

GEF-8 REQUEST FOR MSP (1-STEP) APPROVAL

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General Project Information

Project Information

Project Title:

Global greenchem – capacity building and regional networks

Region:

Global

GEF Project ID:

12259

Country(ies):

Global

Type of Project:

MSP

GEF Agency(ies):

UNIDO

UNEP

GEF Agency Project ID:

250522

TBD

Project Executing Entity(s):

Center for Green Chemistry and Green Engineering at Yale

Project Executing Type:

Others

GEF Focal Area (s):

Chemicals and Waste

Submission Date:

12/22/2025

Type of Trust Fund:

GET

Project Duration (Months):

36

GEF Project Grant: (a)

3,711,000.00

GEF Project Non-Grant: (b)

0.00

Agency Fee(s) Grant: (c)

352,545.00

Agency Fee(s) Non-Grant (d)

0.00

Total GEF Financing: (a+b+c+d)

4,063,545.00

Total Co-financing

21,053,500.00

PPG Amount: (e)

150,000.00

PPG Agency Fee(s): (f)

14,250.00

PPG total amount: (e+f)

164,250.00

Total GEF Resources: (a+b+c+d+e+f)

4,227,795.00

Project Tags

CBIT: No NGI: No SGP: No Innovation: No Competitive Window: No

Project Sector (CCM Only):

Mixed & Others

Taxonomy:

Focal Areas, Influencing models, Transform policy and regulatory environments, Demonstrate innovative approach, Strengthen institutional capacity and decision-making, Stakeholders, Civil Society, Academia, Non-Governmental Organization, Type of Engagement, Participation, Information Dissemination, Consultation, Private Sector, SMEs, Individuals/Entrepreneurs, Beneficiaries, Awareness Raising, Communications, Education, Behavior change, Strategic Communications, Gender Equality, Gender Mainstreaming, Sex-disaggregated indicators, Gender results areas, Participation and leadership, Capacity, Knowledge and Research, Capacity Development, Knowledge Exchange, Conference, Peer-to-Peer, Knowledge Generation, Training, Workshop, Professional Development, Learning, Theory of change, Adaptive management, Indicators to measure change, Community Based Organization, Women groups, Knowledge Generation and Exchange, Innovation, Sound Management of chemicals and waste, Green Chemistry, Eco-Efficiency, Chemicals and Waste, South-South, North-South

Rio Markers

Climate Change Mitigation	Climate Change Adaptation	Biodiversity	Land Degradation
Significant Objective 1	No Contribution 0	No Contribution 0	No Contribution 0

Project Summary

Provide a brief summary description of the project, including: (i) what is the problem and issues to be addressed? (ii) what are the project objectives, and if the project is intended to be transformative, how will this be achieved? (iii), how will this be achieved (approach to deliver on objectives), and (iv) what are the GEBs and/or adaptation benefits, and other key expected results. The purpose of the summary is to provide a short, coherent summary for readers. The explanation and justification of the project should be in section B “project description”. (max. 250 words, approximately 1/2 page)

The chemical enterprise is vital to our society and underpins key sectors such as agriculture, textiles, health, energy, manufacturing, construction, transportation, and electronics. It plays a foundational role in global economic development and societal advancement. However, its environmental and health impacts are profound, warranting the urgent need for more sustainable and benign practices.

This project’s objectives leverage the potential of Green & Sustainable Chemistry (GSC) through capacity building and stakeholder connection, in a holistic and gender-inclusive framework aligned with the Global Framework on Chemicals (GFC). The envisioned impact of the project is the accelerated global adoption of GSC practices, particularly in developing countries.

The project is specifically designed towards focused and timely **capacity building** on GSC through cutting-edge trainings, showcasing GSC's role and potential in advancing science, innovation, economic prosperity, environmental stewardship, and policy alignment worldwide. The engagement of globally renowned experts in the field will make these workshops efficient, and follow-up events will ensure the projects long-term impact, which will be further nurtured through the development of dedicated **regional green chemistry networks**. Under the Core indicator 11, the project is anticipated to reach 6,200 beneficiaries (individuals). By combining primary and follow-up events, the project ensures a broad dissemination of knowledge.

Project Description Overview

Project Objective

Global Green and Sustainable Chemistry capacity building across countries, and establishment of regional networks

Project Components

1. Capacity building through engagement and training

Component Type	Trust Fund
Technical Assistance	GET
GEF Project Financing (\$)	Co-financing (\$)
1,550,000.00	8,793,566.00

Outcome:

- 1.1. Updated material on Green & Sustainable Chemistry available
- 1.2. Profound GSC Capacity built across multiple countries and variety of stakeholders

Output:

- 1.1.1. Comprehensive and standardized materials on Green & Sustainable Chemistry
- 1.2.1. Events led by international experts

2. Regional Green Chemistry Networks

Component Type	Trust Fund
Technical Assistance	GET
GEF Project Financing (\$)	Co-financing (\$)
1,200,000.00	6,807,922.00

Outcome:

- 2.1. Regional networks live and functional
- 2.2. Capacity built through follow-up events to additional stakeholders

Output:

- 2.1.1. Establishment of 5 Regional Networks in (Europe, MENA, Asia/Oceania, Sub-Saharan Africa, and LatAm) synergizing with existing platforms
- 2.1.2. Unified communications strategy
- 2.2.1. Two follow-up capacity building events per engaged entity utilizing regional networks

3. Strengthening GSC integration through alignment with the Global Framework on Chemicals

Component Type	Trust Fund
Technical Assistance	GET
GEF Project Financing (\$)	Co-financing (\$)

700,000.00	3,971,288.00
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Outcome:

3.1. Enhanced capacity of relevant stakeholders to integrate GSC into policy and sectoral planning in the context of GFC implementation

Output:

- 3.1.1. Roadmap for integration and mainstreaming GSC into policy and sectoral planning in alignment with GFC
- 3.1.2. Set of training material focusing GSC and GFC integration
- 3.1.3. Training (virtual and in person) sessions

4. M&E

Component Type	Trust Fund
Technical Assistance	GET
GEF Project Financing (\$)	Co-financing (\$)
100,000.00	567,327.00

Outcome:

4.1. Project Progress and Results monitored and reported

Output:

- 4.1.1. The Project and its activities are monitored on a periodic basis in line with GEF, UNIDO and UNEP requirement
- 4.1.2. Mid-term review conducted
- 4.1.3. Terminal project evaluation conducted

Component Balances

Project Components	GEF Project Financing (\$)	Co-financing (\$)
1. Capacity building through engagement and training	1,550,000.00	8,793,566.00
2. Regional Green Chemistry Networks	1,200,000.00	6,807,922.00
3. Strengthening GSC integration through alignment with the Global Framework on Chemicals	700,000.00	3,971,288.00
4. M&E	100,000.00	567,327.00

Subtotal	3,550,000.00	20,140,103.00
Project Management Cost	161,000.00	913,397.00
Total Project Cost (\$)	3,711,000.00	21,053,500.00

Please provide justification

PROJECT OUTLINE

A. PROJECT RATIONALE

Briefly describe the current situation: the global environmental problems and/or climate vulnerabilities that the project will address, the key elements of the system, and underlying drivers of environmental change in the project context, such as population growth, economic development, climate change, sociocultural and political factors, including conflicts, or technological changes. Describe the objective of the project, and the justification for it. (Approximately 3-5 pages) see guidance here

Background and status quo

1. Green & Sustainable Chemistry (GSC) is a fundamental pillar for global sustainability and a crucial enabler for environmental stewardship and economic, and societal growth. The global chemical enterprise is moving steadfastly towards green and sustainable processes, creating substantial opportunities for early adopters. Despite significant advancements driven by the 12 principles of green chemistry—such as waste prevention, safer chemicals, renewable resources, and (bio)-degradation—also complemented by the 10 objectives and guiding considerations for green and sustainable chemistry, presented in UNEPs Green and Sustainable Chemistry: Framework Manual, our journey towards these goals remains fraught with challenges and precariously implemented.

2. Chemicals bring enormous benefits to our lives, serving as key drivers for innovation, trade, employment, and economic growth worldwide. The chemical sector is vital for sustainable development and significantly contributes to the United Nations Sustainable Development Goals (SDGs). Industry underpins renewable energy, cutting-edge medicine, global food security, and other technologies supporting environmental integrity, human health, and economic outcomes. In 2017, the global chemical industry surpassed USD 5 trillion and is projected to double by 2030^[1]. However, many chemicals currently in use negatively impact health and the environment. Hazardous chemicals and pollutants are produced, applied, and accumulated in materials and products^[2], eventually released at different lifecycle stages, jeopardizing internationally agreed environmental goals and SDGs^[3].

3. The Lancet Commission estimates that 9 million annually die because of pollution^[4], making it an existential threat to both human health and the environment^[5]. The study also estimates that pollution-related deaths have increased by 66 percent over the last two decades^[6], with fatalities attributed to chemicals estimated at around 1.8 million per year^[7]. Low- and middle-income countries are disproportionately affected by pollution-related illnesses, with the highest impact on children and the most vulnerable population groups. Pollution is a key driver of biodiversity loss and land degradation, often resulting from the unsound management of chemicals like pesticides and fertilizers, chemicals associated with plastic pollution and mercury in artisanal gold mining. Reducing and phasing out hazardous chemicals can alleviate environmental pressures and improve ecosystems and planetary health.

4. Implementation of global frameworks like chemicals and waste multilateral environmental agreements (MEAs)—including the Basel, Rotterdam, Stockholm, and Minamata Conventions—as well as the Global Framework on Chemicals (GFC), are designed to address these pressing challenges by promoting the sound management of chemicals and waste throughout their life cycle. In line with the original definition of Green Chemistry, these frameworks aim to reduce or eliminate the production and use of hazardous chemicals. They are built to promote safer alternatives, ensure transparency and informed decision-making through information exchange, and strengthen national and international cooperation. Effective implementation is crucial for protecting human health and the environment, preserving ecosystem integrity, and ensuring the chemical industry's growth supports rather than undermining SDGs. They provide a foundation for coordinated action, capacity building, and policy coherence, especially aiding low- and middle-income countries in transitioning to safer chemical management systems.

5. GSC principles are embedded in these frameworks, reflecting a shift from reactive management of chemical hazards to a more preventive, innovation-driven approach, where the benign design of chemicals and processes is intentional. Green and Sustainable Chemistry truly emphasizes the importance of eliminating and reducing hazardous substances at the source, promoting safer alternatives, and encouraging circular economy practices.

6. Complementarily, the GFC supports life-cycle thinking, transparency, green innovation, and stakeholder collaboration to phase out harmful chemicals and promote sustainable production and consumption patterns. Through capacity building, technology transfer, and policy alignment, these frameworks provide a long overdue platform for translating GSC principles into actionable policies and industrial practices, thereby enabling countries to achieve pollution reduction, resource efficiency, and the broader SDGs.

7. The foundations laid by the Global Green Chemistry Initiative (GGCI), the Global Greenchem Innovation and Network Programme (GGINP), RECPnet, UNEP's GSC Framework, and other green chemistry initiatives are a solid basis for this project. The strong strategic connections with National Partners (NPs) will strengthen global capacities by systematically advancing sustainability through awareness and follow-up activities. This project promises the necessary transformative shift towards sustainability in the chemical sector through the integration of GSC, uniting stakeholders in a concerted and cross-sectorial effort to promote environmental stewardship and economic growth.

Inequality of the global chemical enterprise

8. High-Income Countries (HICs) increasingly possess critical capacities, financial means, and support mechanisms to address sustainability challenges. At the same time, public awareness is increasing, stimulating

demand for more sustainable products, practices, legislation, and jobs. This demand is a major market driver leading to increased stringency in chemical practices and regulations. Unfortunately, widespread awareness and adoption remain limited in low- and middle-income countries (LMICs), as they often lack the same support systems and resources needed to transition to more sustainable practices, allowing processes characterized by high emissions and inefficiencies to remain the norm. Limited investment in sustainable chemical processes in LMICs obstructs the creation of more regulated markets, disproportionately affecting companies and the public in these geographies and perpetuating a detrimental status quo (see **Figure 1** for a general overview). This persisting situation hinders reaching global environmental goals while stifling local innovation and economic prosperity. It is a double-edged sword where environmental harm and missed economic opportunities coexist, perpetuating a cycle of inequity, further deepening the impacts of pollution and climate change, highlighting the need for transformational change.

