

Independent Terminal Evaluation

**Reducing greenhouse gases and ODS emissions  
through technology transfer in the industrial  
refrigeration and air conditioning sector**

UNIDO Project No.: 120623  
GEF Project No.: 5466



UNITED NATIONS  
INDUSTRIAL DEVELOPMENT ORGANIZATION



# UNIDO INDEPENDENT EVALUATION DIVISION

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Table of Contents.....	Page
Acknowledgements.....	iv
List of acronyms and abbreviations.....	v
Glossary of evaluation-related terms.....	vi
Executive summary.....	vii
I. Evaluation objectives, methodology and process.....	1
II. Country and project background.....	3
2.1. Brief country context and project background.....	3
2.2. Project summary.....	5
2.3. Project implementation arrangements and implementation modalities.....	6
2.4. Major changes to project implementation.....	8
2.5. Positioning of UNIDO Project.....	8
III. Project Theory of change and progress to impact.....	10
IV. Project assessment.....	14
3.1. Design.....	14
3.2. Relevance.....	15
3.3. Effectiveness.....	17
3.4. Efficiency.....	20
3.5. Sustainability of benefits.....	21
3.6. Gender mainstreaming.....	21
3.7. Assessment of monitoring and evaluation systems.....	22
3.8. Project coordination and management.....	23
3.9. Assessment of processes affecting achievement of project results.....	23
3.10. Overall project achievement.....	25
IV. Conclusions, recommendations and lessons learned.....	28
4.1. Conclusions.....	28
4.2. Recommendations.....	28
4.3. Lessons learned.....	29
Annexes.....	30
Annex I: Terms of reference.....	30
Annex II: List of stakeholders, partners and investment beneficiaries interviewed.....	63
Annex III: Project financial overview as on 24 November 2017.....	65
Annex IV List of key documents reviewed.....	66

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The evaluation field mission took place from 06/11/2017 to 10/11/2017. The evaluation team was composed of one international evaluation consultant acting as the team leader, José Bettencourt, and a national evaluation consultant, Ndey Naffie Ceesay. The tasks of each team member are specified in the job descriptions annexed to the Terms of Reference (Annex I).

## List of acronyms and abbreviations

Acronym	Meaning
AWP	Annual Work Plan
BAT	Best Available Techniques
BEP	Best Environmental Practices
CoP	Conference of the Parties
EA	Enabling Activities
ET	Evaluation Team
GBoS	Gambia Bureau of Statistics
GDP	Gross Domestic Product
GEF	Global Environment Facility
GRACSS	Gambia Refrigeration and Air-conditioning Service Support
GTTI	Gambia Technical Training Institute
GWP	Global Warming Potential
HDI	Human Development Index
HPMP	HCFC phase out management plan
LDC	Least Developed Country
NEA	National Environment Agency
NOU	National Ozone Unit
ODG/EVA	UNIDO Office for Independent Evaluation
ODS	Ozone Depleting Substances
OECD/DAC	Development Assistance Committee
PEB	Project Executive Body
PM	Project Manager
PMU	Project Management Unit
PSC	Project Steering Committee
PTC	Programme Development and Technical Cooperation Division
RBM	Results-based Management
SAP	Systems Applications Products
TE	Terminal Evaluation
ToR	Terms of Reference
UN	United Nations
UNEG	United Nations Evaluation Group
UNIDO	United Nations Industrial Development Program

## Glossary of evaluation-related terms

Term	Definition
Baseline	The situation, prior to an intervention, against which progress can be assessed.
Effect	Intended or unintended change due directly or indirectly to an intervention.
Effectiveness	The extent to which the development intervention's objectives were achieved, or are expected to be achieved.
Efficiency	A measure of how economically resources/inputs (funds, expertise, time, etc.) are converted to results.
Impact	Positive and negative, intended and non-intended, directly and indirectly, long term effects produced by a development intervention.
Indicator	Quantitative or qualitative factors that provide a means to measure the changes caused by an intervention.
Lesson Learned	Generalizations based on evaluation experiences that abstract from the specific circumstances to broader situations.
Logframe (logical framework approach)	Management tool used to facilitate the planning, implementation and evaluation of an intervention. It involves identifying strategic elements (activities, outputs, outcome, impact) and their causal relationships, indicators, and assumptions that may affect success or failure. Based on RBM (results based management) principles.
Outcome	The likely or achieved (short-term and/or medium-term) effects of an intervention's outputs.
Outputs	The products, capital goods and services which result from an intervention; may also include changes resulting from the intervention which are relevant to the achievement of outcomes.
Relevance	The extent to which the objectives of an intervention are consistent with beneficiaries' requirements, country needs, global priorities and partners' and donor's policies.
Risks	Factors, normally outside the scope of an intervention, which may affect the achievement of an intervention's objectives.
Sustainability	The continuation of benefits from an intervention, after the development assistance has been completed.
Target groups	The specific individuals or organizations for whose benefit an intervention is undertaken.

## Executive summary

The Medium Size Project (MSP) “Reducing greenhouse gas and ODS Emissions through technology transfer in the industrial RAC (refrigeration and air conditioning) sector” in The Gambia funded by the Global Environment Facility (GEF) and implemented by the United Nations Industrial Development Organization (UNIDO). The project started in February 2014 and continues to be implemented with an extension dated December 2017. The main national partners of the project are the National Environmental Agency (NEA) and Gambia Technical Training Institute (GTTI) with the following financing sources: GEF: USD 495,000; co-financing (cash and in kind): USD 1,855,000; Total: USD 2,475,000.

The overall objective of the project was to reduce greenhouse gas emissions associated with industrial refrigeration and air-conditioning facilities in the Gambia. The project used a synergistic combination of technical assistance on policy and regulation, technology transfer, capacity building and awareness-raising.

This was a demonstration/pilot project and its major achievement was to establish in the country foundations to the use of Hydrocarbons (HC) refrigerants, by working on policy/regulations (central level), and simultaneously working with technical training center and technicians that can instill progress towards safe use of alternative low ODS and low Global Warming Potential (GWP) gases in their every day practice. The behavioural changes initiated with this project would require continued action to consolidate and expand.

It should be highlighted that the project has been designed prior to the Kigali Agreement, and therefore it is very innovative implementing alternatives that avoid use of Hydrofluorocarbons (HFC) to replace Hydrochlorofluorocarbons (HCFC). The Gambian market is starting (since later 2016) to offer new energy efficient ACs marketed as reducing 70% of energy consumption, but using HFC 407 and 410 which have high GWP and it is likely that its use will be high. This increases the relevance of this project.

## Conclusions

This project is highly relevant as The Gambia is committed to phase out HCFC by 2030 and implementing an HCFC Phase-out Management Plan (HPMP). By removing barriers to increased energy efficiency and establishing the enabling environment for the introduction of low global warming potential (GWP) alternatives to HCFC- 22, the project adds up to the HPMP. GEF 5 Focal Area Strategy for climate change mitigation, “to support developing countries and economies in transition toward a low-carbon development path”, namely with objective 2 “Promote market transformation for energy efficiency in industry and the building sector”.

Effectiveness of the project is considered moderately satisfactory. Quality outputs have been delivered and national stakeholders (e.g. GTTI and GRACSS) are already adopting some of the techniques they were trained on. However, the overall objective goal and component 2 outputs have not been fully achieved, while the result of component 1 is yet to be integrated into policies, laws and regulations. Delays due to late arrival of training equipment, and difficulties in implementing the incentive mechanism decreased efficiency.

The approach originally agreed upon by stakeholders for the implementation was not followed, in particular there was no National Project Steering Committee and no local Project Management Office; and although NEA and GTTI planned and implemented their activities on their own, they however consult and participate in each other’s activities. Overall project management, supervision and monitoring were satisfactorily provided by UNIDO HQ with adequate staffing. Active involvement of national stakeholders in all the project activities contributed to high ownership and quality of outputs delivered.

Some risks have been identified, namely regarding the low availability of HC in the country (except R-600a and R-290 in refrigerators) and the uncertainty of the adoption by the government of the measures recommended in component 1. Therefore, likelihood for sustainability of benefits and continuous sustained impact of the project is considered moderately likely.

This was a demonstration/pilot project and its major achievement was to establish in the country foundations to the use of HC refrigerants, by working on policy/regulations (central level), and simultaneously with technical training center and technicians that can instill progress towards safe use of alternative low ODS and low GWP gases in their every day practice.

### **Recommendations:**

The project has yet to deliver the incentive mechanism. The project should speed up the process of delivering the incentive, and allow time to still assess the potential benefit/impact of those interventions. On the other hand, there is a need for GTTI to actively promote the use by the GRACSS of the equipment provided by the project that the RAC technicians cannot afford<sup>1</sup>, but need to adhere to best practices.

In order to maximize impact of the project, NEA should take quick action to review the roadmap of policy/legal/institutional recommendations and guidance in line with the current national governance framework, and start implementation. This includes sensitization to policy makers and decision-makers of several departments of the government and the national assembly, and also enhance the capacity of environmental inspectors on ODS monitoring.

The support mechanisms envisioned in the design of the project were not fully developed. A future project should take the lessons from this project, define in consultation with the stakeholders what support mechanisms would be desirable and possible to develop and within what time-frame given the real capacities of the country, and using the GRACSS capacity and motivation and GTTI training and supervision capacities.

### **Lessons learned:**

The evaluation was affected by the very ambitious objective and goals set in the project document. Quantitative objectives and goals of the projects should be set on issues the project can control to a certain extent, and not be solely dependent on external factors. When designing future projects, a deep assessment of implementation partners capacities should be undertaken, in order to seek realistic objectives, goals and sub-activities within the time-frame and resources of the project. Responsibilities of each participating institution should be fully owned through formal institutional commitment. Implementation partners/institutions should avoid taking up responsibilities that are out of reach given their capacities (for example existence of required staff) or mandate, unless the project itself has provisions to satisfy the requirements.

When there are several implementing partners, it is important to promote coordination at country level in all ways possible. Projects should include approaches that combine formal instruments to involve stakeholders (such as steering committees and consultations), effective coordination and information sharing and proactive involvement in project activities.

To change behavior on the refrigeration and AC industry it is an excellent idea to train RAC technicians (service providers) as they are at the forefront to sensitize the end-user. However, it

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<sup>1</sup> Given the reality of the country the RAC technicians charge a reduced amount to their clients, which is insufficient to buy all the equipment required to adequately recovering, cleaning and storing refrigeration gas.

is equally important to mobilize beneficiaries/stakeholders from industry and strengthen awareness to achieve stakeholder commitment. It is also desirable, when possible to generate awareness on end-users, such as owners of the units (supermarkets, hospitals, hotels, etc.) and also architects, engineers, etc., to make them aware about the technology options and their benefits.

Entrepreneurs are averse to the risk of having to stop activities and to uncertainty of supply of consumable goods required for the operation. Therefore, when introducing new technology, it is important to set conditions for the availability of consumable goods and technical assistance. Besides, the proposed solutions need to be perceived as being within reach of the targeted sectors (technologically and financially), useful, (namely regarding competitiveness and compliance), and relevant (return of investment, added value).

## I. Evaluation objectives, methodology and process

The GEF Monitoring and Evaluation Policy (February 2006)<sup>2</sup> specifies that the GEF partners, in addition to conducting various other evaluations, will also evaluate projects “at the end of the intervention (terminal evaluation)”. The policy states that through monitoring and evaluation (M&E) the GEF aims to “promote accountability for the achievement of GEF objectives through the assessment of results, effectiveness, processes, and performance of the partners involved in GEF activities.” It further states “GEF results will be monitored and evaluated for their contribution to global environmental benefits”. Similarly, according to UNIDO’s evaluation policy, project and program evaluations are part of project cycle management. Evaluations serve three main purposes: to assure accountability, to support management, and to drive learning and innovation.

The evaluation was scheduled to take place from 23/10/2017 to 12/11/2017. The evaluation field mission took place from 06/11/2017 to 10/11/2017.

The evaluation team was composed of one international evaluation consultant acting as the team leader, José Bettencourt, and a national evaluation consultant, Ndey Naffie Ceesay. The tasks of each team member are specified in the job descriptions annexed to the terms of reference (Annex I).

The Terminal Evaluation (TE) is intended to provide an analysis of the attainment of the project objective and the corresponding technical outputs and outcomes. The TE assessed project performance against the evaluation criteria: relevance, effectiveness, efficiency, sustainability and impact.

The TE has an additional purpose of drawing lessons and developing recommendations for UNIDO and the GEF that may help for improving the selection, enhancing the design and implementation of similar future projects and activities in the country and on a global scale upon project completion.

The evaluation has three specific objectives:

- (i) Assess the project performance in terms of relevance, effectiveness, efficiency, sustainability and progress to impact;
- (ii) Identify key learning to feed into the design and implementation of the forthcoming projects; and
- (iii) Develop a series of findings, lessons and recommendations for enhancing the design of new and implementation of on-going projects by UNIDO.

The key question of the TE is whether the project has achieved or is likely to achieve its main objective, i.e. to reduce greenhouse gas emissions associated with industrial refrigeration and air-conditioning facilities in the Gambia.

The key evaluation questions are the following:

- (a) What are the key drivers and barriers to achieve the long-term objectives? To what extent has the project helped put in place the conditions likely to address the drivers, overcome barriers and contribute to the long-term objectives?

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<sup>2</sup> The GEF Monitoring and Evaluation Policy, Evaluation Document No. 1 (GEF Evaluation Policy, 2006) is available at [http://gefco.org/uploadedFiles/Policies\\_and\\_Guidelines-me\\_policy-english.pdf](http://gefco.org/uploadedFiles/Policies_and_Guidelines-me_policy-english.pdf).

- (b) How well has the project performed? Has the project employed the right method and applied the appropriate tools? Has the project done things right, with good value for money?
- (c) What have been the project's key results (outputs, outcome and impact)? To what extent have the expected results been achieved or are likely to be achieved? To what extent will the achieved results be sustained after the completion of the project?
- (d) What lessons can be drawn from the successful and unsuccessful practices in designing, implementing and managing the project? The evaluation will use a theory of change approach and mixed methods to collect data and information from a range of sources and informants. It will pay attention to triangulating the data and information collected before forming its assessment. This is essential to ensure an evidence-based and credible evaluation, with robust analytical underpinning.

The TE covered the whole duration of the project from its starting date in 13/2/2014 to the completion date in December 2017. It was conducted in accordance with the UNIDO Evaluation Policy<sup>3</sup> and the UNIDO Guidelines for the Technical Cooperation Project and Project Cycle<sup>4</sup>. In addition, the evaluation followed the GEF Guidelines for GEF Agencies in Conducting Terminal Evaluations, the GEF Monitoring and Evaluation Policy and the GEF Minimum Fiduciary Standards for GEF Implementing and Executing Agencies.

In line with the practice adopted by many development agencies, the UNIDO Independent Evaluation Division uses a six-point rating system, where 6 is the highest score (highly satisfactory) and 1 is the lowest (highly unsatisfactory).

The desk and literature review of documents related to the project, include but is not limited to: The original project document, monitoring reports (such as progress reports, back-to-office mission reports), as well as project outputs reports; and reports on events carried out by the project and notes from the meetings of committees involved in the project.

The project has been executed by the National Ozone Unit (NOU) of the National Environment Agency (NEA), and by the Gambia Technical Training Institute (GTTI). During the field visits the evaluation team conducted interviews, with authorities, project stakeholders, visited workshops of private technicians as well as of Refrigeration and Air Conditioning (RAC) technicians' associations who benefited from trainings, and visited plants selected to benefit from the project. The team also visited GTTI main training facilities as well as the decentralized facilities of Mansakonko.

Stakeholder consultations were conducted through structured and semi-structured interviews and focus group discussion. Evaluation findings, conclusions and recommendations were discussed in detail at physical face-to-face de-briefings to the key stakeholders in The Gambia and in Vienna. The purpose of these de-briefings was a factual verification of key findings and an in-depth discussion of evaluation results. The feedback and comments received during these presentations have been considered in this report.

The main limitations for the evaluation are: (i) The lack of a national steering committee in The Gambia and the fact that the two implementation entities did work separately, though they consult each other; (ii) Non-existence of a project completion report detailing all activities carried out and main results in each component; (iii) the fact that at the time of the evaluation there is still uncertainty concerning how to conclude the implementation of one of the components of the project.

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<sup>3</sup>UNIDO. (2015). Director General's Bulletin: Evaluation Policy (UNIDO/DGB/(M).98/Rev.1)

<sup>4</sup>UNIDO. (2006). Director-General's Administrative Instruction No. 17/Rev.1: Guidelines for the Technical Cooperation Programme and Project Cycle (DGAI.17/Rev.1, 24 August 2006)

## II. Country and project background

### 2.1. Brief country context and project background

The Gambia in West Africa occupies an area of 11,365 sq km. A small sub-tropical country between latitudes 13°28'W and 16°36'W, it is bordered to the north, south and east by Senegal and has an 80km coast on the Atlantic Ocean to the west. The country's borders roughly correspond with the path of the River Gambia. The capital city is Banjul.

The country has a sub-tropical climate with two variations of distinct dry and rainy seasons. The dry season commonly known as 'Harmattan' usually starts mid-October and ends around mid-June every year with an average temperature of 32°C / 89.6°F. The rainy season usually starts around mid-June and ends around mid-October with August being the wettest month of the year, temperatures can reach up to 41°C/105.8°F.

The country has an estimated population of 1.9 million with an annual growth rate of 3.1%; (2013 Population & Housing Census) women constitute 51% of the total population. Majority of the population, 58.2 per cent, resides in the urban areas whilst the remaining 42.2 per cent lives in the rural areas. The findings of the 2015/16 Integrated Household Surveys show that proportion of the population living below the poverty remains flat since 2010 (48.4% in 2010 and 48.6% in 2015/16). The United Nations (UN) classifies the Gambia as a Least Developed Country (LDC). The Gambia's Human Development Index (HDI) in 2016 by the United Nations Development Programme is 0.452 positioning it 173 out of 188 countries and territories.

The per capita income of the country is estimated to be USD 485 (GBoS). Agriculture is the mainstay of the economy and is the major employer contributing 21 per cent to Gross Domestic Product (GDP) in 2016 although the services sector accounted for the highest proportion with 66 per cent. The GDP of The Gambia is put at an annual average growth rate of 3.5% [1993-2013], which is below the sub-Saharan average of 4.1%<sup>5</sup>. The low average is partly due to dependence on rain fed agricultural sector that has faced increasing unpredictability in climatic patterns. The adult literacy rate was estimated to be 55.1 per cent in 2013.

