

## Executive summary

This document presents the findings of the **final Evaluation and Learning Exercise (ELE) of the Colombia Domestic Refrigeration project**. The ELE was undertaken during the period January - March 2024. In accordance with its Terms of Reference, the ELE sought to address the following questions:

- Has the project achieved its planned results?
- Has the project started to trigger transformational change?
- What can be learnt from the project?

More information about the focus of this ELE and the methodology followed can be found in Section 1 and Section 2, respectively. The rest of the executive summary provides the highlights of the ELE's findings and key lessons. Please refer to Sections 3 and 4 for the detailed findings and conclusions and Section 5 for the full lessons and recommendations. A mid-term ELE of the project was conducted in 2021 and can be found on the Mitigation Action Facility website or by clicking [here](#).

At the time of the preparation of the Project Proposal in 2014, Colombia's domestic refrigeration sector's greenhouse gas (GHG) emissions were estimated to be around 5.5 Mt CO<sub>2eq</sub> a year and were expected to double by 2030. According to the Project Proposal, the Colombian Government identified a GHG reduction potential of over 50% for this sector to be achieved through energy-efficiency measures, changes to the refrigerant agent and appropriate End-of-Life (EoL) disposal of older refrigerators. Based on these figures, the Colombian Government submitted a proposal to the Mitigation Action Facility for a Colombia Domestic Refrigeration project. The project aimed to develop and implement regulations, provide training to domestic refrigerator manufacturers, servicing and disposal staff, conduct technical studies, and provide equipment for three lines of transformation: (i) replacement of refrigerant agents, (ii) improvement of energy efficiency, and (iii) appropriate and financially sustainable disposal of refrigerators at their end of life. The project also included financial support in the form of loans and incentives to encourage investments by manufacturers or Waste of Electric and Electronic Equipment (WEEE) disposal organisations. Additionally, some incentives were offered to consumers or retailers to encourage the substitution of old and less efficient refrigerators for new ones that are more energy-efficient and use an ozone and climate-friendly refrigerant agent.

As of the final ELE, the Colombia Domestic Refrigeration project was expected to be executed between April 2017 and June 2024 and consisted of a EUR 3.4 million Technical Cooperation (TC) Component and a EUR 5.6 million Financial Cooperation (FC) Component. The *Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH* is in charge of the execution of both components, although Bancoldex, the Colombian Government's industrial development bank, is supporting the execution of the FC Component.

**The project was very successful in achieving the intermediate outcome related to the transformation of Colombia's refrigerator producers and their portfolios to "green refrigerators", which combined the R-600a refrigerant with energy efficiency improvements.** Thanks to this transformation, most of the refrigerators on sale in Colombia can be classified as "green refrigerators" (i.e. using the R-600a refrigerant and adhering to energy efficiency classes A or B), placing the country on a path for the complete transformation of the domestic refrigeration sector.

**However, the project has struggled to get a refrigerator substitution or trade-in scheme to work and, due to the difficulty in creating and consolidating a stable supply of old refrigerators, to establish clear and sustainable EoL processing and disposal of those old refrigerators.** Problems with these two intermediate outcomes may affect the times and scale of the project's benefits, with the substitution process having a much slower speed than expected and many old fridges not being subjected to appropriate EoL processing and disposal.

**From the evidence collected and the analysis carried out by the ELE team, the difficulties with the substitution component derive from problems with the customer and retailer behaviour assumptions upon which the project was created.** The project expected that a small incentive would be enough to get consumers to update their old fridge to a new one and that retailers would find it convenient to support a substitution effort. The evidence collected during the mid-term and final ELEs suggests consumers need more substantial incentives to replace their working fridges with new ones. It also suggests that many retailers will avoid supporting the substitution scheme as it implies higher administrative and logistics costs, with similar or less profit for them. The retailers who made the most significant contributions to the project's results were the ones who were able to combine incentives from multiple schemes, increase their marketing efforts, form partnerships with utility companies or local governments, and provide micro-credit to their clients.

**The delays in the substitution effort have caused issues with the WEEE final disposal workstream.** The substitution was considered a prerequisite for this component as it would ensure the flow of old refrigerators on which the WEEE disposal organisations would depend for growth and investment.

