Funding Proposal

FP314: Southern African Industrial Decarbonization Facility (SIDF)

Namibia, South Africa | Development Bank of Southern Africa Limited (DBSA) | Decision B.46/04

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Note to Accredited Entities on the use of the funding proposal template

- Accredited Entities should provide summary information in the proposal with cross-reference to annexes such as feasibility studies, gender action plan, term sheet, etc.
- Accredited Entities should ensure that annexes provided are consistent with the details provided in the funding proposal. Updates to the funding proposal and/or annexes must be reflected in all relevant documents.
- The total number of pages for the funding proposal (excluding annexes) **should not exceed 60**. Proposals exceeding the prescribed length will not be assessed within the usual service standard time.
- The recommended font is Arial, size 11.
- Under the GCF Information Disclosure Policy, project and programme funding proposals will be disclosed on the GCF website, simultaneous with the submission to the Board, subject to the redaction of any information that may not be disclosed pursuant to the IDP. Accredited Entities are asked to fill out information on disclosure in section G.4.

Please submit the completed proposal to:

fundingproposal@gcfund.org

Please use the following name convention for the file name:

"FP-[Accredited Entity Short Name]-[Country/Region]-[YYYY/MM/DD]"

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PROJECT/PROGRAMME SUMMARY

A.1. Project or programme	Programme	**A.2. Public or private sector**	Private
A.3. Request for Proposals (RFP)	*If the funding proposal is being submitted in response to a specific GCF Request for Proposals, indicate which RFP it is targeted for. Please note that there is a separate template for the Simplified Approval Process and REDD+.* Not applicable		

A.4. Result area(s)

*Check the applicable GCF result area(s) that the overall proposed project/programme targets below. For each checked result area(s), indicate the estimated percentage of **GCF and Cofinancers' contribution** devoted to it. The total of the percentages when summed should be 100% for GCF and Co-financers' contribution respectively.*

	GCF contribution	**Co-financers' contribution[1]**
Mitigation total	100%	100%
☒ Energy generation and access	50%	50%
☐ Low-emission transport	Enter number %	Enter number %
☒ Buildings, cities, industries and appliances	50%	50%
☐ Forestry and land use	Enter number %	Enter number %
Adaptation total	Enter number %	Enter number %
☐ Most vulnerable people and communities	Enter number %	Enter number %
☐ Health and well-being, and food and water security	Enter number %	Enter number %
☐ Infrastructure and built environment	Enter number %	Enter number %
☐ Ecosystems and ecosystem services	Enter number %	Enter number %

A.5. Expected mitigation outcome *(Core indicator 1: GHG emissions reduced, avoided or removed / sequestered)*	~24.2 $MtCO_2e$ [2]	**A.6. Expected adaptation outcome** *(Core indicator 2: direct and indirect beneficiaries reached)*	*Indicate total number of direct and indirect beneficiaries*	
			Indicate number of direct beneficiaries	*Indicate number of indirect beneficiaries*
			Indicate % of direct beneficiaries visà-vis total population	*Indicate % of indirect beneficiaries visà-vis total population*

A.7. Total financing (GCF + co-finance[3])	1200 million USD	**A.9. Project size**	Large (Over USD 250 million)
A.8. Total GCF funding requested	140 million USD		

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[1] Co-financer's contribution means the financial resources required, whether Public Finance or Private Finance, in addition to the GCF contribution (i.e. GCF financial resources requested by the Accredited Entity) to implement the project or programme described in the funding proposal.
[2] The expected mitigation outcome at the end of the total lifespan of the projects is ~49.8 $MtCO_2e$. The total lifespan of the project/programme is defined as the maximum number of years over which the outcomes of the investment are expected to be effective. This is different from the project/programme implementation period.
[3] Refer to the Policy of Co-financing of the GCF.

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A.10. Financial instrument(s) requested for the GCF funding	*Mark all that apply and provide total amounts. The sum of all total amounts should be consistent with A.8.* ☐ Grant Enter number ☐ Loan Enter number ☐ Guarantee Enter number ☒ Equity 140 ☐ Results-based payment Enter number		
A.11. Implementation period	12[4]	**A.12. Total lifespan**	30[5]
A.13. Expected date of AE internal approval	TBD	**A.14. ESS category**	I-1
A.15. Has this FP been submitted as a CN before?	Yes ☒ No ☐	**A.16. Has Readiness or PPF support been used to prepare this FP?**	Yes ☐ No ☒
A.17. Is this FP included in the entity work programme?	Yes ☒ No ☐	**A.18. Is this FP included in the country programme?**	Yes ☐ No ☒
A.19. Complementarity and coherence	*Does the project/programme complement other climate finance funding (e.g. GEF, AF, CIF, etc.)? If yes, please elaborate in section B.1.* Yes ☒ No ☐		
A.20. Executing Entity information	• Climate Fund Managers B.V. ("CFM" or "Manager"); • CFM EU B.V. ("CI3 Global Fund Statutory Director" or "Statutory Director"); • Coöperatief CI3 Global Fund U.A. ("CI3 Global Fund", "Climate Investor Three" or "CI3"); • SA-H2 Fund ("SA-H2 Fund" or "SA-H2"); • SA-H2 Fund Managers (Pty) Ltd. ("SA-H2 Manager"); • SA-H2 GP (Pty) Ltd ("SA-H2 GP"); • SDG Namibia One Fund Trust ("SDGNO Fund" or "SDGNO"); • Namibia Hydrogen Fund Managers (Pty) Ltd. ("SDGNO Manager")[6]		
A.21. Executive summary (max. 750 words, approximately 1.5 pages)			

[4] 12 years (after the first close) plus 3 years extensions as approved. With a 7 years investment period plus 2 years extensions as approved

[5] Represents the maximum number of years over which the outcomes of the investment are expected to be effective which is equal to the largest lifespan across different project types – indicatively 30 years

[6] A new name of the entity is pending registration with certain authorities; – final/correct name to be reflected in the FAA/Key Fund Documents;

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Industrial decarbonisation is essential to achieving global net-zero ambitions. Industries accounts for approximately 25% of global greenhouse gas (GHG) emissions, with hard-to-abate industries such as iron, cement, steel and chemicals responsible for nearly 70% of industrial emissions. Deep decarbonisation of these sectors will require a combination of green hydrogen, energy efficiency improvements and electrification. According to the International Energy Agency's (IEA) Net Zero by 2050 scenario, industrial emissions must decline by approximately 5% annually by 2030, highlighting the scale and urgency of the transition challenge. As around 80% of industrial emissions originate in emerging and developing economies (EMDEs), decarbonising heavy industry in emerging markets is central to achieving global climate goals.

Among emerging markets, South Africa and Namibia are advancing green industrialisation agendas, as reflected in their Nationally Determined Contributions (NDCs). South Africa remains heavily reliant on fossil fuels, is the largest emitter in Africa and among the top 15 globally, despite its modest share of global GDP. Industry is the largest energy user in the country and second largest emitter. To address this, South Africa's latest NDC sets an ambitious 2035 target for annual GHG emissions, alongside a long-term objective of reaching net-zero by 2050. As such, the decarbonisation of the South African economy requires a clear focus on inclusive green industrialisation. On the other hand, Namibia's share of global GHG emissions remains limited, but the country aims to leapfrog towards a green, climate-resilient industrial economy compared to a fossil-fuel based business-as-usual scenario. This transition is centred on leveraging abundant renewable energy resources to develop green hydrogen hubs and low-emission industries.

Both countries are also highly exposed to physical climate risks, including extreme weather events, multi-year droughts and floods. Industrial value chains and outputs are already affected by grid instability and disruptions linked to these events. In parallel, the transition risks of policy and market pressures are starting to materialize. When combined with underlying structural and systemic infrastructure challenges, these factors may impact the sustainability of long-lived climate infrastructure assets in South Africa and Namibia.

Consequently, industrial decarbonisation and infrastructure resilience are central to the climate strategies of South Africa and Namibia. Transforming hard-to-abate sectors into competitive, low-carbon industrial systems is closely linked to large-scale renewable energy deployment, sustainable water management, and resilient regional value chains. Green hydrogen and its derivatives are expected to play an important role in decarbonizing these industries while maintaining technical and economic feasibility.

Yet, these infrastructure projects face significant barriers and 'first-of-a-kind' transition and financial risks across the entire lifecycle. These include long development timelines, construction risks, uncertain offtake markets, limited availability of patient risk capital, and elevated costs of capital. These barriers are preventing investment decisions and private finance participation at scale for industrial decarbonisation projects in South Africa and Namibia despite the urgent need.

The proposed solution, the Southern African Industrial Decarbonisation Facility ("SIDF" or the "Facility"), is a blended finance facility designed to accelerate industrial decarbonisation in South Africa (SA) and Namibia. SIDF's mission is to develop and construct industrial decarbonisation projects that transform hard-to-abate sectors in South Africa and Namibia into competitive, low-carbon industrial economies. SIDF is part of the broader blended finance facility consisting of a group of funds (collectively the 'CI3 Funds' as described below) which aims to enable large-scale industrial decarbonisation through the provision of 'whole-of-lifecycle financing'. This is achieved through a Development Tranche (DT), which provides development loans for early-stage projects, and a Construction Equity Tranche (CET), which provides long-term risk capital during construction and early operations.

With a GCF commitment of USD 140Mn via SIDF, the prospective fund size of the CI3 Funds is estimated at USD 1200Mn, comprising USD 175Mn for the DT and USD 1025Mn for the CET. The GCF commitment would enable the CI3 Funds to scale significantly and provide scarce, highly additional concessional capital to the structure, to crowd in further private sector participation with a mobilisation ratio of 1:4 at the fund level and even higher at the project level. The CI3 Funds comprise of the CI3 (Climate Investor Three or CI3 Global Fund) which acts as a central fund-of-funds based in the Netherlands in addition to the two Underlying Funds that adopt a national-level approach - the SA-H2 Fund ("SA-H2") for South Africa and the SDG Namibia One Fund ("SDGNO") for Namibia. Out of USD 140Mn provided by SIDF to CI3, SA-H2 will receive USD 84Mn for Tier 1 of the CET and SDGNO will receive a total of USD 56Mn - USD 15Mn for the DT and USD 41Mn as Tier 1 of the CET.

SIDF, via its participation in the CI3 Funds, is expected to reduce over 24.2 million tonnes of CO_2 equivalent over its lifespan, contributing directly to GCF Mitigation Core Indicator 1. It will deliver substantial energy savings of 359 GWh per year (Indicator 1.1), deploy energy storage capacity of 117 MW (Indicator 1.2), install 1.52 GW of renewable energy capacity (Indicator 1.3) and generate 53,900 GWh of renewable energy (Indicator 1.4). Overall, 114,300 people are expected to gain improved access to clean energy (Indicator 2) and 3200 jobs are expected to be created. The Facility will contribute to enhanced economic participation and empowerment of women and support expanded employment opportunities across the green industrial value chain. Consequently, it advances multiple UN Sustainable Development Goals (SDGs) through inclusive growth. It also supports the adoption of innovative technologies and practices by building local capacity in emerging green industries (Core Indicator 6 and 8).

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PROJECT/PROGRAMME INFORMATION

B.1. Climate context (max. 1000 words, approximately 2 pages)

In order to reach its Nationally Determined Contributions (NDCs), Southern Africa must expand its productive capacity while reducing the emissions intensity and climate vulnerability. Industrialisation is central to the region's objectives for economic diversification, employment creation, value addition and mineral beneficiation. However, industrial expansion creates substantial demand for energy, water, transport and other enabling infrastructure. Where this demand is met through fossil-based power and production technologies, it can embed emissions in capital-intensive assets that operate for several decades. Consequently, the sectors essential for economic growth such as iron, steel, cement, chemicals or heavy-duty transport also become hard-to-abate. The regional challenge is therefore not whether industrialisation should proceed, but how new and existing industrial capacity in hard-to-abate sectors can support economic development without locking in an emissions-intensive and increasingly climate-exposed growth model.

Emissions Profile and Country Selection Rationale:

Among the Southern African countries, South Africa and Namibia provide a complementary context for industrial decarbonisation in hard-to-abate sectors. South Africa is already one of the high-emitting, fossil-fuel based industrial economies globally. The Southern African Industrial Decarbonisation Facility ("SIDF" or the "Facility") can support transition of existing emission-intensive assets while Namibia is establishing itself newly as an industrial power hub where future carbon lock-in can be avoided with early green industrialisation.

South Africa (SA) is the largest greenhouse gas emitter in Africa, responsible for over 34% of Africa's total CO_2 emissions. It ranks among the top 15 emitters globally in absolute terms, despite its modest share of world GDP.[7] National greenhouse gas emissions were estimated at approximately 478.3 $MtCO_2e$ in 2022, excluding land use, land-use change and forestry.[8] The energy sector accounted for approximately 78% of this total. Coal remains the dominant fuel in South Africa's overall energy and emissions profile, accounting for 80.1% of the country's CO2 emissions by fuel in 2023, followed by oil (18.9%) and a negligible share from natural gas (1.0%). This fuel mix has remained broadly stable since 2000, with coal consistently the overwhelming source of emissions. Industry is the largest end-use consumer of energy in South Africa, accounting for 37.8% of total final energy consumption in 2023, ahead of transport (26.4%), residential use (13.0%), non-energy use (10.9%), and commercial and public services (6.6%). Many industrial processes including steelmaking, cement and chemicals, still require fossil fuels as sources of energy (~40% coal and coal products and 7% oil and oil products).[9] The energy intensity of South Africa's manufacturing sector is among the highest in the world, amounting to 1.72 MJ per 2015 USD of GDP (PPP) in 2018.[10]

Accelerating the decarbonisation of its coal-dependent energy and industrial system can therefore make a material contribution to global mitigation and implementation of the Paris Agreement. South Africa must reduce emissions substantially while maintaining productive capacity, employment and industrial competitiveness. Its second NDC establishes an economy-wide emissions target of 320-380 $MtCO_2e$ in 2035 and confirms the longer-term objective of a just transition to net-zero carbon dioxide emissions by 2050.[11] Achieving this trajectory will require investment beyond the power sector to reduce emissions from industrial electricity use, process heat, production processes and feedstocks etc.

Compounding South Africa's energy challenges is the issue of reliability of supply. Load-shedding – scheduled routine power outages to manage the grid – has become routine in recent years; in 2022 South Africans experienced 205 days with interrupted power, while in 2023 a record number of 335 days were affected. The situation has partially improved, with only 83 days affected in 2024[12]. Households and industry both suffer, with economic stagnation at least partly linked to the prolonged interruptions due to the effect on productivity.

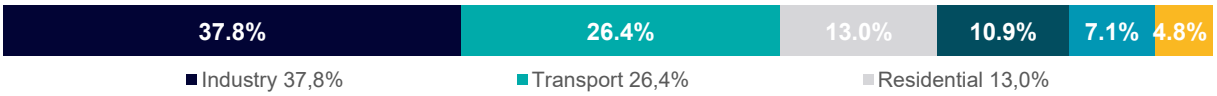
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[7] Energy Council of South Africa. Reducing Carbon Emissions. Available online: https://energycouncil.org.za/mzansi/emissions/
[8] First Biennial Transparency Report (2024). Republic of South Africa. Available online: https://unfccc.int/sites/default/files/resource/First%20Biennial%20Transparency%20Report%20of%20South%20Africa%20under%20the%20PA_20%20December%202024.pdf
[9] International Energy Agency (IEA) (2023). South Africa: Understanding Energy End Uses. Available online: https://www.iea.org/countries/south-africa/efficiency-demand
[10] International Energy Agency (IEA) (2023) South Africa: Total CO_2 Emissions from Energy. Available online: https://www.iea.org/countries/south-africa/emissions
[11] Republic of South Africa, South Africa's Second Nationally Determined Contribution under the Paris Agreement (2025), pp. 18-22. Available online: https://unfccc.int/sites/default/files/2025-10/South%20Africa%27s%20second%20Nationally%20Determined%20Contribution_2025.pdf
[12] FTI Consulting (2025) Out of the Darkness: The Lasting Economic Costs of Load-Shedding. Available online: https://www.fticonsulting.com/insights/articles/out-darkness-lasting-economic-costs-load-shedding

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South Africa's challenge is to transition an established, emissions-intensive industrial economy into one that is less fossil-intensive, and which is supported by a reliable supply of energy. A Paris-aligned industrial pathway therefore requires the progressive decarbonisation of electricity supply, industrial heat and feedstocks, supported by investment in transmission, storage and other enabling infrastructure. This transition must be managed without undermining productive capacity, employment or industrial competitiveness. As set out in South Africa's Just Energy Transition Investment Plan[13], decarbonisation pathways must be accompanied by inclusive workforce development and appropriate transition measures that extend beyond labour risks to consider broader socioeconomic impacts affected by structural economic change.

Figure 1: Energy Consumption profile of SA, 2023



***Source**: International Energy Agency (IEA), Energy Statistics. Available at: iea.org/countries/south-africa/efficiency-demand*

Namibia, on the other hand, contributes a minor share of global carbon emissions. In 2023, total national emissions amounted to approximately 18.87 $MtCO_2e$, representing 0.034% of the global total.[14] EDGAR reported that Namibia ranks 140th globally and 30th in Africa in terms of carbon emissions.[15] This places Namibia in the category of countries that contribute minimally to the global challenges of climate change while facing significant exposure to its consequences. The Agriculture and Land Use (AFOLU) sector accounts for 80% emissions in Namibia, followed by Energy and Industrial Processes. The AFOLU emissions are driven primarily by enteric fermentation (methane) from livestock and land-use changes.[16] Within the energy sector, carbon emissions from fuel combustion in Namibia increased by 77% between 2000 and 2023. Fuel emissions from transport (mainly cars) contribute about 60% of energy sector emissions, followed by energy use for industry.[17] Industrial process emissions became the third largest source in 2005, overtaking waste. Over time, emissions from the energy and industrial process sectors have rapidly increased from a low baseline.

Namibia currently imports approximately 60-70% of its electricity, the majority from South Africa, making it vulnerable to external shocks as well as climate risks.[18] Overall electrification stood at 57% in 2023, but only 34% in rural areas[19], with some estimates suggesting fewer than 10% of rural households have reliable access. This results in a reliance on biomass, contributing further to emissions albeit at the local level. While loadshedding is not as grave a problem as in South Africa, Namibia still experiences a substantial amount and duration of outages, that have only increased in the last decade.[20]

Namibia's climate significance lies in avoiding emissions before a new industrial pathway becomes locked in. Namibia remains a net GHG sink because land-sector removals exceed its gross emissions, while planned growth in green hydrogen and its derivatives, mineral beneficiation and other energy-intensive industries will involve long-lived production and enabling infrastructure.[21] The energy sources, technologies and infrastructure selected during this formative period will therefore shape Namibia's emissions trajectory for decades. Developing these value chains around renewable energy

[13] Just Energy Transition Investment Plan (2023-2027), Republic of South Africa Presidential Climate Commission. Available online: https://www.climatecommission.org.za/south-africas-jet-ip
[14] Climate Change Knowledge Portal, World Bank Group. Namibia Country Climate and Development Data. Available online: https://climateknowledgeportal.worldbank.org/country/namibia
[15] European Commission Joint Research Centre, GHG Emissions of All World Countries: 2023 Report, 2023, p. 7. Available online: https://edgar.jrc.ec.europa.eu/report_2023
[16] Climate Analytics, Current GHG emissions. Available online https://1p5ndc-pathways.climateanalytics.org/countries/namibia/current-situation
[17] International Energy Agency (IEA). Namibia: Emissions. Available online: https://www.iea.org/countries/namibia/emissions
[18] Mitigation Action Facility. Namibia – Biomass: Encroacher Bush Biomass Power. Available online: https://mitigation-action.org/projects/namibia-biomass/.
[19] International Trade Administration (2024) Namibia – Energy. Country Commercial Guide. Washington, DC: U.S. Department of Commerce. Available online: Namibia - Energy
[20] While no official data exists on household outages, a proxy metric is the outages experienced by firms, as reported by the World Bank. In 2014, 27% of firms reported experiencing electrical outages, while that number stood at 54% in 2024. For small and medium-sized firms, that varies between 50 and 63% of the firms. World Bank (2025) Firms experiencing electrical outages (% of firms) – Namibia. World Development Indicators. Available at: World Bank (2025) Firms experiencing electrical outages (% of firms) – Namibia. World Development Indicators. Available online: https://data.worldbank.org/indicator/IC.ELC.OUTG.ZS?locations=NA
[21] Namibia's Nationally Determined Contribution, 2023. UNFCCC. Available online: https://unfccc.int/sites/default/files/NDC/202401/FINAL%20UPDATED%20NAMIBIA%20NDC%202023.pdf

and low-emissions production processes can support industrialisation and value addition while avoiding the future emissions and transition costs associated with fossil-dependent development.

Namibia has positioned green industrialisation at the center of its socio-economic development to drive economic growth and improved livelihoods for its population. Namibia's updated NDC in 2023 is a comprehensive climate strategy outlining an economy-wide target to reduce greenhouse gas (GHG) emissions by 91% against business-as-usual levels by 2030. This consists of a 14% unconditional reduction and a 77% conditional reduction relying on international support. Namibia's Green Industrialisation Blueprint identifies green hydrogen-enabled industrial decarbonisation to add maximum value and jobs to Namibian economy.[22] As per IEA analysis, Namibia possesses world-class renewable energy resources that position it uniquely for the green hydrogen transition, [23] including:

- Solar: Exceptionally high solar irradiance in Namibia means solar PV installations can produce roughly double the electricity output of equivalent systems in Central Europe.
- Wind: Coastal and Southern regions see average wind speeds above 7 m/s, driving capacity factors up to 50% - among the highest recorded globally.
- Land availability: Namibia's low population density and vast land area means the possibility of large-scale project sites.
- Coastal access: Namibian renewable resources sit close to the coast and established port infrastructure providing a strong edge for export logistics of green products.

Transition and Hard-to-Abate Industries:

There are four central pillars of the global net-zero energy transition that are widely recognised: (i) large-scale renewable energy generation, (ii) industrial electrification, decarbonisation and enhanced energy efficiency, (iii) a shift to low-carbon fuels (e.g. green hydrogen), and (iv) Carbon Capture, Utilisation and Storage (CCUS). While global investment in clean energy and supportive policy frameworks continue to strengthen, industrial emissions remain a critical challenge, particularly in regions where economic growth remains closely linked to fossil fuel use to support industrial activity.