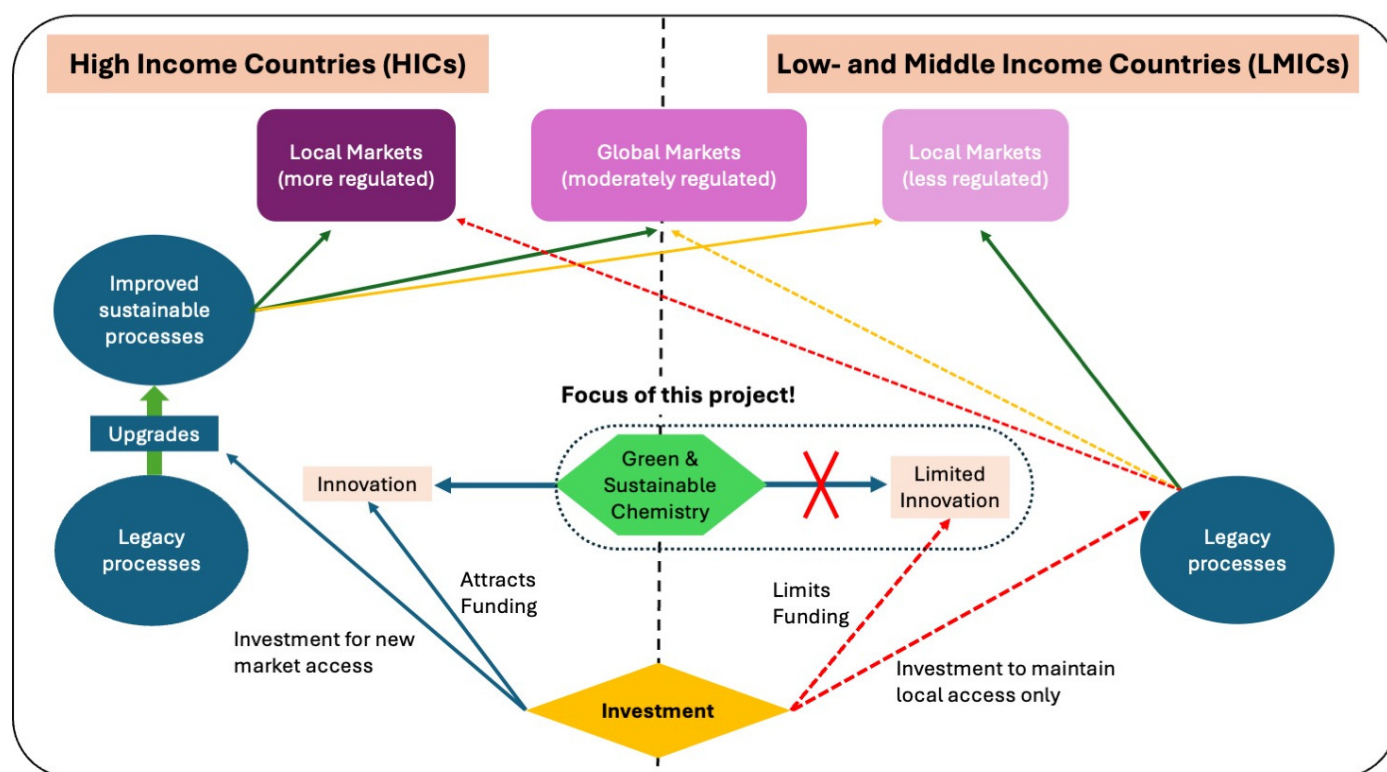


Figure 1. Green & Sustainable Chemistry as an Innovation Driver, access can nourish (Left) or Limit (Right) the Sustainable Development of the chemical enterprise.

9. Equitable GSC capacity building is critical, especially with increasing populations and industrial needs, to drive markets towards sustainable products and practices. Building awareness and capacity can foster the implementation of sustainable alternatives, supporting industrialization and economic resilience in underserved regions. Sustainable solutions in GSC often draw from ancestral knowledge and cultural context in low- and middle-income countries, offering low-impact and efficient alternatives to problematic processes. These innovative ideas are frequently underutilized due to a lack of awareness and the prominence of outdated technologies. Closing the knowledge gap and building capacities to leverage both innovations and local knowledge can enable these regions to lead sustainable practices, reduce dependence on obsolete methods, and support global sustainability efforts.

Critical Investment and Barriers

10. Current investment is favoring sustainability in the chemical sector, manifested in initiatives across equity and debt financing. Corresponding support systems often emphasize climate tech, green tech, or cleantech, all fundamentally rooted in the principles of GSC. Many projects and grants are seeking to support these trends, and either directly aim towards the reduction of chemicals, or feature the necessary capacity building. In this context, leveraging these principles can catalyze profound and lasting impact on a global scale. The private sector's interest in these innovations is a broader recognition that sustainable development is not merely environmentally beneficial but economically advantageous and viable, even on shorter return on investment schedules, which are still prevalent in the tech sector.

11. Nurtured by lessons learned from previous GEF-funded projects, the approach of this proposal aims to ensure that a critical capacity is built: investments cannot just be driven by growth, market potential or economic opportunism, but need to be informed by historical successes and challenges, as well as future trends, like supply chain resilience, reduced dependencies, etc. This project will extend previous learnings by implementing refined awareness strategies that capitalize on both, traditional practices and modern innovations.

12. This project seeks to address four key barriers to the global implementation of green and sustainable chemistry:

i. *Weak integration in national policies and economic sectors* - GSC is often not embedded in national strategies for chemicals and waste management, nor is it systematically integrated into key economic sectors. This barrier interacts with infrastructural, scale, and supply chain constraints, as well as the capital requirements for GSC adoption, which the project will consider when identifying policy entry points and implementation strategies.

ii. *Fragmentation of stakeholders and lack of coordination* - Stakeholders across sectors and regions often work in silos, lacking structured opportunities to share information, knowledge, best practices, and strategies. Addressing this barrier can help align efforts to overcome technical and scientific limitations, as well as the externalization of environmental and societal costs, by fostering coordinated approaches to GSC adoption.

iii. *Limited awareness and demand for GSC in regions and countries* - Public and institutional awareness of GSC is limited, hampering the market demand necessary to drive regulatory and industrial change. Raising awareness and demand can mitigate barriers related to upfront costs, capital lock-in, and market uptake of green substitutes.

iv. *Gender and inclusivity gaps* - Current efforts in STEM often overlook the importance of gender inclusion and social equity, leading to solutions that are not universally beneficial, long lasting, or generate social issues. Inclusive approaches can help ensure that infrastructural, technical, and societal barriers are addressed holistically and that benefits of GSC solutions are equitably distributed.

12b In summary, while the project focuses on policy, stakeholder coordination, awareness, and inclusivity, these interventions are designed to interact with and influence other barriers such as supply chain limitations, capital constraints, and technical challenges, creating a more comprehensive enabling environment for GSC adoption.

13. Focused capacity building will help overcome these hurdles and support the private and public sector to take the necessary steps towards economic, technological and strategic advantages. The holistic and

contextual understanding can reduce investment risks through informed and forward-looking due diligence processes, ensuring that investments empower a genuine, long-term impact and equitable growth, aligning with national priorities of many countries. A key element of this project is knowledge transfer to significantly reduce unsustainable dependencies and empower LMICs to develop sustainable solutions, tailored to needs and contexts. By fostering access to critical capacity-building and collaboration, this project aims to ensure that all regions benefit from the advancements and trends in GSC equally and equitably. This holistic approach stimulates economic growth, health, and well-being across the globe, while also proactively safeguarding the environment in the long term.

Stakeholders and Opportunities

14. To successfully implement Green and Sustainable Chemistry (GSC) capacities on a global scale, the involvement of national partners (NPs)—such as National Cleaner Production Centers, universities, and similar institutions—is absolutely essential. These organizations act as the backbone of regional and national efforts, serving as trainers and knowledge hubs for subsequent activities. Their responsibilities go beyond training; they actively engage with national and regional innovation ecosystems, fostering collaboration among academia, industry, and the public sector. NPs play a pivotal role in translating global objectives into local action. They ensure that advanced research and innovative solutions do not remain confined to academic circles but are applied in real-world contexts and replicated across different regions. This approach bridges existing gaps between knowledge and practice, creating a ripple effect of sustainable change. As part of the initial phase, training activities will be conducted in six strategic locations, targeting 300 individuals from at least 55 NPs. These trained NPs will then act as multipliers, each committing to train up to 100 additional individuals. Through this cascading model, the initiative could potentially reach up to 5,800 stakeholders. These stakeholders will include policymakers, governance bodies, educators at all levels, and private sector representatives. By embedding GSC principles across these diverse groups, the project lays the foundation for systemic and transformational change. econdary, & higher education, as well as the private sector. This approach will ensure the foundation for a transformational change.

15. The Role of Implementing Agencies (IAs) Implementing Agencies (IAs) are equally critical in advancing the adoption of green and sustainable chemistry. These agencies specialize in financing multilateral initiatives, creating synergies among stakeholders, facilitating policy reforms, and ensuring that investments deliver maximum impact. Their strategic position allows them to influence both immediate project outcomes and long-term sustainability goals. For IAs to operate effectively, a deep understanding of GSC principles is essential. This knowledge enables them to design and fund projects that not only address urgent needs but also align with global sustainability objectives. While IAs may not be part of the initial group of 300 trained individuals, their future involvement holds immense potential. By integrating GSC into their funding strategies and operational frameworks, IAs can amplify the reach and effectiveness of sustainable practices worldwide.

16. Furthermore, stakeholders engaged under the Global Framework on Chemicals and Parties to the Basel, Rotterdam, Stockholm (BRS) and Minamata Conventions form a critical backbone for global chemicals management efforts. These include national governments, intergovernmental organizations, civil society, industry groups, and technical experts, all working collaboratively to promote the sound management of chemicals and waste. Through regular Conferences of the Parties (COPs), working groups, and capacity-building initiatives, BRS and Minamata Conventions Parties contribute to knowledge sharing, regulatory advancement, and global policy alignment. Their long-standing experience in managing hazardous chemicals and promoting environmentally sound waste disposal complements the GFC's forward-looking focus on prevention, innovation, and sustainability. Their collective influence and global reach create a unique opportunity to mainstream sustainable chemical practices, support technological innovation, and catalyze progress toward the SDGs in both developed and developing countries. It is envisioned to involve up to 400 GFC stakeholders strategically, a number

carefully selected to ensure representation across regions, sectors, and technical expertise, while maintaining a scale conducive to meaningful interaction, influence, and uptake of project outputs for a maximum uptake and project impact.

The Objective

17. Widespread and systematic awareness raising events can unlock knowledge sharing facilitation across culturally and/or geographically connected areas and their respective stakeholders, serving as a powerful tool to accelerate meaningful change. While National Partners-NPs (e.g. National Cleaner Production Centers-NCPCs or Universities) and GFC stakeholders are envisioned as the primary collaborators, the strategic involvement of implementing agencies in green chemistry and sustainability events can further facilitate the cross-sectorial integration of Green & Sustainable Chemistry benefits. This involvement can nurture multi-stakeholder dialogues and enable synergies across funding priorities and programs.

18. With an increasing interest and awareness regarding GSC, it is timely to advance focused capacity building worldwide, involving suited NPs in countries through, and bringing stakeholders together through science and innovation. These initial capacity building activities will also be reflected and capitalized upon the establishment of regional networks, ensuring regular follow-up events and long-lasting connections. Major green chemistry and sustainability events, key stakeholders' activities, and entire innovation ecosystems are slowly increasing their presence in LMICs. In these geographies, oftentimes prevalent traditional gender role models limit women's access to knowledge and awareness, hampering their abilities to play an active role in innovation or R&D. With focused, well-structured, and replicable awareness raising events and workshops, this project aims to broaden green chemistry's presence and objectives in LMICs, and specifically empowering female participation to significantly close the gender inequality gap. The dissemination of awareness and knowledge seeks to ignite innovative entrepreneurial spirit across all parts of society, while bringing culturally and geographically connected areas even closer together. This inclusive approach ensures that new concepts and ideas are harnessed and deployed in all corners of the world, fostering a more diverse and resilient global community and innovation ecosystems.

19. It is critical to emphasize that GSC is not just an academic pursuit; it is a major enabler of innovation, promoting sustainable practices, and incorporating nature-based solutions. The specific focus on LMICs can revolutionize local chemical industries and generate access to enormous benefits, driving synergies between traditional practices and scientific advancements, nurturing the local innovation ecosystems, and ratcheting local investment and growth. Building capacity and raising awareness among all stakeholders—companies, academic institutions, policymakers, national partners, and agencies—represents the critical groundwork for transformative projects that can drive environmental and economic outcomes and overcome barriers. Not only are these events a powerful north-south interaction, but they are especially valuable since they are designed to foster south-south collaboration. The intentional involvement of large and small companies through co-financing efforts can showcase practical applications of sustainable practices, leading to demonstration, dissemination, and finally replication at scale. Companies and organizations that partner with this project will raise their own visibility, while they will additionally be exposed to regional talent with the recently acquired skillset for future sustainability endeavors.

20. Through initiatives like these, capacities are spread among all players, leading to a cumulative effect where GSC, innovation, and sustainable practices become the norm rather than the exception. Strategic

involvement of policymakers and institutions, informed by the successes observed, can enact supportive regulations and incentives, creating a virtuous cycle of sustainability, innovation, and capacity building.

21. The project approach and the modularity of the capacity building activities ensure that the deployed funds and co-financing have a broad impact. The deployment of the stipulated project budget for the capacity building of 6200 individuals will undoubtedly bring additional long-term benefits, considering a well capacitated workforce, but also a vivid innovation ecosystem with an increased focus on GSC as a result.

Gender and Societal Aspects

22. Major green chemistry and sustainability events, key stakeholders' activities, and entire innovation ecosystems are only slowly increasing their presence in LMICs. Additionally, prevailing traditional gender role models often limit women's access to knowledge and awareness, hampering their abilities to play an active role in innovation or R&D. With focused, well-structured, and replicable awareness raising events and workshops, this project aims to broaden green chemistry's presence and objectives in LMICs, while specifically empowering female participation to significantly close the gender inequality gap. The dissemination of awareness and knowledge seeks to ignite innovative and inclusive entrepreneurial spirit across all parts of society, while bringing culturally and geographically connected areas closer together. This inclusive approach ensures that new concepts and ideas are harnessed and deployed in all corners of the world, fostering a more diverse and resilient global community and strengthening local innovation ecosystems. Special attention will be paid to intersectional dimensions, including rural women, Indigenous communities, and women in science and policy, to ensure that no group is left behind.

