



Project Implementation Report

(1 July 2022 – 30 June 2023)

Project Title:	Global Partnership for improving the food cold chain in the Philippines
GEF ID:	9921
UNIDO ID:	170167
GEF Replenishment Cycle:	GEF-6
Country(ies):	Philippines
Region:	SA - Southeast Asia
GEF Focal Area:	Climate Change Mitigation (CCM)
Integrated Approach Pilot (IAP) Programs¹:	NA
Stand-alone / Child Project:	NA
Implementing Department/Division:	ENV / MPD
Co-Implementing Agency:	NA
Executing Agency(ies):	Department of Environment and Natural Resources, Technical Education and Skills Development Authority (TESDA), and shecco
Project Type:	Medium-Sized Project (MSP)
Project duration	36 months
Extension(s):	1
GEF Project Financing:	USD 2,000,000
Agency Fee:	USD 190,000
Co-financing Amount:	USD 25,509,500
Date of CEO Endorsement/Approval:	5/1/2019
UNIDO Approval Date:	10/11/2019
Actual Implementation Start:	10/11/2019
Cumulative disbursement as of 30 June 2023:	USD 1,958,000.30
Mid-term Review (MTR) Date:	N/A
Original Project Completion Date:	10/10/2022
Project Completion Date as reported in FY22:	12/31/2023
Current SAP Completion Date:	12/31/2023

¹ Only for GEF-6 projects, if applicable

Expected Project Completion Date:	6/30/2024
Expected Terminal Evaluation (TE) Date:	6/30/2024
Expected Financial Closure Date:	12/31/2024
UNIDO Project Manager²:	Adnan Atwa

I. Brief description of project and status overview

Project Objective		
<p>The overall objective of the project is to identify, develop and stimulate the application of low-carbon, energy efficient refrigeration innovation technologies and business practices for use throughout the food cold chain whilst increasing food safety and security.</p>		
Project Core Indicators		Expected at Endorsement/Approval stage
6	Greenhouse Gas Emissions Mitigated (metric tons of CO ₂ e)	<p>Direct emission reduction:</p> <p>Direct emissions reduction of 5,722 tonnes of CO₂ equivalent, with 319 MWh of Total energy saved</p> <p>Indirect emission reduction:</p> <p>GEF bottom-up methodology –</p> <p>Indirect emissions reduction of 143,048 tonnes of CO₂ equivalent through all the activities</p> <p>GEF top-down methodology –through all the activities: 479,815 tonnes of CO₂ equivalent with GEF causality factor)</p>
11	Number of direct beneficiaries disaggregated by gender as co-benefit of GEF investment	<p>At least 200 key stakeholders are educated on energy-efficient and climate-friendly cold chain technologies and practices:</p> <p>100 women/100 men.</p> <p>Education & training for at least 50 local engineers, system suppliers and end-users on the availability and use of global innovative CC technology provided: 20 women/30 men</p>

Baseline
<p>Fresh and safe food is critical to the Philippines. It is home to 100 million people and is the seventh most populated nation in Asia and the twelfth most populated in the world. While the Philippines may be regarded as a newly industrialized country that is transitioning from an agricultural economy to one based more on services and manufacturing, an adequate cold chain is critical to feed such a large population and sustain its export/import potential. The cold chain industry in the Philippines, which currently has a holding capacity of approximately 300,000 metric tons, is at a delicate equilibrium between capacity and demand. At this point, there is strong potential for the industry to grow, given that consumption levels are currently low and that economic development will enhance purchasing power.</p> <p>Refrigeration impacts the global warming through the emission of refrigerants that account for around 20% of total CO₂-equivalent emissions from refrigeration and impacts through energy consumption of around 80% of CO₂-equivalent emissions. Simply put, an impact reduction on CO₂-equivalent emissions from</p>

² Person responsible for report content

refrigeration is therefore possible by firstly improving energy efficiency of the systems and the overall cold chain and secondly by adopting refrigerants with 0 or low climate impact, such as natural refrigerants. The project combines both, the reduction of refrigerants emissions, as well as the reduction of energy use throughout the cold chain.

Worldwide it is estimated that 40% of all foods require refrigeration, and that 15% of the electricity consumed throughout the world is used for refrigeration. With the rising concern over climate change, global warming as well as the insecurity in development and fluctuations in energy costs there is increasing pressure to make significant reductions in carbon emissions and energy use. Furthermore, the inappropriate management of the cold chain in the food industry is widespread, especially in developing countries, due to severe issues related mainly to technical, knowledge and investment challenges. These issues can lead to serious problems such as waste of electricity to feed the cold chain, release of powerful greenhouse gases into the atmosphere and post-harvest losses. Post-harvest losses are estimated to currently account for 30% of total production. Recent projections show an increase in the inefficiency of the overall food systems, causing an increase in post-harvest losses. The production of food involves a significant carbon investment that is squandered if the food is unutilized.

Therefore, there is big potential for investing in cold chain facilities as the Philippines' urban centers are lacking professional infrastructure for storing and transporting seafood and agricultural produce. And as in other developing countries in South-east Asia, especially high spoilage rates continue to pose significant challenges for food logistics.

Please refer to the explanatory note at the end of the document and select corresponding ratings for the current reporting period, i.e. FY23. Please also provide a short justification for the selected ratings for FY23.

In view of the GEF Secretariat's intent to start following the ability of projects to adopt the concept of adaptive management³, Agencies are expected to closely monitor changes that occur from year to year and demonstrate that they are not simply implementing plans but modifying them in response to developments and circumstances or understanding. In order to facilitate with this assessment, please introduce the ratings as reported in the previous reporting cycle, i.e. FY22, in the last column.

