on Sustainable Chemistry (i)

H1) Responsible innovation	Development of sustainable solutions and **safe and non-regrettable** alternatives for chemicals of concern through cooperation on **innovations**, non-chemical alternatives, services like chemical leasing or Extended Producer Responsibility (EPR) mechanisms. Foster **collaboration** along the **value chains** to promote **circularity**.

UNEP Green and Sustainable Chemistry Objectives:

- 1: Minimizing chemical hazards.
- 2: Avoiding regrettable substitutions and alternatives.
- 4: Advancing sustainability of production processes.
- 6: Minimizing chemical releases and pollution.

ISC3 10 Key Characteristics of Sustainable Chemistry:

- 2: Precautionary
- 6: Sustainable and responsible Innovation
- 7: Sound Chemicals Management
- 9: Green Chemistry

Sub-criteria focusing on Sustainable Chemistry (ii)

H2) Inter- and multidisciplinary, holistic approach	Considering **interfaces** with other urgent issues (health, environment, climate, resources/waste/circularity, biodiversity, nutrition, etc.) throughout the entire **life cycle** of chemical entities, while avoiding transport of problems to other sectors and future legacies.

UNEP Green and Sustainable Chemistry Objectives:

- 5: Advancing sustainability of products

ISC3 10 Key Characteristics of Sustainable Chemistry:

- 1: Holistic
- 3: Systems Thinking

Sub-criteria focusing on Sustainable Chemistry (iii)

H3) Social responsibility	Promoting and ensuring **health and safety** as well as **fair, inclusive, and emancipatory** labour conditions, complying with **human rights and justice** in all its fields including **education and science**. Reduction of inequalities and fair distribution of benefits.

UNEP Green and Sustainable Chemistry Objectives:

- 8: Maximizing social benefit.
- 9: Protecting workers, consumers and vulnerable populations.

ISC3 10 Key Characteristics of Sustainable Chemistry:

- 4: Ethical and Social Responsibility

Sub-criteria focusing on Sustainable Chemistry (iv)

H4) Transparency and information exchange	Enabling right-to-know throughout the entire life cycle. Promoting **knowledge exchange** on all levels including all stakeholders (e.g. science, education, business, governments, administration, NGOs).

UNEP Green and Sustainable Chemistry Objectives:

- n/a

ISC3 10 Key Characteristics of Sustainable Chemistry:

- 5: Collaboration and Transparency

Sub-criteria focusing on Sustainable Chemistry (v)

H5) Resource management and circularity	Sustainable management of **resources, materials, and products** (raw materials extraction, production, application, logistics, recycling and end of life scenario) and **energy**, to enable **circularity** without contamination throughout the **entire life cycle**.

UNEP Green and Sustainable Chemistry Objectives:

- 3. Sustainable sourcing of resources and feedstocks
- 7. Enabling nontoxic circularity

ISC3 10 Key Characteristics of Sustainable Chemistry:

- 8: Circularity

Analysis of Indicators

Examination from two perspectives:



1) **To what extent do the indicators**
   - meet the goals of "**Sound Management of Chemicals and Waste**" (SMCW) and/or
   - contribute to the development of "**Sustainable Chemistry**" (SC)?

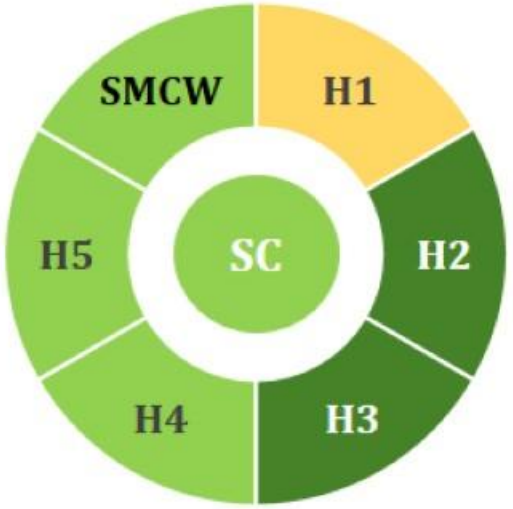


2) **Which SDGs are directly or indirectly supported by the indicators?**
   - significance of the indicators for the SDG targets and
   - correspondence in content with SDG indicators.



Share of large/medium/small chemical enterprises of the region (Africa, Asia, Europe ...) that report on their sustainability performance using GRI SRS

GFC-Targets: D1 D3 (D4)



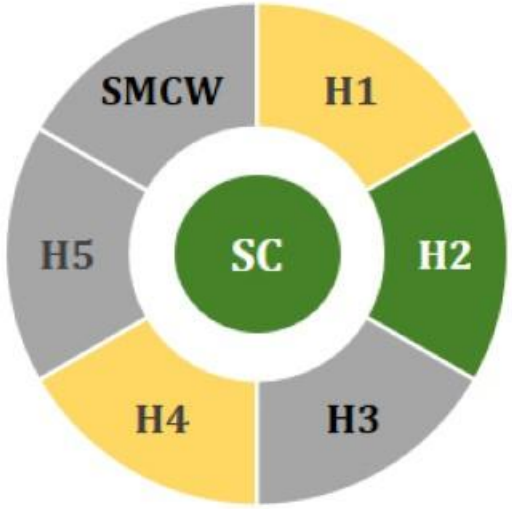


Target 12.6

SMART-like Criteria	Fulfillment
B) Established	Yes
C) Determinable	Yes
D) Measurable	Medium