23. It is critical to emphasize that Green & Sustainable Chemistry is not just an academic pursuit; it is a major enabler of innovation, promoting sustainable practices and incorporating nature-based solutions. The specific focus on LMICs can revolutionize local chemical industries and generate access to enormous benefits, driving synergies between traditional practices and scientific advancements, nurturing the local innovation ecosystems, and stimulating local investment and growth. A key element of this project is context-responsive knowledge transfer to significantly reduce unsustainable dependencies and empower LMICs to develop their own sustainable solutions, tailored to their unique needs, priorities, and contexts. This will attract their own funding and investments into local structures.

24. Gender equality and women's empowerment are therefore not separate objectives, but key enablers towards transformation. When women and marginalized groups are meaningfully involved in innovation ecosystems, the quality, relevance, and reach of GSC solutions are significantly enhanced.

25. By fostering access to education, critical capacity-building, and significant collaboration, this project aims to ensure that all regions benefit from the advancements and trends in GSC in the most equal and equitable way. This holistic approach stimulates economic growth, health, and well-being across the globe, while also proactively safeguarding the environment in the long term. The main motivation for this envisioned transformation is to pave the way for a healthier planet and a more just and prosperous global community.

Potential Environmental Impacts

26. Climate change and environmental degradation are among the most pressing challenges facing our planet today. Unsustainable chemical production and consumption practices play a significant role in exacerbating these crises by contributing to air, water, and soil contamination, as well as the release of greenhouse gases. These impacts are especially acute in low- and middle-income countries (LMICs),

which often face the most severe consequences despite contributing the least to the problem. Green and Sustainable Chemistry (GSC) offers transformative solutions to mitigate these environmental risks. By promoting cleaner production processes, safer chemical alternatives, and resource-efficient innovations, GSC contributes to more sustainable agriculture, clean water technologies, renewable energy, and improved health outcomes. In doing so, it fosters local innovation ecosystems, stimulates inclusive economic growth, and enhances environmental resilience. Importantly, this transformation is not only technical but also social. Advancing green chemistry requires broad awareness, capacity building, and strong policy frameworks. Integrating GSC principles into education, industry, and governance can significantly reduce ecological footprints and contribute to a healthier, more equitable, and climate-resilient future.

[1] UNEP (2019). Global Chemicals Outlook II.

[2] UNEP (2019). Global Chemicals Outlook II.

[3] http://www.who.int/healthinfo/global_burden_disease/GlobalHealthRisks_report_part2.pdf

[4] Household air, ambient particulate, ambient ozone, unsafe sanitation, unsafe source, occupational pollution, lead pollution.

[5] Fuller R., Landrigan, PJ et. al. (2022). Pollution and health: a progress update. The Lancet Planetary Health.
<https://www.thelancet.com/action/showPdf?pii=S2542-5196%2822%2900090-0>

[6] Fuller R., Landrigan, PJ et. al. (2022). Pollution and health: a progress update. The Lancet Planetary Health.
<https://www.thelancet.com/action/showPdf?pii=S2542-5196%2822%2900090-0>

[7] Fuller R., Landrigan, PJ et. al. (2022). Pollution and health: a progress update. The Lancet Planetary Health.
<https://www.thelancet.com/action/showPdf?pii=S2542-5196%2822%2900090-0>

B. PROJECT DESCRIPTION

Project description

This section asks for a theory of change as part of a joined-up description of the project as a whole. The project description is expected to cover the key elements of good project design in an integrated way. It is also expected to meet the GEF's policy requirements on gender, stakeholders, private sector, and knowledge management and learning (see section D). This section should be a narrative that reads like a joined-up story and not independent elements that answer the guiding questions contained in the PIF guidance document. (Approximately 3-5 pages) see guidance here

Theory of Change

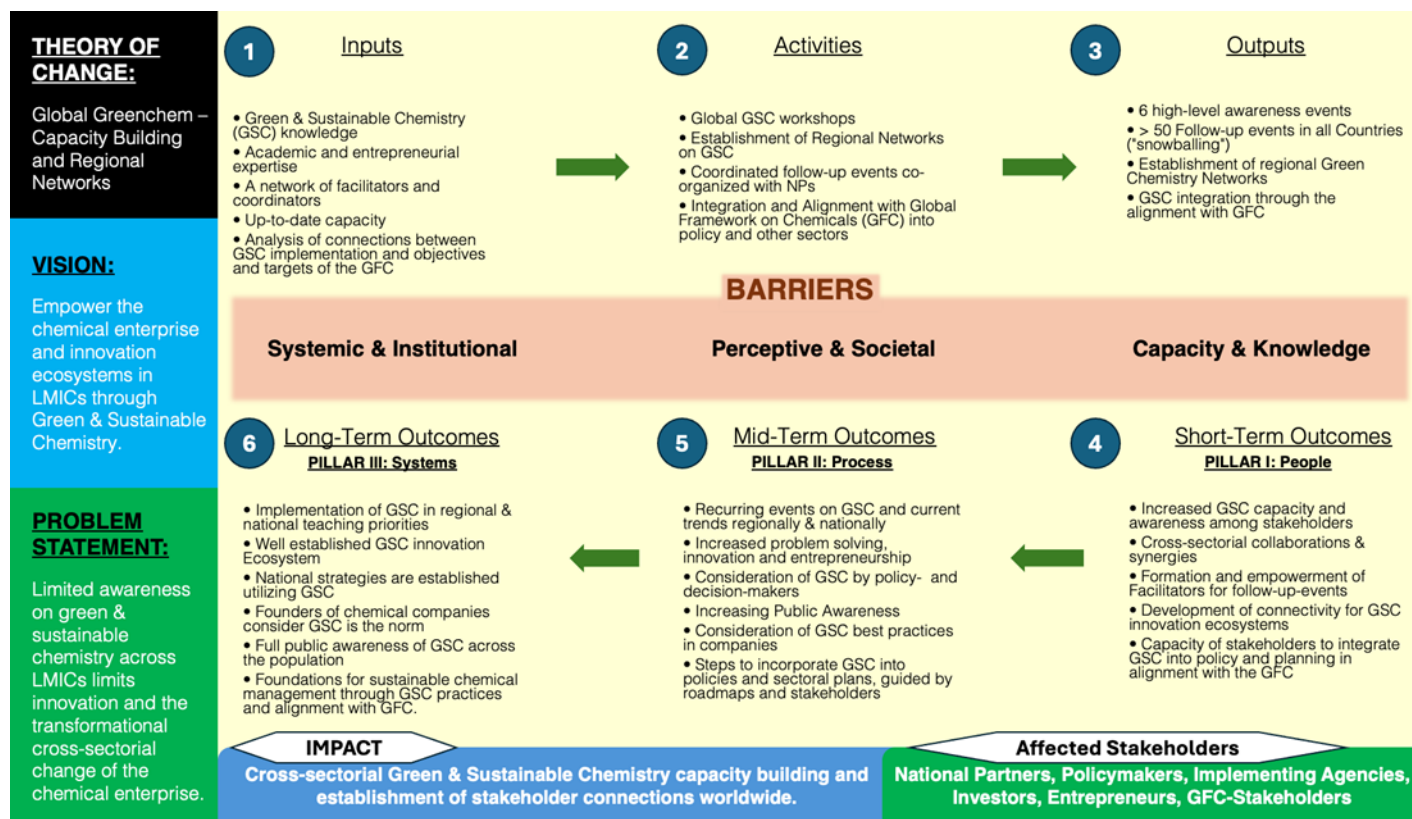


Figure 2. Theory of Change

27. The Global Greenchem – Capacity Building and Regional Networks initiative seeks to accelerate the worldwide adoption of green chemistry by building capacity, fostering collaboration, and aligning efforts with global frameworks. Its strategy rests on three interconnected pillars, which in the Theory of Change can be clearly correlated to the short-term, mid-term, and long-term outcomes, and which strategically address the on-going barriers for widespread adoption of GSC, which can be grouped in to capacity & knowledge barriers, perceptive & societal limitations and systemic & institutional misalignments

I. People: Capacity Building through Education and Engagement At the heart of the initiative are people scientists, educators, policymakers, and industry professionals. Through targeted training programs, workshops, and knowledge-sharing events, the project empowers individuals with the skills and understanding needed to implement greenchemistry solutions. This human-centered approach ensures that expertise is widely distributed, creating a foundation for sustainable practicesCapacity building through engagement and training events, based on capacity and knowledge.

II. Process: Regional Green Chemistry Networks The second pillar focuses on process, establishing regional networks that connect and coordinate institutions, industries, and governments. These networks serve as platforms for collaboration, enabling stakeholders to share best practices, overcome implementation barriers, and coordinate activities beyond the scope of the project. By institutionalizing these processes, the initiative fosters continuity and resilience, ensuring that green chemistry becomes embedded in regional development strategies and even public awareness strategies, in combination really tackling perceptive, societal, institutional barriers.

III. **Systems: Integration with the Global Framework on Chemicals** Finally, the systems pillar aligns green chemistry efforts with international frameworks such as the Global Framework on Chemicals **to really ameliorate systemic barriers**. This integration ensures coherence with global policies on chemicals and waste management, amplifying the impact of local and regional actions. It also facilitates data-driven decision-making and harmonized standards, creating an enabling environment for long term structural change. Strengthening GSC integration through alignment with the Global Framework on Chemicals

28. When these three pillars work together, they create a virtuous cycle: educated people drive innovation, regional processes sustain collaboration, and system-level alignment embeds green chemistry into global governance. This synergy leads to lasting benefits—replicable models, reduced chemical risks, and a transformative shift toward sustainable production and consumption that persists well beyond the project's lifecycle. The layout will ensure that knowledge management is approached comprehensively, leveraging existing capacities and infrastructure while generating new insights **and capacities**.

29. Stakeholders will receive GSC capacity building through **focused capacity building**. The Center for Green Chemistry and Green Engineering at Yale will design up-to-date training materials, showcasing how GSC advances the sector through cutting edge science, innovation, economic prosperity, and environmental stewardship, and engage world experts to lead the workshops **and activities**. Training materials and facilitation approaches will integrate gender-sensitive content and inclusive language, ensuring the participation of women scientists, practitioners, and policymakers throughout the learning process. Implementing agencies will be invited to identify strengths and foster connections among stakeholders. Capacity building will enable us to reach up to more than 6000 individuals. Outreach efforts will proactively seek gender-balanced participation in all regional and national activities. Alignment of the activities with the GFC will further enhance cross-sectorial, institutional connection, and effectiveness.

30. Foundations from the Global Green Chemistry Initiative (GGCI), the Global GreenChem Innovation and Network Programme (GGINP), the RECPnet, and the GFC maximize connections between NPs, and enable the development of effective regional networks. Connecting the NPs worldwide will strengthen national, regional, and global capacities and systematically advance sustainability efforts through progressive awareness raising campaigns on GSC, embodied by strategic and regular follow up events. These regional networks will also serve as platforms to elevate gender-responsive innovations and ensure the visibility of women-led solutions in sustainable chemistry. Connecting regional stakeholders and facilitating their interaction will amplify awareness and maximize the impact of existing initiatives.

31. The GFC stakeholders will receive capacity building on the interlinkages between GSC implementation in key sectors and the objectives/targets of the GFC and a practical guidance and decision-support toolkit for policymakers and businesses on how to integrate GSC in high-impact sectors. This toolkit will also highlight the importance of addressing structural gender barriers and will include examples of inclusive policy integration. A set of sectoral case studies (e.g., textiles, agriculture, construction, electronics) illustrating best practices and challenges in integrating GSC across value chains will also be compiled and disseminated. These case studies will seek to include gender-disaggregated impacts and highlight the role of women entrepreneurs and innovators within each sector. A proposed roadmap for integration and mainstreaming GSC into policy and sectoral planning in alignment with GFC is to be developed and disseminated among the GFC stakeholders for its uptake.

Gender equality will be incorporated as a guiding principle within the roadmap, supporting inclusive transformation across chemical and allied sectors.

Component 1: Capacity building through engagement and training (UNIDO)

Output 1.1.1: Comprehensive and standardized up-to-date materials on *Green & Sustainable Chemistry*

32. The first component of the project is building on the GGINP and focuses on the creation of comprehensive up-to-date green chemistry curriculum and its dissemination through events, a format which has worked very favorably in previous initiatives. The curriculum will encompass essential elements of green chemistry and sustainability, including the 12 principles, but also its transition to real-world case studies illustrating successful implementations, and modules on innovation and entrepreneurship. To ensure inclusivity, the curriculum will integrate gender-sensitive examples where relevant and adopt inclusive language imagery. The curriculum aims to introduce participants to critical concepts and practical applications of green chemistry and its critical links to sustainability, empowering them to adopt these principles, and ensuring greater policy coherence. Participants will also be encouraged to consider how green chemistry can support equitable access to innovation and how different societal groups, including women and marginalized actors, can contribute to and benefit from sustainable chemical transitions.

Output 1.2.1: Events led by international experts

33. Six major events will be held across key macro-regions—Eastern Europe, the Middle East and North Africa (MENA), Sub-Saharan Africa, Asia and Oceania, and Latin America and the Caribbean—with one additional event envisioned in Washington DC to engage the major Implementing Agencies (IAs) present in that area. The events will be led by internationally renowned experts, and participants will gain critical knowledge and skills, empowering them to further disseminate within their regional and national networks.