Overall Ratings ⁴	FY23	FY22
Global Environmental Objectives (GEOs) / Development Objectives (DOs) Rating	Satisfactory (S)	Satisfactory (S)
Similar to last year, the Project has been doing numerous initiatives and activities to achieve most of its major GEOs and DOs. These are: 1.) introduction of new low-GWP energy efficient technologies; 2.) awareness and information campaign to the cold chain industry; 3.) promotion and financial assistance for the adoption of these technologies; 4.) capacity building of local technical staff; and 5.) policy support for the sustainability of these initiatives		
Implementation Progress (IP) Rating	Satisfactory (S)	Satisfactory (S)
As last year, implementation of most components is in compliance with the work plan in consideration of the approved extension. One challenge we are encountering is the fulfilment of high-level training of at least 20 women. TESDA has only 1 female RAC trainers, while other few women in the industry are not yet on the level for high-level training. The remedial action we are doing is involvement of these		

³ Adaptive management in the context of an intentional approach to decision-making and adjustments in response to new available information, evidence gathered from monitoring, evaluation or research, and experience acquired from implementation, to ensure that the goals of the activity are being reached efficiently

⁴ Please refer to the explanatory note at the end of the document and assure that the indicated ratings correspond to the narrative of the report

women in other knowledge sessions, preparing them to be more equipped on the trainings to be done by TESDA. Other initiative is conducting forums in senior high schools and universities to encourage women to study or specialized in RAC to balance in gender inequality in the industry.		
Overall Risk Rating	Low Risk (L)	Low Risk (L)
Ever since, the Project has low risk of not implementing its activities and achieving its purpose. There was a change of political leadership last year, but it did not affect the Project.		

II. Targeted results and progress to-date

Please describe the progress made in achieving the outputs against key performance indicator's targets in the project's **M&E Plan/Log-Frame at the time of CEO Endorsement/Approval**. Please expand the table as needed.

Since the revised project proposal has been endorsed by the de-facto government, an international bidding has been initiated following UNIDO's new grant manual, a grant evaluation committee has been organized internally. UNIDO received some offers and the evaluation will be concluded by September 2023. As a result, a national execution agency will be chosen. An official request to revise the project will be submitted to the GEF.

Project Strategy	KPIs/Indicators	Baseline	Target level	Progress in FY23
Component 1 – Policy and Regulatory Assessment				
Outcome 1.1: Regulatory, legal and voluntary measures are adopted to support the use of low carbon and energy efficient technology within the Cold Chain (CC).				
Output 1.1.1: National standards for flammable refrigerants and revision of energy efficiency and/or minimum efficiency requirements to fill existing gaps drafted/updated and proposed for endorsement to relevant stakeholders	Number of regulations/standards (new or amended) in favour of low global-warming technologies promulgated.	Zero guidelines on flammable refrigerants and energy efficiency for industrial/commercial food cold chain	1 National standard for flammable refrigerants and 1 national standard for energy efficiency and/or minimum efficiency requirements on the food cold chain sector	Two policies/standards accomplished: 1.) IEC 60335-2-89 v3 on commercial refrigeration, which increases the charge limit of flammable refrigerants, was adopted by the Bureau of Philippine Standards as a Philippine National Standard (PNS IEC 60335-2-89:2022) 2.) Department of Energy (DOE)' Department Circular and Implementing Guidelines for the minimum energy performance of cold storage warehouses and update the Philippine Energy Labelling Program (PELP) to include commercial refrigerators has been drafted and for public consultation before issuance. This was presented to the multi-stakeholders (government agencies, development partners, cold chain operators, technology providers, cold chain users, and others) on April 20, 2023.
Output 1.1.2: Collect technological as well as socio-economic data in order to project short, medium and long term cold-chain needs in the Philippines, including expected growth in energy demand and overall climate impact. Projections on cold-	Availability of project short, medium and long term cold-chain needs report.	Zero data in order to project short, medium and long term cold-chain needs in the Philippines	1 Report on short, medium and long term cold-chain needs in the Philippines including expected growth in energy demand and overall climate impact	The nationwide data collection of cold storage warehouses completed, covering 530,000 cubic meters out of the 600,000 cubic meters reported capacity of cold storage warehouses in the country. Data were inputed to the DeliverE 2.0 platform, an integrated supply chain solution led by the National Cold Chain Committee.

chain development will also take into consideration expected impacts on GEEW				<p>DeliverE 2.0 is a tool that would generate insights on cold chain supply and demand, as well as energy and refrigerant use, and gender mapping in the cold chain sector, which will be used for crafting policy instruments such as investment promotions, and energy and refrigerant policies and regulation.</p> <p>This was presented to the multi-stakeholders (government agencies, development partners, cold chain operators, technology providers, cold chain users, and others) on April 20, 2023.</p>
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Component 2 – Awareness and Capacity Building

Outcome 2.1: Awareness, knowledge and capacity on the use of energy-efficient, climate-friendly and safe alternatives in the food CC industry improved and demand increased.

Output 2.1.1. Methodology to monitor and analyze efficiency and carbon impact of each part of the CC, and the CC as a whole, developed; international benchmarks and evaluation to identify high potential areas for improving the CC in the country conducted, operationally tested and standardized	Standardized methodology to assess EE throughout the cold chain is developed and applied.	Zero methodology to monitor and analyse efficiency and carbon impact of each part of the CC and the CC as a whole at project start	At least 1 standardized methodology option available	Methodology to monitor and analyze efficiency and carbon impact of cold chain equipment developed. A booklet entitled "Assessing the Energy Efficiency of Cold Chains" will be released and distributed to the industry
2.1.2. Optimized system operation recommendations based on data collected disseminated	Recommendation on system operation optimization/energy saving potentials developed	Zero recommendations on system operation optimization/energy saving potentials at the project start	1 set recommendation developed	The Recommendation on Refrigeration System Operation and Optimization for the Philippines Commercial Food Retail Sector developed and presented to the stakeholders.
2.1.3. Recommendations for voluntary commitment to direct and indirect emission reductions drafted and proposed for endorsement to relevant stakeholders (especially private sector)	Recommendations on energy saving potentials are available for stakeholders (technology suppliers, beneficiaries, investors and government).	Zero Recommendations on energy saving potentials at project start	1 set recommendation available for stakeholders	Recommendations in the form of IEC materials are being developed. The materials are about the use of natural refrigerants.
2.1.4. 200 key stakeholders are educated on energy-efficient and climate-friendly cold chain technologies and practices (100 women/100 men).	No. of key stakeholders are educated on energy-efficient and climate-friendly cold chain technologies and practices (disaggregated by gender)	Few CC stakeholders educated on energy-efficient and climate-friendly CC technologies and practices	At least 200 key stakeholders (100 women/100 men).	To date, there were 1945 persons educated on energy-efficient and climate-friendly cold chain technologies and practices both thru online and face-to-face platforms, in which round 30% of the participants were women.
2.1.5. Education & high level training for 50 local engineers, system suppliers and end-users on the availability and use of global innovative CC technology provided. Participation of at least 20 women will be promoted.	No. of engineers/system designers/end users trained (disaggregated by gender)	Zero local engineers, system suppliers and end-users trained and educated in global innovative CC technology	High level training for 50 local engineers, system suppliers and end-users provided.	<p>High level trainings conducted were not only on-hand technical trainings but as well as formulation of standards, curriculum, and learning materials for the development of courses and programs in Technical Education and Skills Development Authority (TESDA) for natural refrigerants:</p> <p>1.) Training of Trainers on Basic Safety on Operation and Maintenance of Ammonia-based Industrial Refrigeration. This was attended by 20 TESDA</p>