**An even more significant issue with this component is the lack of working groups bringing together all the different stakeholders of this project to address the challenges of refrigerator trade-in and WEEE disposal towards creating a circular economy around appliances.** The project included a steering committee and several technical committees. Interviewees noted that the steering committee mainly followed up on activities rather than providing coordination or guidance, while the technical committees focused on specific topics. The ELE evidence indicates that these groups did not effectively serve as cross-stakeholder collaboration bodies. As discussed in the report, the absence of true multi-stakeholder working groups made it harder to communicate or address the challenges and barriers related to product substitution and WEEE disposal outcomes during the project.

**The project received support mainly from the Ministry of Environment and Sustainable Development's Ozone Technical Unit.** This support was adequate for carrying out the technical tasks of the project. However, **the lack of higher-level support made it difficult to establish and manage the groups necessary for implementing the FC Component and its incentives.** Additionally, it was challenging to create and strengthen the working groups that are crucial for a multisector and multistakeholder approach to (i) ensure the coordination and collaboration needed across sectors to increase the speed and effectiveness of the substitution effort and (ii) create appropriate conditions for a WEEE disposal effort that contributes to circular economy rather than to final disposal.

**The ELE made inquiries about the Gender Equality and Social Inclusion challenges and progress for the domestic refrigeration sector, even though the project had no specific targets in this regard.** No quantitative data was collected in this regard under the umbrella of the project, but most interviewees coincided in that, on the one hand, most of the project's beneficiaries were women heads of families and, on the other, there is large participation of women in administrative, financial, commercial, and

other more “skilled” jobs. Participation in production or other more physically demanding jobs is increasing as these are mechanised and automated, and the physical strain is reduced. According to interviewees from the refrigeration production, retail and WEEE disposal activities, the reason why women are not considered for physically demanding jobs is not due to their lack of ability. Rather, it is because some companies have had experiences where women would get bored or tired quickly of these types of jobs and subsequently quit. This would force the companies to find and train new workers, incurring additional selection, onboarding and training efforts.

**In conclusion, for the ELE team, it is undeniable that Colombia entered a path of transformation of the sector** after domestic refrigerator producers and importers adjusted their portfolios to sell only green refrigerators. **However, the substitution programme and the WEEE disposal effort are still facing important hurdles that may lead to longer than expected times for the sector transformation or to losing some of the GHG savings from WEEE disposal** after the old refrigerators end up in the hands of informal technicians or disposal operations, which do not follow appropriate procedures, venting gases into the atmosphere.

The main recommendations arising from this ELE are:

*Recommendations to the project partners for sustaining the project's legacy*

1. Conduct a comprehensive review of the incentives and mechanisms used to increase the number of refrigerators taken to WEEE disposal facilities for appropriate processing. This review should consider feedback and lessons learned from this and other projects and propose new incentives and actions to improve the potential for success of the programme.
2. Working, discussion, or steering groups need to be created and consolidated from the project's multiple stakeholders to successfully pursue and achieve the substitution and WEEE disposal goals. Substitution targets will not be achieved if consumer and retail behaviours are not changed through effective incentives, and coordination and collaboration efforts. Adequate WEEE disposal targets will not be met if formal WEEE disposal organisations are not able to create and consolidate a financially viable and sustainable business model (underpinned by circular economies of refrigerator materials and components), thereby maintaining the traditional practice of old fridges being processed and disposed of informally or, alternatively, being resold and remain in use for many additional years.
3. High-level policy- or decision-makers (Minister or Viceminister level) need to be involved in these working groups to ensure that activities are delivered appropriately and on time within each of the participating sectors.

*Recommendations to the Mitigation Action Facility for the review, approval, and management of future interventions*

1. The Mitigation Action Facility should create a specialised section within its Knowledge & Learning Hub to share lessons from its projects and other general advice on how to design and manage mechanisms or incentives for large and diverse groups like micro or small enterprises or private consumers.
2. To improve project risk management, it is suggested that projects establish checkpoints or milestones associated with intermediate outcomes and final outcomes beyond the traditional

"outputs." This will help the Mitigation Action Facility and the project team better understand the likelihood of the project achieving its outcomes and impact.

3. Implement regular in-country visits as a means to raise and maintain high-level officials' awareness of and commitment to Mitigation Action Facility projects.