Heavy industries such as iron, steel, chemicals and fertilisers, as well as heavy freight transport, are essential for economic development but are also among the highest emitting sectors. Industry accounts for approximately 25% of global greenhouse gas (GHG) emissions, of which around 80% originate in emerging and developing economies (EMDEs) owing to the production of over 75% of the world's steel and more than 85% of its cement.[24] Hard-to-abate sectors, including iron, steel, cement and chemicals, contribute nearly 70% of these emissions.[25] The industrial value chain currently accounts for around 40% of global electricity consumption, and demand is expected to increase significantly by 2050, driven by rising manufacturing activity, automation, and broader industrial-led economic development.

According to WEF analysis, hard-to-abate sectors continue to depend heavily on fossil fuels for high-heat processes and chemical reactions, with fossil fuels accounting for approximately 90% of the energy mix in these sectors, compared to around 81% of global energy supply overall.[26] Industrial emissions have continued to rise between 2019 and 2025, with some sectors, such as chemicals and freight transport, recording annual growth of up to 10%.[27] This indicates a slower transition to alternative energy sources within these industries. Unlike the power sector, where decarbonisation can rely on renewable energy and efficiency, industrial emissions arise mainly from on-site fuel combustion and intrinsic process emissions, which require transformational technologies rather than incremental improvements. Evidence underscores the scale of the task, specifically in South Africa. A Boston Consulting Group (BCG) analysis found that 60% of emissions reductions in South Africa's heavy industry will depend on breakthrough solutions, particularly green hydrogen for steel and cement, as demand rises with economic growth.[28]

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[22] Government of Namibia (2024). Namibia Green Industrialisation Blueprint. Available online: https://gh2namibia.com/wp-content/uploads/2024/08/Namibia-Green-Industrialisation-Blueprint-FINAL_01-Aug-2024.pdf

[23] IEA (2024), Renewable Energy Opportunities for Namibia. Available online: https://www.iea.org/reports/renewable-energy-opportunities-for-namibia

[24] OECD/IEA (2025), Support for decarbonising heavy industry in emerging markets and developing economies: Where we stand, where we need to go and how to get there. Available online: https://doi.org/10.1787/7787cde0-en.

[25] UNIDO. Explainer Brief Decoding Industrial Decarbonization. Available online: https://decarbonization.unido.org/resources/what-is-the-industry-sectors-share-of-global-greenhouse-gas-emissions/

[26] World Economic Forum (2024). Net-Zero Industry Tracker 2024 Edition. Available online: https://www.weforum.org/publications/net-zero-industry-tracker-2024/

[27] World Economic Forum (2025). Scaling the industrial transition: Hard-to-abate sectors and net-zero progress in 2025. Available online: https://www.weforum.org/publications/scaling-the-industrial-transition-hard-to-abate-sectors-and-net-zero-progress-in-2025/

[28] BCG (2023). Decarbonizing South Africa's Heavy Manufacturing Sector. Available online: https://www.bcg.com/publications/2023/decarbonizing-south-africas-heavy-manufacturing-sector

Deep decarbonisation of these sectors will require a combination of green hydrogen, energy efficiency improvements and electrification, which could reduce direct emissions from heavy industry by up to approximately 93% by 2050, according to the WEF. According to the IEA Net Zero by 2050 scenario, industrial emissions must decline by approximately 5% annually by 2030, highlighting the scale and urgency of the transition challenge. Specifically in South Africa, a 2025 technical report to the Presidential Climate Commission (PCC) identified industrial decarbonisation as among South Africa's toughest challenges for achieving net zero, warning that residual process emissions in sectors like cement and ferroalloys will necessitate disruptive change, large-scale investment, and potentially carbon capture and storage (CCS). [29] Namibia relies on electricity imports to meet the industrial demand, raising concerns related to energy security and affordability. Together, these trends underscore the need for a strong focus on the inclusive transition towards green, resilient industrialisation to mitigate emerging risks.

SIDF, by investing in the CI3 Funds, will generate mitigation benefits by targeting hard-to-abate industrial sectors and enabling the transition to low-carbon production systems and value chains in developing countries, particularly in South Africa and Namibia. These countries have been selected as priority countries for SIDF based on their clear policy commitment and country ownership for industrial decarbonisation via their NDCs and national strategies, as well as their complementary market potential and substantial investment needs in industrial decarbonisation. Both countries have articulated ambitious climate targets that explicitly recognize the role of industrial transformation. This ensures that SIDF interventions are directly contributing to nationally defined climate priorities and long-term transition pathways.

Key Industrial Sectors and Decarbonisation Pathways:

Industrial decarbonisation requires different technological and investment pathways for different production processes. Energy efficiency, material efficiency, recycling, renewable electricity and direct electrification can reduce emissions across a wide range of activities. However, these measures cannot eliminate all emissions from high-temperature heat, industrial feedstocks and process chemistry. Steel, cement and chemicals require different combinations of process changes, low-emissions energy, alternative feedstocks, material efficiency and supporting infrastructure. The appropriate pathway must therefore be determined at sector and project level. More information on these sectors and their decarbonisation potential is provided below:

Iron & Steel: Steel production is one of the largest industrial sources of CO_2 emissions, traditionally relying on coal-based blast furnace processes. South Africa is the second-largest steel producer in Africa. Approximately 60% of steel production in South Africa is based on the conventional Blast Furnace-Basic Oxygen Furnace (BF-BOF) route, which inherently requires higher coal and energy inputs and results in approximately one-fifth higher emissions per tonne of steel compared to the global average.[30] The remaining production is carried out using the electric arc furnace (EAF) process.

The South African steel industry has outlined a pathway to carbon neutrality by 2050, with two primary decarbonisation routes. The first involves electrification through scrap-based recycling using EAFs powered by renewable energy, although this approach is constrained by the availability of scrap and quality requirements for certain steel grades. The second route is hydrogen-based direct reduction, where iron ore is reduced using green hydrogen instead of coal-based coke, producing direct reduced iron (DRI) that can subsequently be refined into steel.[31] This second pathway is considered particularly promising for South Africa's steel sector, as it can support competitiveness in increasingly carbon-constrained export markets.[32]

Namibia, for its part, is already piloting the production of green steel, including the production of HBI (hot-briquetted iron), creating the opportunity to relocate the most carbon-intensive stages of steelmaking from overseas mills to Namibia's renewable-powered facilities. Both countries recognize that demand for green steel is expected to increase, particularly as jurisdictions such as the EU implement mechanisms like the Carbon Border Adjustment Mechanism (CBAM) on high-carbon steel imports.

Chemicals and Fertilisers (Ammonia & Others): The chemicals sector is broad however, ammonia production remains a key focus for decarbonisation due to the high CO_2 intensity of conventional (grey) ammonia. In South Africa, ammonia and other chemicals such as methanol are produced using natural gas or coal-derived hydrogen at emissions-intensive

[29] Net-Zero CO_2 Emission Pathways for South Africa (2022), Republic of South Africa Presidential Climate Commission. Available online: https://www.climatecommission.org.za/publications/net-zero-co2-emission-pathways-for-south-africa

[30] South African Iron and Steel Institute (2022). What is steel and how is it made? Available online https://www.saisi.org/news/what-is-steel-and-how-is-it-made/

[31] BCG (2023). Decarbonizing South Africa's Heavy Manufacturing Sector. Available online: https://www.bcg.com/publications/2023/decarbonizing-south-africas-heavy-manufacturing-sector

[32] Leadership Group for Industry Transition (LeadIT). South Africa's Green Steel Opportunity: Navigating Challenges, Seizing the Future. October 2023. Available online: https://www.industrytransition.org/content/uploads/2023/10/leadit-steel-decarbonization-workshop-brief.pdf

facilities.[33] Namibia, in contrast, currently imports or produces only limited quantities of grey ammonia for fertiliser use but aims to become a major producer of green ammonia, particularly within the Southern Hydrogen Valley in the Karas region.[34] This represents one of the earliest target markets for Namibia's hydrogen economy, given the established global ammonia trade and its role as a direct substitute for conventional fertiliser production.[35]

The decarbonisation pathway is well established: replacing fossil-derived hydrogen with green hydrogen in the Haber-Bosch process to produce green ammonia with a minimal CO_2 footprint. Hydrogen can also be converted into transportable derivatives such as ammonia, methanol (via CO_2 + H_2), and synthetic aviation fuels (e.g. SAF via Fischer-Tropsch), enabling the use of existing shipping, storage and receiving infrastructure.

Among these, ammonia is particularly important for Southern African export projects due to its technological maturity, relatively simpler storage at -33°C (compared to -253°C for liquid hydrogen), and established global logistics networks. Its dual role as both a fertiliser feedstock and an energy carrier further supports early market development. Green fertiliser is also key to improving domestic food security. Almost half of the fertiliser imported into the SADC (Southern African Development Community) region relies on 'grey' ammonia which leaves regional food systems highly vulnerable to global fuel price spikes and international shipping disruption.[36]

Beyond ammonia, the chemicals sector includes synthetic hydrocarbons such as methanol. Green methanol, produced from green hydrogen and a biogenic carbon source, can be used as a low-carbon fuel for shipping or as a chemical feedstock. Namibia's Green Industrialisation Blueprint identifies e-methanol and e-kerosene (for aviation) as longer-term opportunities, particularly as the global shipping and aviation sectors transition towards low-carbon fuels. Overall, green hydrogen is central to decarbonizing chemical feedstocks, with the potential to eliminate emissions from ammonia production while enabling the development of low-carbon synthetic fuels and chemicals.

Heavy-Duty Transport and Green Logistics: Freight transport, encompassing trucks, buses, locomotives, and ships, is a significant source of emissions targeted in both South Africa and Namibia. In South Africa, transport contributes approximately 12% of energy related CO_2 emissions, dominated by road freight and particularly diesel trucks.[37] In Namibia as well, transport contributes the most to energy sector emissions.[38] Decarbonizing this segment involves a combination of electrification through battery-electric trucks and buses, and the use of hydrogen fuel-cell vehicles, given the region's unique characteristics such as extensive distances, heavy payloads, and cross-border logistics. Namibia's immediate plans, as outlined in its Industrial Blueprint, involve hydrogen dual-fuel locomotives and the establishment of hydrogen refueling infrastructure at strategic ports to support logistics and equipment operation. South Africa's hydrogen roadmap emphasizes deploying hydrogen in heavy road transport by 2030.

Green Hydrogen Production: Alkaline and proton exchange membrane (PEM) electrolysers, co-located with dedicated renewable energy generation (wind, solar PV, or hybrid), form the backbone of production. Dedicated renewable electricity, not grid offtake, is essential to ensure the "renewable" designation under emerging regulatory frameworks such as the EU's Renewable Fuels of Non-Biological Origin (RFNBO) rules, which impose temporal and geographic matching requirements.[39]

Enabling Infrastructure: Infrastructure for the transportation, transmission, distribution and storage of green hydrogen is not ancillary to industrial decarbonisation in hard-to-abate sectors; it is critical to the value chain. Hydrogen has an extremely low volumetric energy density at ambient conditions, requiring it to be compressed, liquefied or converted into denser carriers such as ammonia or Liquid Organic Hydrogen Carriers (LOHC) to enable economically viable large-scale transport. In addition, hydrogen can cause embrittlement in conventional steel pipelines, limiting the reuse of existing natural gas infrastructure without significant material upgrades or blending constraints. As a result, without enabling

[33] GIZ (2023). PtX Business Opportunities in South Africa. Renewable Hydrogen Market Potential and Value Chain Analysis. Available online: https://ptx-hub.org/wp-content/uploads/2024/05/Green-Hydrogen-South-Africa_2311_Business-Opportunities-South-Africa-GH2.pdf
[34] Energy Monitor (2022) Namibia stakes its future on the green hydrogen market. Available online: https://www.energymonitor.ai/tech/hydrogen/namibia-stakes-its-future-on-the-green-hydrogen-market/
[35] Government of Namibia (2024). Namibia Green Industrialisation Blueprint coverage. Available online: https://ammoniaenergy.org/articles/namibia-green-industrialisation-blueprint/
[36] GIZ (2025). Green Ammonia and E-Fertiliser in South Africa and the SADC Region: Opportunities For Production And Consumption. Available online https://ptx-hub.org/publication/green-ammonia-and-e-fertiliser-in-south-africa-and-the-sadc-region/
[37] Climate Analytics 1.5°C National Pathway Explorer, South Africa. Available online: https://1p5ndc-pathways.climateanalytics.org/countries/south-africa/sectors/transport
[38] Climate Analytics 1.5°C National Pathway Explorer, Namibia. Available online: https://1p5ndc-pathways.climateanalytics.org/countries/namibia/
[39] European Parliament Research Service (2023). EU rules for renewable hydrogen. Available online: https://www.europarl.europa.eu/RegData/etudes/BRIE/2023/747085/EPRS_BRI(2023)747085_EN.pdf

infrastructure, even abundant and low-cost renewable resources cannot be effectively delivered to end markets, and decarbonisation benefits risk remaining stranded at the point of production.

Onshore, pipelines represent the lowest-cost option for hydrogen transport at scale. In 2024, South Africa and Namibia signed a landmark memorandum of understanding (MoU) for a cross-border hydrogen pipeline of approximately 2,500 km, with an estimated cost of EUR 20Bn. Such large-scale infrastructure can aggregate supply from multiple production sites, thereby optimising utilisation rates and reducing unit transport costs.[40]

For long-distance export, dedicated port and terminal infrastructure is required, including ammonia loading systems (cryogenic storage tanks, specialised loading arms and vapour recovery systems), as well as facilities for liquid hydrogen or LOHC. Importing markets must also develop receiving terminals with capabilities for reconversion or direct use. Multi-scale storage solutions — ranging from on-site buffer tanks to strategic reserve caverns and tank farms at export hubs — are essential to manage the mismatch between variable renewable energy generation and steady offtake demand. Geological storage options such as salt caverns offer rapid-cycling, cost-effective capacity but are more geographically constrained, while depleted underground reservoirs and saline aquifers can provide much larger seasonal-scale storage capacity, though site availability and characterization requirements still limit deployment to favorable geological settings.[41] In parallel, battery energy storage systems (BESS), when integrated with electrolyser operations, can optimise electricity consumption by shifting hydrogen production to periods of peak renewable generation. Together, these infrastructure components are essential to ensure the efficiency, reliability and scalability of hydrogen value chains.

Please see below the summary of how these different decarbonisation pathways solve key baseline climate change challenges in the respective industrial sectors that are part of the investment strategy of SIDF.

Table 1: Illustrative decarbonisation pathways for key sectors and evidence focus in South Africa and Namibia

Sector	Primary country application	Baseline / Counterfactual	Decarbonisation mechanisms that gcf support may enable	Emissions trajectory to be shifted	Potential linked output types, parameters and evidence focus
Iron & Steel	South Africa and Namibia	SA's steelmaking is predominantly (~60%) coal-based Blast Furnace - Basic Oxygen Furnace (BF-BOF); ~40% use of electric arc furnace (EAF); New Namibian green iron or steel capacity stays in pilot stage, is delayed or follows a fossil-dependent production pathway.	Enables (i) Electrification via scrap-based EAF using renewable electricity; (ii) Hydrogen Direct Reduced Iron (H_2-DRI) using green hydrogen instead of coke; (iii) production of green HBI/steel using renewable-powered processes	Reduces or avoids emissions from reducing agents, process energy and electricity relative to the applicable conventional iron or steel production route.	Tonnes of green steel/DRI, hydrogen consumption, electricity consumption and country-specific project-scenario emissions where applicable.
Chemicals, Fertilisers and Synthetic Fuels (Ammonia, Methanol, SAF)	South Africa and Namibia	High emissions from fossil-based hydrogen used in ammonia and chemical production. Grey ammonia and methanol produced from coal or natural	Enables (i) replacement of fossil-derived hydrogen with green hydrogen in Haber-Bosch (green ammonia); (ii) production of green methanol via CO_2 + H_2; (iii) production of	Replaces fossil-derived hydrogen and lowers feedstock, energy and process emissions associated with	Tonnes of green ammonia produced, hydrogen input, plant uptime, electricity source and offtake. Tonnes of green methanol

[40] Pipeline Technology Journal (2025). South Africa and Namibia to Finalize Cross-border Green Hydrogen Pipeline Agreement. Available online: https://www.pipeline-journal.net/news/south-africa-and-namibia-finalize-cross-border-green-hydrogen-pipeline-agreement

[41] Raad, S. M. J., Leonenko, Y., & Hassanzadeh, H. (2022). Hydrogen storage in saline aquifers: Opportunities and challenges. Renewable and Sustainable Energy Reviews, 168, 112846. Available online: https://doi.org/10.1016/j.rser.2022.112846

		gas; limited local production in Namibia with import dependence.	synthetic fuels (e.g., SAF) via Power-to-X pathways; (iv) use ammonia/methanol as low-carbon fuels and energy carriers.	ammonia or fertiliser production.	produced, hydrogen input, feedstock source, electricity source and offtake.
Renewable power for existing industrial users	Primarily SA, with potential application to existing Namibian mining and industrial users	Existing facilities continue to be supplied by carbon-intensive grid electricity or fossil-based captive generation using coal, natural gas, diesel or other higher-emissions fuels for industrial equipment, process heat or steam.	Provides development and construction capital, enables dedicated or contracted renewable generation, storage and associated connections to supply eligible industrial users	Displaces higher-emissions electricity and reduces the emissions associated with existing industrial production.	Installed capacity MW, generation, grid emission factor, storage, surplus allocation and attribution.
Industrial energy efficiency	Primarily SA, with potential application to existing Namibian mining and industrial users	Existing industrial facilities continue operating at the prevailing electricity, fuel or material intensity, without the identified efficiency intervention	Finance the conversion or replacement of eligible equipment and the associated lower-emissions electricity, renewable-heat and supporting infrastructure.	Reduces the electricity or fuel required to produce a defined level of industrial output.	Baseline and project energy use, recovered heat or heat-pump output, operating hours, COP where relevant, energy saved and capex basis where used.
Enabling Infrastructure (T&D, Storage, Ports, Pipelines)		Eligible low-emissions industrial assets cannot operate, operate at a smaller scale or rely on higher-emissions energy and infrastructure alternatives because transmission, storage, water, port or logistics capacity is unavailable. Inability to transport and store hydrogen efficiently, reliance on fossil fuel logistics infrastructure; no integrated value chain limiting real decarbonisation impact	Enables (i) Conversion to derivatives (ammonia, LOHC, methanol) for transport; (ii) pipeline networks for bulk transport; (iii) port and export terminal infrastructure; (iv) multi-scale storage (tanks, caverns, BESS); (v) reconversion, distribution and refuelling systems	Enables the linked low-emissions activity to displace or avoid a higher-emissions baseline. The infrastructure should not be treated as an independent source of mitigation where its impact is already attributed to the linked asset.	Physical completion, capacity, interconnection and enabling narrative; do not count direct avoided emissions unless an approved future methodology is added.

C

Physical Climate Risks:

The Notre Dame Global Adaptation Initiative Index (ND-GAIN) shows a country's vulnerability to climate change impacts and its capacity to improve its resilience and adapt to these impacts. For 2024, it ranks South Africa at 116 and Namibia at 133 out of 187 countries assessed. This places both countries in the highly vulnerable category for physical climate risks given their high reliance on climate-sensitive sectors, limited water resources, and coal-dependent energy systems.[42]

Physical climate risks can undermine the reliability, bankability and mitigation performance of long-lived industrial decarbonisation assets. The most material hazards in the Southern African region are water scarcity and drought, rising temperatures and extreme heat, intense rainfall and flooding, and changing atmospheric conditions. This leads to disruption in renewable energy generation and industrial supply chains resulting in damage to transmission and other enabling infrastructure. The industrial assets financed and supported by SIDF are expected to operate for decades and are highly dependent on connected power, water, transport, storage and export systems. Interruption of any critical dependency can reduce availability, raise expenditure, weaken returns and undermine expected greenhouse-gas reductions.

South Africa's established, spatially concentrated industrial and infrastructure system is already affected by water stress, heat stress, drought, severe rainfall and flood events.[43] Mining, mineral processing, steel, chemicals, refineries, manufacturing and power infrastructure rely on bulk-water systems, grid connections, roads, railways and ports. The evidence compiled from the Climate Change Knowledge Portal of the World Bank indicates that, relative to 1995-2014, South Africa's annual mean temperature is projected to rise by approximately 1.50°C under SSP2-4.5 and 1.96°C under SSP5-8.5 in 2040–2059, while average maximum temperature is projected to rise by approximately 1.58°C and 2.08°C respectively.[44] According to the World Bank's ThinkHazard! analysis, South Africa is currently susceptible to high river, urban and coastal floods, and wildfires, with medium exposure to landslides, extreme heat and tsunami events.[45] Such disruptions can therefore propagate beyond an individual industrial site: low reservoir levels or water restrictions can constrain production, flooding can isolate mines or damage rail and port links, and heat or fire can reduce the transfer capacity and reliability of electricity networks.

On the other hand, Namibia's physical climate risks are concentrated around water scarcity and extreme heat. The World Bank country profile describes Namibia as one of the driest countries in sub-Saharan Africa, with highly variable rainfall and recurrent drought.[46] Evidence compiled from the Climate Change Knowledge Portal indicates that annual mean temperature could rise by approximately 1.65°C under SSP2-4.5 and 2.18°C under SSP5-8.5 in 2040-2059, while average maximum temperature could rise by approximately 1.70°C and 2.29°C respectively.[47] Extreme heat is a high and rising risk for Namibia's industrial assets. Water security is the central physical dependency for Namibia's emerging hydrogen, ammonia, green-iron, mining and mineral-processing value chains. These physical risks increase evaporation, cooling requirements and occupational heat exposure, and can compound the operating risks of water, power and logistics systems.

Transition Risks:

Transition risk arises from changes in climate policy, technology, product standards, buyer behaviour and capital allocation. It is distinct from general project-development barriers. The relevant question for transition risks in industrial sectors is whether a cost, constraint or revenue risk results directly from the shift towards lower-emission production and markets. Such transition risks can delay industrial transformation and erode competitiveness and asset value.