				<p>trainers from different regions of the country and 10 private RAC technicians</p> <p>2.) Workshop on the Development of the Competency-Based Learning Materials (CBLM) on Ammonia-Based Industrial Refrigeration System Servicing as continuation of the in-depth training of trainers. The CBLM developed by 10 TESDA Trainers from different regions was the first step in the formation of the ammonia-based industrial refrigeration training course to be offered in TESDA</p> <p>3.) Training of Trainers for the R290 Commercial Refrigeration System. Part of the training of the 19 trainers of TESDA from different regions was the fabrication of R290 system. Training equipment and tools were issued to their respective training centers to be used in the multiplier trainings, where each trainee is required to a minimum of 15 technicians to be trained in R290 system</p> <p>4.) Workshop on the Development of the Competency Standard (CS) on Industrial Refrigeration Operation and Maintenance Level III. Industry consultation was part of this process. The CS was developed by 9 industry experts and facilitated by QSO and NITESD of TESDA</p>
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Component 3 – Technology Transfer

Outcome 3.1.: New technologies made available in the country and partnerships between key stakeholders established

Output 3.1.1. “Cold Chain Innovation Hub (CCI-Hub)” as ecosystem of technical resources, technology promotion, knowledge sharing and stakeholder collaboration set up	Cold Chain Innovation Hub as technology show-case and training facility set-up and available for national stakeholders.	Zero Cold Chain Innovation Hub at the project start	1 physical hub and 1 virtual platform established and operational	<ul style="list-style-type: none"> ▪ CCI-Hub virtual platform is continuously hosting webinars/technical trainings, producing knowledge materials, and providing venue for networking for industry stakeholders. ▪ CCI-Hub Building in TESDA was established and continues its purpose as the project’s central ecosystem of technical resources, training, knowledge sharing and stakeholder collaboration for the promotion of energy efficient and low-carbon refrigeration in the cold chain ▪ Several trainings, technology exhibits, and industry meet-ups were conducted at the CCI-Hub, attracting multi-stakeholders such government agencies, development partners, cold chain operators, technology providers, cold chain users, cold chain associations, academe, and others
3.1.2. Global network of stakeholders, such as national and international technology suppliers, financial institutions, government, etc. built under the CCI-Hub	No. of stakeholders contributed to CCI-Hub	Zero global network of stakeholders, such as national and international technology suppliers, financial institutions, government, etc. focusing on green technologies in the Philippines	At least 10 technology manufacturers contributed to the CCI-Hub.	<p>CCI-Hub has secured a total of 30 contribution agreements with local and international technology suppliers. These suppliers donated state-of-the-art and the first of their kind in the country.</p> <p>Aside from the technology providers, CCI-Hub formed partnership with Cold Chain Association, Refrigeration and Air Conditioning Technicians Association, Consultants, and Farmer Cooperatives to promote the adoption of low-GWP energy efficient refrigeration system.</p> <p>Moreover, cooperation with academic institutions was also established. Forums,</p>

				lectures, and CCI-Hub learning visit were conducted to encourage students to study/specialize in RAC, especially the women. The goal is to address the big gap between the needs of the cold chain industry to the existing experts in the Philippines and the gender balance in the workforce
3.1.3. Technology showcase established: best in class systems and components from around the globe presented virtually as well as technology product examples exhibited on site and used for education and training provided through industry partnership	Technology showcase at CCI-Hub used for best class system and component education and training	Zero technology showcase on green technologies in the country	1 physical technology showcase and 1 virtual reality demonstration and training platform created	In partnership with the world's most innovative and sustainable technology providers, total of 13 latest R290 and CO2 commercial and industrial refrigeration systems are showcased at the CI-Hub, ready to make Philippines a pioneer in sustainable cold chain development in the region. These low GWP energy efficient equipment are being used in various technical sessions to the cold chain stakeholders and in-depth training of TESDA trainers (TOT) from different regional training centers.
Outcome 3.2.: Financing scheme to develop bankable investment projects put into practice				
Output 3.2.1. Business case demonstration projects based on the results of component 2 completed and economic feasibility verified	Business case demonstration project on energy-efficient and climate-friendly cold chain technologies piloted	Zero business case demonstration project on energy-efficient and climate-friendly cold chain technologies at the project start	At least 2 DEMO cases piloted	The Launching Ceremony of the DEMO Project was conducted, and attended by 109 representatives from the cold chain industry, government agencies, academe, and financial institutions. Promotional activities and acceptance and screening of applications of beneficiaries are on-going One beneficiary, Glacier Panay Refrigeration Services Corporation, was approved by the Project Steering Committee (PSC) during its 4th meeting on April 19, 2023. Four (4) other applicants (InsightSCS, Icebox Logistics Services, Camp Backpackers, and Carles LGU) were presented at the CCI-Hub Conference last June 1. Approval of PSC is on-going.
3.2.2. Options for investments, loans and finance schemes assessed and proposed for implementation with national institutions/entities	Financial supports for adopting/implementing energy-efficient and climate-friendly cold chain technologies available	Zero financial support for adopting/implementing energy-efficient and climate-friendly cold chain technologies at project start	At least 2 finance schemes available	PFAN was already engaged by UNIDO to implement outputs 3.2.2 and 3.2.3. Outputs 3.2.2 and 3.2.3 were already introduced to the industry during the CCI-Hub Conference on June 1, 2023. A panel session on financing of sustainable cold chain technologies participated by the representatives from Landbank of the Philippines (LBP), Development Bank of the Philippines (BDP), Bank of the Philippine Island (BPI), and Bangko De Oro (BDO). Initial networking among financial institutions and cold chain industry facilitated.
3.2.3. Capacity building and support for financial institutions and potential beneficiaries/suppliers delivered, investment-ready projects prepared and approved by financial institutions	Investment-ready project proposals approved by the financial institutions	Zero support to prepare business/project proposal for funding	At least 2 business/project proposals prepared and submitted to financial institutions	Related to Output 3.2.2