The Gambia is categorized as a Low-Volume-ODS Country and, historically, ODS and specifically HCFC consumption has occurred almost entirely in the refrigeration-servicing sector and has been almost exclusively HCFC-22. In The Gambia, several economic activities are actively consuming refrigerants. Industrial refrigeration sector increase of the last years accompanies the increase of fish processing and handling plants, ice producing plants, breweries, and commercial agricultural farms.

The hotel industry is also a large consumer of refrigerant. Overall, this growth has led to a general increase in the quantity of refrigeration units, and consumption of all classes of refrigerants, including HCFCs, as second-hand equipment that is no longer allowed in developed countries is often imported as it is more affordable to the different end users i.e. commercial use and household.

The increased use of refrigeration leads to routine equipment upgrades, or new installations, and owners are currently likely to favour the use of HFCs that have very high global warming potentials (GWP) thereby locking themselves into these technologies for many years. The Gambia looks to minimize the use of chemicals damaging to the ozone layer, and also operate with greater energy efficiency and use chemicals with lower GWP. HCFC-22 is currently the least expensive refrigerant available in The Gambia, costing

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<sup>5</sup> WB Gambia Policies to Foster Growth Vol.1

almost half the price of some non-HCFC refrigerants available in the market. The industrial refrigeration sector – which consumes the largest amount of HCFC-22 in The Gambia and is mainly divided between the fish processing and tourism industries (e.g. hotels) – includes fish processing plants, cold rooms, central air conditioning, ice-making systems and blast freezers. The largest importers of AC equipment are introducing high-energy efficient equipment, but using refrigerants such as R-410 with high GWP.

According to the Policy Gap Analysis document carried out as component I of the project under evaluation, low GWP technology, such as hydrocarbon refrigerants and equipment using these substances is not available in the country (only R600a domestic refrigerators). There is a risk that the market may be forced to transition to high-GWP alternatives as R22 (currently being commonly used) is being phased out. One of the main barriers identified for the technology transfer is a large knowledge gap on technologies using natural refrigerants. The project being evaluated addresses this issue.

Since 2014, Pamaque Company in Lagos, Nigeria has been producing both R-600a and R-290 refrigerants. Major refrigerant importers from The Gambia were informed about this. The import of hydrocarbons could start relatively soon provided there is demand for it, and it can be imported, but several barriers remain. The absence and/or weak enforcement of strong legislative measures on fluorinated gases, for example bans set on imports of out-dated technology where climate friendly and energy efficient systems could be imported instead continues to maintain the current status quo.

The introduction of tax-based incentives for low-GWP refrigerants, such as tax rebates (VAT / import duty) on technologies using natural refrigerants or incentives for businesses purchasing such technology (zero interest rate loan, accelerated tax relief) could greatly facilitate the widespread use of the desired natural refrigerants. The government could also play an important role in encouraging the introduction of natural refrigerant-based systems through setting public procurement criteria that only allow purchase of such equipment. This would have to be accompanied with the adoption of technical safety standards, regulations and good practice guidelines on the use of natural refrigerant-based equipment.

In addressing the above issues, the Government of The Gambia has proposed, under the HCFC Phase-Out Management Plan (HPMP), to follow the Montreal Protocol schedule and adopt a staged approach to completely phase out HCFCs by 2030. The Gambia has proposed to ensure that imports of both bulk HCFCs and HCFC-containing equipment are reduced by applying the quota to be established following the reduction schedule of the Montreal Protocol. The licensing and quota systems came into effect in early January 2013.

In addition, the Government envisaged strengthening the enforcement of the licensing system in order to closely monitor imports of both HCFCs and HCFC-using equipment to ensure that these are within the limits set. Also, a comprehensive programme for reduction of HCFCs and carbon emissions in the refrigeration and air conditioning sector through servicing has been envisaged.

The activities being implemented within the HPMP include, training of customs officers stationed at border entry points and other law enforcement agents; implementation of the new curricula for customs officials and follow-up on the enforcement of HCFC licensing and quota systems; purchase and distribution of refrigerant identifiers in key border entry points of the country; training of refrigeration technicians in the safe handling of hydrocarbon refrigerants and good service practices; purchase of recovery and recycling equipment for the retrofitting centres and delivery of awareness workshops; strengthening the refrigeration and air-conditioning association which have been pivotal in completing the training programmes for service technicians, as well as their certification.

An end-user's incentive scheme to retrofit or replace equipment is also envisaged and preparations towards implementation have been initiated.

## 2.2. Project summary

The project Reducing greenhouse gas and ODS Emissions through technology transfer in the industrial RAC (refrigeration and air conditioning) sector in The Gambia, aims at reducing greenhouse gas emissions associated with industrial refrigeration facilities in The Gambia by removing barriers to increased energy efficiency and establishing the enabling environment for the introduction of low global warming potential (GWP) alternatives to HCFC- 22.

The project uses a synergistic combination of technical assistance on policy and regulation, capacity building and awareness raising. The project also supports the design and implementation of incentives to promote the adoption of energy efficiency measures; and innovative technical assistance delivery mechanisms.

The overall objective of the project is to reduce greenhouse gas emissions associated with industrial refrigeration and air-conditioning facilities in the Gambia. The project includes three components with three outcomes outlined in the table below:

**Table1: Components and outcomes of the project**

Project Component	Outcome
Policy and Regulatory Support	Policy, legal and regulatory measures are adopted by the government to support the adoption of low global - warming potential and energy efficient technology.
Technology Transfer	Technical and financial support on replacement refrigerants, and reducing greenhouse gas emissions and operational costs is ensured
Awareness Raising	Demand is increased for refrigerant systems with low global warming potential that are more energy efficient than existing technology.

Table 2 provides all relevant information as regards project costs and co-financing, donors, duration, implementing and executing agencies.

**Table 2: Fact Sheet of the project**

Project title	Reducing greenhouse gases and ODS emissions through technology transfer in the industrial RAC (refrigeration and air conditioning) sector	
UNIDO Project ID	120623	
GEF Project ID	5466	
Project implementation planned start date Actual start date	2/13/2014	
Project implementation Planned end date Revised end date	2/13/2017 12/31/2017	
Project Costs (in USD)	GEF grant:	495,000 USD
	<i>Co-funding</i> UNIDO: National Government (grant) National Government (in-kind): Private Sector (technology suppliers): Private Sector (Shecco) : Gambia Technical Training Institute	263,000 USD 1,081,000 USD 551,000 USD 120,000 USD 310,000 USD 150,000 USD
	Total	2,970,000 USD
Implementing agency: Executing partners:	UNIDO National Environment Agency and GTTI	
Mid - term review date	As the project was a Medium-Size Project (MSP), a mid - term evaluation/review was not conducted.	

### 2.3. Project implementation arrangements and implementation modalities

UNIDO was the GEF implementing agency. The project had two local executing agencies: the NEA's National Ozone Unit (NOU) and the GTTI. The NOU is responsible for execution of the policy initiatives. The GTTI leads the training activities (including training equipment) and awareness raising initiatives, and provides technical support for standards.

The Centro Studi Galileo (CSG) provided the initial technical training to "super technicians" and provided support to GTTI, mainly on component 2, but also on component 3. That Centre also hosted a visit from Director of GTTI, the Head of the Refrigeration Section from GTTI and the National Ozone Officer to Milan, Italy to the conference "Latest Technologies in Air-Conditioning and Refrigeration Industry" in June 2015. Following the conference where the Gambia demonstration project was presented and discussed in detail, site visits were scheduled to different training facilities and industry representatives.

According to available information and documentation Shecco elaborated a road map for the awareness raising initiatives. Shecco also hosted the Gambian delegation at Chillventa, October 2016 to, among other; establish contact networks for technology transfer.

There was no steering committee for this project and the two implementing entities worked separately. However, GTTI and NOU often communicate and participate in the activities of each other. The overall management of the project is done from UNIDO headquarters.

The institutions that have been involved in the project are:

Stakeholder	Involvement
National Environment Agency (NEA)	NEA works to implement the policy objectives of the Gambia Environmental Action Plan, through program areas such as Environmental Education & Communication, Environmental Quality Program, Environmental Impact Assessment and Elimination of Ozone Depleting Substances, among others. It houses the National Ozone Unit.
National Ozone Unit (NOU)	NOU was established in 1997 and acts as the Country's main coordinating body for ODS phase - out. In order to meet the reduction schedules, the NOU has actively pursued a strategy that aims to secure the constant involvement of other stakeholders including importers, the clearing agency at the port of entry and customs departments.
The Gambia Technical Training Institute (GGTTI)	GTTI was established by an Act of Parliament in 1980 and began operations in 1983 providing instruction on a variety of technical and commercial disciplines. It has been a key player in other capacity building initiatives within The Gambia, and also works closely with the NOU on provision of technical training related to the ODS initiatives. GTTI is a working to mobilize literacy and vocational skills training for out-of-school girls and rural women, so is particularly experienced with including gender dimensions in technical training.
The Gambian Association of Refrigeration and Air Conditioning Practitioners, also known (GRACSS)	The Gambian association of refrigeration and air conditioning practitioners, also known as Gambia Refrigeration and Air Conditioning Service Support (GRACSS), brings together all the refrigeration technicians under one umbrella and covers all seven regions of the Gambia. GRACSS is a charitable, non-profit and non-political association aimed to foster mutual understanding among technicians and share development information in technology and experiences for the socio-economic advancement of its members in the society. The association was established in 2008, but some 200 RAC technicians have been receiving training on recovery and recycling technology and certification since 2001. The Association has received additional training by the NOU on differentiating CFCs, HCFCs and HFCs as well as recovery and retrofitting of gases. The Association members have been equipped with the necessary equipment and tools to retrofit

Stakeholder	Involvement
	and recover gases. All members were acquainted with the management of refrigeration sector phase - out projects, having been involved in the phase - out of CFC - 12 in the refrigeration - servicing sector.

## 2.4. Major changes to project implementation

During the implementation period of the project, GTTI has had a new Director in 2015. Also a new Ozone Officer was appointed in late 2015 to oversee the project implementation. Between December 2016 and January 2017, the Gambia went through a political crisis starting after the presidential elections and ending with the intervention of ECOWAS forces and the inauguration of the new president. In the sequence of that reform, there have been changes in the government and policy decision-makers of the country. In FY 2017 there was a personnel change in the position of the National GEF Focal Point / the Executive Director of the National Environment Agency (NEA). The National Ozone Officer has been ensuring continuity and facilitating the flow of information.

The nature of the interventions supported under the incentive mechanism has had to be adjusted in line with the relevant decisions/guidelines of the Executive Committee of the Multilateral Fund for the Implementation of the Montreal Protocol in 2016 (UNEP/OzL.Pro/ExCom/77/76). As a consequence, the focus of the incentive mechanism has been shifted from conversions to system improvements, which are less costly interventions.

At the time of the evaluation four beneficiaries had been selected to receive co-financing on the improvement of their systems. The contracts for that purpose were still being prepared. Discussion was still on going on how to use the remaining grant funds.

## 2.5. Positioning of UNIDO Project

This project replies to the interest of the Executive Committee of the Multilateral Fund for the Implementation of the Montreal Protocol, that UNIDO's seeks co-financing to cover costs that are not eligible under the Multilateral Fund but that could generate climate benefits as the result of HCFC phase-out.

This project has strong synergies with the support to HCFC Phase-Out Management Plan (Stage I) co-funded by UNEP and UNIDO. With the support of UNEP, the HPMP stage I will train customs and law enforcement officers, and strengthen the customs schools, including dissemination of the amended ODS regulations and strengthening of technical colleges and training of refrigeration technicians in good refrigeration practices. The support of UNIDO to the HPMP consists of the strengthening of the three regional retrofitting centers through provision of technical assistance, equipment and an incentive program for access to tool kits, spare parts, alternative fluid and conversion, and development of a comprehensive program strategy for the reduction of HCFC and carbon emissions in the refrigeration and air conditioning sector.

The initiatives developed under this project add to the HPMP as they encourage better practices and raise awareness and knowledge, which serve as the foundation for the growing refrigeration demand in The Gambia in the future and prepare this industry to select the best technologies for this market. The project has a holistic approach to create a policy and regulatory environment conducive to the adoption of new technologies; develop mechanisms for technology transfer through the provision of targeted technical support mechanisms to identify energy efficiency measures and refrigerant options - including their economic viability - and incentive mechanisms for owners/operators to carry out improvements; and implement targeted capacity building and awareness initiatives.

Beneficiaries from The Gambian Association of Refrigeration and Air Conditioning Practitioners perceive the activities of both HPMP and this project as complementary.

### III. Project Theory of change and progress to impact

The evaluation used theory of change (TOC) to assess the project's contributions to the conditions leading to the desired behavioral and technological transformations. Although the project document does not contain an explicit theory of change, the project document and the logical framework provided enough information to construct a theory of change indicating how the project was expected to help bring about conditions for the phase-out of HCFC. The TOC developed for this project is illustrated in Figure 1.

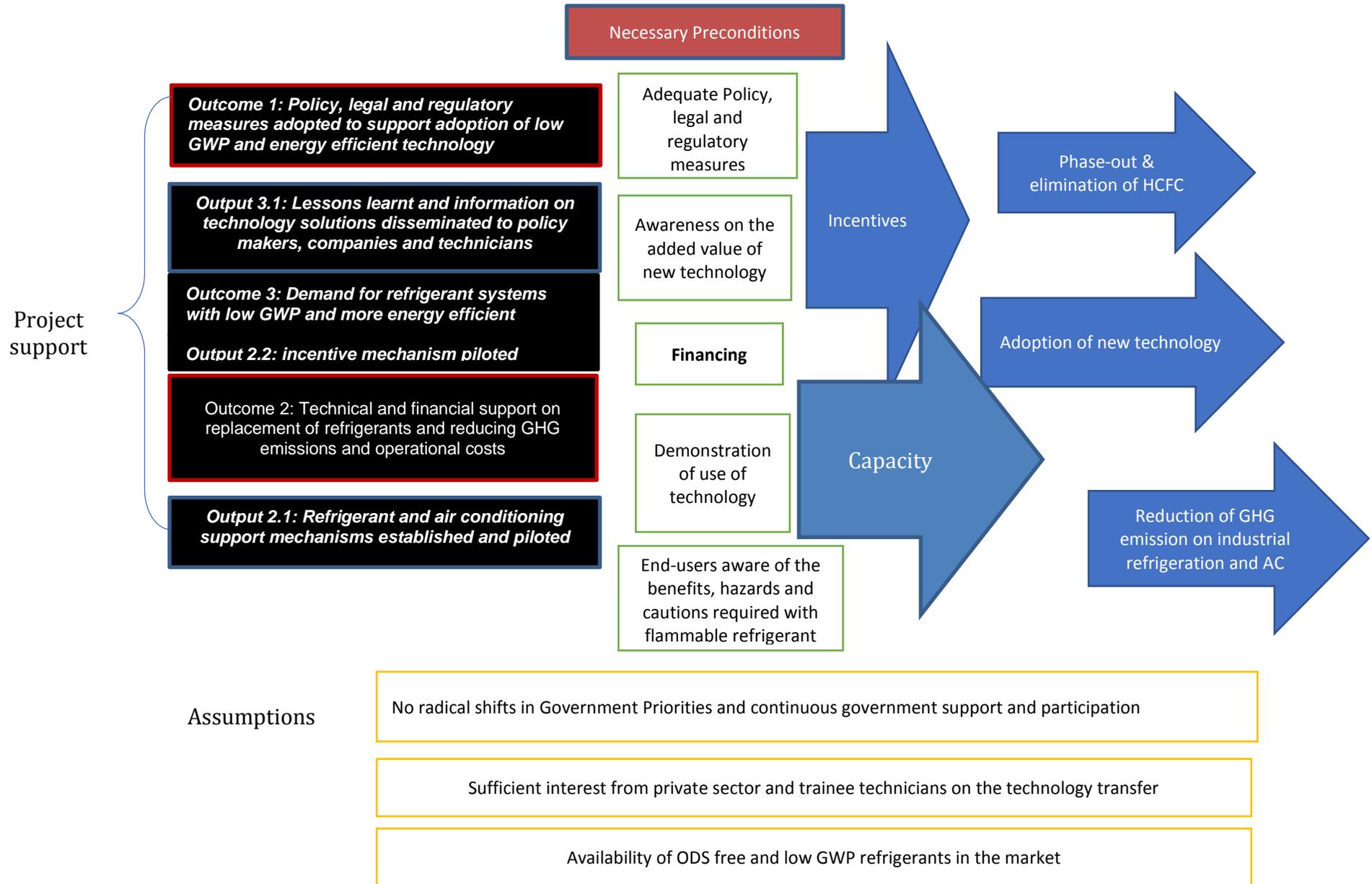
Figure 1 illustrates how the three project outcomes, and some outputs in particular could contribute to the preconditions for bringing about the behavioural and technological changes needed to phase out HCFC and reduce GHG emissions. To bring about the necessary behavioural changes, the incentives for change and capacities to carry out change would need to be in place. Incentives to promote behavioural change derive from three main conditions:

- i) the adoption of policy, legal, and regulatory measures (such as a quota on imports of HCFC equipment and tax incentives to the purchase of alternative refrigerants and equipment);
- ii) the conscience of the added values (environmental, social and financial) of using low GWP and high-energy efficient equipment, and of decreasing gas leakages; and
- iii) the existence of financial incentives to attract the change. Capacities to bring about change require: i) adaptation and demonstration of technologies and approaches to serve as models, enable learning and to prove the value of the alternative; and ii) the end-user's knowledge on how to safely use flammable gas equipment so as to avoid accidents and a negative image of the technology.

It should be highlighted that the project has been designed prior to the Kigali Agreement, and therefore it is very innovative. At the beginning of implementation there was no strong international commitment that set targets on phasing out HFC, hence promoting the use of HC.

It should also be kept in mind that this was a demonstration project, and behavioural changes would require continued action. The next paragraphs present succinct analysis of the contributions of the project to all the five conditions identified by the TOC.