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[42] Notre Dame Global Adaptation Initiative. Country ranking by ND-GAIN Index. Scores for 2024. Available online: https://gain.nd.edu/our-work/country-index/rankings/

[43] Climate risk country profile: SA, 2021. World Bank Group. Available online: https://climateknowledgeportal.worldbank.org/sites/default/files/country-profiles/15932-WB_South%20Africa%20Country%20Profile-WEB.pdf

[44] World Bank Group (2021) Climate risk country profile: South Africa.. Available online: https://climateknowledgeportal.worldbank.org/sites/default/files/country-profiles/15932-WB_South%20Africa%20Country%20Profile-WEB.pdf

[45] ThinkHazard! South Africa (2026), The World Bank Group. Available online: https://thinkhazard.org/en/report/227-south-africa

[46] Climate Change Knowledge Portal, World Bank Group (2021). Namibia – Mean Projections (CMIP6). Available online: https://climateknowledgeportal.worldbank.org/sites/default/files/2021-08/15931-WB_Namibia%20Country%20Profile-WEB.pdf

[47] Climate Change Knowledge Portal, World Bank Group (2026). Namibia – Mean Projections (CMIP6). Available online: https://climateknowledgeportal.worldbank.org/country/namibia/climate-data-projections

Among the transition risks, policy and market pressures are already materializing in SIDF countries. South Africa already applies a carbon tax, with the headline rate increasing to ZAR 308/tCO_2e from January 2026[48], while the Climate Change Act establishes the legal framework for a low-carbon and climate-resilient transition, including sectoral emissions targets and carbon budgets as relevant provisions are implemented.[49] These measures can increase the direct cost of emitting and the indirect cost of carbon-intensive electricity, fuels and inputs. The Carbon Border Adjustment Mechanism (CBAM) is the European Union's (EU) policy tool that places a carbon price on specific imported goods to reflect their hidden carbon emissions. The EU is a major market for Southern African exports, making CBAM directly relevant to the competitiveness of South African and Namibian industry. CBAM entered its definitive regime on 1 January 2026 and initially covers cement, iron and steel, aluminium, fertilisers, electricity and hydrogen. EU importers must report embedded emissions and meet the associated financial obligations, creating a transmission channel from European carbon pricing to producers outside the Union.[50] For South African and Namibian exporters, the principal risk is not only the border charge itself but the combined requirement to measure, verify and communicate product-level emissions, demonstrate the carbon price already paid where applicable, and compete against lower-emission suppliers. Evolving buyer procurement rules, greenhouse gas emission targets, product standards, certification and traceability requirements can similarly determine eligibility for premium markets and long-term offtake.

Carbon-intensive assets can also become stranded before the end of their technical lives. Industrial facilities that depend on coal-based electricity, fossil process heat, high-emission feedstocks or equipment with limited retrofit options may require unplanned capital expenditure, operate at lower utilisation levels or close early as carbon costs rise and customers switch to lower-emission products. Delayed action compresses the period available to align upgrades with normal replacement cycles, increasing the risk of abrupt write-downs and a disorderly transition. Conversely, early investment can preserve optionality by designing new assets for low-emission inputs, modular expansion, traceable energy supply and future technology substitution. The cost of transition increases with delay. Therefore, SIDF's participation in the CI3 Funds is timely and critical at this stage. More details on the physical and transition risks to industrial decarbonisation in South Africa and Namibia are presented in Annexure 2.

Addressing Investment Barriers for Systemic Transformation

Achieving the industrial transition in South Africa and Namibia will also largely depend on a combination of policy and regulatory certainty, technological innovation and large-scale capital mobilisation. Estimates by the WEF suggest that global industrial decarbonisation will require approximately USD 30Tn in cumulative additional capital, to achieve a net-zero transition by 2050. This represents approximately 45% of total global investment requirements for net zero, underscoring the scale of the financing challenge.[51] In South Africa, studies suggest that ZAR 792Bn - 948Bn may be required by 2050 for decarbonizing key industrial sectors.[52] Namibia similarly requires substantial investment—estimated at USD 40Bn by 2050 — for green industrial projects.[53] But there is currently a significant investment gap.

In essence, SIDF contributes to fulfilling this investment gap in South Africa and Namibia and attempts to address several market failures and investment barriers that prevent technically credible concepts from becoming investment-ready and bankable. It does so by developing and constructing industrial decarbonisation projects that transform hard-to-abate sectors such as iron and steel, chemicals and fertilisers, and heavy-duty transport, where emissions intensity is high and viable decarbonisation pathways are emerging but require significant upfront investment. More information on the investment barriers and the role of GCF's concessional finance is provided in Section B.5.

Finally, SIDF is designed to catalyse a systemic transformation in industrial decarbonisation financing by addressing structural barriers that have historically constrained investment in hard-to-abate sectors across emerging markets. More information on SIDF's contribution to paradigm shift and replicability potential in South Africa and Namibia is presented in Section D.2 and B.6 respectively.

Access to water for green hydrogen production in South Africa and Namibia:

[48] Budget 2026 Frequently Asked Questions (2026), South African Revenue Service. Available online: https://www.sars.gov.za/about/sars-tax-and-customs-system/budget/budget-2026-frequently-asked-questions/
[49] Climate Change Act (2024). Republic of South Africa. Available online: https://www.gov.za/sites/default/files/gcis_document/202407/50966climatechangeact222024.pdf
[50] Carbon Border Adjustment Mechanism (CBAM) (2026), European Commission, Directorate-General for Taxation and Customs Union. Available online: https://taxation-customs.ec.europa.eu/carbon-border-adjustment-mechanism_en
[51] World Economic Forum (2024) How to raise the $30 trillion investment needed for 'hard-to-abate' sectors to reach net zero. Available online: https://www.weforum.org/stories/2024/12/net-zero-transition-requires-a-30-trillion-investment-for-hard-to-abate-sectors/
[52] Climate Policy Initiative (2025). South African Climate Finance Landscape 2025. Presidential Climate Commission, South Africa. Available online: https://www.climatepolicyinitiative.org/publication/the-south-african-climate-finance-landscape-2025/
[53] Government of Namibia (2022). Green industrialisation blueprint. Namibia Green Hydrogen Council. Available online: https://gh2namibia.com

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South Africa and Namibia face physical climate risks including water stress as outlined above. Modelling by the IPCC suggests that at 1.5°C global warming, the frequency and length of droughts will increase over large parts of Southern Africa. At 2°C, unprecedented extreme droughts are projected to emerge. Above 3°C global warming, average annual rainfall is projected to decrease by 10-20% in the summer rainfall region, particularly in western parts. The length of meteorological droughts is also projected to double from two to four months. The reduced rainfall that caused the 2015-2017 Cape Town drought was three times more likely because of human-induced climate change.[54]

According to the World Bank, some regions, including Africa, could experience economic growth declines of up to 6% due to water-related losses, with South Africa's growth projected to decline by at least 1%.[55] Industry already accounts for approximately 22% of global freshwater withdrawals globally, and green hydrogen production requires purified water for electrolysis, which may place additional pressure on scarce resources if not carefully managed.[56] South Africa uses almost all of its currently available water for agriculture, households and energy uses[57], while around 12% of Namibia's rural population still lacks access to clean drinking water.[58] Women in particular are affected by water scarcity, especially in rural areas, as they bear a disproportionate share of responsibility for securing and managing household water supplies as well as a disproportionate share of the costs of water insecurity. These include intensified unpaid labour burden, reduced income-generating opportunities, and increased exposure to health and wellbeing risks[59]. Climate change directly extends this burden: a study published in Nature Climate Change (2024) found that a 1° C temperature rise historically increased daily water collection times by approximately four minutes, and projects that daily collection times for women without household water access could increase by 30% globally and up to 100% in some regions by 2050 under high-emission scenarios.[60]

Significant water stress and the associated burden faced by the populations of both South Africa and Namibia is likely to intensify with further industrialisation if not proactively managed. In the case of green hydrogen production, options exist; an article by RMI outlines how water access and requirements for green hydrogen production can be effectively managed if intentional sourcing, project siting, and efficient use is prioritized.[61] Green hydrogen produced via renewable-powered electrolysis has a relatively lower water footprint (approximately 20-30 L/kg) compared to grey hydrogen (approximately 40 L/kg). Another study, cited by the Netherlands Environmental Assessment Agency, suggests that solar-to-hydrogen water use is approximately 43 litres per kilogram of hydrogen on a life-cycle basis — about a third of the water intensity of oil extraction and refining[62]. Therefore, a shift away from fossil fuel for industrial use may lead to net water savings if managed effectively through integrated water management.[63] Nevertheless, water use remains a critical consideration in South Africa and Namibia for green hydrogen production and associated industrial decarbonisation projects within the broader physical climate risks context.

To address this, SIDF will manage the water risk within the context of green hydrogen production for industrial use through appropriate design measures such as renewable energy-powered desalination plants built alongside hydrogen production and industrial facilities. These systems decouple industrial water use from limited freshwater resources. This can be implemented particularly in coastal regions where access to seawater is abundant but freshwater is scarce. Notably, five of South Africa's six identified green hydrogen hubs (Saldanha Bay, Boegoebaai, Coega, Richards Bay and eThekwini, except Vaal Triangle) and two of Namibia's three hubs (Lüderitz and Walvis Bay except Erongo) are located in coastal areas, creating favorable conditions for seawater desalination. Therefore, by integrating renewable-powered desalination, wastewater recycling and circular water-use systems, green hydrogen projects can contribute to industrial

[54] Trisos, C. et al (2022) 'Factsheet: The IPCC's Sixth Assessment Report: Impacts, Adaptation Options and Investment Areas for a Climate-Resilient Southern Africa,' CDKN, ACDI, ODI, SouthSouthNorth, University of Capetown. Available online: https://cdkn.org/resource/ipcc-sixth-assessment-report-new-factsheet-decision-makers-southern-africa

[55] World Bank (2016). "High and Dry: Climate Change, Water, and the Economy." World Bank, Washington, DC. Available online: https://www.worldbank.org/en/topic/water/publication/high-and-dry-climate-change-water-and-the-economy

[56] Budget 2026 Frequently Asked Questions (2026), South African Revenue Service. Available online: https://www.sciencedirect.com/science/chapter/monograph/abs/pii/B9780128167229000069

[57] Water Market Intelligence Report (2021), GreenCape. Available online: https://greencape.co.za/wp-content/uploads/2022/10/WATER_MIR_2021_31_3_21-3.pdf

[58] Assessing the Cost of Inaction on Water, Sanitation and Hygiene (WASH) in Namibia (2024), UNICEF and Ministry of Agriculture, Water and Land Reform. Available online: https://www.unicef.org/namibia/media/2051/file/WASH%20COSTREPORT%20ONLINE.pdf.pdf

[59] Gendered Effects of Water Scarcity on Rural Livelihoods in South Africa: A Feminist Political Ecology Perspective (2025), Makhanya et al. Available online: https://www.ajol.info/index.php/gab/article/view/303697

[60] Climate Change to Exacerbate the Burden of Water Collection on Women's Welfare Globally (2024), Carr, Kotz, Pichler, Weisz, Belmin and Wenz. Available online: https://doi.org/10.1038/s41558-024-02037-8

[61] Hydrogen Reality Check: Distilling Green Hydrogen's Water Consumption (2023), Rocky Mountain Institute (RMI). Available online: https://rmi.org/resources/hydrogen-reality-check-distilling-green-hydrogens-water-consumption/

[62] The Opportunities, Challenges and Potential for Hydrogen in Africa (2023), Dagnachew et al., PBL Netherlands Environmental Assessment Agency. Available online: https://www.pbl.nl/en/publications/the-opportunities-challenges-and-potentials-for-hydrogen-in-africa

[63] Does the Green Hydrogen Economy Have a Water Problem? (2021), Beswick, Oliveira and Yan. Available online: 10.1021/acsenergylett.1c01375

decarbonisation without exacerbating water scarcity. In parallel to managing water risk, the potential for other maladaptation risks and unintended consequences will also be carefully assessed as part of the E&S due diligence process undertaken for each potential investment (see Section G.1) and will draw on GCF's thematic brief and emerging industry practices. The goal will be to avoid risk and mitigate where avoidance is not possible through project design, and ongoing risk management.

B.2 (a). Theory of change narrative and diagram (max. 1500 words, approximately 3 pages plus diagram)

Goal Statement

SIDF, by its participation in CI3 Funds, aims to catalyse low-emission economic growth by accelerating the deployment of industrial decarbonisation solutions in hard-to-abate sectors in South Africa and Namibia. By demonstrating commercially viable investment models across these value chains, the CI3 Funds seek to mobilise private sector capital at scale and support a structural transition towards low-carbon industrial development.

Climate Problem

As described in Section B.1, South Africa and Namibia face different but related industrial decarbonisation challenges. South Africa must reduce emissions from an established, energy-intensive industrial economy while maintaining productive capacity and competitiveness and in parallel, managing the risk of stranded, fossil-fuel based assets along with other climate transition risks. Namibia is entering a period of industrial expansion, and the technologies, energy sources and infrastructure chosen now will determine whether that growth avoids or locks in future emissions. In both countries, deep emissions reductions in sectors such as steel, chemicals, fertilisers and heavy transport will require more than conventional efficiency improvements.

At the same time, physical climate risks add a further layer of complexity. Water scarcity, drought, rising temperatures, flooding and other extreme weather events can affect the reliability and bankability of industrial infrastructure, renewable energy assets and green hydrogen value chains. SIDF must therefore accelerate industrial decarbonisation while ensuring that supported assets can maintain their expected mitigation performance under changing climate conditions.

Market Failure

Despite strong renewable resource potential, clear national policy commitments and growing market demand for low-carbon industrial products, investments in green hydrogen, industrial decarbonisation and enabling infrastructure in South Africa and Namibia remain insufficient. Green hydrogen and other emerging decarbonisation value chains still lack the operating track record, level of demand and integrated infrastructure needed to give investors the confidence in future revenues and project performance. First-of-a-kind technologies add further uncertainty. Consequently, projects with substantial mitigation potential are not moving from concept through development, construction and operation quickly enough. With few projects reaching financial close and operation, the market cannot build the evidence needed to demonstrate commercial viability, reassure investors or mobilise private capital at the scale required for industrial transformation.

Investment Barriers

A range of investment barriers prevents technically credible projects from becoming investment-ready and from progressing to financial close and implementation. These include substantial upfront capital requirements, long development timelines, construction and execution risks, uncertain offtake arrangements and revenue visibility, evolving product standards and certification requirements, and limited availability of patient, risk-tolerant capital across the development and construction stages. These factors contribute to elevated costs of capital and constrain project viability, particularly for first-of-a-kind industrial decarbonisation investments. Project developers and investors must also manage previously mentioned physical climate risks that can affect the reliability, costs and mitigation performance of long-lived assets. These barriers delay projects, weaken expected risk-adjusted returns and reinforce investor caution, limiting the scale and pace of broader market development.

While these barriers and risks are material, the theory of change assumes that demand for low-carbon industrial products continues to develop, supported by industrial decarbonisation commitments, climate policies and evolving market requirements. It also assumes that sufficient technical, financial and execution capacity exists among project developers and partners, and that enabling infrastructure and supply chains can be developed or accessed where required. Failure of these conditions to materialise could affect project timelines, investment mobilisation and the pace of industrial transformation.

Need for Concessional Finance

The scale and risk profile of industrial decarbonisation investments in South Africa and Namibia mean that commercial capital is not currently available on the terms, at the stages, or at the scale required. Projects incur substantial development expenditure and face offtake, technology, construction, transition and execution risks before they can become investment-ready. Patient, risk-tolerant capital is particularly scarce during project development, while elevated costs of capital and risk perceptions constrain financing for construction and implementation.

Concessional finance is therefore needed to absorb risks that commercial investors are currently unable or unwilling to bear, including by funding project development and taking appropriately risk-tolerant positions within the blended finance structure. This support can strengthen project preparation and structuring, improve project- and fund-level risk-return profiles, and enable participation by investors with different risk-return requirements.

By helping projects move to operating assets, concessional capital can create the conditions for larger-scale participation by development finance institutions, impact investors, commercial financiers and institutional investors. In doing so, it helps establish a pipeline of investable projects, supports the demonstration of commercial viability in emerging value chains and contributes to broader market development and replication.

GCF Intervention

SIDF provides funding to the CI3 Funds which have a blended, whole-of-lifecycle financing structure that combines project-development capital with construction equity. By establishing the Development Tranche (DT) and tiered Construction Equity Tranches (CET), the CI3 Funds support projects from opportunity identification and development through construction, operation, refinancing and exit. Financing is combined with technical, financial, legal, environmental and social due diligence and structuring support, enabling technically credible concepts to become investment-ready projects and ultimately operating assets.

Project-development support includes technical, financial, legal, environmental and social assessment and structuring activities that help identify viable opportunities, strengthen project quality, reduce development risks and prepare projects for investment approval and financial close. During construction and operation CFM, as the Manager, remains an active investor and applies ongoing asset management, monitoring and ESG oversight. These activities are intended to improve project quality, manage execution and physical climate risks, and protect the reliability and long-term mitigation performance of supported assets.

Rather than financing isolated technologies, the CI3 Funds seek to develop integrated industrial decarbonisation value chains. Depending on project needs, this may involve renewable energy generation and storage, green hydrogen production, storage and distribution, water, transport and other enabling infrastructure, and industrial end uses such as green steel, fertilisers, chemicals and synthetic fuels. By supporting coordination across these interdependent components, CI3 Funds aim to reduce interface and coordination risks and strengthen the commercial and mitigation case for investment.

Private Capital Mobilisation

CI3 Funds' blended finance structure is designed to allocate, absorb and manage risks that currently constrain investment in industrial decarbonisation projects. At the fund level, a critical demonstration output is commercial viability. This means demonstrating that well-structured projects in hard-to-abate sectors can reach financial close, operate successfully and generate risk-adjusted returns. By building a track record of financed and operating projects, CI3 can address information gaps and investor concerns relating to technology performance, offtake structures, execution risks and financing models.

Private capital is expected to be mobilised directly through participation in the CI3 Funds' Construction Equity Tranches and, where applicable, alongside individual projects. By demonstrating commercially viable investment models and reducing investor uncertainty, the CI3 Funds aim to crowd in additional private sector capital across the project lifecycle. Over time, successful project development, construction and operation can create reference cases, transferable knowledge and more standardised investment approaches that support refinancing, replication and scaling beyond the initial portfolio and lifetime of the CI3 Funds.

Industrial Transformation

SIDF, via its participation in CI3 Funds, seeks to support the transformation of industrial systems in South Africa and Namibia by accelerating investment in low-emission technologies, production systems and enabling infrastructure across hard-to-abate sectors. Expected portfolio outputs include renewable energy generation and storage capacity; green hydrogen production, storage and distribution capacity; and low-carbon industrial applications in sectors such as green ammonia and fertilisers, synthetic fuels, iron and steel, chemicals and other hydrogen-enabled industrial processes. The Facility may also support enabling infrastructure and selected manufacturing activities for low-carbon technology components. Project development, construction and operation are also expected to create or support employment

opportunities across the green industrial value chain, while surplus renewable electricity generated beyond operational requirements may be supplied to external users where appropriate.

By linking renewable energy and green hydrogen production with transport, storage, water and other enabling infrastructure and downstream industrial applications, SIDF's support to the CI3 Funds seeks to accelerate the development of integrated industrial decarbonisation value chains. This supports a transition from carbon-intensive industrial systems that rely on fossil-based electricity, fuels, and production processes towards lower-emission industrial pathways based on renewable energy, green hydrogen and other decarbonisation solutions. In doing so, SIDF aims to demonstrate how industrial decarbonisation can be implemented across value chains rather than through isolated asset-level interventions. This can support the emergence of new markets for low-carbon industrial products, facilitate adoption of cleaner production technologies, and contribute to the longer-term transformation of hard-to-abate sectors in South Africa and Namibia.

Climate Impact

The CI3 Funds' portfolio is expected to contribute to measurable climate mitigation outcomes through several routes. Renewable energy generation and storage can displace higher-emission electricity used by industrial facilities. Green hydrogen and its derivatives can replace fossil-derived hydrogen, fuels, feedstocks, while industrial electrification, energy-efficiency measures and lower-emission production technologies can reduce both energy- and process-related emissions. SIDF's support to hard-to-abate industrial facilities is also expected to increase the value of physical assets that are more able to avoid or reduce greenhouse gas emissions, alongside reducing the transition risks that they face as a result of evolving policy and market pressures (refer to Annexure 2 for further detail).

Beyond these outcomes, the fund seeks to contribute to wider market transformation through the demonstration of commercially viable industrial decarbonisation pathways and increased mobilisation of private capital. Over time, the replication and scaling of successful investments is expected to generate additional emissions reductions beyond those directly attributable to the Fund.