34. To ensure maximum effectiveness, the events will be targeting strategic venues and participants such as universities, industry associations, the private sector, chambers of commerce, and policymakers. This project aims towards replication of understanding and implementation of green chemistry, fostering innovation and entrepreneurship globally, and promoting sustainable and environmentally conscious practices across diverse regions.

35. A critical aspect of these events is ensuring gender inclusivity. In many regions, women remain underrepresented in STEM and innovation spaces. The project will therefore encourage the participation of women through targeted outreach and collaboration with women's networks in science, academia, and entrepreneurship such as those identified in the appendix of the gender stakeholder mapping. Furthermore, the events aim to stimulate local, regional and global innovation ecosystems, and align them across agencies, utilizing the great potential green chemistry & sustainability has to offer.

Component 2: Regional Green Chemistry Networks (UNIDO)

Output 2.1.1: Establishment of 5 Regional Networks in (Europe, MENA, Asia/Oceania, Sub-Saharan Africa, and LatAm) synergizing with existing platforms

36. Building on the foundations laid by the Global Green Chemistry Initiative (GGCI), the Global GreenChem Innovation and Network Programme (GGINP), and specifically the RECPnet, this component leverages on the exceptional opportunities to connect all participating NPs and aligning them as key constituents of regional networks united through green chemistry. For this purpose, contact with all past and present NCPCs and other NPs will be established through exploratory meetings enabling their global connection, facilitating the formation of efficient and reactive networks on a regional level. The regional networks will foster cross-sectoral implementation of Green Chemistry by strengthening local capacities. By connecting regional stakeholders and facilitating their interaction, this approach will amplify awareness and maximize the impact of existing initiatives. Additionally, it will facilitate knowledge exchange among all key stakeholders, including policymakers, industry, educators, and civil society.

37. This exchange will strengthen the Green Chemistry community globally and regionally, supporting the implementation of sustainable practices through coordinated efforts and shared learnings. It will actively promote inclusive participation by involving women-led organizations, academic institutions with strong gender equity programs, and networks of female entrepreneurs and scientists. Ensuring that women are represented in regional networks is essential to embedding gender responsiveness into innovation ecosystems and unlocking broader societal benefits. The project's networks and trainings will create opportunities for mentorships and partnerships to develop. Mentorships will be designed to support personalized technical and implementation guidance to help stakeholders overcome challenges more effectively, while the formed partnerships will support co-development of innovative solutions.

38. To ensure dissemination and sustained impact of the Global GreenChem initiative, unified communications strategy further connect regional networks, national partners, and global stakeholders. This strategy will harmonize messaging across all platforms and events, leveraging digital tools, social media, and targeted outreach to amplify awareness of green and sustainable chemistry (GSC). It will integrate gender-responsive communication practices, ensuring visibility for women-led innovations and inclusive participation in knowledge-sharing activities. By aligning with existing initiatives such as RECPnet and the Global Framework on Chemicals (GFC), the strategy will create synergies that maximize reach and engagement, foster cross-sectoral dialogue, and strengthen the global green chemistry community. Regular updates, multilingual content, and interactive channels will support continuous engagement, enabling stakeholders to access resources, share best practices, and collaborate effectively across components and regions.

Output 2.2.1: Two follow-up capacity building events per trained entity utilizing regional networks

39. To ensure that knowledge transfer is seamless and effective, two follow-up events (virtual/hybrid/in-person) will commence in each region, targeting strategic venues and participants such as universities, industry associations, the private sector, chambers of commerce, and policymakers. The goal is understanding and implementing green chemistry and sustainability practices, fostering innovation and entrepreneurship globally, and promoting sustainable and environmentally conscious practices across diverse regions.

40. Similar to Output 1.2, follow-up events will aim to actively involve female participants and gender-diverse stakeholder groups to strengthen equitable access to training and participation. This includes outreach to women-led academic units, female entrepreneurs, and civil society organizations promoting women in STEM and sustainability.

Component 3: Strengthening GSC integration through alignment with the Global Framework on Chemicals (UNEP)

41. Component 3 focuses on strengthening the integration of GSC through alignment with the GFC being a natural extension and strategic amplifier of the foundational capacity building and networking efforts under Components 1 and 2. Together, these components create a comprehensive pathway from knowledge creation and skills development to policy integration and long-term institutionalization. By connecting the capacity building and knowledge dissemination of Component 1 with the networking and ongoing engagement of Component 2, Component 3 creates the critical bridge to policy and institutional mainstreaming. This integrated approach ensures that knowledge, skills, and stakeholder momentum culminate in meaningful national and regional adoption of GSC aligned with the GFC, thereby enhancing the project's overall effectiveness and sustainability.

42. As part of this integration, stakeholder engagement for policy alignment will also encourage inclusive participation by ensuring that gender-related institutions and women-led organizations are consulted where relevant. This supports more equitable policy development and reinforces the inclusive vision of GSC.

Output 3.1.1: Roadmap for integration and mainstreaming GSC into policy and sectoral planning in alignment with GFC

Activity 3.1.1.1: Conduct stakeholder consultations to inform the development of the roadmap for integration and mainstreaming GSC into policy and sectoral planning

43. This activity will gather inputs from relevant stakeholders at regional and national levels to ensure that the global roadmap is technically sound, context-appropriate, and responsive to existing policy landscapes. Consultations will engage government authorities, industry representatives, academia, civil society organizations, and other relevant actors involved in chemicals and waste management and innovation ecosystems. The consultations will facilitate the identification of national priorities, institutional roles, capacity needs, and potential policy entry points for GSC mainstreaming. While the roadmap will be developed at the global level, it will be informed by the findings of regional and national consultations to capture context-specific opportunities, barriers, and priorities. These inputs will be synthesized to identify common enabling conditions as well as differentiated approaches that can guide adaptation at regional and national levels. The roadmap will therefore include indicative pathways and recommendations to support translation into regional or national action planning where appropriate. Findings from this activity will directly inform Activity 3.1.1.2, ensuring that the roadmap reflects real-world constraints and opportunities and is aligned with ongoing policy processes, institutional mandates, and the GFC. Gender-responsive and inclusive consultation methods will be encouraged to ensure diverse participation and perspectives in shaping the roadmap.

Activity 3.1.1.2: Development of the roadmap for integration and mainstreaming GSC into policy and sectoral planning in alignment with GFC

44. This activity sets the foundation for mainstreaming GSC into policy and sectoral planning at global, regional and national levels. It seeks the formulation of a roadmap for the consideration of GSC in national chemicals and waste management strategies, ensuring that it is embedded in institutional frameworks and national action plans in alignment with the GFC. The roadmap will provide a stepwise approach tailored to varying national contexts and capacities, including key milestones, responsible actors, potential policy entry points, suggested timelines, and guidance on adapting global recommendations to national circumstances. outline practical mechanisms for implementation, monitoring progress, and linking roadmap steps to existing policies and institutional responsibilities, ensuring that countries with different capacities can operationalize the roadmap effectively. It will draw on the analytical insights and case studies developed under Output 3.1.2 and will be reviewed and validated through the training and stakeholder engagement conducted under Output 3.1.3 to allowing participants to provide feedback on its clarity, relevance, and usability. While this does not constitute a full field test, the training and engagement sessions will serve as a practical validation exercise, identifying potential challenges, refining recommendations, and ensuring the roadmap is responsive to national and regional needs. Where possible, the roadmap will include guidance for integrating gender-responsive considerations into policy frameworks, encouraging inclusive planning and equitable access to innovation resources and decision-making spaces.

Output 3.1.2: Set of training material focusing GSC and GFC integration developed

Activity 3.1.2.1: Development of analytical report on GSC–GFC interlinkages in priority sectors

45. This output provides the analytical base and technical tools (report, toolkit, case studies) needed to operationalize the roadmap. It delivers a robust package designed to build the capacity of policymakers, businesses, and other stakeholders to understand and implement GSC in alignment with the GFC. A comprehensive report will map the interlinkages between GSC implementation in high-impact sectors and the objectives and targets of the GFC and will serve as an analytical foundation to guide policy development and sectoral strategies.

Activity 3.1.2.2: Development of training package including guidance toolkit and sectoral case studies

46. To translate these insights into action, a practical guidance and decision-support toolkit will be developed, providing policymakers and businesses with step-by-step guidance for incorporating GSC principles into sectoral planning and operations. This activity is directly linked to Output 1.1, as the case studies will build on the curriculum content, modules, and examples developed under Output 1.1.1 and disseminated through events under Output 1.2.1. Sectoral case studies will showcase real-world examples, best practices, and lessons learned in applying GSC across different value chains. Some case studies will be drawn from previously documented experiences, including those collected through the GGINP initiative and other verified international sources, while additional case studies will be elaborated specifically by the project team using desk research, stakeholder consultations, and feedback from pilot events. These case studies will illustrate successful strategies and common challenges to promote peer learning and replication. Where relevant, the toolkit and case studies will also highlight approaches to address gender gaps in sectoral access, innovation ecosystems, and decision-making, contributing to more inclusive and equitable policy outcomes. These materials will directly inform both the roadmap development (Output 3.1.1) and the structure and content of the capacity-building sessions (Output 3.1.3), ensuring consistency and policy relevance across outputs. This component will be implemented by UNEP and executed by Yale's Center for Green Chemistry and Green Engineering.

Output 3.1.3: Training (virtual and in person) sessions organized

Activity 3.1.3.1: Delivery of regional virtual training sessions on GSC–GFC integration

47. This output builds stakeholder capacity to use the roadmap and tools and drives regional and national uptake. Three online regional training sessions across all UN region will be organized to disseminate the developed materials and provide hands-on guidance to GFC stakeholders. These sessions will be tailored to regional needs and realities, enabling participants to better understand the implications of GSC in their specific national and sectoral contexts. In line with the project's gender-inclusive and holistic approach, these trainings will mainstream gender considerations across all modules, highlighting the role of women and marginalized groups in chemical safety, innovation, and sustainable development. Participants will be selected to ensure gender balance and representation from government, industry, academia, and civil society. Efforts will also be made to identify and engage gender-focused organizations, networks, and professionals in the training process to enrich the discussions and facilitate follow-up engagement.

Activity 3.1.3.2: Organization of in-person training and establishment of Communities of Practice

48. Additionally, an in-person training event will be conducted on the margins of the GFC International Conference, creating a high-level platform for capacity building, peer exchange, and strategic networking. This event will bring together stakeholders from diverse regions and sectors, fostering dialogue and cross-learning, while reinforcing alignment of national actions with the global framework. Aiming to follow up and continue learning from shared experience, Communities of Practice (CoP) on GSC will be set up and meet on a periodic (tentatively quarterly) basis. These will enable trainees to share their experiences from implementing GSC practices in their respective fields, learnings, good practices, and aspects to avoid.

49. Through these coordinated activities, Output 3.1.3 aims to embed the principles of GSC into the knowledge, practices, and policy environments of GFC stakeholders worldwide. Feedback from participants will be systematically collected and used to refine the training materials and contribute to the finalization of the roadmap, ensuring that tools and strategies reflect on-the-ground realities and stakeholder needs. This iterative approach will strengthen the institutionalization of GSC in national systems and enhance long-term impact. This component will be implemented by UNEP and executed by and executed by Yale's Center for Green Chemistry and Green Engineering.

Component 4 – Monitoring and Evaluation

50. A central feature of the project is the establishment and strengthening of regional networks that connect policymakers, research institutions, industry actors, and civil society. These networks serve as hubs for knowledge

exchange, peer learning, and collaborative problem-solving. They also help ensure that green chemistry solutions are adapted to regional contexts—reflecting differences in regulatory frameworks, industrial structures, and environmental priorities. Through regular convenings, technical workshops, and digital platforms, the networks will foster long-term cooperation and accelerate the uptake of best practices.

51. To ensure the project remains responsive and effective, a robust Monitoring & Evaluation (M&E) system will be embedded from the outset. This system will track progress against clear indicators, measure the adoption of green chemistry practices, and assess the performance of regional networks, as described by the logical framework detailed in Annex C.. Both quantitative and qualitative data will be collected to capture not only outputs—such as trainings delivered or tools developed—but also outcomes, including behavioral changes in industry and strengthened institutional capacities.

52. Adaptive management will be a core operational principle, enabling the project team and regional partners to adjust strategies based on real-time evidence. Regular reflection cycles, learning workshops, and feedback loops will allow stakeholders to identify emerging challenges, refine interventions, and scale successful approaches. This flexibility is essential in a field where scientific innovation, regulatory landscapes, and market conditions evolve rapidly.

53. Finally, the project will prioritize systematic learning to ensure that insights generated across regions are captured, synthesized, and shared globally. Lessons learned will be documented through case studies, thematic briefs, and cross-regional exchanges, feeding into global policy dialogues and informing future programming. By integrating M&E with adaptive management and strong regional networks, the project will not only advance green chemistry but also build a durable foundation for continuous learning and long-term impact.

54. UNIDO shall be the Implementing and Monitoring Agency and will cooperate with UNEP co-implementing agency, to ensure overseeing the project monitoring and implementation, the cooperation modalities as well as the responsibilities described under the section “Institutional Arrangement and Coordination”. UNIDO will carry out an external mid-term review and an independent terminal evaluation of the project. This will detail lessons learned and recommend sustainable measures for the project activities, even after the lifespan of the project. Gender-related results, lessons learned, and good practices related to advancing gender equality and women’s empowerment will be documented and included in project progress reports (PIRs), as well as in the Mid-Term Review (MTR) and Terminal Evaluation (TE).