Figure 1: Theory of change



**Adequate Policy, legal and regulatory measures.** Despite the planned HCFC phase-out targets, there is an overall lack of policy and regulatory incentives to support the industrial refrigeration sector in moving toward greater energy efficiency and away from HCFC-22 prior to 2030 in The Gambia. In particular, there is a lack of measures that would encourage refrigeration facilities to consider lower-carbon, low-GWP alternatives in refrigeration. The project provided the technical support and helped facilitate the development of measures, including fiscal and non-fiscal incentives for climate-friendly technologies, quotas for HCFC and HFC imports, standards / technical regulations / good practice guidelines, training and opportunities to be seized under HPMP stage II. The recommendations were prioritized and a roadmap for implementation has been developed, although fiscal measures need to be further discussed with government to seek agreements.

**Awareness on the added value of the new technology.** Before the project started, only a few individuals working in refrigeration and air-condition systems were aware of the impacts of using R-22 and many RAC technicians were not aware of the nature of the new gases. Through the numerous workshops targeting RAC technicians and entrepreneurs, the project was able to develop widespread awareness and understanding among stakeholders of the benefits of adhering to energy efficient and climate-friendly technology. Entrepreneurs are currently more aware of the coming phase out of R-22 and of the need to adopt new technologies and save money. Many of them have expressed their readiness to do so when the costs become acceptable and equipment and refrigerants available. The project was not very active on policy makers, which would be an important aspect to bring about behavioral change.

**Demonstration of technologies.** Prior to the project many refrigeration technicians lacked maintenance expertise, specific training in improving energy efficiency of refrigeration systems. Most lack the knowledge, basic tools and equipment required to prevent refrigerant leakages while charging refrigeration systems in plants, and better methods of purging non-condensable gases. Furthermore, refrigeration technicians generally lack capacity to advise on HCFC-22 alternatives including associated energy efficiency gains and related operating costs from replacement systems that could offset the capital costs of conversion. Another barrier is that currently most of the HCFC-22 being imported by The Gambia is of a poor quality, containing other refrigerants such as HFCs as impurities, which causes loss of efficiency. Mineral oils commonly used for HCFC-22 are not compatible with HFC refrigerants such as R-134a, and using them in systems with a mixture of HCFC-22 and HFCs results in the oil breaking down followed by frequent replacement of filters and driers and even loss of compressors. By project closure, the majority of the RAC technicians in the country are aware of low GWP gases and how to work with them, about the benefits and energy efficiency associate with its use. The RAC technicians have better knowledge on good practices to test quality of refrigerants, collect gas, use equipment to clean gases, etc. The project was not able to set up the Certified RAC support service, but the bases are set up.

**Financing to pay for the costs of transition.** One of the main barriers to the introduction of alternatives to HCFC-22 with low GWP is the low cost of HCFC-22 at present in the market compared to its alternatives. Also, there was a lack of alternatives such as R-290 in the market, and the cost of conversions to new equipment using low GWP refrigerants is a deterrent for end-users. Although the project incentive had to shift scope for improvement of existing equipment and decrease leakage, the project was not able to attract more companies to use the incentive. The RAC technicians have to charge low prices to the customers they serve, and this prevents them to acquire the necessary equipment to

implement good practices in their work. Hence the incentive mechanism of the project, although quite relevant has not been achieved.

***End-users aware of the benefits, hazards and cautions required with flammable refrigerant.*** Due to inadequate servicing and maintenance practices, and the use of outdated equipment, the industrial refrigeration sector experiences inefficient energy use and significant refrigerant losses (ranging from 200 kg to 300 kg per year per site). There was a lack of awareness about the potential energy savings possible from better maintenance and servicing. Through the project entrepreneurs became aware of the legal framework governing the importation and consumption of refrigerants, and of their technicians' engagement with good practices regarding quality of refrigerants and adequate handling and storage and final destination. The message on the flammability of these natural refrigerants was received with keen interest since some technicians have already fallen victim to it. (The team was reliably informed that a technician already sustained burns from an accident as a result of the flammable nature of the alternative refrigerants). With the project the RAC technicians are currently advising customers of the cautions and good use of equipment (mostly refrigerators containing flammable gases). Also, members of the GRACSS are anxiously waiting for availability of natural refrigerants (HC R290) in the country, which is currently scarce in the country and in the neighboring countries.

#### *Longer-term impact*

Through the project, the capacity of GRACSS was increased to adhere to good practices and use/handling of natural refrigerants, and technicians are having an impact on the population and on other technicians who have not attended the training. This is the most noticeable impact.

The remaining aspects still need further internalities (adoption of the roadmap of measures, component 1) and externalities (such as the availability of natural refrigerants in the country) in order to promote change.

#### *Catalytic or replication effect*

According to feedback gathered during the field mission, the stakeholders were generally satisfied with the project performance, namely with components 1 and 3. Stakeholders highly appreciated the training workshops; however, they felt that GRACSS from the regions would require more equipment to adhere to good practices and efficiency in the execution of their work. GRACSS are ready to continue receiving training from GTTI and collaborate more with NEA towards the establishment of the Certified RAC Support Service.

## IV. Project assessment

### 3.1. Design

The main purpose of the project was to enable the reduction of Greenhouse Gases (GHG) emissions in industry by promoting the use of un-contaminated and good quality refrigerants, to reduce leakage from aged equipment, and to spark the use of alternative lower-ODS and lower-GWP, and to do this safely (by training RAC technicians on handling new refrigerants and certifying them).

The project document contains relevant, precise, and concise information to achieve the project objective, which was to reduce greenhouse gas emission associated with industrial refrigeration and air-conditioning facilities in the Gambia.

The situation of HCFC use in The Gambia was well documented and the project was developed taking into consideration the gaps, needs and priorities of The Gambia. In particular, the Project Document identified the main barriers that need to be addressed to promote energy efficiency in the industrial refrigeration sector in The Gambia, while using chemicals with lower GWP and minimizing the use of chemicals damaging to the ozone layer.

Stakeholder analysis was limited. The major stakeholders that included NEA, NOU, GTTI, and GRACSS, were adequate. However other important stakeholders could have been included, such as the Ministry of Fisheries, Ministry of Environment, Ministry of Agriculture, the Hotel industry representatives, and Customs. The project implementation arrangements and the roles of key partners have been clearly described in the project document. However, the actual implementation was delivered differently.

Project potential risks have been identified and described and adequate mitigation measures have been proposed. However, the proposed mitigation measure for the economic/market risks was too dependent on external support, hence out of control.

Part of the sub-activities foreseen, namely on the technical and financial mechanisms (Activity 2) were not performed, as there were no conditions to do so. From the part of NEA, the limited resources - in particular concerning environmental inspectors - prevented the implementation of the quality assurance approach for refrigerants. The level of resources of NEA and the average level of instruction of the RAC technicians in the country did not allow the establishment of the certification scheme as described in the project document, which was too ambitious given the context.

The proposed monitoring and evaluation (M&E) plan and the costs associated with the M&E plan seem appropriate to effectively monitor progress of the overall project. Still on this subject, the project foresaw technical monitoring to be performed, namely on the quality of refrigerants in use and on the actual performance of the improvements, and evaluate their effectiveness in reducing ODS and GHG emission. However those monitoring activities had not been performed at the time of the evaluation

A comprehensive Project Results Framework (PRF) (annex A of the project document) indicates the expected outcomes and outputs of the project. In general, the proposed indicators and sources of verification for the project development objective, outputs and outcomes therein are adequate to monitor progress. Most of the proposed indicators are smart and can be easily verified. Although some of the assumptions in the PRF are realistic and would allow achieving success, some key assumptions are missing. In fact, the lack of availability of new refrigerants in the country was not considered. Also, it has not been possible to establish an incentive mechanism, and no alternative has been foreseen. The

quantification of overall objective and targets set for indicators were too ambitious. The rating on project design is Moderately Satisfactory.

## 3.2. Relevance

### *Relevance to the country and beneficiaries*

This project is highly relevant as it adds up to The Gambia's Hydrochlorofluoro-carbon Phase-Out Management Plan (HPMP) that the country developed to comply with the commitment it assumed of phasing out HCFCs completely by 2030.

This project is designed to address current regulatory weakness on phasing out HCFC<sup>6</sup> and to build national capacity, in particular of the RAC technicians to use ODS free and low GWP refrigerants, and to adhere to best practice avoiding emissions of refrigerant gases to the atmosphere. The project paves the way to the safe use of adequate alternative refrigerants that will be used more and more as the HCFC phase-out progresses worldwide. The R-290 (propane) and R600a (butane) are naturally occurring in nature, have zero ODS and have GWP of about 3<sup>7</sup>. However, those refrigerants are highly flammable and care is needed on using and handling them. Many end users and RAC technicians were not aware of this prior to the project.

The project's relevance is increased by the fact that new energy efficient AC equipment (with announced energy consumption reduction of 70% and able to be powered by small generators) are being introduced in the Gambian market. The referred equipment uses HFC refrigerants, as R-407 and R-410, which have a much higher GWP (>2000), as compared to R-290. By promoting awareness among RAC technicians of less harmful alternatives, the project started to pave the way to implement Kigali agreement, prior to the achievement of the agreement. In this way the project is quite innovative and pioneering.

Part of the project was hosted at NOU within NEA, who implemented the activities in a complementary and synergetic manner to other projects such as HPMP. Achievement of project goals such as the establishment of a certification scheme and ensuring purity of refrigerant supply would have been very helpful for the work of NEA.

The project components implemented by GTTI have improved the capacities of the institute to use and share knowledge on innovative technology. GTTI is the main vocational training centre of the country, particularly in the areas of industry. GTTI has been working for years on ODS related initiatives, namely to phase-out R12, and is well known countrywide as a reference by the RAC technicians. In turn, the RAC technicians will have, at the end of the project, increased knowledge and access to equipment on natural refrigerants.

### *Relevance to GEF*

The project is directly in line with the GEF 5 Focal Area Strategy for climate change mitigation, "to support developing countries and economies in transition toward a low-carbon development path", namely with objective 2 "Promote market transformation for energy efficiency in industry and the building sector". The project design is consistent with GEF strategy of building synergies across Conventions, namely by supporting the phase-out of hydrochlorofluorocarbons (HCFCs) used in industry and buildings such as chillers, air-

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<sup>6</sup> Namely regarding quotas to the imports of both bulk HCFC-22 and HCFC-containing equipment, and incentives to low GWP alternatives.

<sup>7</sup> Global Warming Potential (100 year), IPCC 4th Assessment Report, 2007. CO<sub>2</sub> = 1.

conditioners, and refrigerators, and promote use of equipment that both operates more efficiently and uses chemicals with lower global warming potential. The outcomes of the project are in line with the outcomes proposed by GEF: i) Appropriate policy, legal and regulatory frameworks adopted and enforced; ii) Sustainable financing and delivery mechanisms established and operational; iii) GHG emissions avoided.

The project is also consistent with GEF 5 Chemicals focal area “to promote the sound management of chemicals throughout their lifecycle in ways that lead to the minimization of significant adverse effects on human health and the environment” and in particular Objective 2 to “Phase out ODS and reduce ODS releases”. It also aligns with Outcome 2.1 “Country capacity built to meet Montreal protocol obligations and effectively phase out and reduce releases of ODS” and Outcome 2.2 to “ODS phased out and their releases reduced in a sustainable manner”.

It should be emphasized that only with the Kigali agreement targets were set on when to reduce use of Hydrofluorocarbons (HFCs). This project design represents a step ahead, by promoting the use of HC gases with low ODS and GWP potential. This at a time in which, due to lack of alternatives, obligations to reduce HCFC R-22 could favour the use of HFCs that have very high global warming potentials thereby locking companies into these technologies for many years.

#### *UNIDO's Comparative Advantages*

The Government of the Gambia requested UNEP and UNIDO to be the implementing agencies for the HPMP, with UNEP being the Lead Agency and UNIDO the Cooperating Agency.

UNIDO designed this pilot / pioneer project at a time when discussions about HFC phase down to be included as amendment to the Montreal Protocol were ongoing. This project might have helped to advance the discussions showing a good example. The discussion led to the Kigali agreement by October 2016.

The project corresponds to UNIDO mandate and policies, as the project tackles climate change, energy efficiency in industry, and training of trainers. This project builds upon UNIDO's portfolio of climate change and energy efficiency, including the following:

- The UNIDO - led “Regional Approach to Support UNIDO's Implementation of Montreal Protocol Projects in Sub-Saharan Africa”, which seeks to develop customized approaches (at regional and country level) to support 22 countries to phase out HCFCs. The Gambia may be a beneficiary of a mission to check the possibility of undertaking a needs assessment. Taking into account the lessons learned from this experience, missions to The Gambia may be organized at a later stage;
- UNIDO's Industrial Energy Efficiency (IEE) programme that builds on more than three decades of experience and unique expertise and provides policymaking technical assistance, institutional capacity-building and market transformation support instrumental to the adoption and implementation in industry of energy management standards; and
- The UNIDO-led Strategic Program for West Africa (SPWA): Energy Component, of which The Gambia is a participating country.

The project is consistent with the Gambia's UN Development Assistance Framework (UNDAF 2012-2016)<sup>8</sup>, which is a key element of the UN Reform and the joint response of

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<sup>8</sup>July 2011, <http://www.gm.undp.org/UNDAF%20Final%203Oct.2011.pdf>. See also Gambia's coordination profile at: <http://staging.undg.org/unct.cfm?module=CoordinationProfile&page=Country&CountryID=GAM&fuseaction=UN%20Country%20Coordination%20Profile%20for%20Gambia>

the UN Country Team (UNCT). UNIDO is a participating UN Agency in Outcome 1, which involves “capacities, institutions strengthened and policies in place for pro-poor and equitable distribution of economic growth, employment, planning and budgeting; incorporating functional donor coordination and National Statistical Systems for effective planning, monitoring, reporting and harmonization”. In particular, this project will contribute to Output 1.3, where UNIDO provides support for industrial development. Further, the initiatives under this project are aligned with Output 1.1, including private sector development, and national and local development planning capacities strengthening.

The rating on relevance and ownership is Highly Satisfactory.

### 3.3. Effectiveness

#### *Achievement of expected outcomes*

As stated in the project document, 5 outputs, organized under three components, were expected to be delivered that would contribute to 3 outcomes (see table below). The following paragraphs discuss the achievement of outputs and outcomes during implementation.

Outcome	Output	Activities
Component 1: Policy, legal and regulatory measures are adopted by the government to support the adoption of low global - warming potential and energy efficient technology.	1.1 Gap Analysis carried out in the national policy, legal and regulatory framework	Identify the shortcomings of the national policy, the legal and regulatory framework, including the safety regulations for the conversion of HCFC-22 industrial refrigeration and air conditioning facilities to higher efficiency systems with low GWP refrigerants
	1.2 Relevant recommendations drafted into the national laws/regulations/guidance	Develop appropriate national policies, legal and regulatory framework, including safety regulations to support the use of alternative refrigerants
Component 2: Technical and financial support on replacement refrigerants, and reducing greenhouse gas emissions and operational costs is ensured	2.1 Refrigeration and air-conditioning support mechanisms established and piloted	Establish and pilot the refrigeration and air conditioning technical support mechanisms
		Design and implement a quality assurance approach for refrigerants
	2.2 Incentive mechanism piloted	Design the Incentive Mechanism to support the owners/operators that carry out improvements Implement the Incentive Mechanism
Component 3: Demand is increased for	3.1 Lessons learnt and information on technology solutions is disseminated	Conduct awareness campaign targeted at owners and managers of industrial air conditioning and refrigeration facilities

Outcome	Output	Activities
refrigerant systems with low global warming potential that are more energy efficient than existing technology.	to policy makers, companies and technicians	Provide targeted outreach to policy-makers on the benefits of low GWP refrigerants and linking improvements in energy efficiency in industrial refrigeration with national industrial development
		Document lessons learned analysis from the project for scale-up and replication in other countries worldwide conducted

Outcome 1: Delivery of outputs for this outcome has been satisfactory. The gap analysis has been successfully performed and workshops have been organized to collect recommendations. However, the recommendations have not been adopted. According to NEA there will be amendment to the ODS legislation to include the Kigali amendments to the Montreal Protocol and the recommendations will be incorporated at that time. No definitive timeframe for that inclusion has been provided.

Output 1.1: The international expert in cooperation with local project partners completed the gap analysis and drafted relevant recommendations. The final report was shared with national project partners in 2015.

Output 1.2: A national legal expert has been hired to prioritize recommendations and facilitate their implementation into the national laws and regulations. During the assignment, the national expert organized Technical Working Group meetings to discuss recommendations contribute with inputs and monitor implementation of the component. The national consultant produced a report, including among other suggested clauses to include in the existing legislation, as well as indication of the recommendations on which consensus could not be reached.

Outcome 2: Delivery of outputs for this outcome at the time of evaluation have been moderately unsatisfactory. UNIDO-HQ reports that this component continues to be implemented and the end result will be more positive. The capacity of RAC technicians regarding use and handling HC refrigerants, as well as the degree of awareness regarding impacts of ODS and GWP refrigerants were highly increased. The training of trainers, who became known as “super-technicians” who have already trained others, was also successful. However, no quality assurance approach for refrigerants was established (namely no mobile testing systems - the labels have been produced but are not yet in use), and the establishment between GRACSS and NEA of the Certified Gambian Refrigeration and Air-Conditioning Support Service as described in the project document was not achieved. Also, the Financial Incentive mechanism could not be established. At the time of the evaluation mission, only about one third of the funds available to the incentive mechanism had been committed.

Output 2.1: No Refrigeration and air-conditioning support mechanisms were established. However, it is worth noticing the results and potential impacts achieved under this component. The contracted technology supplier (Centro Studi Galileo) invited the Director of GTTI, the Head of the Refrigeration Section from GTTI and the National Ozone Officer to Milan, Italy to the conference "Latest Technologies in Air-Conditioning and Refrigeration Industry" in June 2015, followed by site visits to different training facilities and industry representatives. In 2016, Centro Studi Galileo also offered 1-day training to the management of GTTI and NEA on how to manage a training institute. Training tools and

equipment were delivered to GTTI in June 2016. A first group of 20 refrigeration technicians and observers from the NEA received a 5 days training on the use, risks and correct handling R744 (Carbon Dioxide, CO<sub>2</sub>) R717 (Ammonia, NH<sub>3</sub>) R600a (Iso butane) R290 (Propane). Upon the completion of the training, the participants got a certificate of attendance. In 2017 purchase and delivery of additional training equipment and refrigerant gas occurred. Additional trainings of 110 RAC technicians took place in May 2017 at the main campus and at the Rural Skills Training Centre of GTTI at Mansakonko.