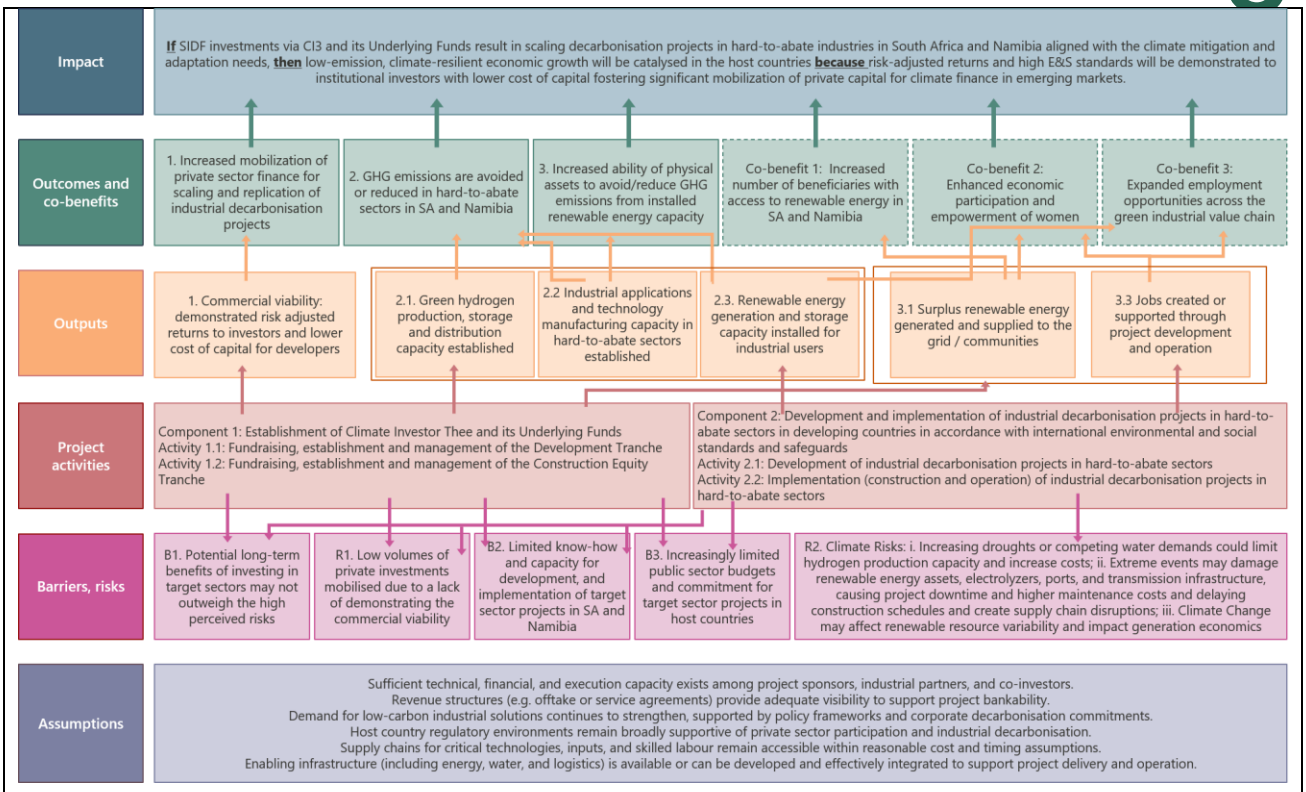
SIDF via its participation in the CI3 Funds is also expected to generate the following **socio-economic co-benefits**:

1. Where **surplus renewable electricity** from supported projects is supplied to local communities or other grid-connected beneficiaries, it can increase access to renewable energy and contribute to energy-system reliability. This is particularly relevant in contexts exposed to energy supply constraints including routine outages and rural electrification as is the case in both South Africa and Namibia.
2. **Enhanced economic participation and empowerment of women** is supported through targeted gender-responsive measures as further detailed in the Fund's gender action plan (Annex 8). At the Sub-Project level, actions relate to recruitment, gender-responsive workplace safeguards, economic empowerment initiatives, and gender-responsive community engagement. Where feasible, Sub-Projects that make excess energy available to local communities may also contribute to women's empowerment: improved reliability of supply reduces the time and cost constraints that can otherwise limit their income-earning potential, provided the enabling framework is in place to ensure women are intentionally targeted as beneficiaries.
3. **Expanded employment opportunities** are supported across the green industrial value chain, primarily as indirect effects associated with investee activities such as green ammonia production, low-carbon industrial applications, and related supply chains. These opportunities arise primarily as indirect or value chain effects associated with the deployment of low-carbon industrial applications, including activities such as ammonia production and related supply chains. Such opportunities are particularly relevant in both countries for different reasons; in South Africa, to support the government in its commitment[64] to protect vulnerable workers and communities, especially coal miners, women and youth that will be affected by the move away from coal, and in Namibia in support of its affirmative action and policies to promote employment opportunities for vulnerable and disadvantaged groups as part of a growing economy.

Figure 2: SIDF Theory of Change

[64] Refer to the Just Energy Transition Investment Plan which cites the Political Declaration which was signed between the Government of South Africa and the Governments of France, Germany, United Kingdom, United States, and the European Union (collectively, the International Partners Group [IPG]) at COP26, and which gave rise to the establishment of the Just Energy Transition Partnership (JETP).

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B.2 (b). Outcome mapping to GCF results areas and co-benefit categorization

Outcome number	**GCF Mitigation Results Area (MRA 1-4)**				**GCF Adaptation Results Area (ARA 1-4)**			
	MRA 1 Energy generation and access	**MRA 2** Low-emission transport	**MRA 3** Building, cities, industries, appliances	**MRA 4** Forestry and land use	**ARA 1** Most vulnerable people and communities	**ARA 2** Health, well-being, food and water security	**ARA 3** Infrastructure and built environment	**ARA 4** Ecosystems and ecosystem services
Outcome 1: Increased mobilization of private sector finance for scaling and replication of industrial decarbonisation projects	X		X					
Outcome 2: GHG emissions are avoided or reduced in hard-to-abate sectors in SA and Namibia	X		X					
Outcome 3: Increased ability of physical assets	X		X					

to avoid/reduce GHG emissions from installed renewable energy capacity								

Co-benefit number	**Co-benefit**					
	Environmental	**Social**	**Economic**	**Gender**	**Adaptation**	**Mitigation**
Co-benefit 1: Increased number of beneficiaries with access to renewable energy in SA and Namibia	☐	☐	☐	☐	☒	☐
Co-benefit 2: Enhanced economic participation and empowerment of women	☐	☒	☐	☒	☐	☐
Co-benefit 3: Expanded employment opportunities across the green industrial value chain	☐	☒	☐	☐	☐	☐

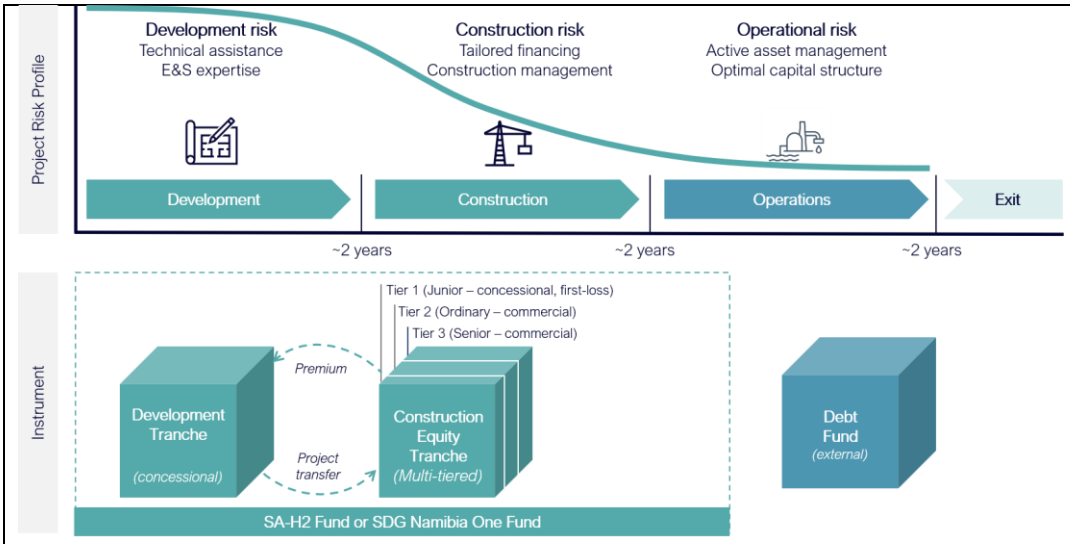
B.3. Project/programme description (max. 2500 words, approximately 5 pages)

CI3 Funds provide funding for the development and construction/operation stages of the projects through the Development Tranche (DT) and Construction Equity Tranche (CET), respectively. The DT is a unique feature which de-risks certain development-related risks of infrastructure investments. Studies suggest that roughly 70% of projects in EMDEs never move beyond the feasibility stage and this rate is even higher in Africa. Key reasons include inadequate funding for technical assessments, studies, and data sourcing; unclear or unattractive risk-return profiles; and insufficient local institutional support or capacity during critical early-stage development.[65] The DT addresses this specific challenge by providing 'development loans' to projects. These development loans are at risk of the fund and are only repaid upon graduation.

Once projects successfully complete their development phase, they 'graduate' to the construction phase where 'equity' capital from CET is injected into bankable projects to implement the construction and operation stages and successfully deliver industrial decarbonisation projects in South Africa and Namibia.

Figure 3: "Whole of Lifecycle" Blended Finance Approach

[65] RMI (2026). From Bottlenecks to Breaking Ground. How catalytic finance and smart project preparation can turn ambitious climate and development goals into investable pipelines. Available online: https://rmi.org/resources/cop30-project-finance-preparation/



Development Tranche (DT):

The aim of the DT is to focus on de-risking projects during the development stage and ensure that projects meet international ESG standards, secure permits while improving commercial viability and risk-return profile. The DT provides support in the form of development loans which includes funding for:

- Feasibility studies
- Technical studies
- Legal and structuring advisory
- Environmental & Social Impact Assessments (ESIAs)
- Gender assessments
- Stakeholder engagement processes

Construction Equity Tranche (CET):

During the construction and operations stage, the equity solutions of CET seek to reduce the overall cost and time of getting projects operational by:

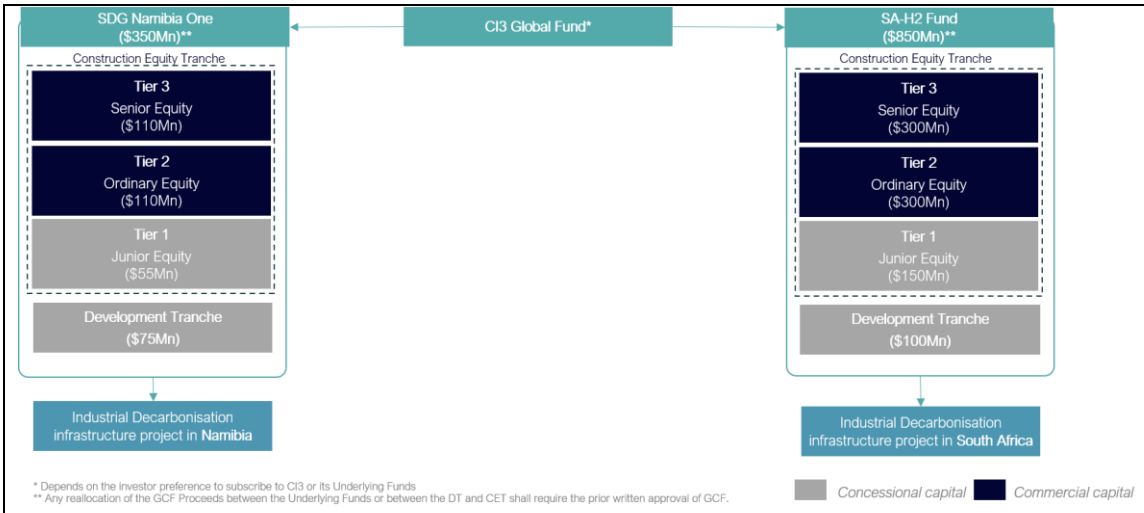
- Providing continuity in funding from development to construction stage without fundraising delay and mismatch in investor expectations
- Reducing construction timeline and thereby reducing the (costly) exposure period to investors,
- Reducing costs by eliminating the need for certain debt-specific costs

If the project receives equity funding from CET, the development loan provided by DT is reimbursed with a premium. This is how CFM ensures that DT, which primarily has donor funding, remains 'self-replenishing' by recycling its capital. As it is expected that not all projects successfully complete the development phase (CFM expects 2/3rd of the projects to graduate), the DT is reimbursed with a premium that compensates for losses made on unsuccessful projects. The premium paid remains subject to the default rate within the DT (but would equal 50% if the default rate does end up at a third).

The current envisaged size for SA-H2 is USD 850Mn and for SDGNO is USD 350Mn. The high-level summary of the flow of funds and breakdown of funding sizes across different tranches is outlined in the figure below.

Figure 4: Breakdown of Funding Sizes for the CI3 Funds

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SIDF is expected to support a diversified and balanced portfolio of the CI3 Funds in industrial decarbonisation, enabling infrastructure and selected investments in green hydrogen and its derivates as critical inputs in industrial process, fuels and downstream applications. The indicative portfolio mix of technology sectors is as follows:

(indicative and subject to change as the pipeline evolves)

Industrial Decarbonization and Enabling Infrastructure:

- Renewable energy (including solar, wind, run-of-river hydro, biomass, biogas, geothermal energy and energy efficiency) associated with decarbonisation of hard-to-abate industries
- Large-scale battery energy storage systems (BESS) and other energy storage solutions
- Carbon capture, utilisation and storage (CCUS) infrastructure to capture CO_2 from flue gas or process streams using solvents, sorbents, or membranes and associated CO_2 transport and storage networks.
- appliances and related infrastructure for green hydrogen and its derivatives (including mobility, transport, heating, industries, fertiliser companies);
- transportation, transmission, distribution and storage infrastructure for green hydrogen and its derivatives (including ports, shipping, storage and/or batteries, (re)conversion, transformation, re-electrification, fuel cells and pipelines)
- any other associated infrastructure and services required to facilitate the energy transition and/or the green hydrogen/power-to-X value chain.

Green Hydrogen and its derivatives:

- Electrolyser installations for the production of green hydrogen.
- Water supply and treatment facilities for electrolysis.
- Air separation units (ASUs) for oxygen co-production, where relevant.
- Balance of plant and auxiliary systems for hydrogen production, including compression, purification, and monitoring
- Grid interconnection and dedicated power lines for green hydrogen hubs.
- Industrial process conversion and retrofitting infrastructure to enable hydrogen use in sectors such as:
  - Steel (e.g., direct reduced iron with green H_2)
  - Cement (e.g., hydrogen-fired kilns and hybrid fuel systems)
  - Chemicals and fertilisers for domestic uses (e.g., green ammonia production and integration with existing assets)
- Infrastructure for green hydrogen derivatives (e.g., green ammonia, e-fuels)in Industrial processes and heating
- Heavy-duty transport and logistics decarbonization:
  - Hydrogen dual-fuel and/or fuel-cell locomotives, trucks, buses, and ships.
  - Establishment of hydrogen refuelling hubs at strategic ports, corridors, and industrial zones.
  - Integration with battery-electric mobility systems for complementary logistics decarbonization.

We expect a growing demand for large volumes of competitively priced green hydrogen in other parts of the world (especially Europe and Asia). Importantly, the large export focused projects will support economies of scale and make

efficient use of the existing infrastructure such as ports and roads bringing down the costs of green hydrogen and its derivates. Therefore, SA-H2 and SDGNO are targeting a balance in large export-oriented green ammonia and hydrogen projects as well as local industrial applications, without relying fully on the near-term realization of such large export projects.

This positioning has been reflected in SIDF's pipeline development and deployment profile, with capital deployment shifting across sectors in line with project readiness – from delayed large export-oriented projects to a greater share of local industrial decarbonisation investments.

Components, activities and underlying (sub)activities of SIDF:

Component 1: Establishment and management of Climate Investor Three and its Underlying Funds

The first component aims at establishing and raising funding for CI3, SA-H2 and SDGNO. Thereafter, it aims at managing the relevant legal entities that underpin the CI3 Funds, including the fund managers and the vehicles through which development and construction capital are deployed. This includes putting in place and maintaining all legal, fiduciary, governance, risk management, and operational arrangements required for the effective implementation.

Activity 1.1: Fundraising, establishment, and management of the Development Tranche (DT)

CFM will continue to raise donor and catalytic funding, including development loans capital and other appropriate forms of concessional finance, for the DT of the Underlying Funds. The DT will finance early-stage project development activities for industrial decarbonisation projects in hard-to-abate sectors in South Africa and Namibia. CFM will proactively engage donors, philanthropic foundations, development finance institutions, and multilateral organisations whose mandates align with climate mitigation, adaptation, just energy transition, and green industrialisation objectives. Once the DT has reached its targeted commitments, CFM will oversee and manage all affairs of the legal entity throughout the implementation period in the respective countries of domicile.

Activity 1.2: Fundraising, establishment, and management of the Construction Equity Tranches (CET)

CFM will continue to raise funding for the different traches from commercial investors, institutional investors, DFIs, impact-oriented investors, family offices etc. for the CET of the Underlying Funds. The CET will provide construction-phase equity to projects advanced through the DT and will maintain a blended finance structure designed to improve the risk-return profile for private investors while preserving climate impact integrity. Once the targeted commitments and final closing are achieved, CFM will oversee and manage all affairs of the legal entity for the duration of the implementation period in the respective countries of domicile.

Outcome 1: Increased mobilisation of private sector finance for scaling and replication of industrial decarbonisation projects

By successfully establishing the blended finance structure of the CI3 Funds and mobilising concessional and commercial capital, CFM will engage private sector investors in industrial decarbonisation opportunities that would otherwise remain underfinanced. It does so in three main ways:

(i) by directly mobilising private finance through a blended finance solution that makes investment in first-of-a-kind or early-market projects more attractive;

(ii) by demonstrating that whole-of-lifecyle project financing can improve bankability and lower the cost of capital for project developers in hard-to-abate sectors; and

(iii) by demonstrating the commercial viability of industrial decarbonisation, green industrialisation, renewable energy, and enabling water-related infrastructure projects in South Africa and Namibia.

This outcome is closely linked to the development and successful implementation of projects under Component 2 and contributes to broader market creation and replication.

Output 1: Commercial viability demonstrated

SIDF, via the CI3 Funds, will demonstrate that projects in hard-to-abate sectors can deliver risk-adjusted returns to investors while lowering the cost of capital for developers through a blended finance and whole-of-lifecycle financing approach. This output is essential for crowding in institutional capital and building a replicable investment track record.

Component 2: Development and implementation of industrial decarbonisation projects in hard-to-abate sectors in South Africa and Namibia

Activity 2.1: Development of industrial decarbonisation projects in hard-to-abate sectors

Activity 2.1.1: Identification of potential investment opportunities and initial due diligence.

CFM deal teams will originate and screen potential project opportunities across the green industrialisation value chain in South Africa and Namibia. This may include a mix of projects linked to industrial decarbonisation, green hydrogen and its derivatives, renewable energy generation and enabling infrastructure. Once a potential opportunity has been identified and sufficient preliminary information has been gathered, the case will be presented to the Underlying Fund Investment Committee (IC) for initial screening and guidance. The IC will determine whether:

(i) the project fits within the investment mandate of the Underlying Funds;

(ii) the project has sufficient climate rationale and commercial potential; and

(iii) additional information, restructuring, or due diligence is required before presentation to the Underlying Fund IC for development funding.

Following screening approval, the deal team will undertake the tasks required to strengthen the project case. During this phase, the team will assess the technical, financial, legal, commercial, environmental, social, and climate dimensions of the opportunity. Initial due diligence will also be carried out on project sponsors, co-developers, offtakers, technology providers, and other key counterparties. Where necessary, the project structure will be refined to enhance bankability, reduce implementation risks, and improve alignment with the Funds' climate impact and investment criteria. The nature of E&S due diligence varies based on the risk categorization and involves document reviews, site visits, assessment of project developers' E&S awareness and capacity etc. based on which an E&S action plan is prepared. Refer to Section F for more information relating to the E&S risk assessment process.

Activity 2.1.2: Project approval by the Underlying Fund IC for the development funding

Once the initial due diligence and structuring work have been completed, the deal team will present the investment case again to the respective Underlying Fund's IC for the development stage approval. The Committee will assess whether the project is consistent with the respective fund's climate mitigation objectives, development rationale, commercial approach, and risk appetite.

For mitigation, the deal team will explain how the project's products, services, or technologies will reduce, avoid, or displace greenhouse gas emissions in hard-to-abate sectors along with the green industrialisation value chain. This may include, for example, emissions reductions through cleaner industrial processes, renewable energy substitution, green hydrogen production and use, or supply-chain decarbonisation. The proposal will outline the project's mitigation logic, climate rationale, expected greenhouse gas accounting approach, and key indicators to be monitored over time.

For physical risks assessment, the deal team should explain how physical climate risks have been considered to ensure durability and performance of mitigation investments. The deal team will describe how the project responds to observed or projected climate risks relevant to industrial operations and surrounding communities, including water stress, drought, climate variability, and other physical climate hazards. Particular attention will be given to projects where water availability, resilient energy supply, or climate-proofed infrastructure are material to sustained operation. The proposal should also clarify how the project avoids maladaptation and contributes to more climate-resilient economic development.

At this stage, the IC may also approve terms of reference for more detailed independent assessments to be carried out during the project development phase. Only after approval by the IC would a proposed investment receive DT resources to move into detailed due diligence and project development.

Activity 2.1.3: Project development and extensive due diligence

Following this IC approval, the project enters the full development phase. During this stage, CFM, supported by independent technical, legal, environmental, social, and other advisers, will undertake extensive due diligence to prepare the project for a final investment decision by the IC for construction equity funding. This phase may include, but is not limited to, stakeholder engagement, land and permitting assessments, legal structuring, engineering and design studies, market analysis, financial modelling, gender assessment, environmental and social impact assessment, and climate risk analysis etc.

Where relevant, this phase will also include assessments of industrial decarbonisation, potential water resource availability and sustainability, renewable energy integration, transmission or logistics requirements, community impacts,

workforce needs, and compliance with the CI3 Funds' E&S Requirements. All material concerns and any gaps with the CI3 E&S Requirements must be resolved (or an action plan implemented to resolve them in accordance with the requirements of the CI3 Funds Responsible Investment Code) before a project can proceed to the construction phase. For more information, refer to Section F.

Activity 2.2: Implementation (construction and operation) of industrial decarbonisation projects in hard-to-abate sectors

Activity 2.2.1: Project approval by the Underlying Fund IC for construction equity funding

Upon successful completion of the development case, the deal team will resubmit the project to the IC for the construction equity funding. This submission will include the full package of due diligence findings and all relevant technical, commercial, legal, environmental, social, gender, and climate assessments. Only after approval by the IC and following satisfactory completion of independent assessments and detailed due diligence will a proposed investment receive construction-phase equity from the CET.

The funds don't take any technology risk as investments are made only in proven technologies from known/trusted manufacturers. In addition, the projects need to have secured offtake agreements or be in advanced discussions stage. The projects are also required to have secured all the necessary contracts, permits and licenses such as EPC contracts and OEM maintenance contracts. For E&S requirements, prior to seeking approval for equity funding, independent due diligence will be conducted by suitably qualified experts with a track record and knowledge of all applicable legal and other requirements to satisfactorily assess the project's alignment with CI3's E&S requirements as set out in the CI3 Environmental and Social Management System. The ESMS for CI3 serves as the ESMS for SIDF as well. For more information, refer to Section F.

Activity 2.2.2: Project construction

Following the IC approval, the projects will repay the development financing provided by the DT, including any premium required to preserve the revolvability of the development capital, and will commit equity to finance the construction phase. During construction, CFM will take active asset management approach, actively overseeing and managing implementation, including through board representation, shareholder oversight, or participation in project-level governance bodies, as appropriate. This oversight will support timely project delivery, value creation, E&S compliance, and effective risk management.