Stakeholder engagement

55. Effective stakeholder engagement is crucial for the development and implementation of GSC initiatives at local, regional, and global levels. The NPs (NCPCs, selected universities, etc) are key stakeholders, and will receive trainings on GSC, innovation, and entrepreneurship from the executing agencies. Equipped with this knowledge, NPs will lead further educational efforts within their respective countries, spanning from industry to academia.

56. Additionally, NPs will coordinate the development of regional networks, further leveraging their extensive connections across the industrial sector, governance, and academia, all the way into schools and civil society. These efforts will include targeted outreach to women-led institutions and gender equality focal points to ensure balanced and inclusive stakeholder representation. This stakeholder connection will help the NPs in spearheading GSC initiatives, facilitating capacity building. Building on the ongoing efforts by the GGINP project, some NPs come with established knowledge that can be synergized upon.

57. **Academia** will support trainings and regional networks with technical expertise, supporting design and delivery of training curricula, and serving as research hubs and intersection for entrepreneurs/startups, representing an important part of the entire innovation ecosystems. This engagement empowers universities in strengthening academia-industry-governance connections and ensuring that cutting-edge research advancements in GSC translate into practical, implementable solutions beneficial for the environment. Efforts will also be made to engage women researchers, students, and educators in these processes, strengthening gender balance within

academic leadership and innovation pathways. This is vital for long-term efforts to continue addressing hazardous and polluting chemicals.

58. **Implementing agencies** as well as local governments will directly participate and benefit from GSC trainings on foundational knowledge, skills, innovation, and entrepreneurship. By establishing a common technical baseline, these trainings will foster coherency between national and global policy actions, as well as cohesive funding priorities. In addition to enhancing their technical expertise for developing new policy proposals and positions, uniform training across global and regional offices ensures consistent information dissemination. This consistency provides a level playing field, facilitating the effective implementation of further GSC initiatives. **Specifically, parts of local governments dealing with sanitation (waste and water), will benefit from the activities.**

59. **Civil society** actors, particularly women's organizations and gender equality advocates, will be involved in the co-creation and feedback processes of these initiatives, helping to ensure they respond to lived experiences and promote equitable outcomes.

60. **Investors & Private sector** engagement **(including SMEs)** has an outstanding potential to drive the investments necessary for the transformational change and the widespread use of benign design in industry and the entire innovation ecosystems. Actively engaging with international and regional activities and networks offers a significant leverage point to demonstrate the growing market viability for GSC. This can significantly empower innovation ecosystems, derisk investments into research and development, and increase the competitive edge in the global market through early adoption of sustainable practices. Additional benefits include enhanced public reputation of industry and private sector, as well as a reduced burden from compliance with chemical regulations due to proactive adoption of safer, greener alternatives. Furthermore, investors & private sector can benefit from the trainings themselves, equipping their staff with critical skills and knowledge for improved due diligence processes. Special attention will be given to promoting women's entrepreneurship, inclusive supply chains, and leadership opportunities within GSC sectors.

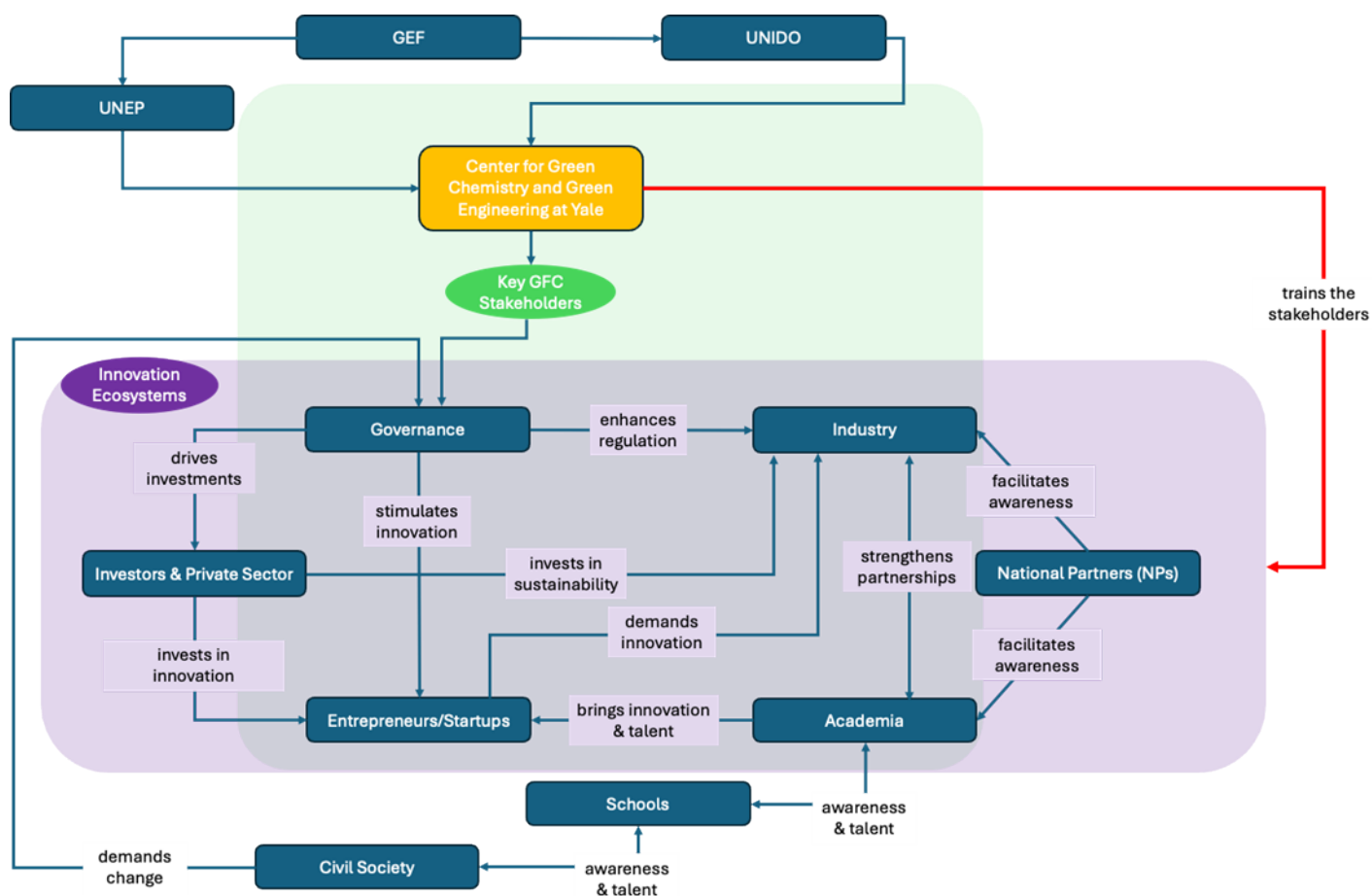


Figure 3. Stakeholder Map and their respective roles in the project and the Innovation Ecosystem

61. **Entrepreneurs/startups** stand to benefit greatly from a growing ecosystem that facilitates GSC innovation. Robust governmental support, regional growth, and increased private sector engagement make the path to commercialization more feasible and significantly support the entire innovation ecosystem. Increased investment will drive commercialization and innovation further, strengthen regional networks and increase the necessity for trainings. Entrepreneurs and innovators will benefit by receiving training on scientific concepts and entrepreneurship skills, which enhances their capability to innovate and bring sustainable solutions to market.

62. The project **beneficiaries** will receive targeted trainings designed to enhance their capacity to integrate GSC into national strategies and sectoral practices in alignment with the GFC. These trainings will equip them with a deep understanding of the interlinkages between GSC and the GFC's objectives through a comprehensive analytical report, and provide them with practical tools—including a guidance and decision-support toolkit—for embedding GSC principles into high-impact sectors such as textiles, agriculture, construction, and electronics.

63. Through the use of real-world sectoral case studies, participants will explore best practices and common implementation challenges, promoting peer learning and the replication of effective approaches. Additionally, the training will introduce a step-by-step roadmap for mainstreaming GSC into chemicals and waste management strategies, offering stakeholders a clear path to institutionalize sustainable practices across national policy frameworks and operational systems.

Chemistry for Sustainability Platform

64. The Chemistry for Sustainability platform, developed in the context of the GGINP project, and structures offered through the RECPnet, will nurture knowledge management tasks. These platforms can capture knowledge generated at national, regional, and global levels, and act as a repository for all project documents and products.

65. Chemistry for Sustainability specifically:

- It will act as a repository for reports, updates, events, innovations, and announcements, centralizing knowledge gained from the project and ensuring open access.
- The communication features of the platform will enable participants from the trainings to continue engaging with other stakeholders, and communities.
- The Toolkits feature contains information on funding options, safer alternatives, tools and metrics, policies, public reports, and more on GSC globally. Many of these items are databases and serve as valuable resources for training participants and network members.

Dissemination of knowledge

66. In addition to the use of Chemistry for Sustainability, the project will actively disseminate knowledge through various channels to reach diverse audiences (such as dedicated social media outlets). Global GreenChem (GGINP), Center for Green Chemistry and Green Engineering, Yale School of the Environment, UNIDO, and UNEP social media networks will be leveraged. These channels collectively reach over 10.8 million followers across seven languages.

67. The project team will seek opportunities at conferences to distribute reports and publicize the project through marketing strategies. Educational institutions play a vital role in disseminating the knowledge and outcomes of this project. The Yale Green Chemistry for Climate and Sustainability Certificate Program is designed for public, private, and nonprofit professionals and advanced students interested in creating a more sustainable chemical enterprise. As part of the curricula, this project will be featured as a case study on existing global efforts supporting GSC implementation. This exemplifies how educational institutions can directly support the dissemination of knowledge gained through projects like this.

68. To further engage the public, commentaries, opinion pieces, and short articles will be developed and shared online. Through concerted efforts, the project will benefit from existing knowledge while generating insights, ensuring the knowledge is captured, stored, and shared effectively to benefit project stakeholders and future initiatives in GSC.

68a. Gender aspects

The project expects to include several gender-responsive measures aimed at reducing existing gender inequalities in STEM fields, innovation ecosystems, and policy spaces related to Green and Sustainable Chemistry (GSC). These measures are informed by a contextual gender analysis conducted during project preparation, covering five global regions (Asia/Oceania, MENA, Sub-Saharan Africa, Europe, and Latin America), and are integrated into the design of activities under all project components.

Specifically, the project will contribute to the following gender equality results areas:

- Closing gender gaps in access to and control over natural resources: the project will increase women's access to GSC knowledge and training, including participation in Train-the-Facilitator (TfF) workshops, regional follow-up events, and Communities of Practice (CoPS). By enhancing their skills in sustainable chemistry, innovation, and entrepreneurship, women will be better positioned to engage with and influence environmentally sustainable production systems and value chains.
- Improving women's participation and decision-making: Gender balance will be pursued in the selection of trainees, facilitators, and stakeholders engaged in policy guidance activities. The project also aims

to identify and include women-owned organizations, gender experts, and female entrepreneurs in regional networks and GSC stakeholder consultations. Capacity-building sessions and policy guidance tools will highlight the role of women and girls in driving chemical safety, innovation, and sustainable development.

- Generating socio-economic benefits or services for women: By fostering inclusive green innovation ecosystems, the project will support women's access to entrepreneurial opportunities and facilitate their integration into green chemistry markets. Training activities will also equip women with transferable skills in innovation, environmental governance, and sustainability, improving their visibility and influence within their respective sectors.

In addition, gender will be mainstreamed into knowledge products (toolkits, case studies), stakeholder engagement strategies, and monitoring processes. Disaggregated data by sex and region will be collected and analyzed to inform adaptive management and promote equitable outcomes throughout the project lifecycle.

Gender-sensitive indicators have been integrated across the results framework to ensure that gender equality and women's empowerment are systematically tracked, evaluated, and reported throughout the implementation of the project. These indicators are directly linked to the project's Gender Action Plan and reflect commitments under Components 1, 2, and 3, particularly regarding capacity-building, stakeholder engagement, and policy integration.

Where possible, data will be disaggregated by sex, region, and stakeholder category to monitor participation gaps and inform corrective actions. In addition, the M&E system will ensure that feedback loops remain gender-aware by integrating qualitative and quantitative insights on women's experiences in the GSC field.

These indicators will not only help measure gender-related outputs and outcomes, but also contribute to learning, accountability, and improved design of future GEF-supported green chemistry initiatives.

Institutional Arrangement and Coordination with Ongoing Initiatives and Project.