The training of (RAC) technicians was indeed a major achievement of the project, but there is no method to quantify the impact of RAC technicians adhering to good practice on maintaining and repairing refrigerators and air conditioning equipment. Since its establishment in 2008, the GRACSS is operational throughout the regions of the country, divided into regional groups, usually sharing a workshop in which they have costly equipment that they could not afford on their own. The group leaders are in constant contact with GTTI on various issues such as: dissemination of the information to consumers; sensitization of the community on environment friendly refrigerants; regular consultation meetings within their clusters. Within GRACSS regional warehouses, RAC technicians who received training from the project shared the information with colleagues who did not attend the trainings. The RAC technicians have a real impact on awareness raising of their clients - namely on safety issues regarding flammable refrigerants, and on prevention of leakages and use of technology - which include household, public infrastructure (ex. Hospitals, schools), and companies.

Output 2.2. Of a total approved budget of USD100,000 the incentive mechanism has committed less than USD30,000 (see table below). On an initial survey conducted in 2015 throughout the country a few plants were identified for possible conversion to propane R290, these were small cold rooms and ice producing machines. According to GTTI other large plants that use large quantities of R22 were found unsuitable for conversion. By the time the incentive mechanism ought to be implemented, the project had to shift the intervention focus to system improvement<sup>9</sup> rather than conversion. Besides, GTTI refers that from 2015 to 2017, most of the initially identified plants have either closed operations or improved on their system. No new potential beneficiaries were identified. As the project is close to its end, it will be difficult to undertake the procurement of parts, installation, test runs of the equipment at these 4 beneficiaries. It might not be possible to monitor actual performance of new technology or improvements made, and the resulting energy savings (sub-activity 2.3.2).

At the time the evaluation mission took place, the funds allocated to the four beneficiaries' projects were as depicted in the table below.

Beneficiary	Total amount of project	Co-financing by beneficiary	Co-financing by project
Eid's Ice Plant	GMD1,181,600	30%: GMD354,480	70%: GMD827,120
Brikama	GMD660,000	35%: GMD231,000	65%: GMD429,000
Rosamond	GMD115,000	40%: GMD46,000	60%: GMD69,000
Gambega	GMD120,000	50% GMD60,000	50%: GMD60,000
		Total amount in GMD	912,480
		Total amount in USD	approx. 29,200

<sup>9</sup> System improvement interventions include elimination of leaks and refurbishing/replacing old and/or inefficient equipment.

The project got an extension and there are new plans for the delivery mechanisms. This cannot be evaluated.

Outcome 3. Delivery of outputs for this outcome has been moderately satisfactory. GTTI's awareness raising plans were adjusted in line with the recommendations of international expertise hired in FY 2016 to make the awareness raising activities more efficient. Training for entrepreneurs was organized by GTTI in May 2017 to brief them about technology options and the incentive mechanism. It is worth noting however, that even the selected beneficiaries of the incentive mechanism state that they would only be ready to do a conversion when R-290 becomes available in the market (as they cannot risk stopping their operations), and its use become cost-effective. However, no targeted outreach to policy-makers on the benefits of low GWP refrigerants and linking improvements in energy efficiency in industrial refrigeration with national industrial development were developed. Also no website (particularly NEA or GTTI websites) made use of project materials for dissemination. As stated above, there will be no time left in the project to assess and disseminate any results of the interventions.

Output 3.1: A team comprising of five officers (Refrigeration Engineer, Mechanical Engineer, NOU Officer, Marketing Officer and a Refrigeration & Air Conditioning lecturer) embarked on three different legs of Nation Wide Tour to sensitize the population on the effects of ozone depletion and global warming as a result of the emission of refrigerant gases and the introduction of alternative refrigerants and the precautions required in their use. The Tour party held several meetings with RAC technicians and entrepreneurs and radio talk shows in eight (8) community radio stations, and a TV talk show. Pictograms were designed in order to allow the easy identification of newly serviced/properly functioning/energy efficient installations and pure/good quality/environment friendly refrigerants. The pictograms were presented in the context of the trainings and awareness raising activities to facilitate their widespread use and recognition in the country. An Inception Workshop organized in the Gambia on 5 May 2015, as well as training opening ceremony on 28 June 2016, provided opportunities to gather stakeholders from different Ministries, industry and media, and to discuss relevant issues.

The project also had international projections. Articles about the project were published in international media by the awareness raising international consultant. UNIDO organized the expert group meeting "Kigali Amendment - Vienna Talks" in June 2017 to guide Article 5 countries of the Montreal Protocol on the ways forward after the historic Kigali Amendment. This project in the Gambia was presented as one of the case studies to demonstrate different co-financing options, multi-stakeholder involvement and the promotion of ozone and climate-friendly technologies. The National Ozone Officer of the Gambia attended the meeting, took active part in the presentation and answered questions from the audience. Besides, Gambia delegations have been invited to international trip by Centro Studi Galileo and by Shecco (see Chapter 2.3, second and third paragraph).

For the reasons expressed above efficiency is rated Moderately Unsatisfactory.

### **3.4. Efficiency**

The project started in February 2014. The main delays were verified in component 2. The opening ceremony for the trainings occurred in June 2016. In consequence the whole component 2 got delayed, and could not achieve its goals. Reportedly the delays were mainly due to late delivery of training and demonstration equipment.

As stated above, the project had to change the objective of the incentive mechanism from conversion to improvement of existing systems and reduce leakage. According to GTTI, since the survey at the start of the project most of the plants either closed or improved their systems. There is a significant balance of the amount allocated to the incentive mechanism.

Despite the delays, the project produced good quality outputs within the expected budget. Even for component 2, about 130 technicians from around the country were trained, both in the capital and in the rural skills development center and equipment has been delivered.

The quantification of the overall objective was too ambitious, as it estimated up to 40 industrial refrigeration interventions. The project indicators set as targets up to 60 facilities involved in interventions of various scales and over 30 interventions supported through the Incentive Mechanism. As stated above, by the time of this terminal evaluation no interventions in facilities had been done, and 4 beneficiaries were confirmed for the financial incentive.

At the time of the evaluation the project had about USD 100,000 left to be committed (18% of the total). From a total amount of USD 544,182, UNIDO accounts show a committed value of USD 514,786. Of these UNIDO still has to disburse USD 72,000 to GTTI and USD 14,000 to Galileo. Besides, as stated above, GTTI was able to commit USD 29,200 of total incentive mechanism fund of USD 100,000.

For the reasons expressed above efficiency is rated Moderately Unsatisfactory.

### 3.5. Sustainability of benefits

Financial risks – moderately unlikely – The project was not able to increase the demand for the incentive mechanism and entrepreneurs are not yet ready to invest in alternative HC refrigerants (as R-290) for industry or ACs. Besides, The Gambian market is starting to offer new energy efficient ACs marketed as reducing 70% of energy consumption, but using HFC 407 and 410 which have high GWP and it is likely that its use will be high.

Socio-political risks– likely – The government of The Gambia is committed to phasing out HCFCs up to 2030. There is now a roadmap for the adoption of policy, legal and regulatory measures, that NEA states will be incorporated when legislation will be amended. Reportedly, this will occur when The Gambia adapts its legislation to the Kigali Amendment to the Montreal Protocol.

Institutional framework and governance risks – moderately likely – The current NEA is committed to adopt the measures that were established by the project. NEA is working towards a more direct link with the environmental inspectors, customs and GRACSS to set up better management of refrigerants. There are other complementary projects ongoing, namely the UNEP and UNIDO supported HPMP that can build on the results of this project.

Environmental Risks - likely -The project is considered to be environmentally sound and sustainable as it is building national capacity for the use of energy efficient and low GWP refrigerants and to avoid GHG emissions due to leakages.

In conclusion, the rating on sustainability is Moderately Likely.

### 3.6. Gender mainstreaming

The project document recognized that *“providing support (GEF funded and co-financed) for educational activities on largely technical topics such as industrial refrigeration and air conditioning can help women access both the knowledge and skills needed to be active participants in the project and in the sector. The project’s training and awareness raising activities will improve educational opportunities for women in The Gambia and is anticipated to have a positive impact on those working with the businesses that participate in the project”*. The project also took gender mainstreaming into consideration when prioritizing the range of services to be provided by the Support Service and when assessing training needs.

The project took care of collecting data disaggregated by gender. The selected co-implementing partner, GTTI is headed by a woman and has a policy in place where female students get a 30% discount in technical courses towards promoting more female participation. GTTI also counts with female lecturers.

There is a small percentage of women in GRACSS and the project did not train any female. In addition, information collected during the interviews with the RAC technicians revealed that course content from the project training included safety issues related with the positioning of refrigerators in the house. The RAC technicians communicated to females who own most refrigerators that are brought to their workshops for maintenance and/or repairs or at the client's house. This information on female ownership will be used to further enhance the engagement of female groups in policy dialogue in the update of the current policy to address the identified gaps.

Rating on gender mainstreaming is Moderately Satisfactory.

### **3.7. Assessment of monitoring and evaluation systems**

#### *Monitoring and evaluation design*

The monitoring & evaluation (M&E) plan proposed in the project document is consistent with UNIDO's standard procedures. In general, the proposed indicators and sources of verification for the project development objective, outputs and outcomes therein are adequate to monitor progress. Most of the proposed indicators are smart and can be easily verified. Although some of the assumptions in the PRF are realistic and would allow achieving success, some key assumptions are missing. In fact, the lack of availability of new refrigerants in the country was not considered.

The proposed plan is adequate and allows for monitoring progress and results. Similarly, the overall approach to monitor progress and project evaluation in terms of activities and deliverables described in the project document (Part II Section C of project document) is adequate.

The implementation of the M&E plan has been affected by some changes that have occurred in the project. As stated previously no steering committee was established. GTTI reports were not regular. No reports from NEA were made available to the evaluation team. The evaluation team was also not provided the Measurement of Means of Verification for Project Purpose Indicators that were supposed to be conducted at the Start, mid and end of project.

Annual progress reports as well as PIRs were timely submitted. The PIRs were shared with the evaluation team.

#### *Budgeting and funding for M&E activities*

The budget that could be adequate in theory ended up not being in line with the reality. Two items pose questions: i) the budget allocated to Measurement of Means of Verification for Project Purpose Indicators may not be enough to carry out the activity 3 times; ii) the allocated budget for the independent TE, may fall short as an international consultant and a national consultant were recruited to undertake the assignment.

#### *Monitoring of long-term changes*

The project design did include several long-term monitoring systems: i) monitor the Gambian Refrigeration and Air-Conditioning Support Service; ii) monitor performance of the

mobile testing service and labeling scheme; iii) monitor actual performance of new technology or improvements made, and the resulting energy savings.

The long-term monitoring activities are not implemented as expected. However, trained RAC technicians state that the GTTI trainer, Mr. Momodou Mendy, visits their workshops from time to time and provides recommendations. The project document also included as an activity monitoring results of information and awareness interventions. This is not being performed in a systematic way.

Rating on M&E is Moderately Satisfactory

### **3.8. Project coordination and management**

The project coordination and management was quite different from what is outlined in the project document. There was no steering committee and there was no country extension of UNIDO-PM. This had an impact on the delivery of the project in an integrated manner, in particular for component 2.

For the implementation of the project, a PM was nominated from the Department of Environment, UNIDO Head Quarters, Vienna. For the execution of the project the PM was assisted by a full-time supporting staff. The guidance and supervision provided by PM was highly appreciated by the national counterparts<sup>10</sup>. The PM hosted The Gambia delegation to the Vienna Talks and contributed to the successful support of Centro de Studi Galileo and Shecco support to the project and opportunities for NEA and GTTI participation in international fora and perform study visits and networking. During the project implementation phase, the PM and team were in constant communication (mainly through emails and sometimes through videoconference also) with NEA and GTTI providing support and guidance whenever required. PIRs were timely drafted and submitted to GEF.

At the national level, the project management and overall coordination was done by the Project Execution Body (PEB) constituted by NEA's NOU and GTTI. NOU and GTTI did separate planning and implementation. Usually, at technical level NOU, and other NEA staff and GTTI were invited to the activities promoted by the other.

The rating on project coordination and management is Moderately unsatisfactory.

### **3.9. Assessment of processes affecting achievement of project results**

As stated above, the project did not achieve the targets and goals expressed in the project document. On the other hand, a major achievement of the project was the training of refrigeration and air conditioning (RAC) technicians, but no method was set to quantify the impact of RAC technicians adhering to good practice on maintaining and repairing refrigerators and air conditioning equipment.

Quality at entry was satisfactory. For example, the project benefitted from Centro Study Galileo with recognized competence in the subject and highly appreciated by the GTTI and the trainees. The project has also benefited from Shecco, with general input to the information and awareness campaigns, and direct marketing support on publishing articles about the project and Hosting the Gambian delegation at Chillventa, October 2016, that allowed contact networking between technology providers namely for a more effective and sustained technology transfer for future new installations in The Gambia. Moreover, the national entities responsible for the management of hazardous chemicals (NOU of NEA) and the most prestigious training center of the country, GTTI, were implementing entities. Finally, the GRACSS, who were deeply involved in the project form the nationwide

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<sup>10</sup>Interviews with national stakeholders

association of RAC technicians. Given the inadequate formulation of the overall project objective and the unrealistic timeframe planned for component 1, preparation and readiness is considered moderately satisfactory.

*Country ownership / driven-ness*

This aspect has been discussed before in this report. The project is highly relevant and involvement of NOU and GTTI in the development of the project and active participation in project activities during the implementation phase was very satisfactory. However, the project has been driven from UNIDO and with the changes of leadership at NOU and NEA, part of component 2 has not been achieved. Therefore, the rating is satisfactory.

*Financial Planning*

A nearly full agency mode of execution was applied for the implementation of the project. UNIDO managed all the GEF funds and applied standard procedures for the disbursement of funds, sub-contracting, procurement of services or equipment, and for payment. All the consultants, both national and international, as well as service providers were directly contracted by UNIDO HQ, and payment was done upon submission of planned deliverables and/or report according to the terms of agreement of the respective contract. The main international service providers, CSG and Shecco, were already identified in the project document.

For part expenses at national level, funds have been transferred to GTTI to implement activities under their responsibility. The table below shows the use of the transferred funds at the time of the evaluation.

<b>ACTIVITIES</b>	<b>APPROVED AMOUNT (USD)</b>	<b>ACTUAL AMOUNT SPENT (USD)</b>	<b>SURPLUS /DEFICIT (USD)</b>	<b>REMARKS</b>
BEHAVIOR CHANGE CAMPAIGN	6,000	5,322.51	677.49	ON GOING
BASE LINE STUDIES ON TARGETED GROUPS ON DIFFERENT REGIMES	3,500	3,500	NIL	COMPLETED
DEVELOP MEDIA CAMPAIGN AND PREPARATION OF MANUALS & LEAFLETS	6,500	6,500	NIL	COMPLETED
CONDUCTING TRAINING ON OZONE DEPLETING AND ADAPTATION TO CLIMATE CHANGE FACTION LEADING TO DEVELOPMENT OF LOCALIZED RESPONSES AND TRAINING OF BUSINESS ENTREPRENEUR ON ODS	19,000	19,000	NIL	COMPLETED
MEETING WITH BUSINESS ENTREPRENEUR	10,000	10,000	NIL	COMPLETED
MONITORING & EVALUATION	3,000			PENDING
INCENTIVE MECHANISM	100,000			PENDING
<b>TOTAL: USD</b>	<b>148,000.00</b>	<b>44,322.51</b>	<b>677.49</b>	

UNIDO did provide the Financial Report per output, (adding the contribution of GEF and co-financing by UNIDO), and a financial report on funds from GEF and UNIDO, but not by output (see Annex III). It can be concluded that from GEF funding, about USD14,200 were not committed at the time of the evaluation. Regarding co-financing from UNIDO, about USD15,000 were not committed. The difference between the UNIDO co-financing in the project document and in the financial report is explained by UNIDO PM<sup>11</sup>. From the disaggregated data by output, it seems most of that amount, USD26,000, relate to project management.

Regarding co-financing from the technology partners (Centro Studi Galileo and , Shecco) no data was provided to the evaluation team that would allow analysis.

The evaluation considers that financial planning was Moderately satisfactory.

Issues regarding UNIDO support, delays of project outcomes/outputs, and implementation approach are discussed in previous paragraphs. UNIDO support was appreciated, but NEA in particular expressed that the existence of a national steering committee would have helped. There has been a delay on the start of the trainings which has had impacts on component 2 success.

The project did not incorporate relevant environmental and social safeguards. However, the project document did acknowledge the risk of HCFC-22 release into the atmosphere when working with old systems and safety risk due to improper serviceability of new technology or after- sales service knowledge. For these two risks, mitigation measures were identified: Training to ensure expertise of HCFC handling, and Intensive training and the certification of all service operators on safety procedures The demonstration installations will operate in accordance with the requirements of European Standard BS EN 378:2000 (Refrigeration systems and heat pumps – safety and environmental requirements).

### 3.10. Overall project achievement

**Table 3 below summarizes the evaluators’ assessment of the project**

Evaluation Criteria	Comments	Rating
Impact	This is a demonstration project. The most significant impact of the project has been the capacity development of RAC technicians, which they transmit to the clients. The roadmap for policy and legislation improvements may have an impact if it is adopted.	MS
Project design		MS
Overall design	The project was adequate to address the problems, and consistent with the country and donors’ priorities. Stakeholder analysis had some limitations and some risks were not adequately addressed.	MS
Logframe	The PRF was of good quality. However the goals and	

<sup>11</sup> UNIDO has given contribution of USD 70,000 from the MLF funds approved within the grant “Mobilizing co-financing for Multilateral Fund funded projects based on the ‘Monetization’ of their climate benefits” for the concept preparation of the MSP project proposals (pilot projects) in Viet Nam and Gambia. The remaining of the co-financing was provided through the HPMP projects.