Activity 2.2.3: Project operation, refinancing, and exit

Once construction is completed, the project will enter operations. After the project has demonstrated stable performance in operational, climate impact, and cash flow terms, CFM will seek to optimise the capital structure, including through project-level debt refinancing where appropriate.

B.4. Implementation arrangements (max. 1500 words, approximately 3 pages plus diagrams)

TRANSACTION OVERVIEW

With a GCF participation of USD 140Mn via SIDF, the prospective fund size of the CI3 Funds is estimated at USD 1200Mn, comprising USD 175Mn for the DT and USD 1025Mn for the CET. GCF participation would enable the CI3 Funds to scale significantly and provide scarce, highly additional concessional capital to the structure, to crowd in further private sector participation with a mobilisation ratio of 1:4 and even higher at the project level. To operationalise this, CI3 acts as a central fund-of-funds and adopts a national-level approach across South Africa and Namibia, implemented through two Underlying Funds: the SA-H2 Fund ("SA-H2") for South Africa and the SDG Namibia One Fund ("SDGNO") for Namibia. Out of USD 140Mn, SA-H2 will receive USD 84Mn as Tier 1 of the CET. SDGNO will receive a total of USD 56Mn - USD 15Mn for the DT and USD 41Mn as Tier 1 of the CET. The aggregate allocation across CI3 Funds to the CET shall therefore amount up to USD 125Mn while up to USD 15Mn shall be allocated to the DT of SDGNO Fund. Any reallocation of the GCF Proceeds between the Underlying Funds or between the DT and CET shall require the prior written approval of GCF.

ROLES AND RESPONSIBILITIES:

Roles and Responsibility of DBSA as the AE:

- Policy alignment: Passing down of relevant GCF policies to the Fund level and portfolio company-level.
- FAA compliance: Monitor EE's compliance with FAA, including retro-active policy compliance to the GCF's policies,
- Monitoring and Reporting: Analyzing quarterly reports and annual performance reports
- Financial Management: Maintaining GCF accounts and Disbursing GCF (equity) proceeds

- Governance: Representing the GCF on Donors/Investors Meetings and Advisory Board of CI3 and Underlying Funds
- Evaluation: Assessing achievement of SIDF, targeted outcomes, and results as per the log-frame, while commissioning independent interim and final evaluation reports as per GCF's requirements.

Table 2: Roles and Responsibility of the EEs:

EEs	Roles and Responsibility
• **Coöperatief CI3 Global Fund U.A. (CI3 Global Fund or CI3)**	Operates as a fund-of-funds with CFM EU BV. as the Statutory Director, participating in establishing the Underlying Funds and their respective Fund Managers.
• **SDG Namibia One Fund Trust (SDGNO Fund or SDGNO)** • **SA-H2 Fund (or SA-H2)**	Funds established for the sole purposes of financing the development, construction and operation stage of industrial decarbonisation projects in South Africa and Namibia
• **CFM EU BV (CI3 Global Statutory Director or Statutory Director)** • **SA-H2 GP (Pty) Ltd (SA-H2 GP)**	The Statutory Directors and General Partners are responsible for overseeing fund governance and appointing the fund managers on behalf of the fund.
• **Climate Fund Managers B.V. (CFM or the Manager)** • **SA-H2 Fund Managers (Pty) Ltd (SA-H2 Manager)** • **Namibia Hydrogen Fund Managers (SDGNO Manager)**	Fund Managers of the respective funds are responsible for pipeline origination, project development, transaction execution, portfolio management, investment monitoring and day-to-day management of the CI3 Funds

Roles and Responsibilities of the Strategic Partners:

Environmental Investment Fund of Namibia (EIF) is CFM's implementation partner in Namibia. EIF's main contribution will be to provide strategic insight, contextual expertise and to facilitate stakeholder engagement in Namibia through participation in boards and advisory structures. CFM, as the experienced and primary executing entity, remains responsible for all core fund management functions, including any reporting, ensuring consistency and accountability across investment activities.

Namibia Hydrogen Fund Managers (SDGNO Manager) was established by CFM EU and the Environmental Investment Fund of Namibia ("EIF") and incorporated in the Netherlands.

Invest International: Invest international is one of the first backers of the CI3 and has provided EUR 90Mn in commitments to CI3 Development and Construction Equity Tranche. CFM EU B.V. is owned by Climate Fund Managers B.V. ("CFM") and Invest International Investment Management B.V.

Experience of the Involved Parties:

DBSA: Since its accreditation by GCF in 2016, DBSA has acted as AE and EE on several programmes including the DBSA Climate Finance Facility (FP098 - 2018), the Embedded Generation Investment Programme (FP106 - 2019) and the Climate Change Resilience through South Africa's Water Reuse Programme (FP209 - 2023), demonstrating strong financial controls and reporting systems. DBSA teams have extensive experience in managing complex multi-country programmes, providing project preparation support to develop bankable infrastructure projects and providing implementation capital to large scale infrastructure projects across Africa. In implementing GCF funded activities, DBSA ensures compliance with international fiduciary standards and has demonstrated its ability to manage financial transactions and comply with fiduciary standards. DBSA will continue to play a critical role in catalysing public and private sector investment in green industrialisation in SA and Namibia through its accreditation with the GCF. DBSA has extensive experience in renewable energy in South Africa through its pioneering role of assisting the government in setting up the Independent Power Producer Procurement Programme Offices that subsequently implemented the Renewable Energy Independent Power Producer Procurement Programme (REIPPPP).

CFM: Climate Fund Managers (CFM) is currently the Executing Entity for FP099 Climate Investor One (approved by the GCF Board in Bahrain in 2018), FP190 Climate Investor Two (approved by the GCF Board in Seoul in 2022) and FP223 Project GAIA (approved by the GCF board in Tbilisi, Georgia in 2023). Both FP099 and FP190 are Programmatic Approaches and have been successful in efficient and effective deployment of GCF proceeds towards the development and construction of renewable energy and water and sanitation infrastructure in Latin America, Asia and Africa. Both

Funding Proposals had FMO, the Dutch Development Bank, as its AE. FP223 has MUFG Bank as the AE. CFM also got accredited to the GCF at the GCF Board B.45 in Dushanbe, July 2026 (including large projects up to Category I-1).

EIF: EIF is accredited to GCF in decision B.10/06, paragraph (c), in July 2015 as Direct Accredited Entity (DAE) and subsequently re-accredited in the year 2021. The EIF is accredited under projects/programme activities of Micro size (up to and including USD 10Mn). The EIF has four GCF-approved funded activities (FP023, FP024, SAP001 and SAP006) which are all adaptation projects in drought-stricken rural communities in Namibia. The total approved funding for EIF projects is USD 39.1Mn (comprising USD 37.7Mn in GCF financing and USD 1.4Mn in co-financing).

Invest International: Invest International is a joint venture between the Dutch government (Dutch Ministry of Finance) and FMO, officially established on July 28, 2021, with the purpose of supporting Dutch companies in financing innovative solutions that contribute to the Sustainable Development Goals.

Organisational structure and team composition:

The CI3 Funds' team structure is built around a locally anchored fund management model in South Africa and Namibia, led by dedicated fund CEOs responsible for day-to-day management and strategic leadership of country-level vehicles. The core investment teams are established in-country and are supported by CFM's central Corporate and Investment Services, which provides shared expertise across functions such as HR, governance, marketing, structuring and valuations, finance, investor relations etc. Recruitment remains ongoing, with additional roles to be filled as the fund progresses toward first close, reflecting a phased scaling of operational capacity.

At the functional level, the team composition combines investment, technical, and ESG capabilities required for industrial decarbonisation and green hydrogen projects. The organisational structure includes roles such as CEO, Investment Director, Senior Investment Manager, Investment Associates and Analysts, as well as specialised functions including ESG Manager and Technical Manager. This multidisciplinary setup enables the CI3 Funds to originate, develop, and manage projects across the full lifecycle, while leveraging external partners and advisors where needed.

B.5. Justification for GCF funding request (max. 1000 words, approximately 2 pages)

Both South Africa and Namibia face significant investment needs for industrial decarbonisation underscoring the catalytic role of SIDF. In South Africa, decarbonising heavy industry requires large-scale capital deployment- to the order of ZAR 792-948Bn[66]. Namibia similarly requires substantial investment — estimated at USD 40Bn by 2050 — for green industrial projects.[67] At the same time, according to OECD 2025 analysis, between 2000 and 2023, only USD 1.5Bn or less than 1% of total mitigation-related international development finance went to industrial decarbonisation in EMDEs. This led to mobilisation of USD 2Bn in private finance in these sectors. OECD suggests that additional USD 5Bn in grants and USD 3Bn in concessional finance will be needed for industrial decarbonisation in EMDEs from international public finance providers.[68]

Within this context, SIDF's design leverages the increasingly scarce yet highly additional GCF contribution to provide "whole of lifecycle" financing to industrial decarbonisation projects. It does so in the following ways:

- **Concessionality needed at project development stage for targeted de-risking:** A part of the funding from GCF is deployed as 'development loans' via the Development Tranche, and this plays a key role in de-risking the projects. It will fund, *inter alia*, project due diligence; FEED studies; environmental and social impact assessment studies; permitting and licensing; transaction structuring; action as may be required to align with GCF's best practices for country ownership; impact analysis and forecasting; gender analysis and preparation of action plans; and any other studies that may be required to prepare a project for final investment decision (while remaining compliant to international standards). This funding addresses a critical market failure that arises during the pre-financial-close phase of industrial decarbonisation projects. Bringing large-scale industrial decarbonisation projects to an investment-ready stage requires significant expenditure on technical, environmental, social, commercial and legal activities long before a project can demonstrate bankability or secure committed financing. At this stage, projects face substantial uncertainty regarding technological feasibility, permitting outcomes, infrastructure access, offtake arrangements and financing availability. Because there are no predictable cash flows against which these activities

[66] Climate Policy Initiative (2025). South African Climate Finance Landscape 2025. Presidential Climate Commission, South Africa. Available online: https://www.climatepolicyinitiative.org/publication/the-south-african-climate-finance-landscape-2025/

[67] GH2 Namibia. (2022). *Green industrialisation blueprint*. Namibia Green Hydrogen Council. Available online: https://gh2namibia.com

[68] OECD 2025. Support for decarbonising heavy industry in emerging markets and developing economies. Available online: https://www.oecd.org/en/publications/support-for-decarbonising-heavy-industry-in-emerging-markets-and-developing-economies_7787cde0-en.html

can be financed and because financial close remains uncertain, commercial lenders and investors are generally unwilling to provide capital for these activities. The development loans provided by SIDF are intended to overcome a temporary financing gap rather than provide a permanent subsidy. If and when a project under development graduates to the CET, development loans are reimbursed with a premium and are then recycled into new projects, enabling the same GCF capital to support development of multiple industrial decarbonisation projects. The premium is structured in a manner that ensures the Development Tranche remains whole and to ensure the GCF's proceeds are repaid at the end of the project's lifetime.

- **Concessionality needed at construction stage to address markets and unlock commercial investments:** Nascent sectors such as industrial decarbonisation demand large-scale patient capital at rates which can still compete with traditional (carbon-intensive) technologies. Although project risk profiles may improve as demand for low-carbon products and renewable energy increases and pressure mounts from transitions-risk perspective, a persistent financing gap exists for large-scale infrastructure projects. Such projects face several challenges in attracting commercial investments such as:
  - Upfront capital: The need for upfront capital rises significantly as projects move from development into construction but public finance for grants and subsidies is increasingly scarce.
  - Construction stage-risks and longer lead times: Projects in emerging markets face elevated construction-stage risks, including cost overruns, delays, relatory uncertainty, supply-chain constraints, limited contractor depth, currency risk, and offtaker or counterparty concerns. These risks can materially affect commercial viability beyond the risk appetite of traditional commercial investors. Addressing this often requires substantial construction-stage equity or risk capital before the projects are sufficiently de-risked for senior lenders.
  - First-of-a-kind industrial risk: Many eligible projects represent early commercial applications of low-carbon industrial production pathways. These investments generate significant demonstration, learning and market-creation benefits that extend beyond the project itself. At the same time, they face first-of-a-kind technology and integration risks, uncertain demand, long investment horizons and limited operating precedents. Conventional lenders and institutional investors generally participate in such projects only after these risks have been substantially reduced. As a result, without concessional finance, such projects are delayed, reduced in scope or prevented from reaching operations stage. In the absence of operating evidence risks are sustained for subsequent investments and investment case further weakens.

- **High cost of capital:** The industrial decarbonisation projects in emerging markets face high cost of capital. An OECD study in 2023 found that the relatively high cost of capital remains a key constraint on the cost-competitiveness of green hydrogen, as is the case for many low-carbon technologies required to achieve net-zero emissions.[69] This largely reflects elevated investment risks, including uncertainties related to offtake (price and volume), country conditions, liquidity, technology maturity, and market pricing dynamics. As a result, a number of projects initially expected to become operational in 2022-2023 have faced delays. The study suggests that an increase in the cost of capital (*or* weighted average cost of capital / WACC) from 10% to 20% can lead to a substantial increase of up to 73% in the Levelized Cost of Hydrogen (LCOH).[70] This in turn increases the cost of industrial decarbonisation and climate mitigation in general.

B.6. Exit strategy (max. 500 words, approximately 1 page)

FINANCIAL SUSTAINABILITY AND EXIT STRATEGY

Each investment supported under the CI3 Funds is structured to be commercially viable and self-sustaining in the long term, ensuring the programme's impact endures after the involvement ends. The three principles of commercial viability are as follows:

- Self-Sustainability and Diversified Revenue Streams: Strong, long-term revenue models to generate sufficient income and independently is a pre-requisite ensuring longevity beyond exit. Finding multiple revenue streams or end uses for green products is highly encouraged.
- Planned Exits: A clear exit plan is developed to attract follow-on private investors, refinancing and recycling capital.

[69] Lee, M. and D. Saygin (2023), "Financing cost impacts on cost competitiveness of green hydrogen in emerging and developing economies", *OECD Environment Working Papers*. Available online: https://doi.org/10.1787/15b16fc3-en

[70] WACC represents the minimum return a project must generate to be considered investable, while the internal rate of return (IRR) reflects the actual return generated by the project based on its expected revenues and cash flows. Where the WACC is too high relative to the IRR, the project will struggle to attract investment.

- Market-Driven Adaptability: By pivoting and innovating, projects can stay competitive and financially sound well into the future.

Expected buyers after exit include large strategics, large institutional, large PE funds or buy-outs structures by co-shareholders. If equity sales seem unlikely, self-liquidating investments may be structured (e.g. mezzanine) that provide a full exit through project/investment distributions within the Fund life.

REPLICABILITY AND SCALABILITY

The CI3 Funds are designed for replicability, scalability and long-term impact at the global, national, and sectoral levels. It will aim to set a precedent for other development finance institutions and private investors to replicate in new markets. This approach removes critical barriers (e.g. financing gaps and high upfront risks) by ensuring projects progress smoothly from concept to full operation, with a clear path to continue beyond the CI3 Funds's exit. Evidence on technology performance, construction costs, operational integration, offtake, safeguards and risk allocation can reduce uncertainty for subsequent investments. This can support replication across industrial sectors, improve risk pricing and enable later projects to mobilise a greater share of commercial and institutional capital.

According to a BII-BCG report on 'Scaling Blended Finance: Practical tools for Blended Finance Fund design', a three-tier equity fund design with junior, mezzanine and senior tranche have high mobilisation potential at scale to channelize institutional investment into high risk, new technologies in emerging markets and developing countries.[71]

The CI3 Funds also serve as a clear indication of replicability and mobilisation potential of the 'Climate Investor' model. Since the launch of Climate Investor One (CI1) in 2017, the model has been adapted and expanded through subsequent vehicles, including Climate Investor Two (CI2), Climate Investor Three (CI3), and the GAIA Climate Loan Fund, demonstrating its ability to mobilise capital for different climate sectors while maintaining the same core structuring principles. Credible industry associations like International Coalition for Sustainable Infrastructure have cited the 'Climate Investor' model to be replicable for increasing capital flows towards climate infrastructure sectors. [72]

Specifically, the elements that can be replicated include: (i) the three-tier blended finance structure combining concessional, mezzanine and commercial capital; (ii) the project preparation and development methodology used to bring early-stage climate infrastructure projects to bankability; (iii) standardised contractual, governance, ESG and impact-management frameworks; and (iv) the value-chain approach that identifies and addresses bottlenecks preventing private investment in emerging sectors. The Climate Investor model therefore provides a repeatable framework that can be applied to other industrial decarbonisation sectors, technologies and EMDE markets. In the context of CI3, lessons generated through project development, transaction structuring, risk allocation, offtake arrangements, hydrogen ecosystem development, and policy engagement will be captured and disseminated through case studies, knowledge products, stakeholder engagement, and collaboration with local developers, contractors and other financial institutions. These lessons can inform the development of similar industrial decarbonisation and green hydrogen investment platforms in other EMDEs facing comparable barriers to private investment.

FINANCING INFORMATION

C.1. Total financing

(a) Requested GCF funding (i + ii + iii + iv + v + vi + vii)	Total amount			Currency
	140			million USD ($)
GCF financial instrument	**Amount**	**Tenor**	**Grace period**	**Pricing**
(i) Senior loans	Enter amount	Enter years	Enter years	Enter %
(ii) Subordinated loans	Enter amount	Enter years	Enter years	Enter %

[71] Scaling Blended Finance II: Optimising Catalytic Capital in Blended Finance Funds (2026), Boston Consulting Group (BCG). Available online: https://www.bcg.com/publications/2025/scaling-blended-finance-practical-tools-for-blended-finance-fund-design

[72] Climate Investor Two: Resilient Infrastructure Case Study (2023), Coalition for Climate Resilient Investment (CCRI). Available online: https://sustainability-coalition.org/case-study/climate-investor-two/

(iii) Equity	140,000,000			Enter
(iv) Guarantees	Enter amount	Enter years	Enter years	Enter %
(v) Reimbursable grants	Enter amount	Enter years	Enter years	Enter %
(vi) Grants	Enter amount	Enter years	Enter years	Enter %
(vii) Results-based payments	Enter amount	Enter years	Enter years	Enter %

(b) Co-financing information	**Total amount**	**Currency**
	1060	million USD ($)

Name of institution	**Financial instrument**	**Amount**	**Currency**	**Tenor & grace**	**Pricing**	**Seniority**
The Development Tranche Donors	Reimbursable Grants	160	million USD ($)	Enter years	Enter %	junior
Tier 1 investors	Equity	80	million USD ($)	Enter years	Enter %	junior
Tier 2 investors	Equity	410	million USD ($)	Enter years	Enter %	senior
Tier 3 investors	Equity	410	million USD ($)	Enter years	Enter %	senior

(c) Total financing (c) = (a)+(b)	**Amount**	**Currency**
	1200	million USD ($)

(d) Other financing arrangements and contributions (max. 250 words, approximately 0.5 page)

CFM aims to raise up to USD 1,200Mn in funding for the CI3 Funds. This consists of USD 175Mn in development loans for DT and USD 1,025Mn in funding for CET. The GCF commitment will contribute USD 15Mn to the DT and USD 125Mn to the Tier 1 of the CET.

As explained in section B, the CET is a structured fund with three different tiers with different investors that have different risk/return profiles. The first tier, or 'Tier 1', constitutes as junior equity that has been provided by Donors and arguably the most additional. The second tier, or 'Tier 2', constitutes of impact investors and DFIs. The third most senior tier, or 'Tier 3', constitutes of institutional and private investors. The ratio between the three tiers is set at 20/40/40. Whenever one or two out of the three tiers exceed that ratio that capital remains 'locked'. The total 'unlocked' commitments equal to the maximum value for which the 20/40/40 can be preserved.

This implies that USD 125Mn of GCF's Tier 1 capital will unlock USD 250Mn in Tier 2 and USD 250Mn in Tier 3 capital, once it's raised. GCF participation in the Tier 1 will therefore mobilise a large portion of private finance.

The Dutch Government (through Invest International) and the European Commission (through FMO) have already committed to CI3 and its Underlying Funds. The Underlying Funds have additional regional backing from Industrial Development Corporation of South Africa, and the Public Investment Corporation, acting on behalf of the Government Employees Pension Fund. The Manager is currently still fundraising and therefore unable to disclose the names of all prospective limited partners in this Funding Proposal.

In case either of the Underlying Funds fails to raise sufficient funding in the Tier 2/Tier 3 of their respective tranches, CFM and the AE will look to mitigate the consequences by subscribing the GCFs' proceeds to the other respective Underlying Fund (while still ensuring the actual Sub-Projects are within both Namibia and South Africa).

C.2. Financing by component

Component	**Output**	**Indicative cost**	**GCF financing**		**Co-financing**		
			Amount	**Financial Instrument**	**Amount**	**Financial Instrument**	**Name of Institutions**

		million USD ($)	million USD ($)		million USD ($)		
Establishment and management of the CI3 Funds	Fundraising, establishment and management of the Development and Construction Equity Tranche	0	0	0	0	0	0
Development and implementation of industrial decarbonisation projects in hard-to-abate sectors in developing countries	Development of industrial decarbonisation projects in hard-to-abate sectors	175	15	Development Loans	160	Development Loans	Donors / T1 investors -
	Implementation (construction and operation) of industrial decarbonisation projects in hard-to-abate sectors	1025	125	Equity	900	Equity	Tier 1, tier 2, and tier 3 investors
Indicative total cost (USD)		1200	140		1060		

C.3 Capacity building and technology development/transfer (max. 250 words, approximately 0.5 page)

C.3.1 Does GCF funding finance capacity building activities?	Yes ☒ No ☐
C.3.2. Does GCF funding finance technology development/transfer?	Yes ☒ No ☐

SIDF via the CI3 Funds may, where appropriate, back companies with relevant technologies or business models that have been developed in other markets, including both developed and developing economies. The objective would be to support the adaptation and deployment of these solutions in the target countries, while enabling knowledge transfer through partnerships with local developers, service providers and other in-country stakeholders. CFM will also seek to engage local financial institutions, including DAEs where relevant, to support refinancing options once projects are sufficiently de-risked and operational. Please note that the Environmental Investment Fund of Namibia, a national entity and an environmental fund located in Namibia, is already a strategic partner to the SIDF.