III. Project Risk Management

1. Please indicate the overall project-level risks and the related risk management measures: (i) as identified in the CEO Endorsement document, and (ii) progress to-date. Please expand the table as needed.

	(i) Risks at CEO stage	(i) Risk level FY 22	(i) Risk level FY 23	(i) Mitigation measures	(ii) Progress to-date	New defined risk ⁵
1	Lack of trust and/or interest between the national and international technology providers, which is crucial for the success of the project. They might be not convinced of the benefits of implementing new methodologies, new technologies and new types of refrigerants.	Medium	Low	Awareness raising campaigns will be promoted in order to disseminate benefits (financial, energy, environmental, safety, etc.) of new technologies and best practices will be a key component of the Innovation Hub. Case studies to prove the business case and deliver energy saving figures, technology components available at the Hub (virtually and in reality) to be able to see and touch them and representatives from the foreign companies on site as well to create trust. Energy and technology audits to prove the business case.	<p>The educational and awareness campaigns being done through the CCI-Hub gained high interest from global suppliers and experts. This led to networking and building relationship between the national and international technology providers.</p> <p>Local stakeholders/users are becoming well-informed on the available technologies that will benefit their business. Several inquiries were made through the CCI-Hub.</p> <p>There were number of applications for DEMO projects. The actual testimonies of the beneficiaries are expected to result in increase in the demand for energy-efficient, climate-friendly and safe alternatives in food CC.</p>	<input type="checkbox"/>
2	Availability of technical resources for the proper application of new technologies, since some of the new technologies have not been applied in developing countries.	Medium	Low	Technological solutions will be carefully selected to ensure they can be sustained and replicated in the future. Moreover, a continuous dialogue with international suppliers will be sustained by the Innovation Hub. To deliver the required capacity building, UNIDO will employ the services of highly skilled experts.	In partnership with the world's most innovative and sustainable technology providers, total of 13 latest R290 and CO2 commercial and industrial refrigeration systems are showcased at the CI-Hub. In partnership with local and international experts, these low GWP energy efficient equipment are being used in various technical sessions to the cold chain stakeholders and in-depth training of TESDA trainers (TOT) from different regional training centers.	<input type="checkbox"/>
3	Climate changes, including costal storms, flooding, heat waves and other weather extremes, will influence the sustainability of the intervention.	Low	Low	Location the Innovation Hub should be in a safe location. Climate conditions and temperature changes should be taken into consideration. During the PPG-phase, an environmental and social management plan has been prepared to screen and avoid all related risks.	The CCI-Hub building in TESDA is a sturdy structure located in a safe location. Its design supports good ventilation and day-lighting, resulting to comfort, usability, and energy efficiency.	<input type="checkbox"/>
4	Change in priorities leading to reduced support to the project, implementation delays and reductions in the effectiveness of delivery of the capacity building programs.	Low	Low	Close communication with the government will ensure open channels of information flow, so the project team will have early warning and will be able to address concerns of the government early (if there were to be any).	The Project was able to establish good working relations with the executing partners, DENR and TESDA. Partnership with DOE and DTI-BOI was also established for the delivery of policy instruments on energy efficiency, standards development and cold chain development.	<input type="checkbox"/>

2. If the project received a **sub-optimal risk rating (H, S)** in the previous reporting period, please state the **actions taken** since then to mitigate the relevant risks and improve the related risk rating. Please also elaborate on reasons that may have impeded any of the sub-optimal risk ratings from improving in the current reporting cycle; please indicate actions planned for the next reporting cycle to remediate this.

⁵ New risk added in reporting period. Check only if applicable.

NA

3. Please indicate any implication of the **COVID-19** pandemic on the progress of the project.

The COVID-19 pandemic restrictions have been lifted in 2022-2023, thus it has no implication on the progress of the Project

4. Please clarify if the project is facing delays and is expected to request an **extension**.

The project will finish all its main outputs in the approved extension date, December 31, 2023, however, reporting, evaluation, and formal Project closing are foreseen to be completed six (6) months after December 2023 and is therefore undergoing right now the procedure to request an additional minor extension by 6 months until 30 June 2024.

5. Please provide the **main findings and recommendations of completed MTR**, and elaborate on any actions taken towards the recommendations included in the report.

NA

IV. Environmental and Social Safeguards (ESS)

1. As part of the requirements for **projects from GEF-6 onwards**, and based on the screening as per the UNIDO Environmental and Social Safeguards Policies and Procedures (ESSPP), which category is the project?

Category A project

Category B project

Category C project

(By selecting Category C, I confirm that the E&S risks of the project have not escalated to Category A or B).

Please expand the table as needed.