Please describe the Institutional Arrangements for the execution of this project, including financial management and procurement. If possible, please summarize the flow of funds (diagram), accountabilities for project management and financial reporting (organogram), including audit, and staffing plans. (max. 500 words, approximately 1 page)

Institutional and Implementation Arrangement:

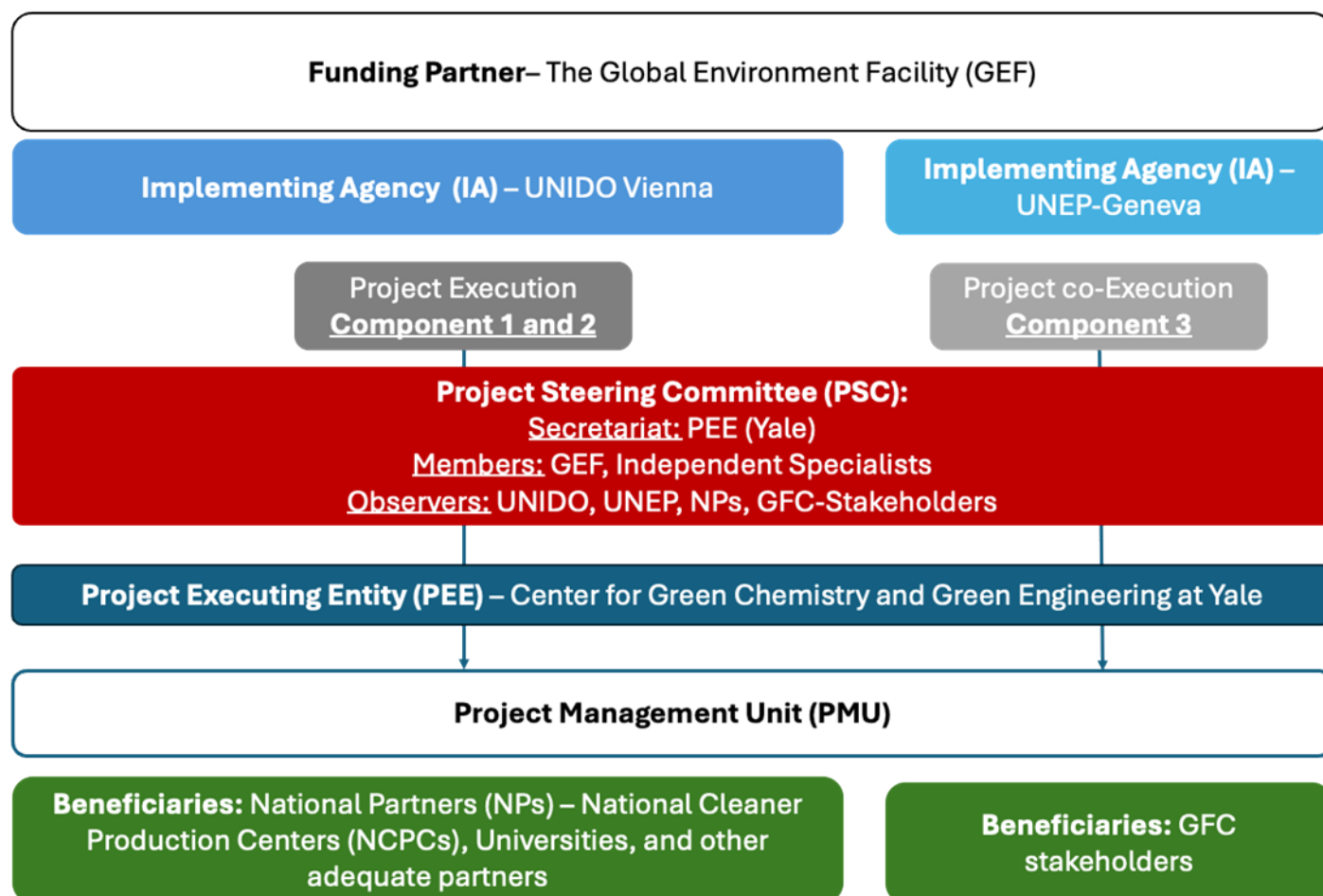


Figure 4. Institutional arrangement diagram

69. The Implementation arrangement for the Global Greenchem – Capacity Building and Regional Networks Project is provided as follow. The Global Environment Facility (GEF) will be the funding partner; the Lead Implementation agency for will be the United Nations Industrial Development Organization (UNIDO) with Oversight functions by Vienna Headquarters UNIDO will deplore its international experience and the experiences from the other GEF funded projects addressing chemicals controlled under MEAS and chemicals of concern to implement this project. The presence of a UNIDO field regional offices will also greatly support in the implementation of the project and monitoring of project activities.

71. UNEP will act as co-implementing agency for the Component 3 of this project and will oversee this component.

72. For the project execution, Center for Green Chemistry and Green Engineering at Yale will act as the principal executing agency for both the UNIDO Components 1 and 2 and for the UNEP Component 3. The Center for Green Chemistry and Green Engineering at Yale will provide administrative guidance to the project components 1 and 2. Financial management and procurement for these components will be handled by Yale University and its business office, including contracting regional and national partners and acquiring necessary resources. Yale will collaborate with UNIDO and UNEP for procurement plan approval to ensure compliance with the UNIDO Policies, GEF guidelines and donor funds eligibilities. Yale will execute proposed activities and will also subcontract with National Partners as needed, adhering to the project's timeline and KPIs.

73. Center for Green Chemistry and Green Engineering at Yale will establish the project a project management unit (PMU) for undertaking the the day to day project execution and monitoting of the project.

74. UNEP GEF Chemicals and Green Chemistry Unit will serve as implementing agency for Component 3 activities and will oversee the execution of the Component 3 and will cooperate with the Lead Implementing Agency, UNIDO, to ensure integrated activities and synergy of the activities during implementation

75. The project will establish a Project Steering Committee that will be chaired by the Center for Green Chemistry and Green Engineering at Yale, with members as representatives from UNIDO, UNEP and other key independent stakeholders selected from different regions, The chair of the PSC will not influence the decision making process, but will act to ensure secretariat role (voting right will be one per organization). UNIDO will be a member of the Project Steering Committee, participating in an advisory capacity, without exercising voting rights. All decisions adopted by the Project Steering Committee shall remain subject to UNIDO's non-objection decision, exercised in its capacity as the Implementing Agency responsible for project supervision and oversight, in accordance with UNIDO's applicable rules, policies, and procedures.

76. The committee will provide strategic guidance, oversee project progress, and ensure alignment with objectives and will meet on annual basis.

Will the GEF Agency play an execution role on this project?

No

If so, please describe that role here and the justification.

Also, please add a short explanation to describe cooperation with ongoing initiatives and projects, including potential for co-location and/or sharing of expertise/staffing (max. 500 words, approximately 1 page)

Cooperation with ongoing projects, including potential for co-location and/or sharing of expertise/staffing

81. This project is built on previous initiatives such as the Global Green Chemistry Initiative (GGCI) and the Global GreenChem Innovation and Network Programme (GGINP), both funded through the GEF and implemented by UNIDO. The GGCI and GGINP have made significant strides in promoting green chemistry principles and sustainable practices worldwide.

82. A key component of these initiatives was the Train-the-Facilitators events, which are designed to efficiently disseminate knowledge to smaller groups of participants, usually between 30-50 individuals. These events aim to impart essential skills in GSC, innovation, and entrepreneurship, empowering participants to further disseminate this knowledge within their own networks in a multiplying effect. The success of these events has demonstrated the efficacy of this model, which this proposed project seeks to significantly extend.

83. The project will leverage the established connections between National Partners (NPs), implementing agencies and GFC stakeholders, ensuring that the momentum gained from previous initiatives is maintained. By drawing on the experiences from organizing prior events and utilizing the internal network between National Cleaner Production Centers (NCPCs) established through UNIDO's Resource Efficient and Cleaner Production (RECPnet) initiative, the planning and execution of this project's events will benefit from these existing structures. One of the innovative

aspects of this project is the strategic consideration of NPs within their respective regions or operational focus. This approach not only synergizes infrastructure and expertise but also enhances environmental sustainability by reducing the need for long intercontinental travel. By focusing on regional rather than global travel, the project aims to minimize its carbon footprint, aligning with its core principles of sustainability and environmental responsibility.

84. In addition to logistical improvements, the project will also benefit significantly from the technical outcomes produced by the GGINP. These outcomes will be integrated into the teaching materials for the upcoming awareness-raising events, ensuring that the most current and applicable knowledge is shared with participants. The project plans to utilize connections with experienced educators and experts in the field, allowing for the inclusion of world-class instructors. These high-level teachers will bring a wealth of knowledge and expertise, further enriching the learning experience for participants and ensuring the highest standards of education are met. By maintaining a clear and structured approach, the project aims to foster a global network of well-informed professionals who can champion green and sustainable chemistry and sustainable practices in their respective fields and regions. The combined efforts of all stakeholders, including GEF, UNIDO, UNEP, Yale University, National Partners, and implementing agencies, will ensure the project's goals are met efficiently and effectively.

85. Additionally, the project will build on knowledge generated by UNEP's Knowledge and Risk Unit through the Green and Sustainable Chemistry: Framework Manual^{[1]⁸}, as well as several technical and sectorial reports (e.g. lists and regulatory frameworks for chemicals of concerns in electronics^{[2]⁹}; plastics and chemicals of concern in consumer products^{[3]¹⁰}, etc.)^{[4]¹¹},^{[5]¹²},^{[6]¹³},^{[7]¹⁴},^{[8]¹⁵}. The capacity building delivery will build on the UNEP Specialized Manual on Green and Sustainable Chemistry Education and Learning^{[9]¹⁶}, to inspire and guide transformative action.

86. Legal Clause: It is expected that each set of activities to be implemented in the target countries will be governed by the provisions of the Standard Basic Cooperation Agreement concluded between the Government of the recipient country concerned and UNIDO or – in the absence of such an agreement – by one of the following: (i) the Standard Basic Assistance Agreement concluded between the recipient country and UNDP, (ii) the Technical Assistance Agreements concluded between the recipient country and the United Nations and specialized agencies, or (iii) the Basic Terms and Conditions Governing UNIDO Projects

- [1] <https://www.unep.org/resources/toolkits-manuals-and-guides/green-and-sustainable-chemistry-framework-manual>
- [2] <https://www.unep.org/resources/toolkits-manuals-and-guides/chemicals-concern-electronics-list-lists-and-regulatory>
- [3] https://saicmknowledge.org/sites/default/files/publications/FINAL_Policy_Brief_plastics%20and%20CoCs%20in%20consumer%20products_july30.pdf
- [4] <https://saicmknowledge.org/sites/default/files/resources/Sustainable%20Procurement%20of%20Electronics%20A%20Progressive%20Approach%20to%20Chemicals%20of%20Concern.pdf>
- [5] <https://www.unep.org/resources/report/chemicals-plastics-technical-report>
- [6] https://saicmknowledge.org/sites/default/files/resources/201223_UNEP_regulatory_review_CoC_Electronics_Final.pdf
- [7] <https://saicmknowledge.org/sites/default/files/resources/Chemicals%20in%20Products%20Final%20Draft.pdf>
- [8] <https://saicmknowledge.org/sites/default/files/resources/EL%20and%20CoC%20in%20electronics.pdf>
- [9] <https://www.unep.org/resources/report/specialized-manual-green-and-sustainable-chemistry-education-and-learning>

Core Indicators

Indicator 11 People benefiting from GEF-financed investments

	Number (Expected at PIF)	Number (Expected at CEO Endorsement)	Number (Achieved at MTR)	Number (Achieved at TE)
Female		3,100		
Male		3,100		
Total	0	6,200	0	0

Explain the methodological approach and underlying logic to justify target levels for Core and Sub-Indicators (max. 250 words, approximately 1/2 page)

Primary success indicators are in category 11, focusing on individuals benefiting from the interventions. The project aims at six major events in Eastern Europe, the Middle East and North Africa (MENA), Sub-Saharan Africa, Asia and Oceania, and Latin America and the Caribbean. One event will be held in Washington DC, joining implementing agencies located in the United States.

Each event is designed to host approximately 50 participants, with a total of 300 beneficiaries. The goal is to provide essential knowledge and skills in GSC, innovation, and entrepreneurship, empowering them to disseminate knowledge within their regional and national networks.

Following these events, the NPs will utilize funds to organize two follow-up events in their countries, projected to engage at least 50 participants. With 55 NPs involved, targeting an additional 5,500 individuals, increasing overall reach.

Regional online events will engage over 100 GFC stakeholders from Africa, Asia-Pacific, and Latin America and the Caribbean, while the in-person session will reach a broad audience at the GFC International Conference. Participants' capacities will be built to integrate GSC into national strategies and sectoral practices. Events will cover the interlinkages between GSC and GFC objectives, supported by an analytical report, practical guidance toolkit, and real-world case studies. A roadmap will be introduced to help stakeholders embed GSC into policy and sectoral planning, enabling practical application and policy alignment.

In summary, under the Core indicator 11, the project is anticipated to reach 6,200 beneficiaries (individuals). By combining primary and follow-up events, the project ensures a broad dissemination of knowledge.

Key Risks

	Rating	Explanation of risk and mitigation measures
CONTEXT		
Climate	Low	Exposure of certain partner regions to climate-related disruptions, such as extreme weather events or infrastructure fragility, which could affect event logistics or participant access; Insufficient institutional capacity in some countries to translate GSC into climate adaptation or mitigation practices without targeted follow-up; Limited national climate data, especially in LMICs, which may hinder region-specific tailoring of GSC curricula or activities. These risks are primarily institutional and operational, and mitigation efforts center on adaptive project management, integration of climate resilience into training content, and region-specific support mechanisms.
Environmental and Social	Low	1. Environmental footprint of international and regional travel for trainings and events: Encouraging hybrid or regionalized formats where feasible, prioritize eco-certified venues and carbon offsetting strategies. 2. Potential misuse or misapplication of GSC training in contexts: Embed responsible innovation and safety modules in training curricula; provide region-specific regulatory guidance. 3. Exclusion of marginalized groups (e.g., rural, disabled, low-income participants) from training and knowledge-sharing opportunities. Ensure hybrid formats (online and in-person), inclusive outreach, and needs-based support for participation (e.g., stipends, translation, physical accessibility). 4. Risk of reinforcing existing gender gaps in science and policy due to underrepresentation of women: The project considered gender quotas for training selection, proactively identify and support women-led institutions, monitor sex-disaggregated data. 5. Reduced learning outcomes and engagement due to language barriers and limited access to digital tools: the project will ensure translated materials and real-time interpretation; ensure mobile-friendly digital tools. 6. Inadequate grievance mechanisms may lead to unaddressed concerns and reputational risks: the project IAs and executing agencies will establish anonymous feedback tools, share clear grievance procedures, ensure regular follow-up mechanisms.