<b>Evaluation Criteria</b>	<b>Comments</b>	<b>Rating</b>
	results expected for the overall project objective and for component 2 were too ambitious.	MU
Project performance		MS
Relevance	The project is highly consistent with The Gambia phasing out of HCFC by 2030	HS
Effectiveness	Not all outputs were achieved and some are yet to be implemented. However, the obtained results have quality and contribute to the overall goal.	MS
Efficiency	There have been delays in the implementation of the project and some activities and outputs could not be implemented.	MU
Sustainability of benefits	There are financial and market risks regarding demand for low GWP refrigerants for AC and cooling systems. Also NEA may not adopt the recommendations of component 1 in the short term	Moderately Likely
Cross-cutting performance criteria		MS
Gender mainstreaming	The project did address gender mainstreaming, but women were not particularly targeted by the project.	MS
M&E design and implementation	M&E was well designed but not implemented according to the plan	MS
Results-based Management (RBM)	The approach agreed for the project was not followed. The project benefitted from experienced consultants and partners. Country ownership is satisfactory, but not leadership. Financial and backstopping support was satisfactory.	MS
Performance of partners		S
UNIDO	UNIDO PM provided adequate and timely supervision and backstopping to the project implementation, both in terms of technical guidance and administrative actions	S
National counterparts	The local partners adhered well to the project. National stakeholders expressed they would have liked the project to be more country-driven.	S
Donor	GEF provided funds and comments to the project. The support from CSG and shecco was highly appreciated by the stakeholders.	HS
Overall assessment		MS

Score		Definition	Category
6	Highly satisfactory	Level of achievement clearly exceeds expectations and there is no shortcoming.	SATISFACTORY
5	Satisfactory	Level of achievement meets expectations (indicatively, over 80-95 per cent) and there is no or minor shortcoming.	
4	Moderately satisfactory	Level of achievement more or less meets expectations (indicatively, 60 to 80 per cent) and there are some shortcomings.	
3	Moderately unsatisfactory	Level of achievement is somewhat lower than expected (indicatively, less than 60 per cent) and there are significant shortcomings.	UNSATISFACTORY
2	Unsatisfactory	Level of achievement is substantially lower than expected and there are major shortcomings.	
1	Highly unsatisfactory	Level of achievement is negligible and there are severe shortcomings.	

## IV. Conclusions, recommendations and lessons learned

### 4.1. Conclusions

This project is highly relevant as The Gambia is committed to phase out HCFC by 2030 and implementing an HPMP. By removing barriers to increased energy efficiency and establishing the enabling environment for the introduction of low global warming potential (GWP) alternatives to HCFC- 22, the project adds up to the HPMP. GEF 5 Focal Area Strategy for climate change mitigation, “to support developing countries and economies in transition toward a low-carbon development path”, namely with objective 2 “Promote market transformation for energy efficiency in industry and the building sector”.

Effectiveness of the project is considered Moderately satisfactory. Quality outputs have been delivered and national stakeholders (e.g. GTTI and GRACSS) are already adopting some of the techniques they were trained on. However, the overall objective goal and component 2 outputs have not been fully achieved, while the result of component 1 is yet to be integrated into policies, laws and regulations. Delays due to late arrival of training equipment, and difficulties in implementing the incentive mechanism decreased efficiency.

The approach originally agreed upon by stakeholders for the implementation was not followed, in particular there was no National Project Steering Committee and no local Project Management Office; and although NEA and GTTI planned and implemented their activities on their own, they however consult and participate in each others activities. Overall project management, supervision and monitoring were satisfactorily provided by UNIDO HQ with adequate staffing. Active involvement of national stakeholders in all the project activities contributed to high ownership and quality of outputs delivered.

Some risks have been identified, namely regarding the low availability of HC in the country (except R-600a in refrigerators) and the uncertainty of the adoption by the government of the measures recommended in component 1. Therefore, likelihood for sustainability of benefits and continuous sustained impact of the project is considered moderately likely.

This was a demonstration/pilot project and its major achievement was to establish in the country foundations to the use of HC refrigerants, by working on policy/regulations (central level), and simultaneously with technical training center and technicians that can instill progress towards safe use of alternative low ODS and low GWP gases in their everyday practice.

### 4.2. Recommendations

The project has yet to deliver the incentive mechanism. The project should speed up the process of delivering the incentive, and allow time to still assess the potential benefit/impact of those interventions. On the other hand, there is a need for GTTI to actively promote the use by the GRACSS of the equipment provided by the project that the RAC technicians cannot afford<sup>12</sup>, but need to adhere to best practices.

In order to maximize impact of the project, NEA should take quick action to review the roadmap of policy/legal/institutional recommendations and guidance in line with the current national governance framework, and start implementation. This includes sensitization to policy makers and decision-makers of several departments of the government and the national assembly, and also enhance the capacity of environmental inspectors on ODS monitoring.

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<sup>12</sup> Given the reality of the country the RAC technicians charge a reduced amount to their clientes, which is insufficient to buy all the equipment required to adequately recovering, cleaning and storing refrigeration gas.

The support mechanisms envisioned in the design of the project were not fully developed. A future project should take the lessons from this project, define in consultation with the stakeholders what support mechanisms would be desirable and possible to develop and within what time-frame given the real capacities of the country, and using the GRACSS capacity and motivation and GTTI training and supervision capacities.

### 4.3. Lessons learned

The evaluation was affected by the very ambitious objective and goals set in the project document. Quantitative objectives and goals of the projects should be set on issues the project can control to a certain extent, and not be solely dependent on external factors. When designing future projects, a deep assessment of implementation partners capacities should be undertaken, in order to seek realistic objectives, goals and sub-activities within the time-frame and resources of the project. Responsibilities of each participating institution should be fully owned through formal institutional commitment. Implementation partners/institutions should avoid taking up responsibilities that are out of reach given their capacities (for example existence of required staff) or mandate, unless the project itself has provisions to satisfy the requirements.

When there are several implementing partners, it is important to promote coordination at country level in all ways possible. Projects should include approaches that combine formal instruments to involve stakeholders (such as steering committees and consultations), effective coordination and information sharing and proactive involvement in project activities.

To change behavior on the refrigeration and AC industry it is an excellent idea to train RAC technicians (service providers) as they are at the forefront to sensitize the end-user. However, it is equally important to mobilize beneficiaries/stakeholders from industry and strengthen awareness to achieve stakeholder commitment. It is also desirable, when possible to generate awareness on end-users, such as owners of the units (supermarkets, hospitals, hotels, etc.) and also architects, engineers, (etc....), to make them aware about the technology options and their benefits.

Entrepreneurs are averse to the risk of having to stop activities and to uncertainty of supply of consumable goods required for the operation. Therefore, when introducing new technology, it is important to set conditions for the availability of consumable goods and technical assistance. Besides, the proposed solutions need to be perceived as being within reach of the targeted sectors (technologically and financially), useful (namely regarding competitiveness and compliance), and relevant (return of investment, added value).

# Annexes

## Annex I: Terms of reference



UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

### TERMS OF REFERENCE

Independent terminal evaluation of

**Reducing greenhouse gases and ODS emissions through technology transfer in  
the industrial RAC (refrigeration and air conditioning) sector**

**UNIDO Project ID: 120623**

**GEF Project ID: 5466**

**July 2017**

## Contents

- I. Project background and context
  - 1. Project factsheet
  - 2. Project context
  - 3. Project objective
  - 4. Project implementation arrangements
  - 5. Budget information

- II. Scope and purpose of the evaluation

- III. Evaluation approach and methodology
  - 1. Data collection methods
  - 2. Evaluation key questions and criteria
  - 3. Rating system

- IV. Evaluation process

- V. Time schedule and deliverables

- VI. Evaluation team composition

- VII. Reporting

- VIII. Quality assurance

Annex 1: Project Logical Framework

Annex 2: Detailed questions to assess evaluation criteria

Annex 3: Job descriptions

Annex 4- Outline of an in-depth project evaluation report

Annex 5: Checklist on evaluation report quality

Annex 6: Guidance on integrating gender in evaluations of UNIDO projects and programmes

Table 1. Financing plan summary

Table 2. Financing plan summary - Outcome breakdown

Table 3. Co-Financing source breakdown

Table 4. UNIDO budget execution (4000376 XP and 2000002517 GEF Grants)

Table 5. Project evaluation criteria

Table 6. Project rating criteria

## I. PROJECT BACKGROUND AND CONTEXT

### 1. Project factsheet<sup>13</sup>

Project title	[Title]
UNIDO Project ID	[Status]
GEF Project ID	5466
Region	Africa
Country(ies)	[Keywords]
Project donor(s)	GEF
Project implementation start date	[Publish Date]
Expected duration	36 months
Expected implementation end date	31 December, 2017
GEF Focal Areas and Operational Project	Climate Change
Implementing agency(ies)	UNIDO
Executing partners	NEA, GTTI
UNIDO RBM code	
Donor funding	495,000
Project GEF CEO endorsement / approval date	11/19/2013
UNIDO input (in kind and cash, USD)	263,000
Co-financing at CEO Endorsement, as applicable	2,475,000
Total project cost (USD)	2,970,000
Mid-term review date	As the project was a Medium-size Project (MSP), a mid-term evaluation/review was not conducted.
Planned terminal evaluation date	10/1/2017

(Source: Project document)

### 2. Project context

The IPCC has estimated that the potential for mitigating GHG emissions in industrial facilities through more-efficient equipment that also substitutes for ODS, especially in refrigeration and cooling systems is significantly high (IPCC AR4, Working Group III, Chapter 7). In The Gambia, mainly due to the establishment of fish processing and handling plants funded by Government and the private sector, industrial refrigeration sector has increased significantly over the last few years. As refrigeration equipment is vital to many manufacturing processes, other economic activities such as the growth of the hotel industry, expansion of breweries and increase in commercial agricultural farms are also actively consuming refrigerants. The use of refrigeration equipment will only increase as the Gambian economy grows, as more industries will require

<sup>13</sup> Data to be validated by the Consultant

refrigeration to support manufacturing and distribution. Overall, this growth has led to a general increase in the quantity of refrigeration units, and consumption of all classes of refrigerants, including HCFCs, as second hand equipment that is no longer allowed in developed countries is often imported.

The increased use of refrigeration leads to routine equipment upgrades, or new installations, and owners are currently likely to favor the use of HFCs that have very high global warming potentials thereby locking themselves into these technologies for many years. The Gambia looks to minimize the use of chemicals damaging to the ozone layer, and also operate with greater energy efficiency and use chemicals with lower GWP. HCFC-22 is currently the least expensive refrigerant available in The Gambia, costing almost half the price of some non-HCFC refrigerants available in the market. The industrial refrigeration sector – which consumes the largest amount of HCFC-22 in The Gambia and is mainly divided between the fish processing and tourism industries (e.g. hotels) – includes fish processing plants, cold rooms, central air conditioning, ice-making systems and blast freezers.

To expand the linkages among HCFC phase-out under the Montreal Protocol and other environmental issues, such as climate change and energy efficiency, the Executive Committee of the Multilateral Fund for the Implementation of the Montreal Protocol recently provided funding to identify potential sources of co-financing to cover costs that are non-eligible under the Multilateral Fund but that could generate climate benefits under HCFC phase-out. This support from the Multilateral Fund allowed UNIDO with the participation of the National Environment Agency (NEA) of The Gambia to examine potential opportunities for energy efficiency gains and ODS emissions.

The project, therefore, aims to reduce greenhouse gas emissions associated with industrial refrigeration facilities in The Gambia by removing barriers to increased energy efficiency and establishing the enabling environment for the introduction of low global warming potential (GWP) alternatives to HCFC-22. The project uses a synergistic combination of technical assistance on policy and regulation, capacity building and awareness-raising. The project also supports to design and implement incentives to promote the adoption of energy efficiency measures; and innovative technical assistance delivery mechanisms.

### **3. Project objective**

The overall objective is to reduce greenhouse gas emissions associated with industrial refrigeration and air-conditioning facilities in the Gambia.

The project includes three components/ outcomes:

Project component 1 - Policy and Regulatory Support

- Outcome 1: Policy, legal and regulatory measures are adopted by the government to support the adoption of low global-warming potential and energy efficient technology.

Project component 2 - Technology Transfer Support

- Outcome 2: Technical and financial support on replacement refrigerants, and reducing greenhouse gas emissions and operational costs is ensured

Project component 3 - Awareness Raising

- Outcome 3: Demand is increased for refrigerant systems with low global warming potential that are more energy efficient than existing technologies

The Project is further structured into a total of five outputs. The full logical framework is included as annex 1.

### **4. Project implementation arrangements**

The project is coordinated through a two tiered system, consisting of a Project Steering Committee (PSC) and a Project Management Unit (PMU).

### **Project Steering Committee**

The representatives of the main Government stakeholders and UNIDO composes the Project Steering Committee (PSC). The PSC performs as the apex body for the project. It is responsible for overall guidance and making policy decisions for the project. It reviews project plans, provides advice on strategic approaches and solutions to ensure that project objectives are achieved. It ensures that required resources are committed, arbitrates any conflicts within the project and negotiates a solution to any problems with external bodies.

The PSC is chaired by the NEA and meets annually. At its meetings it considers the Annual Work Plan presented by the Project Manager, gives guidance and suggestions for its improvement and approves the final version.

The PSC includes a representative from the NOU, GTTI and the Gambian Association of Refrigeration and Air Conditioning Practitioners as well as the Project Coordinator (PC). The PSC, on a need basis, decides to invite other stakeholders (e.g. regulators, industry actors, research institutes, etc.) while taking care that the PSC remains operational by its size. Coordination with other initiatives in The Gambia is facilitated by involvement of stakeholders from those initiatives in the PSC. The UNIDO Project Coordinator, representing the NEA, is the Convener Secretary of the PSC.

### **Project Management Unit (PMU)**

The PEB consists of a Project Manager (PM), supported by a Project Assistant and an Administrative Assistant, and at least two Program Officers from the NOU. The PM is the field extension of the UNIDO-PM and leads the PEB. The PM is responsible for executing the quarterly WP and the day-to-day management, monitoring and evaluation of project activities as per the approved AWP.

The project has two local executing agencies: the NEA's NOU and the GTTI. The NOU is responsible for execution of the policy and incentive initiatives. The GTTI leads the training activities (including training equipment), and provides technical support for standards. All field staff are hired as per UNIDO procurement rules. The PEB is hosted at the National Ozone Unit, The Gambia. During the entire implementation period of the project, UNIDO provides the PEB with the necessary management and monitoring support.

The PM prepares the Annual Work Plan (AWP), as per UNIDO rules and regulations, and presents it for consideration to the PSC one month before the end of every calendar year. Based on the approved AWP, quarterly plans are prepared by the PM and accordingly executed by the PEB. The PEB is responsible for the overall operational and financial management in accordance with rules and regulations imposed by UNIDO/GEF for directly executed projects. It prepares progress reports, financial reports etc., which are submitted to UNIDO-HQ and the PSC. It also produces annual progress reports and the terminal report, which is to be submitted to the Project Steering Committee at least two weeks before the Terminal meeting.

### **Stakeholders**

Key stakeholders are the following:

- **National Environment Agency (NEA):** works to implement the policy objectives of the Gambia Environmental Action Plan, through programme areas such as Environmental Education & Communication, Environmental Quality Programme, Environmental Impact Assessment and Elimination of Ozone Depleting Substances, among others. It houses the National Ozone Unit.
- **Department of Agriculture:** is responsible for the Nationally Appropriate Mitigation Action project "Improve storage facilities and promote the use of post-harvest technologies" and since cooling and freezing have been identified as important post-harvest technologies in the NAMA, the department will be involved to exploit possible synergies.
- **National Ozone Unit (NOU):** established in 1997, the National Ozone Unit (NOU) acts as the Country's main coordinating body for ODS phase-out. In order to meet the reduction

schedules the NOU has actively pursued a strategy that aims to secure the constant involvement of other stakeholders including importers, the clearing agency at the port of entry and customs departments.

- **The Gambia Technical Training Institute (GTI):** was established by an Act of Parliament in 1980 and began operations in 1983 providing instruction on a variety of technical and commercial disciplines. It has been a key player in other capacity building initiatives within The Gambia, and also works closely with the NOU on provision of technical training related to the ODS initiatives.
- **The Gambian Association of Refrigeration and Air Conditioning Practitioners:** brings together all the refrigeration technicians under one umbrella and covers all seven regions of the Gambia. It has been strengthened in the past through the initial training and certification of 200 refrigeration technicians, beginning in 2001, with technicians trained on recovery and recycling technology. The Association has received additional trained by the NOU on differentiating CFCs, HCFCs and HFCs as well as recovery and retrofitting of gases. The Association members have been equipped with the necessary equipment and tools to retrofit and recover gases. All members were acquainted with the management of refrigeration sector phase-out projects, having been involved in the phase-out of CFC-12 in the refrigeration-servicing sector.

## 5. Budget information

**Table 1. Financing plan summary**

USD	<i>Project Preparation</i>	<i>Project</i>	<i>Total (USD)</i>
Financing (GEF / others)	Click here to enter text.	495,000	495,000
Co-financing (Cash and In-kind)	Click here to enter text.	2,475,000	2,475,000
<b>Total (USD)</b>	<b>200,000*</b>	<b>2,970,000</b>	<b>2,970,000</b>

Source: Project document / progress report

\*The project preparation was supported by the MP Multilateral Fund for 3 countries, Viet Nam, Gambia and Morocco for USD200,000 excluding support costs.

**Table 2. Financing plan summary - Outcome breakdown<sup>14</sup>**

<b>Project outcomes</b>	<b>Donor (GEF/other) (USD)</b>	<b>Co-Financing (USD)</b>	<b>Total (USD)</b>
1. Policy, regulatory and legal measures are adopted by the government to support the adoption of low global-warming potential and energy efficient technology.	75,000	889,000	<b>964,000</b>
2. Technology with low global-warming potential (hydrocarbon system) is demonstrated,	320,000	638,000	<b>958,000</b>

<sup>14</sup> Source: Project document.