	E&S risk	Mitigation measures undertaken during the reporting period	Monitoring methods and procedures used in the reporting period
(i) Risks identified in ESMP at time of CEO Endorsement	<ul style="list-style-type: none">Ozone depletion due to use of refrigerantsGreenhouse gas emissionPotential health hazards of the refrigerantsPossible leakage of refrigerant in the atmosphere	<ul style="list-style-type: none">Use of alternative refrigerantsUse of more energy-efficient technologiesObserve proper handling of refrigerantsUse of PPEs when exposed to refrigerantsProper training of workers involvedRegular maintenance and inspection of facilitiesEmergency Response Plan	Only applicable when demo projects are installed and operational

(ii) New risks identified during project implementation (if not applicable, please insert 'NA' in each box)	NA	NA	NA
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V. Stakeholder Engagement

1. Using the previous reporting period as a basis, please provide information on **progress, challenges and outcomes** regarding engagement of stakeholders in the project (based on the Stakeholder Engagement Plan or equivalent document submitted at CEO Endorsement/Approval).

- The formation of the inter-agency technical working group (IATWG) through DENR Special Order 2020-328, composing of DENR, Department of Energy (DOE), Department of Trade and Industry – Board of Investment (DTI-BOI), Department of Agriculture (DA), National Cold Chain Committee (NC3), and Cold Chain Association of the Philippines (CCAP), resulted to the attainment of the outputs of Component 1 – the policy instrument and the database for cold chain solution.
- The 4th Project Steering Committee (PSC) meeting was held and participated by all agency members, particularly UNIDO, DENR-EMB, TESDA, and shecco. Among the discussion were the 2022 accomplishments and 2023 workplan. One of the major decisions was the approval of the first DEMO projects beneficiary.
- A network composed of experts, suppliers and users have been established. Partnership with (CCAP), Refrigeration and Air Conditioning Technicians Association of the Philippines (RACTAP) and Women on Ventilation, Refrigeration, and Air Conditioning (WOVRAC) has been continuously productive. They not only actively participated in Project activities such as meetings, forums, research, webinars and technical trainings, but also provided expertise whenever needed. Several international and local companies contributed equipment in the CCI-Hub for technology showcase and trainings. Similarly, partner experts have been tapped during technical trainings.
- Collaboration with financial institutions for the financing scheme to develop bankable investment projects. The project is facilitating the networking of the cold chain users, technology providers, and financial institutions.
- Cooperation with academic institutions was also established. Forums, lectures, and CCI-Hub learning visit were conducted to encourage students to study/specialize in RAC, especially the women. The goal is to address the big gap between the needs of the cold chain industry to the existing experts in the Philippines and the gender balance in the workforce

2. Please provide any feedback submitted by national counterparts, GEF OFP, co-financiers, and other partners/stakeholders of the project (e.g. private sector, CSOs, NGOs, etc.).

- During its Partners Appreciation Day at the TESDA Central Office last December 15, 2023, TESDA has recognized FCC project for its commitment and support by establishing the CCI-Hub as one of the state-of-the-art facilities inside the TESDA Complex that serves as a learning venue for efficient and low-carbon refrigeration for the cold chain industry. A Plaque of Appreciation was given to UNIDO.
- DTI-BOI gave UNIDO a Plaque of Appreciation for providing support to the data collection activities which enabled the completion of the Philippine Cold Chain Industry Database Project. The database offers valuable information for BOI's investment promotion initiatives.
- DOE recognized the partnership with UNIDO in the development of the Minimum Energy Performance Standard (MEPS) of cold storage warehouses. This was stated in the AVP of DOE regarding the MEPS for cold storages.
- Similarly, partnership with UNIDO is recognized by DENR in their IEC materials.

3. Please provide any relevant stakeholder consultation documents.

1. 9921_Activity report_CCAP Event_15Sept22
2. 9921_Activity report_CCI Hub Tech Week_6-8Sept22
3. 9921_Activity report_CCI-Hub Conference_1June2023
4. 9921_Activity report_Cold Chain Exhibition opening_29Sept22
5. 9921_Activity report_CS Development Workshop_2-4June2023
6. 9921_Activity report_DeliverE 2.0 and MEP Conference_20April2023
7. 9921_Activity report_Industry consultation_27April2023
8. 9921_Activity report_PSIM visit to CCI-Hub_27June2023
9. 9921_Activity report_UNIDO meeting with TESDA DG_18April2023
10. 9921_Activity report_Workshop on good practices on flam ref_28-29Sept22
11. 9921_CCI-Hub-Cold-Chain-Policy-Paper_final-compressed
12. 9921_Meeting highlights_CCI Hub 2nd meeting with Toyota Tusho_5Sept22
13. 9921_Meeting highlights_CCI Hub 4thQ activities_19Sept22
14. 9921_Meeting highlights_CCI Hub meeting with Panasonic_8Aug22
15. 9921_Meeting highlights_CCI Hub meeting with ASHRAE_12Aug22
16. 9921_Meeting highlights_CCI Hub meeting with Hussmann Panasonic_13July22
17. 9921_Meeting highlights_CCI Hub meeting with Toyota Tusho_18Aug22
18. 9921_Meeting highlights_Data collection progress meeting_1Aug22
19. 9921_Meeting highlights_EUMB meeting_11Aug22
20. 9921_Meeting highlights_MEP Meeting with CCAP_29July22
21. 9921_MEP Consultant - Final Draft Assessment Report
22. 9921_Proposed DC-MEP for CC

VI. Gender Mainstreaming

1. Using the previous reporting period as a basis, please report on the **progress** achieved on **implementing gender-responsive measures** and **using gender-sensitive indicators**, as documented at CEO Endorsement/Approval (in the project results framework, gender action plan or equivalent),.

- Inclusion of gender on the database of DeliverE 2.0 which will inform gender mapping in the cold chain sector.
- Continuous partnership with Women on Ventilation, Refrigeration, and Air Conditioning (WOVRAC). They always participated in the activities of the CCI-Hub, increasing their awareness and knowledge in the sustainable cooling solutions. Capacitating them for career opportunities and women's role in the sector.
- In line with the celebration of Women's Month, the Project conducted a career seminar aiming to promote education and career in HVAC-R sector for the youth, especially young women. A total of 236 students (57.2% women) from three (3) schools participated the event.
- Collection of sex-disaggregated data for technical workshops and stakeholder coordination meetings, consideration of gender balance in staff recruitment.