Political and Governance	Moderate	Tokenistic inclusion of stakeholders in regional networks without meaningful engagement: Establish clear terms of engagement for project field partners, rotate leadership, and evaluate diversity metrics in governance.
INNOVATION		
Institutional and Policy	Low	Inconsistent delivery of training and activities due to uneven facilitation skills among National Partners: The project IAs and executing entities will ensure clear terms of engagement, rotate leadership, and evaluate diversity metrics in governance.
Technological	Low	2. E-waste generation and energy consumption from digital platforms occur during virtual activities: project partners will Promote low-impact digital tools, adopt green IT practices, and encourage reuse policies.
Financial and Business Model	Low	Training delivery model may becomes unsustainable across countries: the project will develop a flexible, modular training model adaptable to local contexts, will build local trainer networks and train-the-trainer systems and will establish partnerships with local institutions to reduce costs Pilot the model in diverse countries before full rollout Establish partnerships with local institutions to reduce costs
EXECUTION		
Capacity	Low	Limited visibility and capacity-building opportunities for women scientists, entrepreneurs, and policy advocates. Project implementation activities will apply intersectional gender lens during stakeholder selection; adapt content to diverse experiences and structural barriers
Fiduciary	Low	Misallocation of training funds across regions: executing entities will ensure equity in funds planning by providing annual financial plans and reports to the Project Steering Committee
Stakeholder	Moderate	Persistence of systemic barriers to women's participation in GSC (e.g., lack of institutional support or recognition). Project IAs and executing entities will map structural gaps during baseline assessment and advocate for gender-sensitive policies and institutional commitments.
Other	Low	Failure to address intersecting inequalities (e.g., rural women, ethnic minorities, young women in STEM): Apply intersectional gender lens during stakeholder selection; adapt content to diverse experiences and structural barriers.
Overall Risk Rating	Low	The project responds to the urgent need for systemic change in the chemical sector by equipping institutions, policymakers, and practitioners with the tools and networks required to shift toward safer and more sustainable chemical design, production, and use. It recognizes that innovation in green chemistry

		cannot occur in isolation but must be embedded in inclusive institutional ecosystems that prioritize environmental sustainability, gender equality, and cross-sectoral policy integration. These risks do not stem from project design but from existing contextual inequalities. Therefore, mitigation measures focus on outreach, facilitation, and policy alignment. While the overall risk level remains low due to the project's focus on training and institutional strengthening, a precautionary and inclusive approach has been adopted to anticipate indirect impacts and ensure equitable outcomes. The proposed mitigation measures aim not only to avoid harm but to actively promote environmental sustainability, social inclusion, and gender equality across all project components.
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C. ALIGNMENT WITH GEF-8 PROGRAMMING STRATEGIES AND COUNTRY/REGIONAL PRIORITIES

Explain how the proposed interventions are aligned with GEF- 8 programming strategies and country and regional priorities, including how these country strategies and plans relate to the multilateral environmental agreements.

For projects aiming to generate biodiversity benefits (regardless of what the source of the resources is - i.e., BD, CC or LD), please identify which of the 23 targets of the Kunming-Montreal Global Biodiversity Framework the project contributes to and explain how.

Confirm if any country policies that might contradict with intended outcomes of the project have been identified, and how the project will address this. (max. 500 words, approximately 1 page)

87. This project directly supports the goals of the Chemicals and Waste focal area strategy of the GEF-8. Particularly, the project addresses Objective 1: *“Creation, strengthening, and supporting the enabling environment and policy coherence to transform the manufacture, use, and sound management of chemicals and to eliminate waste and chemical pollution”* through its uniform GSC trainings and the development of the resilient regional networks. By conducting comprehensive training programs across global, regional, and national partners and agencies, the project ensures a coherent and uniform global approach to GSC. This uniformity supports transformative changes in the chemical sector and upstream solutions, aligning closely with GEF’s goals to promote safe chemical management practices and minimize chemical pollution.

88. The development of regional networks facilitates robust knowledge sharing of innovative techniques, practices, and successful experiences. These networks will be pivotal in fostering future collaboration and improving results related to the elimination and prevention of hazardous chemicals and waste, supporting Objective 2: *“Prevention of future buildup of hazardous chemicals and waste in the environment”* through active facilitating of critical knowledge. The double-pronged approach of increasing policy coherence and strengthening green chemistry initiatives in LMICs will create an enabling environment by removing market access barriers for alternatives to hazardous and polluting chemicals. In doing so, the project also supports the goals of existing chemical multilateral environmental agreements which guide regional and national policies.

89. The double-pronged approach of increasing policy coherence and strengthening green chemistry initiatives in LMICs will create an enabling environment by removing market access barriers for

alternatives to hazardous and polluting chemicals. In doing so, the project also supports the goals of existing chemical multilateral environmental agreements which guide regional and national policies.

90. The GSC trainings will support education efforts on persistent organic pollutants (POPs) and mercury and promote the reduction and elimination of these chemicals. This supports the goals of the Stockholm and Minamata Conventions directly, and furthermore perfectly aligns with the implementation of the Global Framework on Chemicals. The regional networks will also support accelerated efforts to innovate and introduce alternatives to the market.

91. GSC in practice reduces the need for complicated management of chemicals which supports the simplification of trade processes. This aligns with the goals of the Rotterdam Convention by promoting information exchange and capacity building to manage and eliminate hazardous chemicals. There is potential for the long-term minimization of the need for prior informed consent procedures as market access barriers are reduced and hazardous chemical trade decreases.

D. POLICY REQUIREMENTS

Gender Equality and Women's Empowerment:

We confirm that gender dimensions relevant to the project have been addressed during Project Preparation as per GEF Policy and are clearly articulated in the Project Description (Section B).

Yes

1) Does the project expect to include any gender-responsive-measures to address gender gaps or promote gender equality and women's empowerment?

Yes

If the project expects to include any gender-responsive measures to address gender gaps or promote gender equality and women empowerment, please indicate in which results area(s) the project is expected to contribute to gender equality:

Closing gender gaps in access to and control over natural resources;

Yes

Improving women's participation and decision-making; and/or

Yes

Generating socio-economic benefits or services for women.

Yes

2) Does the project's results framework or logical framework include gender-sensitive indicators?

Yes

Stakeholder Engagement

We confirm that key stakeholders were consulted during Project Preparation as required per GEF policy, their relevant roles to project outcomes has been clearly articulated in the Project Description (Section B) and that a Stakeholder Engagement Plan has been developed before CEO endorsement.

Yes

Select what role civil society will play in the project:

Consulted only;

Member of Advisory Body; Contractor; No

Co-financier; Yes

Member of project steering committee or equivalent decision-making body; Yes

Executor or co-executor;

Other (Please explain) Yes

Private Sector

Will there be private sector engagement in the project?

Yes

And if so, has its role been described and justified in the section B project description?

Yes

Environmental and Social Safeguard (ESS) Risks

We confirm that we have provided information regarding Environmental and Social risks associated with the proposed project or program, including risk screenings/ assessments and, if applicable, management plans or other measures to address identified risks and impacts (this information should be presented in Annex E).

Yes

Please provide overall Project/Program Risk Classification

Overall Project/Program Risk Classification

PIF	CEO Endorsement/Approval	MTR	TE
	Low		

E. OTHER REQUIREMENTS

Knowledge management

We confirm that an approach to Knowledge Management and Learning has been clearly described during Project Preparation in the Project Description and that these activities have been budgeted.

Yes

Benefits

Describe the socioeconomic benefits to be delivered by the project at the national and local levels, as appropriate and these benefits translate in supporting the achievement of global environmental benefits (GEF Trust Fund) or adaptation benefits (LDCF, SCCF). This section identifies the direct beneficiaries from the project.

99. Green chemistry triggers transforming Industry competitiveness; by capacity building, it equips industries with knowledge to reduce hazardous inputs, optimize processes, and minimize waste. These improvements lower compliance costs, enhance productivity, and strengthen competitiveness in global markets where safer and sustainable products are increasingly demanded. By embedding green chemistry principles, countries can align with circular economy policies and meet international standards, unlocking new trade opportunities.

100. Adopting green chemistry reduces operational expenses through higher yields, fewer synthetic steps, and lower energy and water consumption. For SMEs, these savings free resources for reinvestment, expansion, and job creation. At scale, these efficiencies contribute to national economic growth and resilience, particularly in sectors vulnerable to resource price volatility, driving economic efficiency.

101. Communities benefit from a cleaner environment as industries prevent by design avoidance of hazardous chemicals and chemicals of concern. This translates into lower disease burdens, reduced healthcare costs, and improved quality of life. Nationally, pollution-related health costs can account for several percentage points of GDP; mitigating these through green chemistry delivers measurable economic and social returns.

102. Training programs foster new employment opportunities in sustainable manufacturing, waste management, and recycling. Workers gain safer conditions with reduced exposure to hazardous substances, lowering accident rates and improving retention. These changes ripple through local economies, strengthening household incomes and community stability through local job creation and safer workplaces.

103. Establishing regional training hubs and integrating green chemistry into vocational curricula empowers local youth with future-ready skills. This builds a pipeline of professionals capable of driving innovation in eco-friendly products and processes. Communities gain not only jobs but also a culture of sustainability and entrepreneurship by education and skills development.

104. Regional cooperation and market access will be enhanced. A regional approach harmonizes standards for safer chemicals and circularity, enabling more responsible and safe cross-border material flows and reducing trade barriers. Shared knowledge networks accelerate adoption of best practices, while collaborative innovation strengthens competitiveness against global sustainability benchmarks.

105. Achieving training of over 6,000 experts worldwide creates not only knowledge hubs at regional level, but also it can achieve a critical mass of practitioners capable of implementing, replicating and up-scaling thousands of site-level improvements. Each expert applying green chemistry principles can deliver multiple interventions—such as solvent substitution, energy efficiency, and waste minimization—multiplying the impact across industries and communities. This global network ensures rapid diffusion of knowledge and sustained capacity building.

106. Long-Term Socioeconomic Impact: Over time, these interventions reduce environmental risks, improve public health, and foster inclusive economic growth. Communities experience cleaner environments, safer jobs, and new business opportunities, while nations benefit from stronger industrial competitiveness and alignment with global sustainability goals. The project thus delivers a holistic impact—economic, social, and environmental—anchored in knowledge transfer and capacity building.

ANNEX A: FINANCING TABLES

GEF Financing Table

Trust Fund Resources Requested by Agency(ies), Country(ies), Focal Area and the Programming of Funds

GEF Agency	Trust Fund	Country/ Regional / Global	Focal Area	Programm ing of Funds	Grant / Non- Grant	GEF Project Grant(\$)	Agency Fee(\$)	Total GEF Financing (\$)
UNIDO	GET	Global	Chemicals and Waste	SAICM	Grant	2,978,800.0 0	282,986 .00	3,261,786.00
UNEP	GET	Global	Chemicals and Waste	SAICM	Grant	732,200.00	69,559. 00	801,759.00
Total GEF Resources (\$)						3,711,000.0 0	352,545 .00	4,063,545.00

Project Preparation Grant (PPG)

Is Project Preparation Grant requested?

true

PPG Amount (\$)

150000

PPG Agency Fee (\$)

14250

GEF Agency	Trust Fund	Country/ Regional / Global	Focal Area	Programming of Funds	PPG(\$)	Agency Fee(\$)	Total PPG Funding(\$)
UNIDO	GET	Global	Chemical s and Waste	SAICM	110,000.00	10,450.00	120,450.00
UNEP	GET	Global	Chemical s and Waste	SAICM	40,000.00	3,800.00	43,800.00
Total PPG Amount (\$)					150,000.00	14,250.00	164,250.00

Please provide justification

Sources of Funds for Country Star Allocation

GEF Agency	Trust Fund	Country/ Regional/ Global	Focal Area	Sources of Funds	Total(\$)
Total GEF Resources (\$)					0.00

Focal Area Elements

Programming Directions	Trust Fund	GEF Project Financing(\$)	Co-financing(\$)
CW-2	GET	3,711,000.00	21,053,500.00
Total Project Cost (\$)		3,711,000.00	21,053,500.00

Confirmed Co-financing for the project, by name and type

Please include evidence for each co-financing source for this project in the tab of the portal

Sources of Co-financing	Name of Co-financier	Type of Co-financing	Investment Mobilized	Amount(\$)
Civil Society Organization	ClimateHaven	In-kind	Recurrent expenditures	50,000.00
Private Sector	Vernier Science Education	In-kind	Recurrent expenditures	60,000.00
Civil Society Organization	Fundación Centro Guatemalteco de Producción Más Limpia (CGP+L)	In-kind	Recurrent expenditures	350,000.00
Private Sector	Grupo GEA	In-kind	Recurrent expenditures	440,000.00
Civil Society Organization	American Chemical Society (ACS)	Grant	Recurrent expenditures	280,000.00