Project outcomes	Donor (GEF/other) (USD)	Co-Financing (USD)	Total (USD)
replicated and deployed			
3. Demand is increased for refrigerant systems with low global warming potential that are more energy efficient than existing technologies	75,000	848,000	<b>923,000</b>
Project management structure and project M&E mechanism	25,000	100,000	<b>125,000</b>
<b>Total (USD)</b>	<b>495,000</b>	<b>2,475,000</b>	<b>2,970,000</b>

Source: Project document / progress report

**Table 3. Co-Financing source breakdown**

Name of Co-financier (source)	Classification	Type	Total Amount (USD)
UNIDO	Implementing Agency	In kind	35,000
UNIDO	Implementing Agency	Grant	228,000
Government of the Gambia	Counterpart	Cash	1,081,000
Government of the Gambia	Counterpart	In kind	551,000
Technology suppliers (TA)	Counterpart	In kind	120,000
GTTI	Counterpart	In kind	150,000
Shecco (industrial association)	Counterpart	In kind	310,000
<b>Total Co-financing (USD)</b>			<b>2,475,000</b>

Source : Project document / progress report

**Table 4. UNIDO budget execution (XP and GEF Grants)**

Item	2014	2015	2016	2017	Total Expenditures (USD)
Contractual Services	178,000	119,073	2,421	5,142	304,636
Equipment	-	-	12,707	-	12,707
International Meetings	-	-	-	858	858
Local travel	-	17,827	25,529	46	43,402
Nat.Consult./Staff	-	-	-	-	-
Other Direct Costs	72	1,329	282	1,025	2,707
Staff & Intern Consultants	8,034	16,040	17,762	7,662	49,497
Staff Travel	-	4,628	-	-	4,628
Train/Fellowship/Study	-	2,555	5,029	-	7,584
<b>Total</b>	<b>186,106</b>	<b>161,451</b>	<b>63,729</b>	<b>14,732</b>	<b>426,018*</b>

\*For expenditures recorded under XP grant were converted to USD by using the current UN exchange rate, July 2017

Source: SAP database

## II. Scope and purpose of the evaluation

The terminal evaluation (TE) will cover the whole duration of the project from its starting date in to the estimated completion date in 31/12/2017. It will assess project performance against the evaluation criteria: relevance, effectiveness, efficiency, sustainability and impact.

The TE has an additional purpose of drawing lessons and developing recommendations for UNIDO and the GEF that may help for improving the selection, enhancing the design and implementation of similar future projects and activities in the country and on a global scale upon project completion. The TE report should include examples of good practices for other projects in the focal area, country, or region.

The TE should provide an analysis of the attainment of the project objective and the corresponding technical outputs and outcomes. Through its assessments, the Evaluation Team (ET) should enable the Government, counterparts, UNIDO and the GEF and other stakeholders and donors to verify prospects for development impact and sustainability, providing an analysis of the attainment of global environmental objectives, project objectives, delivery and completion of project outputs/activities, and outcomes/impacts based on indicators. The assessment shall include re-examination of the relevance of the objectives and other elements of project design according to the project evaluation parameters defined in chapter VI.

The key question of the TE is whether the project has achieved or is likely to achieve its main objective, i.e.

The evaluation has three specific objectives:

- (i) Assess the project performance in terms of relevance, effectiveness, efficiency, sustainability and progress to impact;
- (ii) Identify key learning to feed into the design and implementation of the forthcoming projects; and
- (iii) Develop a series of findings, lessons and recommendations for enhancing the design of new and implementation of ongoing projects by UNIDO.

### III. Evaluation approach and methodology

The TE will be conducted in accordance with the UNIDO Evaluation Policy<sup>15</sup> and the UNIDO Guidelines for the Technical Cooperation Project and Project Cycle<sup>16</sup>. In addition, the GEF Guidelines for GEF Agencies in Conducting Terminal Evaluations, the GEF Monitoring and Evaluation Policy and the GEF Minimum Fiduciary Standards for GEF Implementing and Executing Agencies.

The evaluation will be carried out as an independent in-depth evaluation using a participatory approach whereby all key parties associated with the project will be informed and consulted throughout the evaluation. The evaluation team leader will liaise with the UNIDO Independent Evaluation Division (ODG/EVQ/IEV) on the conduct of the evaluation and methodological issues.

In line with its objectives, the evaluation will have two main components. The first component focuses on an overall **assessment of performance** of the project, whereas the second one focuses on the **learning** from the successful and unsuccessful practices in project design and implementation.

The evaluation will use a theory of change approach and mixed methods to collect data and information from a range of sources and informants. It will pay attention to triangulating the data and information collected before forming its assessment. This is essential to ensure an evidence-based and credible evaluation, with robust analytical underpinning.

The theory of change will identify causal and transformational pathways from the project outputs to outcomes and longer-term impacts, and drivers as well as barriers to achieve them. The learning from this analysis will be useful to feed into the design of the future projects so that the management team can effectively manage them based on results.

#### 1. Data collection methods

The main instruments for data collection are the following:

- (a) **Desk and literature review** of documents related to the project, including but not limited to:
  - The original project document, monitoring reports (such as progress and financial reports, mid-term review report, output reports, back-to-office mission report(s), end-of-contract report(s) and relevant correspondence.
  - Notes from the meetings of committees involved in the project.
- (b) **Stakeholder consultations** will be conducted through structured and semi-structured interviews and focus group discussion. Key stakeholders to be interviewed include:
  - UNIDO Management and staff involved in the project; and
  - Representatives of donors and counterparts.
- (c) **Field visit** to the Gambia.

#### 2. Evaluation key questions and criteria

The key evaluation questions are the following:

- (a) What are the key drivers and barriers to achieve the long term objectives? To what extent has the project helped put in place the conditions likely to address the drivers, overcome barriers and contribute to the long term objectives?
- (b) How well has the project performed? Has the project done the right things? Has the project done things right, with good value for money?
- (c) What have been the project's key results (outputs, outcome and impact)? To what extent have the expected results been achieved or are likely to be achieved? To what extent the achieved results will sustain after the completion of the project?
- (d) What lessons can be drawn from the successful and unsuccessful practices in designing, implementing and managing the project?

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<sup>15</sup> UNIDO. (2015). Director General's Bulletin: Evaluation Policy (UNIDO/DGB/(M).98/Rev.1)

<sup>16</sup> UNIDO. (2006). Director-General's Administrative Instruction No. 17/Rev.1: Guidelines for the Technical Cooperation Programme and Project Cycle (DGAI.17/Rev.1, 24 August 2006)

The evaluation will assess the likelihood of sustainability of the project results after the project completion. The assessment will identify key risks (e.g. in terms of financial, socio-political, institutional and environmental risks) and explain how these risks may affect the continuation of results after the project ends. Table below provides the key evaluation criteria to be assessed by the evaluation. The details questions to assess each evaluation criterion are in annex 2.

**Table 5. Project evaluation criteria**

#	<u>Evaluation criteria</u>	<u>Mandatory rating</u>
<b>A</b>	<b>Impact</b>	<b>Yes</b>
<b>B</b>	<b>Project design</b>	<b>Yes</b>
1	• Overall design	Yes
2	• Logframe	Yes
<b>C</b>	<b>Project performance</b>	<b>Yes</b>
1	• Relevance	Yes
2	• Effectiveness	Yes
3	• Efficiency	Yes
4	• Sustainability of benefits	Yes
<b>D</b>	<b>Cross-cutting performance criteria</b>	
1	• Gender mainstreaming	Yes
2	• M&E: ✓ M&E design ✓ M&E implementation	Yes
3	• Results-based Management (RBM)	Yes
<b>E</b>	<b>Performance of partners</b>	
1	• UNIDO	Yes
2	• National counterparts	Yes
3	• Donor	Yes
<b>F</b>	<b>Overall assessment</b>	<b>Yes</b>

### 3. Rating system

In line with the practice adopted by many development agencies, the UNIDO Independent Evaluation Division uses a six-point rating system, where 6 is the highest score (highly satisfactory) and 1 is the lowest (highly unsatisfactory) as per Table .

### IV. Evaluation process

The evaluation will be conducted from October to November 2017. The evaluation will be implemented in five phases which are not strictly sequential, but in many cases iterative, conducted in parallel and partly overlapping:

- i. Inception phase: The evaluation team will prepare the inception report providing details on the methodology for the evaluation and include an evaluation matrix with specific issues for the evaluation;
- ii. Desk review and data analysis;

- iii. Interviews, survey and literature review;
- iv. Country visit;
- v. Data analysis and report writing.

**Table 6. Project rating criteria**

Score		Definition	Category
6	Highly satisfactory	Level of achievement clearly exceeds expectations and there is no shortcoming.	SATISFACTORY
5	Satisfactory	Level of achievement meets expectations (indicatively, over 80-95 per cent) and there is no or minor shortcoming.	
4	Moderately satisfactory	Level of achievement more or less meets expectations (indicatively, 60 to 80 per cent) and there are some shortcomings.	
3	Moderately unsatisfactory	Level of achievement is somewhat lower than expected (indicatively, less than 60 per cent) and there are significant shortcomings.	UNSATISFACTORY
2	Unsatisfactory	Level of achievement is substantially lower than expected and there are major shortcomings.	
1	Highly unsatisfactory	Level of achievement is negligible and there are severe shortcomings.	

#### V. Time schedule and deliverables

The evaluation is scheduled to take place from 01/10/2017 to 30/11/2017. The evaluation field mission is tentatively planned for 15/10/2017 to 21/10/2017. At the end of the field mission, there will be a presentation of the preliminary findings for all stakeholders involved in this project.

After the evaluation field mission, the evaluation team leader will visit UNIDO HQ for debriefing and presentation of the preliminary findings of the terminal evaluation. The draft TE report will be submitted 4 to 6 weeks after the end of the mission. The draft TE report is to be shared with the UNIDO PM, UNIDO ODG/EVQ/IEV, the UNIDO GEF Coordinator and GEF OFP and other stakeholders for receipt of comments. The ET leader is expected to revise the draft TE report based on the comments received, edit the language and form and submit the final version of the TE report in accordance with UNIDO Independent Evaluation Division (ODG/EVQ/IEV) standards.

Timelines	Tasks
1 -15 October 2017	Desk review and writing of inception report
15 –21 October 2017	Field visit to the Gambia
23-24 October 2017	Debriefing and presentation of preliminary findings and recommendations
25 October- 8 November 2017	Preparation of first draft evaluation report
9-21 November 2017	Internal peer review of the report by the Independent Evaluation Division / stakeholder comments to draft evaluation report
30 November 2017	Final evaluation report

## **VI. Evaluation team composition**

The evaluation team will be composed of one international evaluation consultant acting as the team leader and one national evaluation consultant. The evaluation team members will possess relevant strong experience and skills on evaluation management and conduct together with expertise and experience in the use of hydrocarbons with very low global warming potential (GWP). Both consultants will be contracted by UNIDO.

The tasks of each team member are specified in the job descriptions annexed to these terms of reference. The ET is required to provide information relevant for follow-up studies, including terminal evaluation verification on request to the GEF partnership up to three years after completion of the terminal evaluation.

According to UNIDO Evaluation Policy, members of the evaluation team must not have been directly involved in the design and/or implementation of the project under evaluation.

The project team in Viet Nam will support the evaluation team. The UNIDO GEF Coordinator and GEF OFP(s) will be briefed on the evaluation and provide support to its conduct. GEF OFP(s) will, where applicable and feasible, also be briefed and debriefed at the start and end of the evaluation mission.

An evaluation manager from UNIDO Independent Evaluation Division (IEV) will provide technical backstopping to the evaluation team and ensure the quality of the evaluation. The UNIDO Project Manager and national project teams will act as resourced persons and provide support to the evaluation team and the evaluation manager.

## **VII. Reporting**

### **Inception report**

This Terms of Reference (ToR) provides some information on the evaluation methodology, but this should not be regarded as exhaustive. After reviewing the project documentation and initial interviews with the project manager, the International Evaluation Consultant will prepare, in collaboration with the national consultant, a short inception report that will operationalize the ToR relating to the evaluation questions and provide information on what type of and how the evidence will be collected (methodology). It will be discussed with and approved by the responsible UNIDO Evaluation Manager.

The Inception Report will focus on the following elements: preliminary project theory model(s); elaboration of evaluation methodology including quantitative and qualitative approaches through an evaluation framework (“evaluation matrix”); division of work between the International Evaluation Consultant and national consultant; mission plan, including places to be visited, people to be interviewed and possible surveys to be conducted and a debriefing and reporting timetable<sup>17</sup>.

### **Evaluation report format and review procedures**

The draft report will be delivered to UNIDO Independent Evaluation Division (ODG/EVQ/IEV) (the suggested report outline is provided in Annex 4) and circulated to UNIDO staff and national stakeholders associated with the project for factual validation and comments. Any comments or responses, or feedback on any errors of fact to the draft report provided by the stakeholders will be sent to UNIDO Independent Evaluation Division (ODG/EVQ/IEV) for collation and onward transmission to the project evaluation team who will be advised of any necessary revisions. On the basis of this feedback, and taking into consideration the comments received, the evaluation team will prepare the final version of the terminal evaluation report.

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<sup>17</sup> The evaluator will be provided with a Guide on how to prepare an evaluation inception report prepared by the UNIDO Office for Independent Evaluation.

The ET will present its preliminary findings to the local stakeholders at the end of the field visit and take into account their feed-back in preparing the evaluation report. A presentation of preliminary findings will take place at UNIDO HQ after the field mission.

The TE report should be brief, to the point and easy to understand. It must explain the purpose of the evaluation, exactly what was evaluated, and the methods used. The report must highlight any methodological limitations, identify key concerns and present evidence-based findings, consequent conclusions, recommendations and lessons. The report should provide information on when the evaluation took place, the places visited, who was involved and be presented in a way that makes the information accessible and comprehensible. The report should include an executive summary that encapsulates the essence of the information contained in the report to facilitate dissemination and distillation of lessons.

Findings, conclusions and recommendations should be presented in a complete, logical and balanced manner. The evaluation report shall be written in English and follow the outline given in Annex 4.

### **VIII. Quality assurance**

All UNIDO evaluations are subject to quality assessments by the UNIDO Office for Independent Evaluation. Quality assurance and control is exercised in different ways throughout the evaluation process (briefing of consultants on methodology and process of UNIDO's Office for Independent Evaluation, providing inputs regarding findings, lessons learned and recommendations from other UNIDO evaluations, review of inception report and evaluation report by the Office for Independent Evaluation).

The quality of the evaluation report will be assessed and rated against the criteria set forth in the Checklist on evaluation report quality, attached as Annex 5. The applied evaluation quality assessment criteria are used as a tool to provide structured feedback. UNIDO's Office for Independent Evaluation should ensure that the evaluation report is useful for UNIDO in terms of organizational learning (recommendations and lessons learned) and is compliant with UNIDO's evaluation policy and these terms of reference. The draft and final evaluation report are reviewed by UNIDO Office for Independent Evaluation, which will submit the final report to the GEF Evaluation Office and circulate it within UNIDO together with a management response sheet.

## Annex 1: Project Logical Framework

<b>Project Narrative</b>	<b>Indicator</b>	<b>Sources of Verification</b>	
<p><b>Project Objective</b></p> <p>Reduction of greenhouse gas emission associated with industrial refrigeration and air-conditioning facilities in The Gambia</p>	<p><i>Direct emission reduction:</i> Direct emissions reduction of 5,800 tonnes of CO<sub>2</sub> equivalent through improved energy efficiency, with co-benefits due to leakage reduction of 51,000 tCO<sub>2</sub> eq.</p> <p><i>Indirect emission reduction:</i> - GEF bottom-up methodology Indirect emissions reduction of 23,000 tonnes of CO<sub>2</sub> equivalent through all the activities, with co-benefits due to ODS leakage reduction of 204,000 tCO<sub>2</sub>e - GEF top-down methodology 47,000 tonnes of CO<sub>2</sub> equivalent through all the activities, with co-benefits due to ODS leakage reduction of 416,000</p>	<p>Reports from the National Ozone Unit and The Gambia Technical Training Institute during and after project implementation.</p>	
<b>Component 1: Policy and Regulatory Support</b>			
<b>Outcome</b>	<b>Indicator</b>	<b>Sources of Verification</b>	<b>Assumptions/Risks (see section Part II A.4)</b>
<p>Policy, regulatory and legal measures are adopted by the government to support the adoption of low global-warming potential and energy efficient technology.</p>	<p>Number of national policies changed or adopted in favour of the use of alternative technologies with low global-warming potential.</p>	<p>Public records such as government websites and publications in the national gazette.</p>	<p>Assumes no radical shifts in Government priorities.</p>
<b>Outputs</b>	<b>Indicator</b>	<b>Sources of Verification</b>	<b>Assumptions/Risks (see section Part II A.4)</b>
<p>1.1 Gap analysis carried out in the national policy, legal and regulatory frameworks.</p>	<p>Availability of gap analysis report.</p>	<p>Project progress report</p>	<p>Continuous government support and participation.</p>
<p>1.2 Relevant recommendations drafted into the national laws/regulations/guidance.</p>	<p>Number of laws/regulations/guidance (new or amended) in favour of low global-warming technologies promulgated.</p>	<p>UNIDO project progress report.</p>	

<b>Component 2: Technology Transfer</b>			
<b>Outcome</b>	<b>Indicator</b>	<b>Sources of Verification</b>	<b>Assumptions/Risks (see section Part II A.4)</b>
Technical and financial support on replacement refrigerants, and reducing greenhouse gas emissions and operational costs, is ensured.	Up to 5,800 tonnes of CO <sub>2</sub> equivalent emission reduced  Energy efficiency gain in percentage, by enterprise/facility  Up to 60 facilities involved in interventions of various scales	Records of each enterprise/facility to the National Ozone Unit and to The Gambia Technical Training Institute  Validation reports from The Gambia Technical Training Institute	The pilot demonstration systems with low global-warming potential refrigerants installed.  The companies want and can proceed with the conversion process.
<b>Outputs</b>	<b>Indicators</b>	<b>Sources of Verification</b>	<b>Assumptions/Risks (see section Part II A.4)</b>
2.1 Refrigeration and air-conditioning support mechanisms established and piloted	Up to 20 Support Service providers certified through course given at the training institute (disaggregated by gender)	Records of each enterprise/facility to the The Gambia Technical Training Institute  Reports of The Gambia Technical Training Institute	There is sufficient interest from private sector and trainee technicians.  Certified trainees, as Support Service providers, are able to promote good practices regarding energy efficiency and sustainability in the refrigeration and air-conditioning sector.
2.2 Incentive Mechanism piloted	Over 30 interventions supported through the Incentive Mechanism  Monitoring of the results is continuous for minimum 12 months. Reduced emission of greenhouse gases and improved energy efficiency are verified.	UNIDO project report.	The companies choose to proceed with improvement process and able to secure financing
<b>Component 3: Awareness raising</b>			
<b>Outcome</b>	<b>Indicators</b>	<b>Sources of Verification</b>	<b>Assumptions/Risks (see section Part II .4)</b>
Demand for refrigerant systems with low global-warming potential that are more energy efficient than	At least 20 firm inquiries indicating intent to use alternative refrigerants made to the Gambia Technical	Report from the Gambia Technical Training Institute and from the Support Service:	Continuous support and participation from national authorities and companies.

existing technologies is increased.	Training Institute and to the Support Service.	Companies indicate their interest towards the new technology.	
<b>Outputs</b>	<b>Indicators</b>	<b>Sources of Verification</b>	<b>Assumptions/Risks (see section Part II A. 4)</b>
3.1 Lessons learnt and information on technology solutions is disseminated to policy makers, companies, and technicians. <sup>1</sup>	Written materials delivered to 15 policy-makers (disaggregated by gender).  Capacity perception index of 5 reached by the end of the project for targeted trainees <sup>2</sup>	Market survey at the end of the project: demand for replicating the technology in other sectors.  Monitoring reports on events and activities.	Assumes the ability to gain media attraction on the issues.  Continuous government support and participation.  Trainees value the information provided and are able to use it in their day-to-day activities.