VII. Knowledge Management

1. Using the previous reporting period as a basis, please elaborate on any **knowledge management activities / products**, as documented at CEO Endorsement / Approval.

Knowledge activities held for the previous year include the following webinars and trainings:

1. CCI Hub Technology Training Week
2. Workshop on Good Practices in Refrigeration and Safe Handling of Flammable Refrigerants
3. Training of Trainers on Basic Safety on Operation and Maintenance of Ammonia-based Industrial Refrigeration
4. Supra-Regional Cold Chain Industry Roadshow
5. Workshop on the Development of the Competency-Based Learning Materials on Ammonia-Based Industrial Refrigeration System Servicing
6. CO2 and R290 Technology Training Session
7. The Future of the Industry Panel Discussion: Policy, Regulation and Training
8. The Future of the Industry Technical Sessions
9. Training of Trainers for the R290 Commercial Refrigeration System.
10. Workshop on the Development of the Competency Standard (CS) on Industrial Refrigeration Operation and Maintenance Level III.
11. DeliverE 2.0 and MEPS for Cold Chain Conference
12. Career Guidance Forum to High School and Mechanical Engineering Women Student. International Women's Month Celebration

Knowledge products released this year include:

1. Cold Chain Database
2. Assessment Report on the development of the minimum energy performance (MEP) for the cold chain sector
3. Competency-Based Learning Materials on Ammonia-Based Industrial Refrigeration System Servicing
4. Competency Standard (CS) on Industrial Refrigeration Operation and Maintenance Level III.
5. Assessing the Energy Efficiency of Cold Chains

The integrated CCI Hub is a key factor to ensure a solid exit strategy, facilitate the flow of information and knowledge to international and national stakeholders and beneficiaries, as well as to consolidate experiences from the Philippines during and after the project to share these experiences and expertise with all existing and potential stakeholders.

With the physical hub at TESDA, the sustainability of the capacity building will be further guaranteed as the new technologies introduced by the Project was made into regular curriculum of TESDA. In addition, CCI-Hub.org has been continuously producing knowledge materials/products. This platform, in combination with the physical Hub, will play a crucial role as go-to place and core of all activities around information and knowledge sharing, capacity building, training and dissemination of results from all project activities.

The online platform both the website and YouTube channel are constantly updated and expanded.

2. Please list any relevant knowledge management mechanisms / tools that the project has generated.

- DeliverE 2.0 platform, an integrated supply chain solution
- <https://cci-hub.org/>
- <https://cci-hub.org/contributors/>
- <https://cci-hub.org/newsletter/>
- <https://cci-hub.org/webinars/>
- <https://cci-hub.org/events/>
- <https://cci-hub.org/blog/>
- https://www.youtube.com/channel/UCYmc5WUzNEvw_WfvZj5JrrQ
- <https://www.facebook.com/Cold-Chain-Innovation-Hub-CCI-Hub-106403608785440>

VIII. Implementation progress

1. Using the previous reporting period as a basis, please provide information on progress, challenges and outcomes achieved/observed with regards to project implementation.

Please see detailed description on progress, challenges and outcomes of implementation activities by topic in previous sections.

2. Please briefly elaborate on any minor amendments⁶ to the approved project that may have been introduced during the implementation period or indicate as not applicable (NA).

Please tick each category for which a change has occurred and provide a description of the change in the related textbox. You may attach supporting documentation, as appropriate.

<input type="checkbox"/>	Results Framework	
<input type="checkbox"/>	Components and Cost	

⁶ As described in Annex 9 of the *GEF Project and Program Cycle Policy Guidelines*, **minor amendments** are changes to the project design or implementation that do not have significant impact on the project objectives or scope, or an increase of the GEF project financing up to 5%.

<input type="checkbox"/>	Institutional and Implementation Arrangements	
<input type="checkbox"/>	Financial Management	
<input checked="" type="checkbox"/>	Implementation Schedule	Extension to December 2023, additional 6 months extension to be requested for project closure activities.
<input checked="" type="checkbox"/>	Executing Entity	Minor amendment of the project which allows the existing executing partner shecco to be responsible for the execution and management of funds for output 3.2.1
<input type="checkbox"/>	Executing Entity Category	
<input type="checkbox"/>	Minor Project Objective Change	
<input type="checkbox"/>	Safeguards	
<input type="checkbox"/>	Risk Analysis	
<input type="checkbox"/>	Increase of GEF Project Financing Up to 5%	
<input type="checkbox"/>	Co-Financing	
<input type="checkbox"/>	Location of Project Activities	
<input type="checkbox"/>	Others	

3. Please provide progress related to the financial implementation of the project.

For detailed information see Project Delivery Report attached.

IX. Work Plan and Budget

1. Please provide **an updated project work plan and budget** for the remaining duration of the project, as per last approved project extension. Please expand/modify the table as needed.

Outputs by Project Component	2022				2023				2024				GEF Grant Budget Available (US\$)
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
Component 1 – Policy and Regulatory Assessment													
Outcome 1.1: Regulatory, legal and voluntary measures are adopted to support the use of low carbon and energy efficient technology within the Cold Chain (CC)													
Output 1.1.1: National standards for flammable refrigerants and revision of energy efficiency and/or minimum efficiency requirements to fill existing gaps drafted/updated and proposed for endorsement to relevant stakeholders													0

suppliers, financial institutions, government, etc. built under the CCI-Hub												executing partner shecco, around 25,000USD in open invoices)
Output 3.1.3: Technology showcase established: best in class systems and components from around the globe presented virtually as well as technology product examples exhibited on site and used for education and training provided through industry partnership												0 (Entire budget obligated/committed in ongoing contracts with executing partners TESDA and shecco, around 20,000USD in open invoices)
Outcome 3.2: Financing scheme to develop bankable investment projects put into practice												
Output 3.2.1: Business case demonstration projects based on the results of component 2 completed and economic feasibility verified												0 (Entire budget obligated/committed in ongoing contracts with executing partner shecco, around 300,000USD in open invoices)
Output 3.2.2: Options for investments, loans and finance schemes assessed and proposed for implementation with national institutions/entities												0 (Entire budget obligated/committed in ongoing contracts with executing partner PFAN, around 15,000USD in open invoices)
Output 3.2.3: Capacity building and support for financial institutions and potential beneficiaries/suppliers delivered, investment-ready projects prepared and approved by financial institutions												0 (Entire budget obligated/committed in ongoing contracts with executing partner PFAN, around 10,000USD in open invoices)
Component 4: Monitoring and Evaluation												
Outcome 4.1: Project achieves objectives on time through effective monitoring and evaluation												
Output 4.1.1: Periodic monitoring of project implementation												3,200
Output 4.1.2: Final evaluation completed												30,000