Capacity-building support may also be provided through the Development Tranche. GCF proceeds allocated to this tranche can help finance project-preparation and enabling activities, including feasibility studies, gender assessments, environmental and social impact assessments and action plans, and other technical or institutional support required to advance projects toward bankability.

EXPECTED PERFORMANCE AGAINST INVESTMENT CRITERIA

D.1. Impact potential (max. 500 words, approximately 1 page)

SIDF, via its participation in the CI3 Funds, aims to catalyse low-emission economic growth by accelerating the deployment of green hydrogen, renewable energy, and industrial decarbonisation solutions in hard-to-abate sectors in South Africa and Namibia. By demonstrating commercially viable investment models across these value chains, the fund seeks to mobilise private sector capital at scale and support a structural transition towards low-carbon industrial development.

SIDF, via its participation in the CI3 Funds, is expected to reduce over 24.2 million tonnes of CO_2 equivalent over its lifespan, contributing directly to GCF Mitigation Core Indicator 1. It will deliver substantial energy savings of 359 GWh per year (Indicator 1.1), deploy energy storage capacity of 117 MW (Indicator 1.2), install 1.52 GW of renewable energy capacity (Indicator 1.3) and generate 53,900 GWh of renewable energy (Indicator 1.4). Overall, 114,300 people are expected to gain improved access to clean energy (Indicator 2) and ~3200 jobs are expected to be created. The Facility will contribute to enhanced economic participation and empowerment of women and support expanded employment opportunities across the green industrial value chain. Consequently, it advances multiple UN Sustainable Development Goals (SDGs) through inclusive growth. It also supports the adoption of innovative technologies and practices by building local capacity in emerging green industries (Core Indicator 6 and 8).

D.2. Paradigm shift potential (max. 500 words, approximately 1 page)

SIDF is designed to catalyse a systemic transformation in industrial decarbonisation financing by addressing structural barriers that have historically constrained investment in hard-to-abate sectors across emerging markets. Despite the critical role of industry in reducing global emissions, investment flows into industrial decarbonisation remain limited. At the same time, current financing models have proven insufficient to bridge the significant investment gap required to achieve net zero, particularly in green hydrogen and related infrastructure.

SIDF introduces a paradigm shift via the CI3 Funds by repositioning climate finance from a project-by-project or export-oriented approach toward a systemic industrial transition platform. SIDF addresses the structural gaps by targeting the intersection of industrial decarbonisation, green hydrogen, and emerging markets, three areas that are currently underserved but critical for global climate outcomes. Emerging markets are expected to account for a significant share of future emissions growth yet also offer some of the lowest-cost abatement opportunities due to abundant renewable resources. SIDF has ability to absorb transition and market risks in these emerging markets that are not currently financeable through commercial markets alone, rather than merely reducing the cost of capital. These include construction-stage risks, operational uncertainties, and market creation barriers associated with first-of-a-kind technologies such as green hydrogen-based steel and low-carbon fertilisers. By deploying GCF's concessional capital in a targeted manner, CI3 enables projects to cross the critical financing gap between concept and operational stabilisation, thereby crowding in private capital at scale.

The paradigm shift lies in CI3's ability to move beyond isolated project financing toward a programmatic, market-creation, ecosystem-building approach. The diversified portfolio approach of the CI3 Funds create a streamlined way for industrial decarbonisation which require simultaneous investments across generation, production, transport, and end-use infrastructure. By structuring investments across upstream, midstream, and downstream segments, the CI3 Funds enable the development of integrated industrial ecosystems rather than fragmented assets. This approach reduces systemic risk, unlocks economies of scale, and accelerates market formation for nascent technologies. The CI3 Funds do so through learning and replicability of several elements such as:

(i) demonstrating a blended finance model tailored to high-risk EMDE contexts within niche sectors and geographies,
(ii) supporting projects aligned with national strategies (e.g., South Africa and Namibia hydrogen strategies), and
(iii) enabling knowledge transfer and standard setting across the hydrogen value chain (including financing structures, infrastructure integration, and industrial applications).

Table 1 in Section B.1 illustrated how the baseline project scenario and measurement evidence can be defined for key decarbonisation pathways that GCF will be supporting. As outlined, the aim of the diversified portfolio is to drive systemic, rather than incremental, decarbonisation of South Africa and Namibia's industrial base. Rather than treating each sector in isolation, the pathways are structured to reinforce one another: green hydrogen production, enabled by dedicated renewable power for existing industrial users, provides the low-carbon feedstock required to shift iron and steel away from coal-fired blast furnace-basic oxygen furnace routes, and to convert chemicals, fertiliser, and methanol production away from fossil-derived hydrogen. Industrial energy efficiency measures lower the baseline demand these renewable systems must serve, while investment in enabling infrastructure — transmission and distribution upgrades, storage, ports, and pipelines — provides the shared backbone without which none of the individual sector transitions can scale.

Importantly, CI3 Funds embed country ownership and domestic value creation in its design. The part of the facility caters to domestic offtake, industrial electrification, and local manufacturing, ensuring that investments contribute to structural economic transformation rather than only serving external markets. It strengthens domestic capability by building specialist skills among sponsors, advisers, contractors, suppliers, vendors and local financial institutions. Investments across

complementary sectors can support shared infrastructure and supply chains: renewable generation and storage can serve industrial users, while hydrogen can be used in the production of ammonia, green iron and synthetic fuels. Shared transport, water and port infrastructure may also support multiple projects are geographically and technically aligned.

SIDF is also positioned within a rapidly evolving landscape of climate finance initiatives targeting industrial decarbonisation and is designed to operate in a highly complementary and coherent manner alongside existing global and country-level programmes to contribute to a paradigm shift. The Facility aligns closely with the GCF's 2024-2027 strategic priorities, particularly in advancing low-emission, climate-resilient infrastructure, strengthening country-driven planning, and deploying systemic de-risking approaches to unlock private investment. At the country level, SIDF builds directly on national frameworks such as South Africa's Just Energy Transition Investment Plan (JETP) and Namibia's green industrialisation strategies by translating policy ambition into bankable, private sector-led investments, thereby complementing public financing commitments with scalable commercial capital mobilisation. In this context, JETP, focused largely on accelerating the phase-down of coal and enabling a broader energy transition, creates an enabling policy and infrastructure backbone, while SIDF targets the next layer of transition by decarbonising hard-to-abate industrial value chains and associated enabling infrastructure.

At the global level, SIDF is coherent with, and builds upon, emerging concessional finance initiatives such as the Climate Investment Fund's (CIF) USD 1Bn Industry Decarbonization Investment Program, which represents one of the first dedicated efforts to address industrial emissions in developing economies. South Africa and Namibia have both been identified as front-runner countries under this programme, with Namibia invited to develop a national investment plan of up to USD 250Mn focused on green ammonia, steel, and shipping value chains, and South Africa advancing a parallel industrial transformation agenda. SIDF complements these initiatives by providing an implementation platform capable of deploying blended finance across the full project lifecycle, from development through construction, thereby addressing critical financing gaps such as early-stage risk capital, long development timelines, and limited availability of patient capital that continue to constrain private investment.

D.3. Sustainable development (max. 500 words, approximately 1 page)

SIDF is designed to generate substantial co-benefits across environmental, social, and economic dimensions, aligned with the Sustainable Development Goals (SDGs), while supporting a just and inclusive industrial transition in Southern Africa. The Facility links climate mitigation with industrial transformation, domestic value creation, and country-owned development priorities, thereby reinforcing SDG alignment.

SIDF will support sustainable development by unlocking co-benefits including:

- Direct and indirect beneficiaries from access to renewable energy for grid-connected population.
- Economic participation and empowerment of women through targeted gender-responsive measures and improved access to reliable water resources and electricity.
- Expanded employment opportunities across the green industrial value chain and direct job creation.

SIDF supports delivery of the following SDGs:

- Gender Equality (SDG 5) - by implementing gender action plans and other gender-responsive measures as a core commitment of every Sub-project.
- Affordable and Clean Energy (SDG 7) - by expanding renewable energy capacity and generation.
- Decent Work and Economic Growth (SDG 8) - by creating green jobs and decarbonizing hard-to-abate sectors.
- Industry, Innovation, and Infrastructure (SDG 9) - by upgrading and retrofitting existing industrial facilities with greater adoption of low-emission energy, technologies, appliances and processes.
- Climate Action (SDG 13) - by supporting host countries in taking action to address climate change as part of their NDCs
- Partnerships for the Goals (SDG 17) - by supporting domestic skills development through partnerships with local developers, sponsors, suppliers and financial institutions.

D.4. Needs of recipient (max. 500 words, approximately 1 page)

The target countries, primarily Namibia and South Africa within the Southern Africa region, face a combination of climate vulnerability, structural economic constraints, and limited access to appropriate financing, which together constrain their ability to pursue low-carbon industrial development pathways. SIDF is designed to address these interlinked challenges through a targeted programmatic industrial transition approach.

Vulnerability of the country

The ND-GAIN Index ranks South Africa and Namibia as highly vulnerable to physical climate risks, primarily due to their reliance on climate-sensitive sectors, limited water resources and coal-dependent energy systems. Physical climate risks such as water scarcity and drought, rising temperatures and extreme heat, intense rainfall and flooding, and changing atmospheric condition can undermine the reliability, bankability and mitigation performance of long-lived industrial decarbonisation assets. The transition risks of policy and market pressures for decarbonizing industry are also already

materializing in SIDF countries. Section B.1 and the Annex 2 includes additional information on the impacts of climate change in South Africa and Namibia including physical and transition risks. However, a detailed understanding of the needs of specific populations will only be possible at the project level when jurisdiction and catchment area are known at project-level. More information on the socio-economic benefits of the CI3 Funds is provided in Section B.2 (a). Theory of Change

Absence of alternate sources of financing:
Namibia's NDC has estimated a total cost of implementation at approximately USD 5.33Bn by 2030, including USD 3.61Bn for mitigation measures. The Green Industrialisation Blueprint identifies a need for ~USD 40Bn in public and blended capital to develop shared infrastructure that enables green industrial projects. These investments would likely be phased through 2030-2050; they are crucial to attract private-sector projects and to ensure domestic benefits (e.g. energy access) alongside export-oriented industry. In South Africa, a study by National Business Initiative suggests that ~ZAR 950Bn would be required for the transition of SA's hard-to-abate manufacturing sector – iron, steel, chemicals and mining- to move away from emission-intensive practices. A recent study by Climate Policy Initiative and Presential Climate Commission suggests that, even if South Africa is mobilising climate finance at scale, but current flows are below needs. Meeting NDC and net-zero targets will require at least two to threefold increase in current climate finance in SA, with estimated needs reaching up to ZAR 499Bn per year. [73]

OECD 2025 analysis suggests that, so far, international public finance aimed at industrial decarbonisation in EMDEs has also been limited. Most funding has instead supported other clean energy technologies like renewable energy generation. From 2000 to 2023, less than 1% of all mitigation finance from international public sources- just USD 1.5Bn- went to the hard-to-abate industrial sectors- steel, cement and chemicals. This cumulative amount is smaller than the investment needed for one typical greenfield steel plant with near-zero emission breakthrough technology, such as hydrogen-based direct reduced iron (DRI) production or carbon capture use and storage (CCUS). This public finance also mobilized only USD 2Bn in private finance in these sectors- between 2012 and 2023.[74] As per the OECD analysis, USD 11Bn in grants and in concessional finance will be needed for industrial decarbonisation in EMDEs from international public finance providers.

D.5. Country ownership (max. 500 words, approximately 1 page)

Alignment with the Country's NDCs and Climate Priorities:
South Africa exemplifies country ownership in reducing heavy-industry emissions. Its updated 2025 NDC commits to an annual GHG emissions to be in a range from 320-380 Mt CO2-eq in 2035. South Africa's Low-Emission Development Strategy (2020) sets a goal of net zero by 2050. Achieving these targets depends heavily on mitigation of hard-to-abate industrial sectors. Industry is the largest end-use consumer of energy in South Africa (38%) and many industrial process including steelmaking, cement and chemicals still largely depend on fossil fuels for energy (~50%).[75] Industrial transformation is therefore indispensable: without deep decarbonisation of heavy industry, South Africa cannot meet its 2035 NDC or 2050 net-zero ambition. To meet this, South Africa has developed a comprehensive policy ecosystem including the Just Energy Transition Partnership (JETP), Hydrogen Society Roadmap, and Low Emissions Development Strategy etc., which integrates industrial decarbonisation with broader economic and social objectives.

Namibia's Updated NDC and the Long-Term Low-Emission Development Strategy (LT-LEDS) aims to reduce emissions by about 24% below business-as-usual by 2030, conditional on international support, and by ~91% by 2050.[76] Energy along with Industrial Processes and Product Use (IPPU) in heavy industrial sectors such as steel, cement, chemicals and transport is critical for meeting Namibia's NDC targets. With some of the world's best solar and wind resources, Namibia Green Industrialisation Blueprint estimates that ~75 million tons per year of CO_2 emissions can be abated by 2050, 20x Namibia's total annual CO2 emissions, under a green industrialisation / green hydrogen value chain. This transformation will create 250,000 jobs, about 20% of all projected workforce in Namibia by 2040. Establishing a new growth trajectory thorough green industrialisation will position Namibia as a climate leader and provide opportunities for sustainable employment.

Within this context, SIDF's mission to develop and construct industrial decarbonisation projects in South Africa and Namibia that transform hard-to-abate sectors into competitive, low-carbon industrial economies is strongly aligned with the countries' NDCs and broader national climate priorities. More information on South Africa and Namibia's climate change policies and strategies can be found in Annex 2.

[73] Climate Policy Initiative (2025). South African Climate Finance Landscape 2025. Presidential Climate Commission, South Africa. Available online: https://www.climatepolicyinitiative.org/publication/the-south-african-climate-finance-landscape-2025/
[74] OECD (2025). Support for decarbonising heavy industry in emerging markets and developing economies. Available online: https://www.oecd.org/en/publications/support-for-decarbonising-heavy-industry-in-emerging-markets-and-developing-economies_7787cde0-en.html
[75] International Energy Agency (IEA) (2023), South Africa: Understanding Energy End Uses. Available online: https://www.iea.org/countries/south-africa/efficiency-demand
[76] UNDP (2025). Namibia's Long-Term Low-Emission Development Strategy: A Strategic Policy Shift for Climate-Resilient Economic Development. Available online: https://www.undp.org/namibia/blog/namibias-long-term-low-emission-development-strategy-strategic-policy-shift-climate-resilient-economic-development

In addition, EIF (CFM's implementation partner in Namibia) is a fully government-owned entity. The AE for this proposal, DBSA, is also a state-owned entity. Both of their involvements ensure strong country alignment for this proposal.

Alignment with National Priorities:
As a climate-focused investment vehicle for emerging markets, it is crucial to ensure the alignment between a proposed investment and its host country's climate finance priorities as defined in its national strategies and policies. During the initial screening of all potential investments, an assessment will be conducted to confirm clear alignment between the proposed activity/ies to be financed by the CI3 Funds and the national climate finance priorities of the host countries by performing a cross-reference evaluation with a country's available and most up-to-date national strategies and policies, such as: the National Determined Contribution (NDC) and Nationally Appropriate Mitigation Actions (NAMA), as well as national action plans, climate policies or other climate strategies, where available.

Project-Level Stakeholder Engagement
All Projects are required to establish a project-specific arrangements for stakeholder engagement to be conducted throughout the lifetime of the Project. For Category A and B+ Projects, a detailed Stakeholder Engagement Plan (SEP) shall be developed as part of the IFC PS1-compliant ESIA process. In the case of Projects for which an ESIA is not required, the design of the plan for ongoing stakeholder engagement and/or consultation shall follow the guidance associated with IFC PS1 and implemented in accordance with IFC PS1 and the associated Guidance Note.

The SEP must be developed on the basis of stakeholder mapping and analysis and will include national, regional and local stakeholders including government, non-governmental organisations (NGOs), civil society organisations (CSOs) and Project-affected communities. Consultation will include focus groups with women, youth, elderly, ethnic minorities and other traditionally vulnerable groups to ensure that they are given an opportunity to contribute to baseline data gathering, and also to be involved in decision-making discussions where relevant. Where Indigenous Peoples are present, arrangements for engagement will involving IP representative bodies and organisations as well as representatives of affected communities of IP. A documented and structured process of information disclosure shall be established and informed consultation and participation shall be undertaken that takes into account existing social structures, leadership and decision-making processes. The Project Company shall establish and maintain an ongoing relationship based on informed consultation and participation with the IPs affected by a Project throughout its life cycle.

Refer to CI3's E&S Management Standards A1.2 (ESIA and Other Specialist Studies); A1.3 (Stakeholder Engagement and Grievance Mechanisms) and A1.9 (Indigenous Peoples) included in Annex 1 of the CI3 ESMS Manual for further guidance. The ESMS for the CI3 Funds also serves as the ESMS for SIDF.

Engagement for the NOL
Lastly, pursuant to the funding application requirements and protocol as set by the GCF, country consultations were conducted by CFM staff members, DBSA and EIF to manage the No Objection Letter ("NOL") engagement process in South Africa and Namibia on behalf of the CI3 Funds. This included engagement over the period of three years starting in 2023. Regular dialogue with NDAs and country representatives to address any clarifications that arise have been conducted and will continue to do so throughout the implementation of SIDF via the CI3 Funds.

The NOL from South Africa and Namibia NDAs are secured.

More information on the stakeholder engagement is provided in Annex 7.

D.6 Efficiency and effectiveness (max`. 500 words, approximately 1 page)

The GCF investment in the CI3 Funds is expected to achieve a mobilisation ratio **1:4 at the fund level** broadly in line with blended finance benchmarks, with each dollar of concessional GCF capital catalysing multiple dollars of senior and commercial capital within the capital structure. This reflects CI3's design as a multi-tranche blended finance vehicle, where junior capital plays a de-risking role to crowd in private sector participation.

Private sector finance leverage ratio = amount of private sector financing in the investment project divided by the amount of GCF support. This is referring to the total investments made by the private sector in the CI3 Funds catalyzed by the GCF contribution
= A / B = 7.57x

A = Private sector investors in CET (USD 1060Mn)
B = the GCF contribution (USD 140Mn).

Investment Mobilisation Ratio:

At the investment level, the CI3 Funds are expected to achieve strong leverage through the aggregation of multiple sources of capital. The additional equity from co-financiers and senior debt raised at the project level represents further catalytic mobilisation enabled by the CI3 Funds and is likely to be much higher. The below assumes 35% ownership of CI3 Funds in the construction phase of industrial decarbonisation, on average and the rest 65% comes from partner contributions forming the total cost of the project

=value of investment (total project cost) divided by the total amount of GCF support relating to this construction investment

= A / B = 24x
A = the CET (USD 1060Mn) + Partner Contributions (USD 1968Mn)
B = the GCF contribution (USD 125Mn in Tier 1 of CET)

E. LOGICAL FRAMEWORK

E.1. Project/Programme Focus

☒ Reduced emissions (mitigation)
☐ Increased resilience (adaptation)

E.2. GCF Impact level: Paradigm shift potential (max 600 words, approximately 1-2 pages)

Assessment Dimension	Current state (baseline)		Potential target scenario (Description)	How the project/programme will contribute (Description)
	Description	Rating		
Scale	Industrial decarbonisation and green hydrogen deployment in emerging markets, particularly in Southern Africa, remain at an early stage, with limited operational capacity and most projects still under feasibility or conceptual development. Large-scale investment requirements remain significant (e.g., >USD 60Bn and USD 40Bn needed for industrial decarbonisation in South Africa and Namibia respectively by 2050), while financing constraints and high cost of capital continue to limit project scale and deployment. At the same time, these sectors account for substantial share of energy use in South Africa and are needed for economic development in Namibia	Low	A transition towards large-scale, investment-grade green hydrogen and industrial decarbonisation projects in emerging markets, particularly in Southern Africa, where integrated value chains (production, transport, and end-use) are developed at scale to support both domestic industrial transformation and export markets.	The Programme will contribute by: (i) enabling deployment of integrated industrial decarbonisation value chains (upstream, midstream and downstream infrastructure), (ii) providing 'whole of lifecycle' financing to complex, large-scale projects to overcome high capital costs and financial barriers and risk management, and (iii) mobilizing private finance at scale with a blended finance solution that caters to different risk/return expectations of different commercial and institutional investors while making effective use of scarce concessional financing
Replicability	Industrial decarbonisation in EMDEs faces limited public and private finance mobilisation, with less than 1% of mitigation-related international public finance directed toward hard-to-abate sectors between 2000 and 2023. While substantial global policy momentum exists (e.g., 66 countries with green hydrogen and industrial decarbonisation strategies covering over 84% of emissions exist in 2026), implementation remains uneven and early-stage, with market uncertainties, regulatory gaps, and infrastructure constraints limiting replication.	Low	A potential target scenario would be a market environment in which green hydrogen-enabled industrial decarbonisation pathways are increasingly adopted across EMDEs, supported by replicable financing models, regulatory frameworks, and integrated infrastructure systems.	The Programme will contribute to replicability by: (i) demonstrating blended finance solutions tailored to high-risk EMDE contexts, (ii) supporting projects aligned with national strategies (e.g., South Africa and Namibia hydrogen strategies), and (iii) enabling knowledge transfer and standard-setting across the hydrogen value chain (including financing structures, infrastructure integration, and industrial applications).
Sustainability	Industrial systems in many EMDEs remain carbon-intensive, resource-constrained, and vulnerable to climate risks, including water scarcity, temperature	Low	A transition towards climate-resilient, low-carbon industrial systems where green hydrogen and renewable energy infrastructure enable	The Programme will support sustainability by: (i) investing in long-lived infrastructure assets and enabling infrastructure across

	increases, and infrastructure disruptions.		sustained emissions reductions, improved energy security, and long-term economic transformation, particularly in water- and climate-constrained regions.	the hydrogen and industrial decarbonisation value chains; (ii) integrating climate risk-management and safeguards for sustainability of mitigation investments such as water-risk screening, wastewater reuse, desalination, circular water use systems and resilient infrastructure design etc. to protect long-term performance and (iii) supporting domestic industrial value creation (e.g., green steel, fertilisers, and synthetic fuels), enhancing economic resilience and reducing carbon lock-in. The Programme is also expected to generate co-benefits including: o Direct and indirect beneficiaries (including men and women) from improved access to renewable energy for grid-connected households, where feasible in the context of hydrogen production Sub-projects. o Economic participation and empowerment of women through targeted gender-responsive measures (delivered via each Sub-project's community development programme) . o Expanded employment opportunities across the green industrial value chain and direct job creation.