"CO2eq. Scope 1 & 2 per unit of value added (e.g., gross output [Mg / yr]) of the chemical industry"

GFC-Targets: D1 (D4)





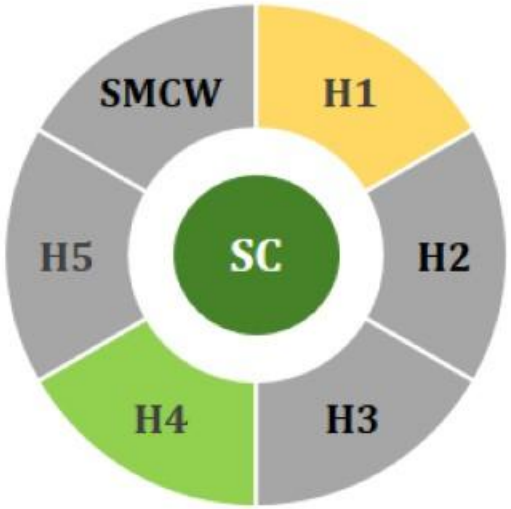
Target 9.4

SMART-like Criteria	Fulfillment
B) Established	Yes
C) Determinable	Difficult
D) Measurable	Yes

H1) Responsible innovation	H2) Inter- and multidisciplinary, holistic approach	H3) Social responsibility	H4) Transparency and information exchange	H5) Resource management and circularity

Number of companies publicly reporting their chemical footprint.

GFC-Targets: D1 (D4)



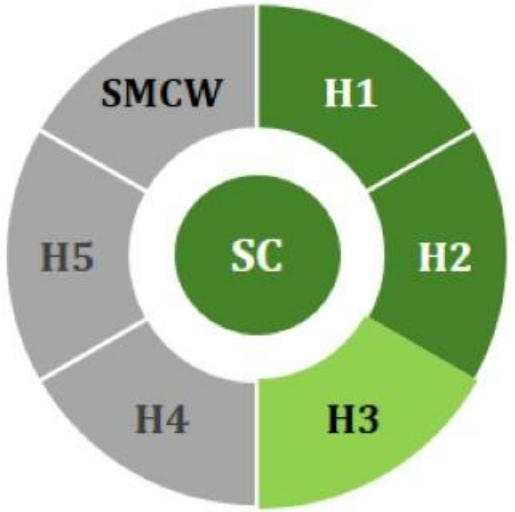
12 RESPONSIBLE CONSUMPTION AND PRODUCTION

Target 12.6

SMART-like Criteria	Fulfillment
B) Established	Medium
C) Determinable	Medium
D) Measurable	Yes

Share of chemical production based on renewable materials in relation to the global production which is based on renewable materials ... [%]

GFC-Targets: D1 (D4)



12 RESPONSIBLE CONSUMPTION AND PRODUCTION

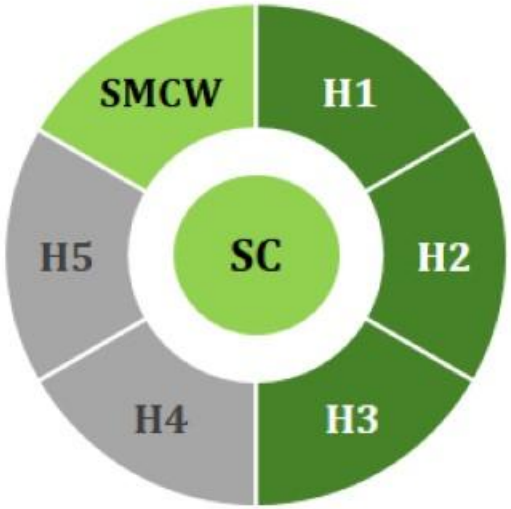
Target 12.2

SMART-like Criteria	Fulfillment
B) Established	No
C) Determinable	Medium
D) Measurable	Medium

H1) Responsible innovation	H2) Inter- and multidisciplinary, holistic approach	H3) Social responsibility	H4) Transparency and information exchange	H5) Resource management and circularity

Reduction of the amount of hazardous chemicals used in design and manufacturing related to the mass of chemical production by xx%

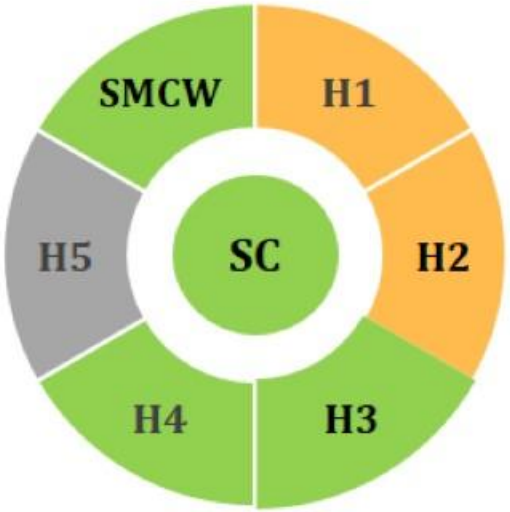
GFC-Targets: D1 (D4)



Target 12.4

The percentage of companies with human rights due diligence procedures for toxic substances used, produced and released in their activities.