Civil Society Organization	American Chemical Society (ACS)	In-kind	Recurrent expenditures	75,000.00
Private Sector	Millipore Sigma	In-kind	Recurrent expenditures	10,000.00
Civil Society Organization	CEGESTI	In-kind	Recurrent expenditures	5,000.00
Private Sector	P2 Science, Inc.	In-kind	Recurrent expenditures	17,000,000.00
Private Sector	TECHNOLOGY AND SERVICES SOLUTIONS S.A. DE C.V.	In-kind	Recurrent expenditures	100,000.00
Civil Society Organization	Centro Nacional de Producción más Limpia de Honduras (CNP+LH)	In-kind	Recurrent expenditures	110,000.00
Civil Society Organization	Center for Sustainable Technology Promotion Bolivia (CPTS)	In-kind	Recurrent expenditures	140,000.00
Civil Society Organization	Cleaner Production Center (NCPC El Salvador)	In-kind	Recurrent expenditures	200,000.00
Civil Society Organization	The Resource Efficiency and Cleaner Production Center of Ecuador (CEER)	In-kind	Recurrent expenditures	200,000.00
Civil Society Organization	U.S. Mexico Chamber of Commerce Chapter Guanajuato (USMCOC)	In-kind	Recurrent expenditures	243,500.00
Civil Society Organization	Green ChemisTree Foundation India	In-kind	Recurrent expenditures	500,000.00
Civil Society Organization	International Sustainable	In-kind	Recurrent expenditures	1,040,000.00

	Collaborative Centre Germany			
Civil Society Organization	Newreka Green- Synth Technologies - India	In-kind	Recurrent expenditures	100,000.00
Civil Society Organization	Lowell Center for Sustainable Production		Recurrent expenditures	150,000.00
Total Co-financing (\$)				21,053,500.00

Please describe the investment mobilized portion of the co-financing

Not Applicable

ANNEX B: ENDORSEMENTS

GEF Agency(ies) Certification

GEF Agency Type	Date	Project Contact Person	Phone	Email
GEF Agency Coordinator	12/19/2025	Ganna Onysko, Senior External Relations Officer	00431260263647	g.onysko@unido.org
Project Coordinator	12/19/2025	Rodica Ella Ivan, Industrial Development Officer	00431260265085	R.IVAN@unido.org

Record of Endorsement of GEF Operational Focal Point (s) on Behalf of the Government(s):

Name of GEF OFP	Position	Ministry	Date (Month, day, year)
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ANNEX C: PROJECT RESULTS FRAMEWORK

Please indicate the page number in the Project Document where the project results and M&E frameworks can be found. Please also paste below the Project Results Framework from the Agency document.

Project Narrative	Indicator	GEF Indicators	Baseline	Target	Means of Verification	Assumptions/Risks
Project Objective: Global Green and Sustainable Chemistry capacity building across countries, and establishment of regional networks.						
Component 1: Capacity building through engagement and training						
Outcome 1.1.	Comprehensive	Core	See below	See below	See below	See below
Updated material	and uniform	Indicator				

on Green & Sustainable Chemistry available	material support global awareness of GSC and the integration of GSC in policies	11: People directly benefitted				
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Output 1.1.1. Comprehensive and standardized materials on Green & Sustainable Chemistry

	Material updated and established		Global Greenchem Innovation and Network Programme curriculum	Updated material		
Activity 1.1.1.1. Material Development	% of GSC materials that include gender-responsive content.	See Above		100% of finalized modules include at least one gender-relevant example or concept, and case study.	Capacity Building Material	Yale University, GEF implementing agencies and stakeholders eager to develop a strong and inclusive green chemistry ecosystem that supports innovation and entrepreneurship.

Outcome 1.2. Profound GSC Capacity built across multiple countries and variety of stakeholders	Support global awareness of GSC and the integration of GSC in policies	Core Indicator 11: People directly benefitted	See below	See below	See below	See below
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Output 1.2.1. Events led by international experts

				Six major events		
				100% of GEF Agencies participation in trainings		
	# of capacity building events			100% of ToRs for facilitators include gender sensitivity clauses	Capacity building documentation	
	% of GEF partner organizations engaged		There is no aligned and consistent capacity building for green chemistry across all GEF implementing agencies.	100% of sessions implement gender-inclusive facilitation checklist	Attendance documentation Outreach documentation	Yale University, GEF implementing agencies and stakeholders eager to develop a strong and inclusive green chemistry ecosystem that supports innovation and entrepreneurship.
Activity 1.2.1.1 Engagement and training events	Inclusion of female instructors for virtual and in person events	See Above		One targeted outreach activity conducted to support female participation	Terms of References	
	% of women participating in the in-person events			40% of event participants are female		

Component 2: Regional Green Chemistry Networks

Outcome 2.1. Regional networks live and functional	Functional regional networks will foster regional and cross-sectoral implementation of GSC.	Core Indicator 11: People directly benefitted	See below	See below	See below	See below
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Output 2.1.1. Establishment of 5 Regional Networks in (Europe, MENA, Asia/Oceania, Sub-Saharan Africa, and LatAm) synergizing with existing platforms

	# of Regional networks live and functional			5 live and functional Regional Networks		
	# of Regional Networks with women in leadership or steering roles	See Above	UNIDO's RECNet infrastructure	5/5 networks meet the 40% women representation threshold in leadership or steering roles by year 2	Announcements Meeting agendas Event documentation	Yale University, GEF implementing agencies and stakeholders eager to develop a strong and inclusive green chemistry ecosystem that supports innovation and entrepreneurship.
	Proportion of networks conducting annual gender audits or self-assessments			3 out of 5 networks conduct annual self-evaluation of inclusivity starting year 2	Online presence	

Output 2.1.2 Unified communications strategy

	# of communication strategies to connect components with a special focus on gender mainstreaming	See above	No communication strategy	1 gender-sensitive strategy document developed and executed	Website outputs	Yale University, GEF implementing agencies and stakeholders eager to develop a strong and inclusive green chemistry ecosystem that supports innovation and entrepreneurship and should be thoroughly communicated across different media.
	# communication experts hired		No communication expert	1 communication expert involved	Social media outputs	
					Media and online presence	

Outcome 2.2. Capacity built through follow-up events to additional stakeholders	Strengthen awareness, demand, and adoption of GSC in regions and countries	Core Indicator 11: People directly benefitted	See below	See below	See below	See below
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Output 2.2.1. Two follow-up capacity building events per engaged entity utilizing regional networks

Activity 2.2.1.1 Follow-up Capacity building events	# of capacity building events	See Above	There is no aligned and consistent capacity building for green chemistry across all GEF implementing agencies. There are no female experts trained	2 events per entity 50% of participants are female in each region 75% of follow-up events with at least 30% participation from youth and/or marginalized groups	Event documentation Attendance documentation Outreach documentation	Yale University, GEF implementing agencies and stakeholders eager to develop a strong and inclusive green chemistry ecosystem that supports innovation and entrepreneurship.
	# of female instructors for virtual and in person events					
	% of women participating in the in-person events					
	# of follow-up events with at least 30% participation from youth and/or marginalized groups (e.g., rural, indigenous, minority backgrounds).					

Component 3: Strengthening GSC integration through alignment with the Global Framework on Chemicals

Outcome 3.1. Enhanced capacity of relevant stakeholders to integrate GSC into policy and sectoral planning in the context of GFC implementation	Number of stakeholders trained on GSC- GFC integration Number of policies or sectoral plans referencing GSC principles	Core Indicator 11: People directly benefitted	Limited awareness and integration of GSC in national policies and sectoral planning	3 regional online trainings and 1 in-person training event Roadmap adopted or referenced by at least 5 national or sectoral plans	Training attendance records Roadmap dissemination reports Policy documents referencing GSC	Stakeholders are willing and able to integrate GSC into existing frameworks; political will and institutional capacity exist to adopt recommendations
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Output 3.1.1. Roadmap for integration and mainstreaming GSC into policy and sectoral planning in alignment with GFC

Activity 3.1.1.1	Roadmap developed and disseminated % of roadmap sections with gender-responsive guidance	Core Indicator 11	No roadmap exists for GSC- GFC integration	Roadmap finalized and disseminated to all GFC stakeholders 100% of roadmap sections include gender- responsive guidance	Final roadmap document Distribution logs Feedback from stakeholders	Stakeholders engage with roadmap and provide feedback; roadmap is adaptable to national contexts
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Output 3.1.2. Set of training material focusing GSC and GFC integration developed

Activity 3.1.2.1	Number of toolkits and case studies developed % of materials with gender- inclusive content	Core Indicator 11	No integrated training materials exist	1 toolkit 5 sectoral case studies 100% of materials include gender-inclusive content	Toolkit and case study documents Training feedback forms	Materials are relevant and accessible to diverse stakeholders
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Output 3.1.3. Training (virtual and in person) sessions organized

Activity 3.1.3.1	Number of training sessions	Core Indicator 11	No training sessions on GSC-GFC integration conducted	3 regional online trainings	Attendance records	Regional stakeholders are available and willing to participate; gender-focused organizations are engaged
	% of female participants % of sessions engaging gender-focused organizations			1 in-person training at GFC Conference 50% female participation 100% sessions include gender-focused organizations		

ANNEX D: STATUS OF UTILIZATION OF PROJECT PREPARATION GRANT (PPG)

Provide detailed funding amount of the PPG activities financing status in the table below:

Project Preparation Activities Implemented	GETF/LDCF/SCCF Amount (\$)		
	Budgeted Amount	Amount Spent To date	Amount Committed
Inception workshop (hybrid)	10,000.00	5,000.00	5,000.00
ESMP development	30,000.00	30,000.00	0.00
Gender assessment	30,000.00	30,000.00	0.00
Follow-up on co-financing commitments	10,000.00	10,000.00	0.00
PEE (Project Executing Entity) HACT assessment	35,000.00	0.00	35,000.00
Development of project workplan and project document	10,000.00	10,000.00	0.00
CEO project document development	25,000.00	20,000.00	5,000.00
Total	150,000.00	105,000.00	45,000.00

ANNEX E: PROJECT MAP AND COORDINATES

Please provide geo-referenced information and map where the project interventions will take place

Please provide any further geo-referenced information and map where project interventions are taking place as appropriate.

Not applicable

ANNEX F: ENVIRONMENTAL AND SOCIAL SAFEGUARDS SCREEN AND RATING

Attach agency safeguard screening/assessment report(s), including ratings of risk types and overall project/program risk classification as well as any management plans or measures to address identified risks and impacts.

Title

Annex F3_ES_Screening_250522_Global_Greenchem_signed

Annex_F2_ESS_Report_Final

Annex F1_ESMP Assessment

ANNEX G: BUDGET TABLE

Please explain any aspects of the budget as needed here

Attached as Annex G

Expenditure Category	Detailed Description	Component (USDeq.)											Total (USDeq.)	Responsible Entity (Executing Entity receiving funds from the GEF Agency)[1]
		Component 1		Component 2			Component 3			Sub-Total	M&E	PMC		
		Outcome 1.1	Outcome 1.2	Outcome 2.1.1	Outcome 2.1.2	Outcome 2.2.1	Outcome 3.1	Outcome 3.2	Outcome 3.3					
Sub-contract to executing partner/ entity	GSC Roadmap development						60,000			60,000			60,000	YALE
	Operation of Regional Networks			70,000						70,000			70,000	YALE
	Regional Network Projects (5 regions)					602,000				602,000			602,000	YALE
	Follow-up Capacity Building Events					127,700				127,700			127,700	YALE
	Mid Term Review										50,000		50,000	UNIDO
	Terminal evaluation										50,000		50,000	UNIDO
International	GSC roadmap						38,000			38,000			38,000	YALE

al Consu ltants	develop ment expert													
	Marketi ng/ Develop ment Speciali st	10,2 00								10,200			10,200	YAL E
	Networ k Develop ment / IT Speciali st			50,8 00						50,800			50,800	YAL E
	GSC training progra mme facilitat or							50,0 00	50,00 0	100,00 0			100,000	YAL E
Salary and benef its / Staff costs	GFC technic al expert						18,0 00	18,0 00	14,00 0	50,000			50,000	YAL E
	Green Chem Speciali st											161,0 00	161,000	YAL E
	Financia l Adminis trator	69,3 00	19,50 0							88,800			88,800	YAL E
	Project Coordin ator			57,2 00				100, 000	58,00 0	215,20 0			215,200	YAL E
	Integrat ed Science Commu nication Strategi st				250, 000					250,00 0			250,000	YAL E
	Green Chem Though					20,3 00				20,300			20,300	YAL E

	t Leaders													
Trainings, Workshops, Meetings	In-person training on GSC for GFC stakeholders							61,000	100,000	161,000			161,000	YAL E
	Roadmap development meeting						100,000			100,000			100,000	YAL E
	Updated material on GSC	25,000								25,000			25,000	YAL E
	Inception Workshop (6 events)		500,000							500,000			500,000	YAL E
	Awareness Raising Activities		510,000							510,000			510,000	YAL E
	Key Stakeholder Participation		222,000							222,000			222,000	YAL E
	Event Preparation Support	123,500								123,500			123,500	YAL E
Travel	International Air Fare		28,500	14,000				22,000		64,500			64,500	YAL E
	Accommodations / Per Diem		20,000	8,000				11,000		39,000			39,000	YAL E
Office	2 Laptops for	10,000								10,000			10,000	YAL E

Suppl es	fieldwor k (trainer s)													
	Worksh op and promoti onal printed material s	12,0 00								12,000			12,000	YAL E
Subt otal		250, 000	1,300 ,000	200, 000	250, 000	750, 000	216, 000	262, 000	222,0 00	3,450,0 00	100,0 00	161,0 00	3,711,00 0	
Total		1,550,000		1,200,000			700,000			3,450,0 00	100,0 00	161,0 00	3,711,00 0	