E.3. GCF Outcome level: Reduced emissions and increased resilience (IRMF core indicators 1-4, quantitative indicators)

GCF Result Area	IRMF Indicator	Means of Verification (MoV)	Baseline	Target		Assumptions / Note
				Mid-term	Final[77]	
MRA1 Energy generation and access	Core 1: GHG emissions reduced, avoided or removed/sequestered	Annual ex-ante and ex-post GHG emissions reduction calculations using the Annex 22	0	~7.9 $MtCO_2e$	~24.2 $MtCO_2e$ over fund lifespan (~49.8	Avoided emissions from projects attributable to CI3 Funds +

[77] The final target means the target at the end of project/programme implementation period. However, for core indicator 1 (GHG emission reduction), please also provide the target value at the end of the total lifespan period which is defined as the maximum number of years over which the impacts of the investment are expected to be effective.

		methodology/workbook and project-level MRV records and independent verification reports at mid-term, final evaluation, and project/fund close.			$MtCO_2e$ at the end of lifespan of projects)	mobilised capital. The avoided emissions could not be split by GCF result area because most projects contain aspects of multiple GCF result areas. Assumptions are provided in Annex 22.
MRA3 Buildings, cities, industries and appliances	Supplementary 1.1: Annual energy savings	Annual ex-post analysis of heat-pump and WHR-system output and energy consumption	0	~359 GWh/year (Cumulative: 1,610 GWh)	~359 GWh/year [78] (Cumulative: 4,480 GWh)	Annual energy savings from energy efficiency projects in hard-to-abate industrial sectors attributable to CI3 Funds + mobilised capital. Assumptions are provided in Annex 22.
MRA1 Energy generation and access	Supplementary 1.2: Installed energy stoarage capacity	Annual ex-post analysis (commissioning report) and verification of energy storage capacity at commissioning	0	~117 MW	~117 MW[79]	Installed energy storage systems in C&I projects attributable to CI3 Funds + mobilised capital. Assumptions are provided in Annex 22.
MRA1 Energy generation and access	Supplementary 1.3: Installed renewable energy capacity	Annual ex-post analysis (commissioning report) and verification of renewable energy capacity at commissioning	0	~1,520 MW	~1,520 MW [80]	Installed renewable energy capacity in C&I projects and for green hydrogen generation attributable to CI3 Funds +

[78] Mid-term and final target for this indicator are the same because all projects in the portfolio have will be operational before the mid-term year.
[79] Mid-term and final target for this indicator are the same because all projects in the portfolio have will be operational before the mid-term year.
[80] Mid-term and final target for this indicator are the same because all projects in the portfolio have will be operational before the mid-term year.

						mobilised capital. Assumptions are provided in Annex 22. Renewable energy capacity for green hydrogen projects is calculated based on the required capacity for the planned green hydrogen production plus 11%, allowing for 10% of the total capacity to be used for local communities.
MRA1 Energy generation and access	Supplementary 1.4: Renewable energy generated	Annual ex-post analysis and power generated from renewable resources (GWh) to be measured at the end of the month through calibrated meter	0	~18,300 GWh	~53,900 GWh	Renewable energy generated in C&I projects and for green hydrogen generation attributable to CI3 Funds + mobilised capital. RE generation for green hydrogen projects is calculated based on required energy for the planned green hydrogen production plus 11%, allowing 10% of the total energy to be used for local communities.

MRA3 Buildings, cities, industries and appliances	Core 3: Value of physical assets made more resilient to the effects of climate change and/or more able to reduce GHG emissions	Portfolio data (as provided in Annual Reports)	0	~1.01 billion USD	~1.01 billion USD [81]	Value of physical assets made more able to reduce GHG emissions. Calculated as CI3 Funds equity + mobilised capital invested in the construction of C&I, CCUS, and energy efficiency projects.

E.4. GCF Outcome level: Enabling environment (IRMF core indicators 5-8 as applicable)

Core Indicator	**Baseline context (description)**	**Rating for current state (baseline)**	**Target scenario (description)**	**How the project will contribute**	**Coverage**
Core Indicator 6: Degree to which GCF investments contribute to technology deployment, dissemination, development or transfer and innovation	Asset development and construction in hard-to-abate sectors require sufficient knowledge and technical skills to succeed. Barriers include 'first-of-a-kind' transition and financial risks across the entire lifecycle. These include long development timelines, construction risks, uncertain offtake markets, limited availability of patient risk capital, and elevated costs of capital. These barriers are preventing investment decisions and private finance participation at scale for industrial decarbonisation projects in South Africa and Namibia despite the urgent need.	*low*	Transfer of knowledge and technical skills to local partners and developers for adoption of innovative technologies, financial and legal structuring, contracting, project management along with commercial bankability and risk-adjusted returns	The project will contribute to knowledge and technology transfer by pro-actively cooperating (as stakeholder and Director of the Board) with local partners, financiers, and developers during the development as well as the construction of the assets.	*Multiple sub-national areas within a country*
Core indicator 8: Degree to which	Projects in hard-to-abate sectors often face	*low*	Integration of GCF and other industry	The project will contribute by	*Multi-countries*

[81] Mid-term and final target for this indicator are the same because all projects in the portfolio have will be operational before the mid-term year.

GCF investments contribute to effective knowledge generation and learning processes, and use of good practices, methodologies and standards	shortcomings in relation to impact management and environmental and social safeguards which often fall below the standard required by international finance institutions.		best practices for impact management and environmental and social safeguarding in industrial decarbonisation and hard-to-abate sectors	ensuring the Fund's impact standards for impact management and environmental and social safeguards, as reflected in the Fund's ESMS are complied with at a project and Sub-project level. CFM will also screen all the partners, (co)-developers, and other third parties on their standards and willingness to comply with those of the Fund. CFM will commission independent expert due diligence of the proposed Sub-project and all partners during the development phase. None of the Sub-projects will receive construction funding if the required standards for impact management and environmental and social safeguards cannot be attained (or maintained).	

E.5. Project/programme specific indicators (project outcomes and outputs)

Project/Programme results (outcomes/ outputs)	**Project/programme specific Indicator**	**Means of Verification (MoV)**	**Baseline**	**Target**		**Assumptions / Note**
				Mid-term	**Final**	
Outcome 2 – GHG emissions avoided in hard-to-abate sectors in SA and Namibia	GHG emissions avoided in hard-to-abate sectors in SA and Namibia	Annual ex-ante and ex-post GHG emissions reduction calculations using the Annex 22 methodology/workbook and project-level MRV records and independent verification reports at mid-term, final evaluation, and project/fund close	0	~7.9 $MtCO_2e$	~24.2 $MtCO_2e$ over fund lifespan (~49.8 MtCO2e at the end of lifespan of projects)	Avoided emissions from projects attributable to CI3 Funds + mobilised capital. The avoided emissions could not be split by GCF result area because most projects contain aspects of multiple GCF

						result areas. Assumptions are provided in Annex 22
Outcome 3 – Increased ability of physical assets to avoid/reduce GHG emissions	Value of physical assets made more able to reduce GHG emissions	Portfolio financial report; Asset value information report	0	~1.01 billion USD	~1.01 billion USD [82]	Value of physical assets made more able to reduce GHG emissions. Calculated as CI3 Funds equity + mobilised capital invested in the construction of C&I, CCUS, and energy efficiency projects.
Output 2.1 - Green hydrogen production, storage and distribution capacity established	Established green hydrogen production, storage, and distribution capacity	Annual ex-post analysis (commissioning report) and verification of hydrogen production / storage / distribution capacity at commissioning	0	~57,900 tH_2/year	~59,500 tH_2/year	Established green hydrogen production, storage, and distribution capacity attributable to CI3 Funds + mobilised capital
Output 3.2. nstalled water treatment capacity for green hydrogen production	Installed water treatment capacity for green hydrogen production	Annual ex-post analysis (commissioning report) and verification of water treatment capacity at commissioning	0	~3,720m^3/day	~3,720 m^3/day [83]	Installed water treatment capacity for green hydrogen production attributable to CI3 Funds + mobilised capital
Project/programme co-benefit indicators						
Co-benefit 1: Increased number of beneficiaries with access to	Direct and indirect beneficiaries reached	Annual ex-post analysis of renewable energy fed to the grid (GWh) and average	0	~114,300	~114,300 [84]	Beneficiaries from surplus renewable energy generated for

[82] Mid-term and final target for this indicator are the same because all projects in the portfolio have will be operational before the mid-term year.
[83] Mid-term and final target for this indicator are the same because all projects in the portfolio have will be operational before the mid-term year.
[84] Mid-term and final target for this indicator are the same because all projects in the portfolio have will become operational before the mid-term year.

renewable energy in SA and Namibia		electricity consumption per connected capita Ex-post review of change in outage rate experienced by grid-connected households compared with a counterfactual (using pre-project baseline). .				use by local communities attributable to CI3 Funds + mobilised capital, rounded to the nearest multiple of 1,000
Co-benefit 2: Enhanced economic participation and empowerment of women	Percentage of community development programme beneficiaries who are women	Annual ex-post analysis based on reports of development programmes	0	50%	50%	Share of women beneficiaries from community development programs undertaken by investee companies in project-adjacent areas. The programmes are focused on improving livelihoods and informed by gender-responsive community needs assessments .
Co-benefit 3: Expanded employment opportunities across the green industrial value chain	Green jobs created or supported	Annual ex-post analysis based on annual reports of Project Companies	0	Operational jobs: 3,080, of which 34% women Construction jobs: 4,330, of which 9% women	Operational jobs: 3,200, of which 34% women Construction jobs: 4,330, of which 9% women [85]	Direct jobs attributable to CI3 Funds + mobilised capital, rounded to the nearest multiple of 10.

E.6. Project/programme activities and deliverables			
Activities	**Description**	**Sub-activities**	**Deliverables**

[85] Mid-term and final target for this indicator are the same because all projects in the portfolio have will be operational before the mid-term year.

Activity 1.1: Fundraising, establishment and management of the Development Tranche	Fundraising for and management of the Development Tranche	Fundraising for and management of the Development Tranche	Up to USD 175,000,000 raised for the DT from different Donors And successful management of all affairs related to the DT over the entire implementation period of the CI3 Funds
Activity 1.2: Fundraising, establishment and management of the Construction Equity Tranche	Fundraising for and management of the Construction Equity Tranche	Fundraising for and management of the Construction Equity Tranche	Up to USD 1,025,000,000 raised for three tiers of the CET at final close out of which 20% consist of Donor (T1 funding), 40% of DFI's and impact investors (T2), and 40% of commercial and institutional investors (T3) Successful management of all affairs related to the CET over the entire implementation period of the CI3 Funds.
Activity 2.1. Development of industrial decarbonisation projects in hard-to-abate sectors	Development of industrial decarbonisation projects in hard-to-abate sectors	Sub-activity 2.1.1: Identifying opportunities	Identifying opportunities and initial due diligence.
		Sub-activity 2.1.2: Project approval by the Underlying Fund ICs for the development stage	Project approved by the Underlying Fund ICs to receive funding.
		Sub-activity 2.1.3: Project development and extensive due diligence	Projects successfully developed (including but not limited to stakeholder engagement, gender assessment, and Environmental and Social Impact Assessment).
Activity 2.2: Implementation (construction and operation) of industrial decarbonisation projects	Construction and operation of industrial decarbonisation projects that deliver climate mitigation benefits.	Sub-activity 2.2.1. Project approved by the Underlying Fund IC for construction stage	Projects approved by the Underlying Funds' IC to receive CET Funding (including repayment of the Development Finance provided by the DT, where applicable).
		Sub-activity 2.2.2: Project construction	Construction of industrial decarbonisation projects as an active investor to ensure efficiency, knowledge transfer, impact maximization, and environmental and social safeguarding.
		Sub-activity 2.2.3 Project refinancing and exit	Projects with climate mitigation benefits in industrial decarbonisation projects and sectors successfully constructed and exited by the CI3 Funds

E.7. Monitoring, reporting, and evaluation arrangements (max. 500 words, approximately 1 page)

Monitoring & Reporting

CFM reports on the investments done and financial performance of CI3 and the Underlying Fund's portfolio to all investors, including all Donors, on a quarterly basis. On an annual basis, a report will be provided that includes audited financial accounts and detailed information on investments, investment valuations, fees, and the impact indicators. In addition, the Accredited Entity, supported by CFM, will provide the GCF with an Annual Progress Report as mandated by the GCF.

Financial reporting:

Within sixty (60) calendar days after the end of each calendar quarter ended 31 March, 30 June, and 30 September, CFM shall prepare and provide all Investors with a quarterly report consisting of, *inter alia*:

- Project implementation progress;
- Sub-Projects investment pipeline maturity and deployment forecast;
- Fund utilisation status;

- Portfolio composition by country, sector and technology including concentration limits;
- Climate impacts, GHG reductions and climate risk management;
- Ex-post impacts associated with operating assets;
- Environmental and social performance;
- Capital account statements:

Within ninety days (90) calendar days after the end of financial year (1st January to 31st December), the Manager shall prepare and provide all Investors with an annual report (the "Annual Report") consisting of, inter alia (in addition to the quarterly updates):

- The annual accounts of the Programme, comprising at least a balance sheet, a profit, and loss account and explanatory notes thereto, as audited by the Auditor;
- A report of the Auditor on its findings resulting from its audit of the annual accounts;
- Financial performance, NAV and cash position

Environmental & Social Reporting

An important aspect of CFM's risk management process is the ongoing monitoring and review of each investment. Depending on which Tranche that investment is drawn from (Development or Construction Equity), different monitoring requirements will be applied. Monitoring is commensurate with the risk categorization, with physical visits to the location(s) of higher-risk projects during construction and operation.

All Project Companies drawing from the CI3 Funds are required to adopt the CI3 MRV protocol for ex-ante and ex-post impact calculation, monitoring and reporting. The ex-post impacts reported by the projects companies will be subject to independent verification. The projects are also required to monitor the performance of any contractors employed at the project site(s). In addition, CFM will also ensure that any legal requirements for monitoring, for example, that may be included in permits and licenses for development, construction, and operation, are incorporated into the Sub-project's management system and associated control framework. Audits of the Sub-project's compliance with legal and Fund requirements will be conducted or commissioned by CFM to take place at least once during the construction phase (and more often if considered necessary on the basis of the Sub-project's environmental and social risk profile). Operational Sub-projects will be audited at least once annually.

CFM requires all Sub-projects to report on impact and environmental and social performance against a range of indicators on a routine basis on either a monthly or quarterly basis to enable CFM to measure and monitor performance against all logframe indicators. Data is reported and collated using an online data management platform and reviewed and validated by CFM's E&S staff. Once validated, the data is consolidated into quarterly and annual reports that are shared with the investors. This ensures that data is available on a routine basis for DBSA oversight, as well as for confirming alignment with the GCF annual performance reporting requirements.

More information on the CI3 annual and quarterly reporting requirements is presented in Annex 6 – Reporting Requirement of CI3 Environmental and Social Management System (ESMS). In addition, detailed information on impact calculation measurement, reporting and verification principles and methodologies are included in the Monitoring, Reporting and Verification (MRV) Protocol. This also details arrangements for data management including data governance roles and responsibilities.

Evaluations

The Accredited Entity, with inputs from CFM where needed, will arrange for an interim and final evaluation to be outsourced to an independent evaluator after 6 and 12 years, respectively, subject to extensions as required. The interim evaluation will focus on the extent to which SIDF via the CI3 Funds is achieving its goals across GCF impact indicators. The final evaluation will constitute an ex-post effectiveness study. The evaluation will focus on the OECD-DAC criteria, which focus on relevance, effectiveness, efficiency, impact, and sustainability and the GCF's evaluation criteria.

- Relevance: the extent to which the investments are suited to the priorities and policies of SIDF;
- Effectiveness: the extent to which the objectives of SIDF were achieved;
- Efficiency: the extent to which activities were cost-efficient and timely;
- Impact: determining the positive and negative changes produced by SIDF, directly or indirectly, intended or unintended; and
- Sustainability: the extent to which the investments of the CI3 Funds are likely to continue after SIDF has exited.

F. RISK ASSESSMENT AND MANAGEMENT

F.1. Risk factors and mitigations measures (max. 3 pages)

Selected Risk Factor 1		
Category	Probability	Impact
Technical and operational	Low	Medium
Description		
Investment Risk Risk that the assets in the CFM managed assets' portfolio underperform investment expectations and decline in value.		
Mitigation Measure(s)		
• Robust asset selection processes in accordance with defined investment criteria, including IC approval. • Comprehensive due diligence procedures and assessment of risk management framework in place at the asset. • Oversight by way of representation on project company board and Involvement in asset strategy decisions. • Monitoring of asset performance and revenue-drivers through active asset management approach. • Regular site visits to assets to remain updated on management and operational activities and progress.		
Selected Risk Factor 2		
Category	Probability	Impact
Governance	Medium	Medium
Description		
Regulatory Risk Risk that changes in the regulatory environment or regulator's attitude will have an adverse impact on CFM and the CFM managed assets' operations and/or strategy.		
Mitigation Measure(s)		
• Alignment with the needs of the recipient country, and NDA / NOL support. • Continual dialogue with regulators/governments and continued evaluation, review of legislation. • Strong contractual position in the project documents. • Dedicated legal and compliance staff.		
Selected Risk Factor 3		
Category	Probability	Impact
Technical and operational	Low	Medium
Description		
Development Risk Risk that CET is buying a project from the Development Tranche that is not fully developed and/or not yet ready for construction.		
Mitigation Measure(s)		
• Preparation of all documentation required before construction can start including but not limited to offtake agreements, land-use permits, construction permits, environmental permits, insurance contracts, EPC contracts, O&M contracts and other related documentation.		
Selected Risk Factor 4		
Category	Probability	Impact
Technical and operational	Low	Medium
Description		
Construction Risk (EPC execution risk) Risk that reliance on the EPC contractor may introduce counterparty risk and lead to underperformance.		

Mitigation Measure(s)		
• High-quality planning and project management, and high-quality EPC and Balance of Plant contractors with an appropriate track record. • Occasional contracting of multiple EPC contracts and adoption of a split EPC approach for some projects, as required and advised by the CFM Technical Engineering Team.		
Selected Risk Factor 5		
Category	Probability	Impact
Technical and operational	Medium	Low
Description		
Construction Risk (EPC financial risk) Risk that the project construction may experience financial consequences (missed revenues, penalties payable to offtaker etc.) due to delayed Commercial Operations Date (COD). Risk that the project doesn't perform as expected due to unforeseen reasons such as technical challenges.		
Mitigation Measure(s)		
• High-quality planning and project management, and high-quality EPC and Balance of Plant contractors with an appropriate track record. • Regular monitoring and oversight from CFM Technical Team including representation at the investee company board on construction and technical matters. • In case of unforeseen delays, the construction risk is primarily transferred to the EPC contractor(s) through fixed-price, date-certain EPC contracts, which include Letters of Credit (LCs) or other financial security instruments to backstop contractor obligations.		
Selected Risk Factor 6		
Category	Probability	Impact
Technical and operational	Medium	Low
Description		
Construction Risk (Cost Overruns) Risk that cost overruns may occur during the construction phase; typically these are costs that fall outside of the scope of works such as variations, change order etc.		
Mitigation Measure(s)		

• High-quality planning and project management, and high-quality EPC and Balance of Plant contractors with an appropriate track record.
• Robust definition of a fixed scope of work.
• Mitigation through a risk allocation framework between EPC contractor(s) and the project company as follows, especially for in case of unforeseen cost overruns.
• Within Scope of Work (SoW):
  ○ Transferred to EPC contractor(s) under lump-sum, fixed-price EPC contracts.
  ○ Contractor assumes responsibility for managing costs within defined scope.
• Outside Scope of Work (SoW):
  ○ Retained at project level (e.g., variations, force majeure, scope gaps).
  ○ Mitigated through a contingency budget (typically 5–10% of capex) to absorb unforeseen costs.		

Selected Risk Factor 7		
Category	Probability	Impact
Technical and operational	Low	Medium
Description		
Operational Risk Risk of financial losses due to lower than expected volume or quality of output to design deficiencies, equipment underperformance, or operational inefficiencies, particularly in the early years of project commissioning OR higher than expected operational expenditure		

Mitigation Measure(s)		

Mitigated through a phased allocation across contractors:
• High-quality planning and project management, and high-quality EPC and O&M contractors with an appropriate track record.
• Early operations (ramp up phase):
  ○ Risk partially transferred to EPC contractor and/or process designer.
  ○ Backed by performance guarantees and acceptance tests, ensuring that output meets specified design capacity and efficiency levels.
• Operational phase:
  ○ Risk allocated to the O&M contractor, responsible for maintaining plant performance in line with agreed availability and efficiency standards.		

Selected Risk Factor 8		
Category	Probability	Impact
Forex	**Medium**	**Medium**
Description		
Currency Risk Risk of currency mismatch between the currency of offtake revenues on the one hand, and the currency of the investment and other liabilities.		
Mitigation Measure(s)		
• The operating currency of CI3 and SDG Namibia One funds is USD. No major currency mismatch is expected, as most projects will have hard currency offtake aligned with O&M and debt service, while some operating costs (such as staff and local expenses) and certain feedstock will be paid in local currency. While the operating currency of the SA-H2 Fund is ZAR, the Fund's investments are expected to be significantly exposed to hard currency-linked revenue streams. • To mitigate the currency risk, the Fund Manager will assess and, where appropriate, implement hedging strategies. • The SA-H2 Fund T1 hurdle is higher than that of CI3 Global/SGNO to mitigate for the inflation rate differential / expected depreciation of the ZAR. • In principle, CFM may only enter into futures, options, or other derivative transactions for the purpose of, and only to the extent required for, hedging currency positions on non-USD Investments. CFM is not obliged to do this, and the use of derivatives will be subject to cost-benefit considerations. • A hedging policy may be adopted in respect of non-USD currency commitments for imminent acquisitions or divestments, considered on a project-by-project basis or for hedging of short-term distributions.		
Selected Risk Factor 9		
Category	Probability	Impact
Technical and operational	Low	Low
Description		
Financial Close Risk Limited access to finance and protracted timelines to agree terms prevent projects from reaching financial close and subsequently refinancing.		
Mitigation Measure(s)		
• Providing a one-stop-shop for finance at development, construction, and refinance phases to avoid protracted negotiations with multiple parties. • Match-making projects with suitable local, international, or public finance.		
Selected Risk Factor 10		
Category	Probability	Impact
Technical and operational	Low	Low
Description		

Exit Risk
Risk that CFM is not able to dispose of all of its assets in full.