X. Synergies

1. Synergies achieved:

- Collaboration with Philippines Stage II HCFC Phase-out Management Plan established. Activities under the Philippines Stage II HCFC Phase-out Management Plan complement Component 2 on how the project will equip stakeholders on energy-efficient and climate-friendly cold chain technologies and

practices.

- The project also supplements the GIZ Cool Contributions fighting Climate Change or C4 II project, which focuses on household and commercial refrigeration and air-conditioning, by addressing the needs of the industrial refrigeration sector. Present partnership is on the training of TESDA trainers and private technicians on natural refrigerants for industrial refrigeration.
- The project was able to partner with the inter-agency National Cold Chain Committee (NC3), which was to implement the Philippine Cold Chain Industry Roadmap. One of the key strategies of NC3 is to come up with a projection of cold chain supply and demand which is being pursued through the developed DeliverE 2.0 tool. Through the project, the said tool also takes into account the energy, refrigerant and gender dimensions of the cold chain and use its insights for policy formulation.
- The Assessment on the Development of the Minimum Energy Performance (MEP) for the Cold Chain takes into account the framework for the National Cooling Plan which was identified under a United Nations Environment Program (UNEP) project. This is a step to harmonize the MEP policy instruments with other climate action plans, as well as the Nationally Determined Contributions (NDC).
- Alignment of the methodology for monitoring, reporting and verification of energy efficiency performance as mandated by the Energy Efficiency and Conservation Law, which is under Component 1 on policy and regulatory assessment.
- UNDP's Development for Renewable Energy Applications Mainstreaming and Market Sustainability (DREAMS) Project reached out to FCC Project and endorsed the off-grid communities they have assisted for the DEMO projects, particularly the grant of solar freezer for the island fishing communities.

3. Stories to be shared (Optional)

Lessons learned and best practices will be completed on the 1st quarter of 2024

XI. GEO LOCATION INFORMATION

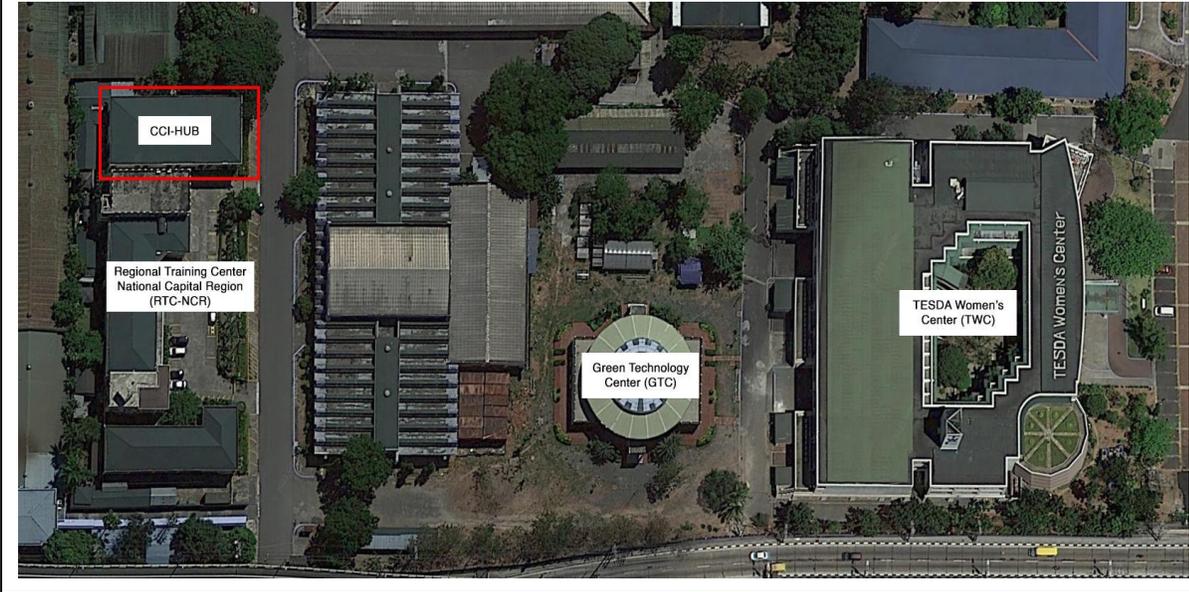
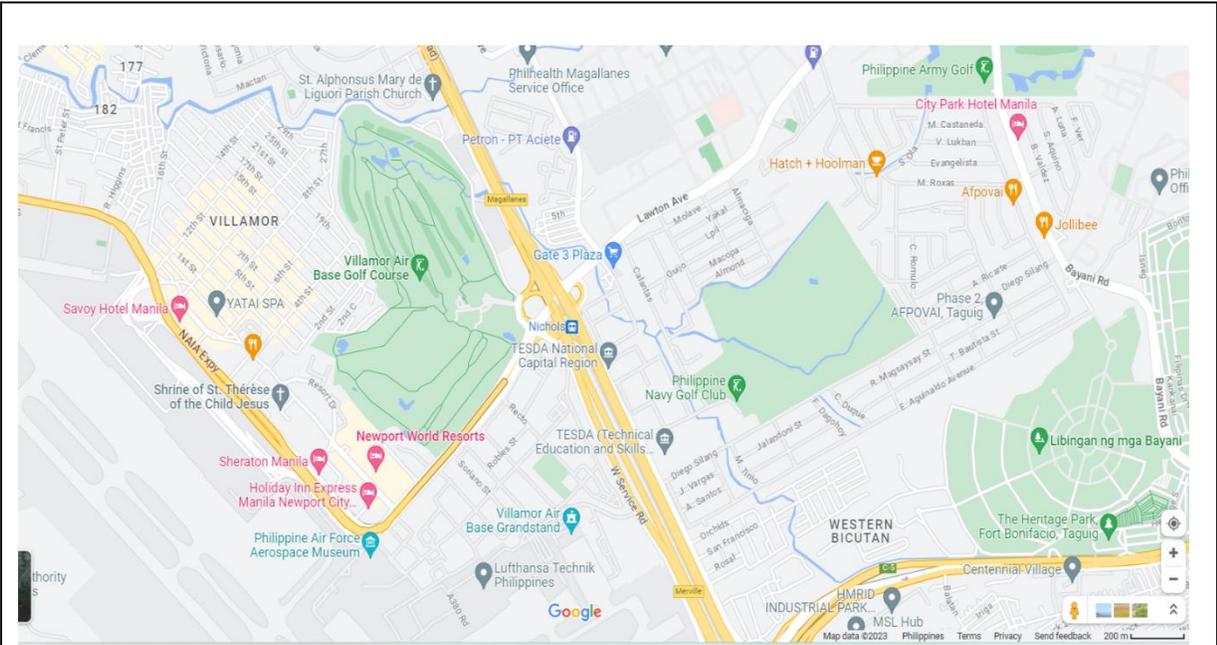
The Location Name, Latitude and Longitude are required fields insofar as an Agency chooses to enter a project location under the set format. The Geo Name ID is required in instances where the location is not exact, such as in the case of a city, as opposed to the exact site of a physical infrastructure. The Location & Activity Description fields are optional. Project longitude and latitude must follow the Decimal Degrees WGS84 format and Agencies are encouraged to use at least four decimal points for greater accuracy. Users may add as many locations as appropriate.