## Annex 2: Detailed questions to assess evaluation criteria

The evaluation team will assess the project performance guided by the questions below.

#	<u>Evaluation criteria</u>
<b>A</b>	<p><b>Progress to impact</b></p> <ul style="list-style-type: none"> <li>✓ <u>Mainstreaming</u>: To what extent information, lessons or specific results of the project are incorporated into broader stakeholder mandates and initiatives such as laws, policies, regulations and project?</li> <li>✓ <u>Replication</u>: To what extent the project's specific results (e.g. methodology, technology, lessons, etc.) are reproduced or adopted</li> <li>✓ <u>Scaling-up</u>: To what extent the project's initiatives and results are implemented at larger geographical scale?</li> <li>✓ What difference has the project made to the beneficiaries?</li> <li>✓ What is the change attributable to the project? To what extent?</li> <li>✓ What are the social, economic, environmental and other effects, either short-, medium- or long-term, on a micro- or macro-level?</li> <li>✓ What effects are intended or unintended, positive or negative?</li> </ul> <p>The three UNIDO impact dimensions are:</p> <ul style="list-style-type: none"> <li>✓ <u>Safeguarding environment</u>: To what extent the project contributes to changes in the status of environment.</li> <li>✓ <u>Economic performance</u>: To what extent the project contributes to changes in the economic performance (e.g. finances, income, costs saving, expenditure) of individuals, groups and entities?</li> <li>✓ <u>Social inclusiveness</u>: To what extent the project contributes to changes in capacity and capability of individuals, groups and entities in society, such as employment, education, and training?</li> </ul>
<b>B</b>	<p><b>Project design</b></p>
1	<ul style="list-style-type: none"> <li>• <u>Overall design</u></li> <li>✓ The project design was adequate to address the problems at hand?</li> <li>✓ Is the project consistent with the Country's priorities, in the work plan of the lead national counterpart? Does it meet the needs of the target group? Is it consistent with UNIDO's Inclusive and Sustainable Industrial Development? Does it adequately reflect lessons learnt from past projects? Is it in line with the donor's priorities and policies?</li> <li>✓ Is the applied project approach sound and appropriate? Is the design technically feasible and based on best practices? Does UNIDO have in-house technical expertise and experience for this type of intervention?</li> <li>✓ To what extent the project design (in terms of funding, institutional arrangement, implementation arrangements...) as foreseen in the project document still valid and relevant?</li> <li>✓ Does the project document include a M&amp;E plan? Does the M&amp;E plan specify what, who and how frequent monitoring, review, evaluations and data collection will take place? Does it allocate budget for each exercise? Is the M&amp;E budget adequately allocated and</li> </ul>

#	<u>Evaluation criteria</u>
	<p>consistent with the logframe (especially indicators and sources of verification)?</p> <ul style="list-style-type: none"> <li>✓ Risk management: Are critical risks related to financial, social-political, institutional, environmental and implementation aspects identified with specific risk ratings? Are their mitigation measures identified? Where possible, are the mitigation measures included in project activities/outputs and monitored under the M&amp;E plan?</li> </ul>
2	<ul style="list-style-type: none"> <li>• <u>Logframe</u></li> <li>✓ Expected results: Is the expected result-chain (impact, outcomes and outputs) clear and logical? Does impact describe a desired long-term benefit to a society or community (not as a mean or process), do outcomes describe change in target group's behaviour/performance or system/institutional performance, do outputs describe deliverables that project will produce to achieve outcomes? Are the expected results realistic, measurable and not a reformulation or summary of lower level results? Do outputs plus assumptions lead to outcomes, do outcomes plus assumptions lead to impact? Can all outputs be delivered by the project, are outcomes outside UNIDO's control but within its influence?</li> <li>✓ Indicators: Do indicators describe and specify expected results (impact, outcomes and outputs) in terms of quantity, quality and time? Do indicators change at each level of results and independent from indicators at higher and lower levels? Do indicators not restate expected results and not cause them? Are indicators necessary and sufficient and do they provide enough triangulation (cross-checking)? Are they indicators sex-diaggregated, if applicable?</li> <li>✓ Sources of verification: Are the sources of verification/data able to verify status of indicators, are they cost-effective and reliable? Are the sources of verification/data able to verify status of output and outcome indicators before project completion?</li> </ul>
<b>C</b>	<b>Project performance</b>
1	<ul style="list-style-type: none"> <li>• <u>Relevance</u></li> <li>✓ How does the project fulfil the urgent target group needs?</li> <li>✓ To what extent is the project aligned with the development priorities of the country (national poverty reduction strategy, sector development strategy)?</li> <li>✓ How does project reflect donor policies and priorities?</li> <li>✓ Is the project a technically adequate solution to the development problem? Does it eliminate the cause of the problem?</li> <li>✓ To what extent does the project correspond to UNIDO's comparative advantages?</li> <li>✓ Are the original project objectives (expected results) still valid and pertinent to the target groups? If not, have they been revised? Are the revised objectives still valid in today's context?</li> </ul>
2	<ul style="list-style-type: none"> <li>• <u>Effectiveness</u></li> <li>✓ What are the main results (mainly outputs and outcomes) of the project? What have been the quantifiable results of the project?</li> <li>✓ To what extent did the project achieve their objectives (outputs and outcomes), against the original/revised target(s)?</li> </ul>

#	<u>Evaluation criteria</u>
	<ul style="list-style-type: none"> <li>✓ What are the reasons for the achievement/non-achievement of the project objectives?</li> <li>✓ What is the quality of the results? How do the stakeholders perceive them? What is the feedback of the beneficiaries and the stakeholders on the project effectiveness?</li> <li>✓ To what extent is the identified progress result of the project rather than external factors?</li> <li>✓ What can be done to make the project more effective?</li> <li>✓ Were the right target groups reached?</li> </ul>
3	<ul style="list-style-type: none"> <li>• <u>Efficiency</u></li> <li>✓ How economically are the project resources/inputs (concerning funding, expertise, time...) being used to produce results?</li> <li>✓ To what extent were expected results achieved within the original budget? If no, please explain why.</li> <li>✓ Are the results being achieved at an acceptable cost? Would alternative approaches accomplish the same results at less cost?</li> <li>✓ What measures have been taken during planning and implementation to ensure that resources are efficiently used? Were the project expenditures in line with budgets?</li> <li>✓ To what extent did the expected co-financing materialize, in cash or in-kind, grants or loan? Was co-financing administered by the project management or by some other organization? Did short fall in co-financing or materialization of greater than expected co-financing affected project results?</li> <li>✓ Could more have been achieved with the same input?</li> <li>✓ Could the same have been achieved with less input?</li> <li>✓ How timely was the project in producing outputs and outcomes? Comment on the delay or acceleration of the project's implementation period.</li> <li>✓ To what extent were the project's activities in line with the schedule of activities as defined by the Project Team and annual Work Plans?</li> <li>✓ Have the inputs from the donor, UNIDO and Government/counterpart been provided as planned, and were they adequate to meet the requirements?</li> </ul>
4	<ul style="list-style-type: none"> <li>• <u>Sustainability of benefits</u></li> <li>✓ Will the project results and benefits be sustained after the end of donor funding?</li> <li>✓ Does the project have an exit strategy?</li> <li><i>Financial risks:</i></li> <li>✓ What is the likelihood of financial and economic resources not being available once the project ends?</li> <li><i>Socio-political risks:</i></li> <li>✓ Are there any social or political risks that may jeopardize the sustainability of project outcomes?</li> </ul>

#	<u>Evaluation criteria</u>
	<ul style="list-style-type: none"> <li>✓ What is the risk that the level of stakeholder ownership (including ownership by governments and other key stakeholders) will be insufficient to allow for the project outcomes/benefits to be sustained?</li> <li>✓ Do the various key stakeholders see that it is in their interest that project benefits continue to flow?</li> <li>✓ Is there sufficient public/stakeholder awareness in support of the project's long-term objectives?</li> </ul> <p><i>Institutional framework and governance risks:</i></p> <ul style="list-style-type: none"> <li>✓ Do the legal frameworks, policies, and governance structures and processes within which the project operates pose risks that may jeopardize the sustainability of project benefits?</li> <li>✓ Are requisite systems for accountability and transparency and required technical know-how in place?</li> </ul> <p><i>Environmental risks:</i></p> <ul style="list-style-type: none"> <li>✓ Are there any environmental risks that may jeopardize the sustainability of project outcomes?</li> <li>✓ Are there any project outputs or higher-level results that are likely to have adverse environmental impacts, which, in turn, might affect the sustainability of project benefits?</li> </ul>
5	<ul style="list-style-type: none"> <li>• <u>Progress to impact</u></li> <li>✓ Is there any evidence of progress towards impact?</li> <li>✓ To what extent do the key assumptions of the project's theory of change hold?</li> <li>✓ Is there qualitative and quantitative evidence on environmental stress reduction (e.g. GHG emission reduction, reduction of waste discharge, etc.) and environmental status change?</li> <li>✓ To what extent observed changes in capacities (awareness, knowledge, skills) or in infrastructure and legislation are attributable to the project?</li> </ul>
<b>D</b>	<b>Cross-cutting performance criteria</b>
1	<ul style="list-style-type: none"> <li>• <u>Gender mainstreaming</u></li> <li>✓ Did the project design adequately consider the gender dimensions in its interventions? Was the gender marker assigned correctly at entry?</li> <li>✓ Was a gender analysis included in a baseline study or needs assessment (if any)? Were there gender-related project indicators?</li> <li>✓ Are women/gender-focused groups, associations or gender units in partner organizations consulted/ included in the project?</li> <li>✓ How gender-balanced was the composition of the project management team, the Steering Committee, experts and consultants and the beneficiaries?</li> <li>✓ Do the results affect women and men differently? If so, why and how? How are the results likely to affect gender relations (e.g., division of labour, decision-making authority)?</li> <li>✓ To what extent were socioeconomic benefits delivered by the project at the national and local levels, including consideration of gender dimensions?</li> </ul>

#	<u>Evaluation criteria</u>
2	<ul style="list-style-type: none"> <li>• <u>M&amp;E:</u></li> <li>✓ <b>M&amp;E design</b> <ul style="list-style-type: none"> <li>○ Was the M&amp;E plan at the point of project approval practical and sufficient?</li> <li>○ Did it include baseline data and specify clear targets and appropriate indicators to track environmental, gender, and socio economic results?</li> <li>○ Did it include a proper M&amp;E methodological approach; specify practical organization and logistics of the M&amp;E activities including schedule and responsibilities for data collection;</li> <li>○ Did it include budget adequate funds for M&amp;E activities?</li> </ul> </li> <li>✓ <b>M&amp;E implementation</b> <ul style="list-style-type: none"> <li>○ How was the information from M&amp;E system used during the project implementation? Was an M&amp;E system in place and did it facilitate timely tracking of progress toward project results by collecting information on selected indicators continually throughout the project implementation period? Did project team and manager make decisions and corrective actions based on analysis from M&amp;E system and based on results achieved?</li> <li>○ Are annual/progress project reports complete and accurate?</li> <li>○ Was the information provided by the M&amp;E system used to improve performance and adapt to changing needs? Was information on project performance and results achievement being presented to the Project Steering Committee to make decisions and corrective actions? Do the Project team and managers and PSC regularly ask for performance and results information?</li> <li>○ Are monitoring and self-evaluation carried out effectively, based on indicators for outputs, outcomes and impact in the logframe? Do performance monitoring and reviews take place regularly?</li> <li>○ Were resources for M&amp;E sufficient?</li> <li>○ How has the logframe been used for Monitoring and Evaluation purposes (developing M&amp;E plan, setting M&amp;E system, determining baseline and targets, annual implementation review by the Project Steering Committee...) to monitor progress towards expected outputs and outcomes?</li> <li>○ How well have risks outlined the project document and in the logframe been monitored and managed? How often have risks been reviewed and updated? Has a risk management mechanism been put in place?</li> </ul> </li> </ul>
3	<ul style="list-style-type: none"> <li>• <u>Project management</u></li> <li>✓ Review overall effectiveness of project management as outlined in the Project Document. Have changes been made and are they effective? Are responsibilities and reporting lines clear? Is decision-making transparent and undertaken in a timely manner? Recommend areas for improvement.</li> <li>✓ Review whether the national management and overall coordination mechanisms have been efficient and effective? Did each partner have assigned roles and responsibilities from the beginning? Did each partner fulfil its role and responsibilities (e.g. providing strategic</li> </ul>

#	<u>Evaluation criteria</u>
	<p>support, monitoring and reviewing performance, allocating funds, providing technical support, following up agreed/corrective actions)?</p> <ul style="list-style-type: none"> <li>✓ The UNIDO HQ-based management, coordination, monitoring, quality control and technical inputs have been efficient, timely and effective (e.g. problems identified timely and accurately; quality support provided timely and effectively; right staffing levels, continuity, skill mix and frequency of field visits)?</li> </ul>
<b>E</b>	<b>Performance of partners</b>
1	<ul style="list-style-type: none"> <li>• <u>UNIDO</u></li> <li>✓ <b>Design</b> <ul style="list-style-type: none"> <li>○ Mobilization of adequate technical expertise for project design</li> <li>○ Inclusiveness of project design (with national counterparts)</li> <li>○ Previous evaluative evidence shaping project design</li> <li>○ Planning for M&amp;E and ensuring sufficient M&amp;E budget</li> </ul> </li> <li>✓ <b>Implementation</b> <ul style="list-style-type: none"> <li>○ Timely recruitment of project staff</li> <li>○ Appropriate use of funds, procurement and contracting of goods and services</li> <li>○ Project modifications following changes in context or after the Mid-Term Review</li> <li>○ Follow-up to address implementation bottlenecks</li> <li>○ Role of UNIDO country presence (if applicable) supporting the project</li> <li>○ Engagement in policy dialogue to ensure up-scaling of innovations</li> <li>○ Coordination function</li> <li>○ Exit strategy, planned together with the government</li> </ul> </li> </ul>
2	<ul style="list-style-type: none"> <li>• <u>National counterparts</u></li> <li>✓ <b>Design</b> <ul style="list-style-type: none"> <li>○ Responsiveness to UNIDO's invitation for engagement in designing the project</li> </ul> </li> <li>✓ <b>Implementation</b> <ul style="list-style-type: none"> <li>○ Ownership of the project</li> <li>○ Support to the project, based on actions and policies</li> <li>○ Counterpart funding</li> <li>○ Internal government coordination</li> <li>○ Exit strategy, planned together with UNIDO, or arrangements for continued funding of certain activities</li> </ul> </li> </ul>

#	<u>Evaluation criteria</u>
	<ul style="list-style-type: none"> <li>○ Facilitation of the participation of Non-Governmental Organizations (NGOs), civil society and the private sector where appropriate</li> <li>○ Suitable procurement procedures for timely project implementation</li> <li>○ Engagement with UNIDO in policy dialogue to promote the up-scaling or replication of innovations</li> </ul>
3	<ul style="list-style-type: none"> <li>● <u>Donor</u> <ul style="list-style-type: none"> <li>✓ Timely disbursement of project funds</li> <li>✓ Feedback to progress reports, including Mid-Term Evaluation</li> <li>✓ Support by the donor's country presence (if applicable) supporting the project for example through engagement in policy dialogue</li> </ul> </li> </ul>
F	<p><b>Overall project achievement</b></p> <ul style="list-style-type: none"> <li>✓ Overarching assessment of the project, drawing upon the analysis made under Project performance and Progress to Impact criteria above but not an average of ratings.</li> </ul>

### Annex 3: Job descriptions

**Post title:** Senior International Evaluator (Team Leader)

**Duration:** 25 working days

**Date required:** 1 October – 30 November 2017

**Duty station:** Home-base with one briefing in Vienna and field mission to the Gambia

Under the direct supervision of the UNIDO Evaluation Manager, in cooperation with the national consultant, and with the support of the Project Manager, the Senior International Evaluation Expert is responsible to carry out the following tasks:

Tasks	Expected Duration	Expected results
Undertake desk review of management, activity, output and related documents of the Project	5 working days (home base)	Key questions and notes to prepare the inception report and field visits
Prepare an inception report which streamlines the specific questions to address the key issues in the TOR, specific methods that will be used and data to collect in the field visits, detailed evaluation methodology confirmed, draft theory of change, and tentative agenda for field work.	3 working days (home base)	The inception report. Submitted to evaluation manager on or before 13 October 2017
Undertake fact finding field missions to consult field project partners and beneficiaries to verify and complete preliminary evaluation findings from desk review and assess the institutional capacities of the recipient country.	8 working days	Completed data collection
Debriefing mission – presentation of preliminary evaluation findings and recommendations to the project stakeholders for factual validation	1 working day (Vienna)	Factual validation of evaluation report concluded, additional data obtained
Prepare and submit draft report of evaluation, including evaluation findings and recommendations and lessons learned	6 working days	Draft evaluation report submitted to evaluation manager for review on or before 14 November 2017. 2 pages summary of take-away message from the evaluation.
Finalize evaluation report, on basis of comments and suggestions received through the evaluation manager	2 working days (home base)	Final evaluation report submitted to evaluation manager on 30 November 2017

**Requirements**

Relevant university degree; over 10 years' experience with environmental management projects as well as project evaluation experience; excellent oral and written communication skills in English; Knowledge of French and national languages is an asset.