GFC-Target: D3



Target 12.4

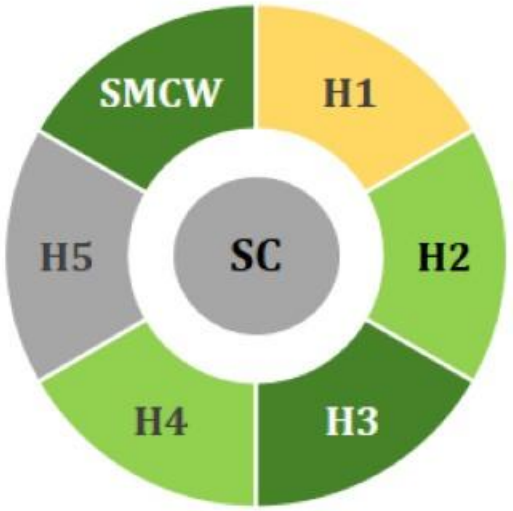
H1) Responsible innovation	H2) Inter- and multidisciplinary, holistic approach	H3) Social responsibility	H4) Transparency and information exchange	H5) Resource management and circularity

SMART-like Criteria	Fulfillment
B) Established	No
C) Determinable	Difficult
D) Measurable	Difficult

SMART-like Criteria	Fulfillment
B) Established	Medium
C) Determinable	Difficult
D) Measurable	Medium

Number of new supplier assessments carried out in the year under review, by region, and change compared with the previous year.

GFC-Targets: D1 (D4)



12 RESPONSIBLE CONSUMPTION AND PRODUCTION

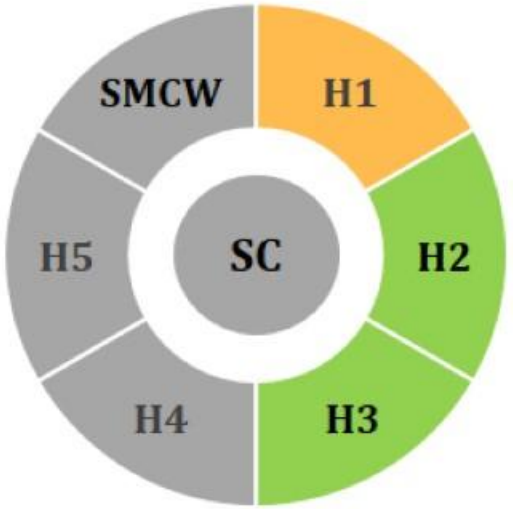
Target 12.4
Traget 12.6

H1) Responsible innovation	H2) Inter- and multidisciplinary, holistic approach	H3) Social responsibility	H4) Transparency and information exchange	H5) Resource management and circularity

SMART-like Criteria	Fulfillment
B) Established	Yes
C) Determinable	Yes
D) Measurable	Difficult

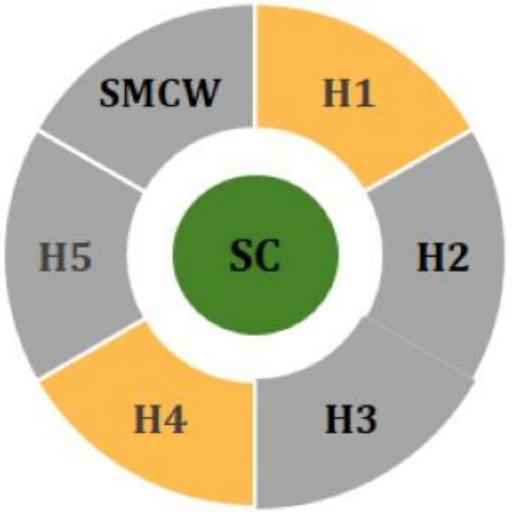
Increase of the Environmental Protection Expenditures [%] in COFOG Reporting.

GFC-Targets: D3 E4



Number of companies conducting an Environmental cost-benefit Analysis.

GFC-Target: D6





Target 12.6

H1) Responsible innovation	H2) Inter- and multidisciplinary, holistic approach	H3) Social responsibility	H4) Transparency and information exchange	H5) Resource management and circularity

SMART-like Criteria	Fulfillment
B) Established	Medium
C) Determinable	Yes
D) Measurable	Yes

SMART-like Criteria	Fulfillment
B) Established	No
C) Determinable	Yes
D) Measurable	Yes

Summary

- 4 Industry indicators address exclusively SMCW
- 3 Industry indicators address SMCW and Sustainable Chemistry (SC)
- 4 Industry indicators address exclusively aspects of SC





Thank you !

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https://www.umweltbundesamt.de/en/topics/chemicals/chemicals-management/sustainable-chemistry