Mitigation Measure(s)

- Development of high-quality projects.
- M&A activity in investment regions shows an appetite for industrial decarbonisation projects.
- Active divestment opportunity screening throughout the lifetime of a project.

Selected Risk Factor 11

Category	Probability	Impact
Credit	Low	Low

Description

Counterparty / Credit Risk
Risk that a counterparty (the other party with whom an investment or borrowing transaction is made) will fail to perform contractual obligations and default in either whole or part under a contract.

Mitigation Measure(s)

- Risk assessed as part of the due diligence process, preparing the underlying investment proposal and reviewed on an ongoing basis.
- International credit ratings checked where relevant.

Selected Risk Factor 12

Category	Probability	Impact
Technical and operational	Medium	Low

Description

Liquidity Risk
Risk that CFM and a CFM-managed asset do not have sufficient cash to meet forward commitments. This would mean that revenues on the manager or project levels are below expenses and there is a lack of liquidity.

Mitigation Measure(s)

- Detailed 5-year cash forecast updated monthly.
- “Forward commitments test” and liquidity limits under which available liquidity must not fall.

Selected Risk Factor 13

Category	Probability	Impact
Other	High	High

Description

Political Risk
Risk that sovereign rights exercised by governments are contrary to the rights of the Fund, or project company under the relevant agreements.

Mitigation Measure(s)

- Virtue of donors as Official Development Assistance (ODA) providers and DFI funding.
- Acquiring Political Risk Guarantee (World Bank, MIGA) when specific events heighten the political risk in a project company.
- Government Letter of Support.
- GCF funding would be complementary to already establish ODA providers (European Commission, Dutch Government) in the Development Tranche and T1 Construction Equity Tranche of CI3, in providing additional political risk mitigation capabilities on the back of being established under the framework of the UNFCCC.

Selected Risk Factor 14

Category	Probability	Impact
Reputational	High	Medium

Description
Environmental and Social Risk Impact on natural resources, employees, investors, customers, and community by the business activities of CFM or a CFM managed asset fund and its investments.
Mitigation Measure(s)
• The application of DBSA's experience in the design of the CI3 Environmental and Social Management System, which will apply to all CI3 investments. • Adherence to international Environmental and Social standards as well as local legal requirements. • Disclosure of project-related information in accordance with local legal requirements as well as GCF policies and other international standards including, *inter alia*, the IFC Performance Standards (PS). • Dedicated E&S specialist to implement the CI3 environmental and social due diligence process. • Monitoring of implementation of the ESMS and all CI3 requirements, as well as Sub-project-specific agreements throughout the lifecycle of any project. • Implementation of the CI3 GAP with particular focus on gender-responsive stakeholder engagement and consultation as well as gender-responsive grievance mechanisms.

Selected Risk Factor 15		
Category	Probability	Impact
Technical and operational	Medium	Low
Description		
Technology Risk Risk of technology underperforming through inadequate natural resources, feedstock, and/or inadequate maintenance.		
Mitigation Measure(s)		
• Risk assessed as part of due diligence and preparing the underlying investment proposal. • Investing in proven technologies from known/trusted manufacturers. • Contracting independent experts to assess the viability of resource potential of project sites. • Securing EPC contracts and OEM maintenance contracts.		

Selected Risk Factor 16		
Category	Probability	Impact
Technical and operational	Low	Medium
Description		
Conflicts of Interest Risk Risk that a conflict of interest occurs in an area of CFM's service provision to its Managed Vehicles, their investors, and its relationship with all of its stakeholders whereby CFM (or an investor or other stakeholder of CFM) may benefit whilst possible tangible loss may be caused to (another) investor to whom CFM provides a service.		
Mitigation Measure(s)		
• CFM has a comprehensive policy established to manage conflicts of interest. • Following the identification of a potential conflict, the manager will implement measures to manage and mitigate the identified conflict will be implemented promptly through three basic mechanisms to manage a conflict, namely controlling, avoiding, and disclosing. • The appropriate mechanism to manage a conflict will depend on the circumstances and nature of any given conflict. • Documented policies and procedures (periodically updated as required).		

Selected Risk Factor 17		
Category	Probability	Impact
Other	Low	Low
Description		

Good Governance / Rule of Law / Corruption Risk of failed governance at the project company level; a counterparty or employee acting corruptly or fraudulently or in breach of law.
Mitigation Measure(s)
• A focus on good governance at both the fund and project level which will benefit local counterparties through strict adherence to the rule of law and in mitigating corruption risk. • Existence of robust and clear compliance policies and procedures including KYC, Anti Money Laundering and Counter-Terrorist Financing and Anti-Corruption. • Ensuring appropriate fraud insurance cover. • Ongoing KYC, internal sanctions list, and anti-money laundering and counter-terrorist financing checks and verifications.

GCF POLICIES AND STANDARDS

G.1. Environmental and social risk assessment (max. 750 words, approximately 1.5 pages)

The below section will use Category A/I-1 and Category B/I-2 interchangeably.

CFM Group Responsible Investment Policy
The CFM Group Responsible Investment Policy sets out CFM's commitments for responsible investment in relation to ESG. The CI3 Funds and the Project Companies into which the Funds are directly invested are required to align with and uphold these commitments.

CI3 Responsible Investment Code
The CI3 Responsible Investment Code is a core policy document that is mandated at CI3 Funds level. It describes the requirements for the implementation and operation of the CI3 Funds' ESMS; and defines Environmental and Social (E&S) Requirements and Guiding Principles with which the CI3 Funds must comply and the E&S risk categories and requirements.

CI3 Environmental and Social Management System
CFM, in cooperation with the AE, has developed a CI3 Environmental and Social Management System (ESMS) as a core element of the CI3 Funds' risk management framework. The ESMS includes policies, organisational structure, planning activities, responsibilities, practices, procedures, and resources for developing, implementing, achieving, reviewing, and maintaining compliance with the E&S Requirements and upholding the Guiding Principles for the purpose of identifying and managing E&S impacts and risks. The manual that describes this system has been disclosed in accordance with GCF's ex-ante disclosure requirements for category A/I-1 projects/Programmes and is available on the CFM website. It also serves as the ESMS for the Southern African Industrial Decarbonization Facility (SIDF).

ESG Roles and Responsibilities
There are multiple different entities within the CI3 Funds universe that have important E&S risk management and oversight responsibilities. The E&S roles are summarised in the table below.

Stakeholder	E&S Responsibilities
GCF Accredited Entity	In its role as the AE for the CI3 Funds, DBSA is responsible for ensuring compliance with GCF policies such as the Revised Environmental and Social Policy; Gender Policy; Indigenous Peoples Policy, and the Information Disclosure Policy.
GCF Executing Entity	As the GCF Executing Entity (EE), CFM is responsible for implementing the E&S commitments and arrangements described in the CI3 ESMS other supporting documentation relating to the GCF funding agreement.
CI3 Fund Manager	As the Fund Manager, CFM is responsible for project screening, structuring, administration, implementation monitoring, and ensuring project compliance with, *inter alia*, the CI3 Funds' relevant E&S and governance policies.
Project Companies	The Project Companies are responsible for compliance with the E&S Requirements as detailed in the ESMS manual and supporting documentation and managing and continually improving the Project's E&S performance. Each Project Company is required to implement a Project-level ESMS in place as well as ensuring adequate staffing and resources to effectively manage these responsibilities.

External E&S Advisors	Adequately qualified independent E&S advisors are appointed to support CFM with, *inter alia*, due diligence, specialist studies, and ongoing monitoring. This support will be defined, facilitated and monitored by CFM and is commissioned through issue of defined terms of reference. The E&S due diligence will be commissioned using defined terms of reference

E&S Risk Categorisation

In accordance with the CI3 Funds' Responsible Investment Code, all investment opportunities are subject to assessment to determine the E&S risk categorisation according to their potential environmental and social adverse impacts and risks. The Fund's risk categories are aligned with those adopted by the GCF, with Category B further subdivided in accordance with the Fund's Responsible Investment Code and in line with the classification system used by the European DFI community. The E&S risk categorisation reflects the potential contextual risks associated with the country and the geographic setting in which the funded activity/ies will be located, along with an analysis of various factors including, *inter alia*, the economic sector; the Project's intended activities; size of the investment; purpose of the financing (e.g. greenfield development, brownfield), etc. The Fund will not be invested in an existing operation that has not been developed by the Fund if it is confirmed by independent and adequately qualified experts to be categorised as Category A.

Risk Assessment

Section 4 of the CI3 ESMS Manual describes the E&S risk assessment activities that are undertaken during the investment process. E&S considerations are fully integrated, with activities undertaken during each stage, as summarised below.

- Preliminary Due Diligence (screening): all potential investment opportunities are subject to desk-based screening to determine: (i) compliance with the CI3 Funds' Exclusion List; and (ii) preliminary E&S risk categorisation on the basis of contextual risk screening. Aside from confirming that the proposed investment does not involve any activities included in the Exclusion List, the output will be a summary of the expected environmental and social issues and any key areas of concern to be included in the scope of the Full Due Diligence process.
- Full Due Diligence: the purpose of this step is to determine the nature and significance of E&S impacts and risks; the degree to which an activity, process, operation, product or service meets the E&S Requirements, and the required measures to meet the E&S Requirements which shall be documented in the form of a development action plan. This phase involves site visits, stakeholder interviews, and review of documentation. Where identified as being required, additional, specialist studies will also be commissioned, for example in relation to topics such as human rights, supply chain labour issues, Indigenous Peoples (IPs). The potential for maladaptation risk and unintended consequences will form a specific part of every assessment.
- Project Development: for all potential new or follow-on investments that are categorised as Category A and Category B, independent and adequately qualified experts will be appointed to carry out further evaluation in line with the CI3 E&S Requirements. For greenfield operations and major expansions of existing facilities this will comprise an environmental and social impact assessment (ESIA) compliant with IFC PS1 and other international standards (including the GCF's E&S Policy and IP Policy) along with any additional and specialist studies and plans for specific contextual risks, e.g. relating to IPs, biodiversity, land acquisition and cultural heritage. For existing operations that have not been developed by the CI3 Funds, and for potential Projects rated as Category C a comprehensive E&S audit will be conducted (in addition to the Full Due Diligence). In addition, all Projects, regardless of the E&S risk category, will be required to commission or develop (i) a gender analysis and action plan; (ii) an ESMS commensurate with the risks associated with the planned activities, and (iii) a climate risk and vulnerability assessment and adaptation plan.
- Equity Financial Close: The Fund will only make an investment in a proposed Project Company if any identified adverse impact or performance has been resolved in accordance with the E&S Requirements; or the proposed Project Company has agreed to an E&S Action Plan (ESAP) to resolve the identified adverse impacts or performance within a reasonable timeframe (including appropriate conditions precedent for the proposed investment), and the investment documentation includes appropriate remedies if the proposed Project Company fails to implement the E&S Action Plan, along with standard E&S covenants requiring compliance with E&S Requirements.
- Asset Management: During the lifetime of the investment, monitoring will be conducted to assess ongoing compliance with the Funds' E&S Requirements, and to identify any corrective actions that may be required to address non-compliances and areas for improvement. Such monitoring will take the form of, *inter alia*, engagement via technical sub-committee meetings, routine monitoring visits, and periodic audits.
- Exit: As part of CFM's commitment to responsible exit, the Fund Manager will conduct a review to confirm that all actions detailed in the ESAP, any corrective actions and any outstanding E&S risk management obligations have been appropriately addressed or transferred prior to exit.

Additional Note Regarding GBVH and SEAH

- Gender Based Violence and Harassment (GBVH)/Sexual Exploitation Abuse and Harassment (SEAH) risks are incorporated into each stage of the risk assessment, management and monitoring process. Risks are identified and assessed during E&S screening and Full Due Diligence and are managed through risk-proportionate measures under the ESMS and relevant project-level safeguarding instruments. Monitoring is conducted through reporting, audits and evaluations. Specific arrangements for GBVH/SEAH risk management are detailed in Annex 7 of the Funds' ESMS and for reporting in Annexures 10 and 11.

Additional Note Regarding Indigenous Peoples

CFM recognizes the critical importance of respecting the rights of IPs and of avoiding any adverse impacts on the IPs which may arise because of a Project. CFM will avoid proceeding with a Project beyond the Development phase (activity 2.1) where adverse impacts cannot be avoided. When avoidance is not feasible, CFM requires measures to be put in place to minimize and mitigate these impacts. Compensation shall only be considered as a last resort. If the Full ESDD reveals the potential presence of IP communities in the proposed area of the Project, but it is too early to be able to complete a detailed impact assessment (i.e. in those situations where the specific activities or locations of the Project have not yet been confirmed due to the early stage of the Project's development), the Project Company shall implement an IP Planning Framework (IPPF). The IPPF sets out the legal and institutional requirements for engaging with Indigenous Peoples, aligned with national laws and international standards. It defines processes to identify impacts, conduct specialist assessments, and determine when Free, Prior and Informed Consent (FPIC) is required, while addressing potential adverse impacts even when FPIC is not triggered. It establishes mechanisms for inclusive consultation, information disclosure, culturally appropriate benefit-sharing, and long-term engagement with affected communities. It also clarifies roles, responsibilities, grievance mechanisms, and the preparation of project-specific Indigenous Peoples Plans.

Annex 1 of the CI3 ESMS Manual (A1.9 Management Standard: Indigenous Peoples) describes CFM's IPPF which was developed with input from GCF IP specialists and draws on IFC PS7 and the associated guidance note, and the Green Climate Fund IPP and associated GCF Operational Guidelines. In light of the confirmed E&S risk classification of SIDF as Category A/I-1, and consistent with the GCF IP Policy, particular emphasis is placed on ensuring the full and effective participation of IPs through culturally appropriate and meaningful consultation processes during the programme design stage.

In line with these requirements, CFM has initiated early engagement with six national and regional IP organisations in South Africa and Namibia to organise introductory consultations and gather initial inputs, with the objective of integrating their perspectives into programme design and implementation. CFM has subsequently held a virtual meeting with one organisation that represents two of those we approached; the South African Government Department of Cooperative Governance and Traditional Affairs (CoGTA). This is an important stakeholder given its responsibilities for the policy, legislative, and administrative framework governing traditional and Khoi-San leadership institutions across South Africa. COGTA shared information about their ongoing stakeholder engagement with traditional leadership and appreciated CFM's proactive outreach. CFM and relevant Sub-Project companies will consult with COGTA for support and guidance during the implementation of SIDF, as applicable in the context of Sub-Project development in an area where Indigenous Peoples may be present. CFM will continue to follow up with the identified IP organizations for introductory consultations.

G.2. Gender assessment and action plan (max. 500 words, approximately 1 page)

CFM recognizes that the projects can only be successful if they are gender responsive. The use of the term 'gender' refers to the social relations between women and men; thereby the need to work with women and men to ensure both equitably benefit. It is further recognized that women have as much to gain from its projects (and particularly from increased access to water and energy) as men but given their relative social position, will likely not profit as men from the access to water and energy. Alongside these opportunities, gendered challenges and risks exist.

CFM, in cooperation with the AE, has undertaken a country assessment and gender analysis in line with GCF's published guidance (Mainstreaming Gender in Green Climate Fund Projects, 2017) and based on this, a Gender Action Plan ("GAP") has been developed for implementation by CFM across all investments in South Africa and Namibia. The GAP will be supplemented at the individual Project-level by a local analysis of gender issues, risks and opportunities, and a Project-specific gender quality and social inclusion action plan will be developed that aims to address Project-specific risks and opportunities. The Project Company will be required to implement this action plan throughout the duration of the investment, in parallel to implementing the complementary safeguarding obligations that are documented in the Funds' ESMS (including, *inter alia*, Annex 7 on GBVH/SEAH risk assessment and management).

The GAP is intended to support CFM in fulfilling its commitments to responsible investment in accordance with the CFM Group Responsible Investment Policy and the CFM Group Gender Policy. It includes an (estimated) budget for addressing each of the actions. The AE and the EE confirm that the budget would be readjusted in case it is deemed insufficient during the implementation of CI3.

The gender analysis and CI3 Gender Action Plan are included as Annex 8.

G.3. Financial management and procurement (max. 500 words, approximately 1 page)

Financial management and procurement is done at two levels: (i) the AE (DBSA) and (ii) the EEs. On the AE's level, the AE will enter into the Funding Activity Agreement (FAA) with the GCF. The AE will oversee the fiduciary management of GCF's funding in its GCF account and on a ledger specific to SIDF. The AE will request the GCF funds, based on the funding needs as predicted by

CFM, on a bi-annual basis. The AE will then disburse these funds to CI3 Global whenever CFM issues a drawdown request. CFM will not manage any unused funds of GCF. The drawdown requests and payments at AE will follow the AEs standard policies and procedures.

Once received by CFM, the funds will be administered by CFM including drawdowns from and distributions to investors, as well as all fund-related accounting will be initiated, overseen, and performed by CFM (asset manager). CFM has an Authorization and Payments Policy in place, which details the process of authorizing and making payments to external parties, including the various levels of internal authorization required in order to ensure a sound control environment. CFM has controlled access to the Fund bank accounts and is responsible for initiating and releasing payments according to the Authorization and Payments Policy and generally in accordance with the CI3 Funds' governing documentation. All investor reporting is controlled and managed by CFM. A monthly review of the trial balance is performed by the CFM Finance Manager and quarterly and annual reports are prepared by CFM. The CI3 Funds and CFM's accounts will be audited annually by an external auditor. Accounts will be prepared according to the International Financial Reporting Standards (IFRS) and will consist of, among others, a balance sheet, profit and loss account, explanatory notes, auditor's report, an overview of project turnover activity, breakdown of management fees paid, breakdown of fund operating costs, etc. CFM will require the Project Companies to prepare accounts in accordance with appropriately recognized financial reporting standards, and each Project Company is required to appoint an Auditor. CFM's financial reports will be subject to approval AE review and approval through AE's participation on Underlying Funds' advisory boards.

The EE will follow CFM's Procurement and Outsourcing Policy throughout the implementation of the SIDF programme. DBSA, as the AE, has reviewed CFM's Procurement Policy and has found it aligned with AE requirements for fund managers. The AE has also recommended that CFM must ensure that all procurement-related activities are done in a fair and transparent manner. The DBSA shall reserve the right to periodically and reasonably request procurement information from CFM as the EE to fulfill its reporting and oversight obligations to the GCF. Refer to Annex 10 for overview of the Procurement Policy and implementation at EE level and project-level.

G.4. Disclosure of funding proposal

Note: The Information Disclosure Policy (IDP) provides that the GCF will apply a presumption in favour of disclosure for all information and documents relating to the GCF and its funding activities. Under the IDP, project and programme funding proposals will be disclosed on the GCF website, simultaneous with the submission to the Board, subject to the redaction of any information that may not be disclosed pursuant to the IDP. Information provided in confidence is one of the exceptions, but this exception should not be applied broadly to an entire document if the document contains specific, segregable portions that can be disclosed without prejudice or harm.

Indicate below whether or not the funding proposal includes confidential information.

☐ No confidential information: The accredited entity confirms that the funding proposal, including its annexes, may be disclosed in full by the GCF, as no information is being provided in confidence.

☒ With confidential information: The accredited entity declares that the funding proposal, including its annexes, may not be disclosed in full by the GCF, as certain information is being provided in confidence. Accordingly, the accredited entity is providing to the Secretariat the following two copies of the funding proposal, including all annexes:

- full copy for internal use of the GCF in which the confidential portions are marked accordingly, together with an explanatory note regarding the said portions and the corresponding reason for confidentiality under the accredited entity's disclosure policy, and
- redacted copy for disclosure on the GCF website.

The funding proposal can only be processed upon receipt of the two copies above, if containing confidential information.

ANNEXES		
H.1. Mandatory annexes		
☒	Annex 1	NDA no-objection letter(s) **(template provided)**
☒	Annex 2	Feasibility study - and a market study, if applicable
☒	Annex 3	Economic and/or financial analyses in spreadsheet format
☒	Annex 4	Detailed budget plan **(template provided)**
☒	Annex 5	Implementation timetable including key project/programme milestones **(template provided)**
☒	Annex 6	E&S document corresponding to the E&S category (A, B or C; or I1, I2 or I3): **(ESS disclosure form provided)** ☐ Environmental and Social Impact Assessment (ESIA) or ☐ Environmental and Social Management Plan (ESMP) or ☐ Environmental and Social Management System (ESMS) ☐ Others (please specify – e.g. Resettlement Action Plan, Resettlement Policy Framework, Indigenous People's Plan, Land Acquisition Plan, etc.)
☒	Annex 7	Summary of consultations and stakeholder engagement plan
☒	Annex 8	Gender assessment and project/programme-level action plan **(template provided)**
☒	Annex 9	Legal due diligence (regulation, taxation and insurance)
☒	Annex 10	Procurement plan **(template provided)**
☒	Annex 11	Monitoring and evaluation plan **(template provided)**
☒	Annex 12	AE fee request **(template provided)**
☒	Annex 13	Co-financing commitment letter, if applicable **(template provided)**
☒	Annex 14	Term sheet including a detailed disbursement schedule and, if applicable, repayment schedule
H.2. Other annexes as applicable		
☐	Annex 15	Evidence of internal approval **(template provided)**
☐	Annex 16	Map(s) indicating the location of proposed interventions
☒	Annex 17	Multi-country project/programme information **(template provided)**
☐	Annex 18	Appraisal, due diligence or evaluation report for proposals based on up-scaling or replicating a pilot project
☐	Annex 19	Procedures for controlling procurement by third parties or executing entities undertaking projects financed by the entity
☐	Annex 20	First level AML/CFT (KYC) assessment
☐	Annex 21	Operations manual (Operations and maintenance)
☒	Annex 22	Assessment of GHG emission reductions and their monitoring and reporting (for mitigation and cross cutting-projects)[86]
☐	Annex X	Other references

[86] Annex 22 is mandatory for mitigation and cross-cutting projects.

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