Web mapping applications such as [OpenStreetMap](#) or [GeoNames](#) use this format. Consider using a conversion tool as needed, such as: <https://coordinates-converter.com>

Please see the Geocoding User Guide by clicking [here](#)

Location Name	Latitude	Longitude	Geo Name ID	Location and Activity Description
TESDA, Taguig, Philippines	14.522001914146744,	121.02892064384659		CCI-Hub Building – technology exhibit and training venue

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



EXPLANATORY NOTE

1. **Timing & duration:** Each report covers a twelve-month period, i.e. 1 July 2022 – 30 June 2023.
2. **Responsibility:** The responsibility for preparing the report lies with the project manager in consultation with the Division Chief and Director.
3. **Evaluation:** For the report to be used effectively as a tool for annual self-evaluation, project counterparts need to be fully involved. The (main) counterpart can provide any additional information considered essential, including a simple rating of project progress.
4. **Results-based management:** The annual project/programme progress reports are required by the RBM programme component focal points to obtain information on outcomes observed.

Global Environmental Objectives (GEOs) / Development Objectives (DOs) ratings	
Highly Satisfactory (HS)	Project is expected to achieve or exceed <u>all</u> its major global environmental objectives, and yield substantial global environmental benefits, without major shortcomings. The project can be presented as “good practice”.
Satisfactory (S)	Project is expected to <u>achieve most</u> of its <u>major</u> global environmental objectives, and yields satisfactory global environmental benefits, with only minor shortcomings.
Moderately Satisfactory (MS)	Project is expected to <u>achieve most</u> of its major <u>relevant</u> objectives but with either significant shortcomings or modes overall relevance. Project is expected not to achieve some of its major global environmental objectives or yield some of the expected global environmental benefits.
Moderately Unsatisfactory (MU)	Project is expected to achieve <u>some</u> of its major global environmental objectives with major shortcomings or is expected to <u>achieve only some</u> of its major global environmental objectives.
Unsatisfactory (U)	Project is expected <u>not</u> to achieve <u>most</u> of its major global environmental objectives or to yield any satisfactory global environmental benefits.
Highly Unsatisfactory (HU)	The project has failed to achieve, and is not expected to achieve, <u>any</u> of its major global environmental objectives with no worthwhile benefits.

Implementation Progress (IP)	
Highly Satisfactory (HS)	Implementation of <u>all</u> components is in substantial compliance with the original/formally revised implementation plan for the project. The project can be presented as “good practice”.
Satisfactory (S)	Implementation of <u>most</u> components is in substantial compliance with the original/formally revised plan except for only few that are subject to remedial action.
Moderately Satisfactory (MS)	Implementation of <u>some</u> components is in substantial compliance with the original/formally revised plan with some components requiring remedial action.
Moderately Unsatisfactory (MU)	Implementation of <u>some</u> components is <u>not</u> in substantial compliance with the original/formally revised plan with most components requiring remedial action.
Unsatisfactory (U)	Implementation of <u>most</u> components in <u>not</u> in substantial compliance with the original/formally revised plan.
Highly Unsatisfactory (HU)	Implementation of <u>none</u> of the components is in substantial compliance with the original/formally revised plan.

Risk ratings	
Risk ratings will assess the overall risk of factors internal or external to the project which may affect implementation or prospects for achieving project objectives. Risk of projects should be rated on the following scale:	
High Risk (H)	There is a probability of greater than 75% that assumptions may fail to hold or materialize, and/or the project may face high risks.
Substantial Risk (S)	There is a probability of between 51% and 75% that assumptions may fail to hold or materialize, and/or the project may face substantial risks.
Moderate Risk (M)	There is a probability of between 26% and 50% that assumptions may fail to hold or materialize, and/or the project may face only moderate risk.
Low Risk (L)	There is a probability of up to 25% that assumptions may fail to hold or materialize, and/or the project may face only low risks.