**Absence of Conflict of Interest:**

According to UNIDO rules, the consultant must not have been involved in the design and/or implementation, supervision and coordination of and/or have benefited from the project/project (or theme) under evaluation. The consultant will be requested to sign a declaration that none of the above situations exists and that the consultants will not seek assignments with the manager/s in charge of the project before or shortly after the completion of her/his contract with the Office for Independent Evaluation.

## Job description

**Post title:** National consultant  
**Duration:** 21 working days  
**Date required:** 1 October – 30 November 2017  
**Duty station:** Home-base and a field mission within the Gambia

Under the direct supervision of the UNIDO Headquarters Evaluation Manager, in consultation with and under the guidance of the Team Leader and with the support of the Project Managers, the national consultant is responsible to carry out the following tasks:

Tasks	Expected Duration	Expected results
<p><b>Desk review</b>  Review and analyze project documentation and relevant country background information; in cooperation with the team leader, determine key data to collect in the field and prepare key instruments in Vietnamese if deemed necessary (questionnaires, logic models);  If need be, recommend adjustments to the tools in order to ensure their understanding in the local context;  Coordinate and lead interviews in local language and assist the team leader with translation where necessary;  Analyze and assess the adequacy of legislative and regulatory framework, specifically in the context of the project's objectives and targets.</p>	3 working days (home base)	<p>Evaluation questions, questionnaires/interview guide, logic models adjusted to ensure understanding in the national context;  A stakeholder mapping;  A brief assessment of the adequacy of the country's legislative and regulatory framework in the context of the project.</p>
<p><b>Coordinate the evaluation mission</b> agenda, ensuring and setting up the required meetings with project partners and government counterparts, and organize and lead site visits, in close cooperation with project staff in the field.  Assist and provide detailed analysis and inputs to the team leader in the preparation of the inception report.</p>	3 working days (home base)	<p>Detailed evaluation schedule  List of stakeholders to interview during the field missions.</p>
<p><b>Participation in interviews during field missions</b></p>	8 working days	Interview notes.
<p>Prepare inputs and analysis to the evaluation report according to TOR and as agreed with the team leader. Revise the draft project evaluation report based on comments from UNIDO IEV and stakeholders and edit the language and form of the final version according to UNIDO standards.</p>	3 working days	Draft evaluation report submitted to evaluation manager for review.
<p>Finalize evaluation report, on basis of comments and suggestions received through the evaluation manager</p>	2 working days (home base)	Final evaluation report submitted to evaluation manager

**Requirements**

Relevant university degree; over 5 years' experience in planning, implementation, monitoring and/or evaluation of technical assistance projects; excellent oral and written communication skills in English; demonstrated familiarity with procedures and practices of international technical cooperation.

**Absence of Conflict of Interest:**

According to UNIDO rules, the consultant must not have been involved in the design and/or implementation, supervision and coordination of and/or have benefited from the project/project (or theme) under evaluation. The consultant will be requested to sign a declaration that none of the above situations exists and that the consultants will not seek assignments with the manager/s in charge of the project before or shortly after the completion of her/his contract with the Office for Independent Evaluation.

## **Annex 4 - Outline of an in-depth project evaluation report**

### **Executive summary**

- Must provide a synopsis of the storyline which includes the main evaluation findings and recommendations
- Must present strengths and weaknesses of the project
- Must be self-explanatory and should be maximum 3-4 pages in length

### **I. Evaluation objectives, methodology and process**

- Information on the evaluation: why, when, by whom, etc.
- Scope and objectives of the evaluation, main questions to be addressed
- Information sources and availability of information
- Methodological remarks, limitations encountered and validity of the findings

### **II. Country and project background**

- Brief country context: an overview of the economy, the environment, institutional development, demographic and other data of relevance to the project
- Sector-specific issues of concern to the project<sup>18</sup> and important developments during the project implementation period
- Project summary:
  - Fact sheet of the project: including project objectives and structure, donors and counterparts, project timing and duration, project costs and co-financing
  - Brief description including history and previous cooperation
  - Project implementation arrangements and implementation modalities, institutions involved, major changes to project implementation
  - Positioning of the UNIDO project (other initiatives of government, other donors, private sector, etc.)
  - Counterpart organization(s)

### **III. Project assessment**

This is the key chapter of the report and should address all evaluation criteria and questions outlined in the TOR (see section VI Project Evaluation Parameters). Assessment must be based on factual evidence collected and analyzed from different sources. The evaluators' assessment can be broken into the following sections:

A. Project design

B. Implementation performance

- Ownership and relevance (Report on the relevance of project vis-à-vis the country and project beneficiaries, country ownership, stakeholder involvement)

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<sup>18</sup> Explicit and implicit assumptions in the logical framework of the project can provide insights into key-issues of concern (e.g. relevant legislation, enforcement capacities, government initiatives, etc.)

- Effectiveness (The extent to which the development intervention’s objectives, outcomes and deliverables were achieved, or are expected to be achieved, taking into account their relative importance)
- Efficiency (Report on the overall cost-benefit of the project and partner country’s contribution to the achievement of project objectives)
- Likelihood of sustainability of project outcomes (Report on the risks and vulnerability of the project, considering the likely effects of sociopolitical and institutional changes in the partner country, and its impact on continuation of benefits after the project ends, specifically the financial, sociopolitical, institutional framework and governance, and environmental risks)
- Project coordination and management (Report project management conditions and achievements, and partner country’s commitment)
- Assessment of monitoring and evaluation systems (Report on M&E design, M&E plan implementation, and budgeting and funding for M&E activities)
- Monitoring of long-term changes
- Assessment of processes affecting achievement of project results (Report on preparation and readiness / quality at entry, financial planning, UNIDO support, co-financing, delays of project outcomes/outputs, and implementation approach)

#### C. Gender mainstreaming

At the end of this chapter, an overall project achievement rating should be developed as required in Annex 2. The overall rating table should be presented here.

### IV. Conclusions, recommendations and lessons learned

This chapter can be divided into three sections:

#### A. Conclusions

This section should include a storyline of the main evaluation conclusions related to the project’s achievements and shortfalls. It is important to avoid providing a summary based on each and every evaluation criterion. The main conclusions should be cross-referenced to relevant sections of the evaluation report.

#### B. Recommendations

This section should be succinct and contain few key recommendations. They should:

- be based on evaluation findings
- be realistic and feasible within a project context
- indicate institution(s) responsible for implementation (addressed to a specific officer, group or entity who can act on it) and have a proposed timeline for implementation if possible
- be commensurate with the available capacities of project team and partners
- take resource requirements into account.

Recommendations should be structured by addressees:

- UNIDO
- Government and/or Counterpart Organizations
- Donor

### **C. Lessons learned**

- Lessons learned must be of wider applicability beyond the evaluated project but must be based on findings and conclusions of the evaluation
- For each lesson, the context from which they are derived should be briefly stated

**Annexes** should include the evaluation TOR, list of interviewees, documents reviewed, a summary of project identification and financial data, including an updated table of expenditures to date, and other detailed quantitative information. Dissident views or management responses to the evaluation findings may later be appended in an annex.

## Annex 5: Checklist on evaluation report quality

Project title:

UNIDO project ID:

Evaluation team:

Quality review done by:

Date:

Report quality criteria	UNIDO IED assessment notes	Rating
<b>a.</b> Was the report well-structured and properly written? (Clear language, correct grammar, clear and logical structure)		
<b>b.</b> Was the evaluation objective clearly stated and the methodology appropriately defined?		
<b>c.</b> Did the report present an assessment of relevant outcomes and achievement of project objectives?		
<b>d.</b> Was the report consistent with the ToR and was the evidence complete and convincing?		
<b>e.</b> Did the report present a sound assessment of sustainability of outcomes or did it explain why this is not (yet) possible? (Including assessment of assumptions, risks and impact drivers)		
<b>f.</b> Did the evidence presented support the lessons and recommendations? Are these directly based on findings?		
<b>g.</b> Did the report include the actual project costs (total, per activity, per source)?		
<b>h.</b> Did the report include an assessment of the quality of both the M&E plan at entry and the system used during the implementation? Was the M&E sufficiently budgeted for during preparation and properly funded during implementation?		
<b>i.</b> Quality of the lessons: were lessons readily applicable in other contexts? Did they suggest prescriptive action?		
<b>j.</b> Quality of the recommendations: did recommendations specify the actions necessary to correct existing conditions or improve operations ('who?' 'what?' 'where?' 'when?'). Can these be immediately implemented with current resources?		
<b>k.</b> Are the main cross-cutting issues, such as gender, human rights and environment, appropriately covered?		
<b>l.</b> Was the report delivered in a timely manner? (Observance of deadlines)		

### Rating system for quality of evaluation reports

A rating scale of 1-6 is used for each criterion: Highly satisfactory = 6, Satisfactory = 5, Moderately satisfactory = 4, Moderately unsatisfactory = 3, Unsatisfactory = 2, Highly unsatisfactory = 1, and unable to assess = 0.

## **Annex 6: Guidance on integrating gender in evaluations of UNIDO projects and programmes**

### **A. Introduction**

Gender equality is internationally recognized as a goal of development and is fundamental to sustainable growth and poverty reduction. The UNIDO Policy on gender equality and the empowerment of women and its addendum, issued respectively in April 2009 and May 2010 (UNIDO/DGB(M).110 and UNIDO/DGB(M).110/Add.1), provides the overall guidelines for establishing a gender mainstreaming strategy and action plans to guide the process of addressing gender issues in the Organization's industrial development interventions.

According to the UNIDO Policy on gender equality and the empowerment of women:

Gender equality refers to the equal rights, responsibilities and opportunities of women and men and girls and boys. Equality does not suggest that women and men become 'the same' but that women's and men's rights, responsibilities and opportunities do not depend on whether they are born male or female. Gender equality implies that the interests, needs and priorities of both women and men are taken into consideration, recognizing the diversity of different groups of women and men. It is therefore not a 'women's issues'. On the contrary, it concerns and should fully engage both men and women and is a precondition for, and an indicator of sustainable people-centered development.

Empowerment of women signifies women gaining power and control over their own lives. It involves awareness-raising, building of self-confidence, expansion of choices, increased access to and control over resources and actions to transform the structures and institutions which reinforce and perpetuate gender discriminations and inequality.

Gender parity signifies equal numbers of men and women at all levels of an institution or organization, particularly at senior and decision-making levels.

The UNIDO projects/projects can be divided into two categories: 1) those where promotion of gender equality is one of the key aspects of the project/project; and 2) those where there is limited or no attempted integration of gender. Evaluation managers/evaluators should select relevant questions depending on the type of interventions.

### **B. Gender responsive evaluation questions**

The questions below will help evaluation managers/evaluators to mainstream gender issues in their evaluations.

#### **B.1. Design**

- Is the project/project in line with the UNIDO and national policies on gender equality and the empowerment of women?
- Were gender issues identified at the design stage?
- Did the project/project design adequately consider the gender dimensions in its interventions? If so, how?
- Were adequate resources (e.g., funds, staff time, methodology, experts) allocated to address gender concerns?
- To what extent were the needs and priorities of women, girls, boys and men reflected in the design?
- Was a gender analysis included in a baseline study or needs assessment (if any)?
- If the project/project is people-centered, were target beneficiaries clearly identified and disaggregated by sex, age, race, ethnicity and socio-economic group?

- If the project/project promotes gender equality and/or women's empowerment, was gender equality reflected in its objective/s? To what extent are output/outcome indicators gender disaggregated?

## **B.2. Implementation management**

- Did project monitoring and self-evaluation collect and analyze gender disaggregated data?
- Were decisions and recommendations based on the analyses? If so, how?
- Were gender concerns reflected in the criteria to select beneficiaries? If so, how?
- How gender-balanced was the composition of the project management team, the Steering Committee, experts and consultants and the beneficiaries?
- If the project/project promotes gender equality and/or women's empowerment, did the project/project monitor, assess and report on its gender related objective/s?

## **B.3. Results**

- Have women and men benefited equally from the project's interventions? Do the results affect women and men differently? If so, why and how? How are the results likely to affect gender relations (e.g., division of labour, decision making authority)?
- In the case of a project/project with gender related objective/s, to what extent has the project/project achieved the objective/s? To what extent has the project/project reduced gender disparities and enhanced women's empowerment?

## Annex II: List of stakeholders, partners and investment beneficiaries interviewed

Institution	Name	Title
NEA	- Mr Momodou J Suwareh - Mr Bafoday Sanyang - Mr Abubacarr Kujabi	- Executive Director - P.O Ozone - A.P.O Ozone
GTTI	- Mrs Jahou S Fall - Mr Momodou Mendy - Mr Momodou Drammeh	- Director General - Section Head: RAC - Head: Engineering Department
GRA	- Mr Alieu Ceesay - Mr Alhaji Cham	- Commissioner: Customs - RAC Technician
Rosamond Trading	- Mrs Sainabou Ngum - Mr Makiyu Ngum	- Executive Director - Manager
GAMCEL/GAMTEL	- Mr Dodou Njie	- RAC Senior Manager
QCell	- Technical staff	- Technical staff
LG	- Mr Jean Pierre Diatta - Mr Foday Camara	- Senior Manager - RAC Technician
Gambega	- Mr Eugene A Allen - Mr Peter Onwacka - Mr Charles Mendy	- General Manager - Technical Manager - RAC Technician
Djembeh Hotel	- Mr Malleh Sallah - Mr Abubacarr Niwaga - Mr Yusupha Jammeh	- General Manager - Operations Manager - RAC Technician
Eid's Ice Plant	- Roger Eid	- Owner and RAC Expert
Dominic Technical Workshop	- Mr Alhagie Malick Gaye	- Owner and RAC Technician
Kanifing Municipality Central Workshop: KMC GRACSS Members	- Mr Kawsu Badjie	- GRACSS Public Relations Officer, GTTI Lecturer & RAC Technician

Institution	Name	Title
	- Mr Lamin Touray - Mr Francis Sambou	- RAC Technician and Workshop Owner - RAC Technician
Sanyang Enterprise	- Mr Momodou L Sanyang	- RAC Technician & Workshop Owner
GCAA	- Mr Malang Touray - Mr Momodou John - Mr Pa Sanna Tamba	- Director of Engineering & Maintenance - Assistant Electrical Engineer & RAC Technician - Assistant Electrical Engineer & RAC Technician
Brikama Ice Plant	- Mr Jarga Ceesay - Mr Alagie Jallow	- RAC Technician - RAC Technician
Farafenni Central Workshop: NBR GRACSS Members	- Mr Tapha Sowe - Mr Musa Jallow - Mr Ablie Jah	- GRACSS President & RAC Technician - GRACSS Vice President & RAC Technician - RAC Technician & Main Hospital Employee
Bansang Central Workshop: CRR GRACSS Members	- Mr Omar Dem - Mr Ousman Dibba - Mr Kebba Dibba	- GRACSS President & RAC Technician - RAC Technician - RAC Technician
Basse Central Workshop: URR-GRACSS	- Mr Goddey Ahiante - Mr Amad Tijan Bah	- RAC Technician & Workshop Owner - RAC Technician & Workshop Owner
Pakalinding/Soma Central Workshop: LRR GRACSS	- Mr Lamin NM Jammeh - Mr Amat Nyass - Mr Chernobah	- National President / LRR GRACSS President and Workshop Owner - GRACSS Advisor, RAC Technician - GRACSS Co-Advisor, RAC Technician
NEA Regional Office:	- NEA Inspector	- NEA Inspector
GTTI Annex: Mansakonko	- Mr Momodou Drammeh - Mr Momodou Mendy	- Head: Engineering Department - Section Head: RAC

### Annex III: Project financial overview as on 24 November 2017

Grant	UNIDO Budget Line		PAD value	Total expenditure	Disbursement	To be disbursed	Funds available
UNIDO in USD	11	Staff & Intern Consultants		23,833			
	15	Local travel		5,550			
	16	Staff Travel		4,628			
	17	Nat.Consult./Staff		-			
	21	Contractual Services		-			
	30	Train/Fellowship/Study		-			
	35	International Meetings		-			
	45	Equipment		-			
	51	Other Direct Costs		-			
		Total	49,182	34,011			USD15,170.83
GEF	11	Staff & Intern Consultants		59,310			
	15	Local travel		43,654			
	16	Staff Travel		-			
	17	Nat.Consult./Staff		1,226			
	21	<b>Contractual Services*</b>					
		<b>Contract with GTTI (allocation per year)</b>		<b>153,125</b>	<b>81,125</b>	<b>72,000</b>	
		<b>Contract with Centro Studi Galileo (allocation per year)</b>		<b>149,073</b>	<b>135,000</b>	<b>14,073</b>	
		<b>Other contracts</b>					
	30	Train/Fellowship/Study		9,167			
	35	International Meetings		2,174			
	45	Equipment		58,560			
	51	Other Direct Costs		4,487			
		Total	495,000	480,775			USD14,225.00

## Annex IV List of key documents reviewed

### 1. Project document

### 2. Subcontracts

Contracts and progress reports from GTTI  
Contracts and progress and final reports from Centro Studi Galileo

### 3. Technical Working Groups

Minutes of the Technical Working Group on policy analysis 21-10-2015  
Minutes of the Technical Working Group on recommendations of policy analysis  
Minutes of the Technical Working Groups on GTTI

### 4. Global Fora

Reports and other documents on the participation of the project stakeholders on global fora

### 5. International Expert's Reports

Policy Gap Analysis Report  
Awareness Raising Report  
Report on financial mechanisms

### 6. National Expert

Report on the review of the policy gap analysis - recommendations for amendments of the regulatory requirements of HFC and HCFC

### 7. Equipment

Technical specifications on refrigerants, tools and uniforms used in the project

### 8. PIR

Yearly Project Implementation Reports from UNIDO to GEF

### 9. Financial Reports

UNIDO's Financial reports of the project