GreenChillers

Development of a NAMA for Energy-Efficient Cooling Systems and Cold Supply in Indonesian Industry and Commerce

Background

In Indonesia, the usage of cooling – such as refrigeration and air conditioning (RAC) – increases by 15% per year in the industrial, commercial, and private sectors. The use of inefficient appliances with outdated technology is common in these sectors. They are not only energy inefficient, but also operate with refrigerants that harm the climate and the ozone layer. It is estimated that energy consumption from commercial and industrial RAC systems in Indonesia can be reduced by 15-30% through the implementation of modern technologies. Moreover, direct emissions coming from leakage of refrigerants account for approximately 2 to 3 million tons of CO_2 equivalent per year.

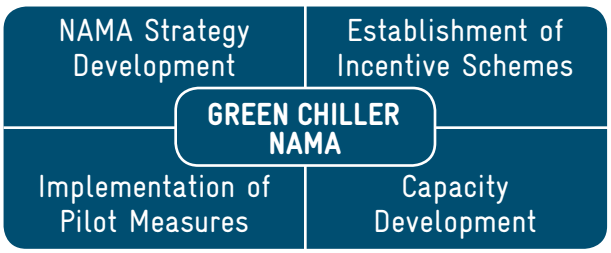
Energy consumption and greenhouse gas (GHG) emissions from the RAC sector are hardly considered at the planning level. This persists despite the availability of modern green cooling technologies, which consume less energy and use natural, climate- and ozone-friendly refrigerants. These green cooling technologies are neglected for several reasons. For example, there is a lack of technical expertise and knowledge in the area. Furthermore, there are no local manufacturers and only little demand for these products. The implementation of green cooling technology bears opportunities to further support energy security and decouple emissions from economic growth. Thus, green technologies support Indonesia's ambitious GHG emissions reduction targets of 26% (through national policies) or even 41% (with bilateral support) by 2020.

Objective

The project aims to establish a Nationally Appropriate Mitigation Action (NAMA) for industrial and commercial refrigeration and air-conditioning systems, thereby making a significant contribution to meeting Indonesia's GHG emissions reduction targets.
To achieve this, the project will assist the government of Indonesia in establishing appropriate incentive mechanisms for the implementation of efficient RAC technology in selected areas. The introduction of green cooling technologies in pilot projects in combination with comprehensive capacity building measures will create best practice examples and influence the entire RAC sector.

Main Activities

Activities within the project can be divided into four focus areas, which complement each other towards achieving the project objective. All activities are carried out in close cooperation and agreement with local interest groups and main stakeholders to ensure acceptability and participation.



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➢ NAMA Strategy Development

A sector-specific NAMA initiative is designed in agreement with the main stakeholders and is embedded in Indonesia's national NAMA strategy (RAN-GRK).

- Development, modification, and testing of methods and instruments to provide coherent information on inventory, projections, and reduction potentials
- Definition of the GHG baseline in the RAC sector with business-as-usual (BAU) scenarios
- Design and establishment of a Monitoring, Reporting, and Verification (MRV) system that is synchronized with the governmental Monitoring and Evaluation (MONEV) system
- Documentation of agreed NAMA approach, providing decision-makers with suggestions for interventions

➢ Establishment of incentive schemes

Policy-makers are informed about options for promoting emissions reductions through NAMAs and for creating incentives and stimulating funding for efficient refrigeration air-conditioning technologies.

- Regular consultations, exchange of experience, and various trainings in ministries, public authorities, and selected industry associations
- Design of specific industry standards for at least five typical applications
- Developing and testing policy approaches, promotional instruments, and incentive mechanisms for the private sector with the aim of introducing one promotion mechanism within the duration of the project
- Development of a financing strategy and a profitability analysis for the commercial and industrial use of refrigeration and air-conditioning

➢ Implementation of pilot measures

Exemplary reduction measures are implemented, partially in the context of technology cooperation schemes, to promote the introduction of new, more energy-efficient technologies. Experience from the pilot measures are taken as input for the development of the NAMA strategy.

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- Assessment of the energy requirement of refrigeration and air-conditioning systems at enterprise level
- Systematic studies for at least five typical applications of RAC technologies to serve as basis for decision-making on technology scenarios and pilot measures
- Design of at least five (preferably halogen-free) technology scenarios for the use of energy-efficient, climate-friendly alternatives in the selected applications
- Selection and planning of up to ten pilot measures that optimise energy efficiency and guarantee financing of incremental costs
- Documentation of energy consumption data from the pilot measures for at least one year and appropriate comparison thereof with systems of lower efficiency

➢ Capacity Building

Training schemes that cover the proper planning, execution, and maintenance of innovative cooling systems are established. Relevant information is disseminated in the region through an information platform. These activities shall support implementation of the sector-specific NAMA and ensure that a holistic consideration of energy efficiency is incorporated in training institutions.

- Identification of training needs and creation of suitable training materials
- Training courses in close cooperation with manufacturers, industry associations, and scientific institutions – specifically for 30 auditors, 30 planners, and 100 technicians
- Establishment of a RAC information platform
- Exchange of expertise as well as educational excursions

Impact and Upscaling

The adoption of sustainable technology in the RAC sector will induce spillover effects and possibly lead to sustainable practices and products in other sectors. The initiation and establishment of a NAMA specific for the RAC sector will also demonstrate that green cooling can be integrated into national strategies for sustainable development. Furthermore, the project raises awareness on mitigation potentials in the RAC sector. This will ultimately strengthen the role of green cooling in the international climate change regime.

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