

**MOP 31** | MONTREAL PROTOCOL  
ROMA 2019

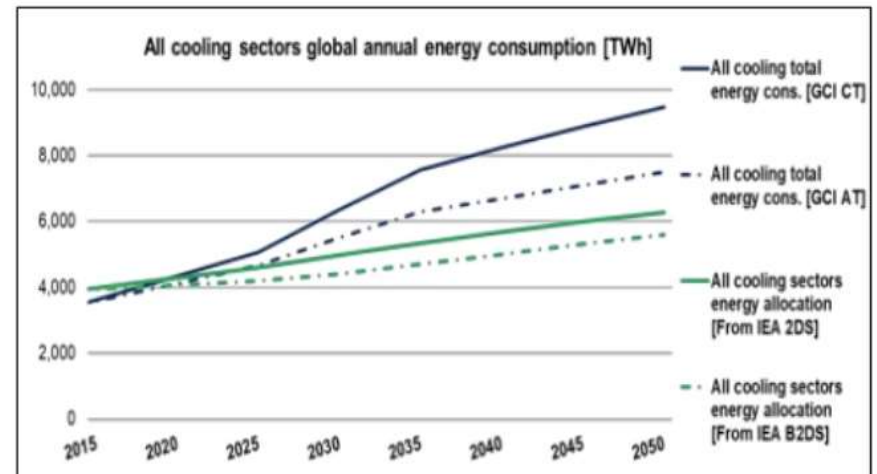
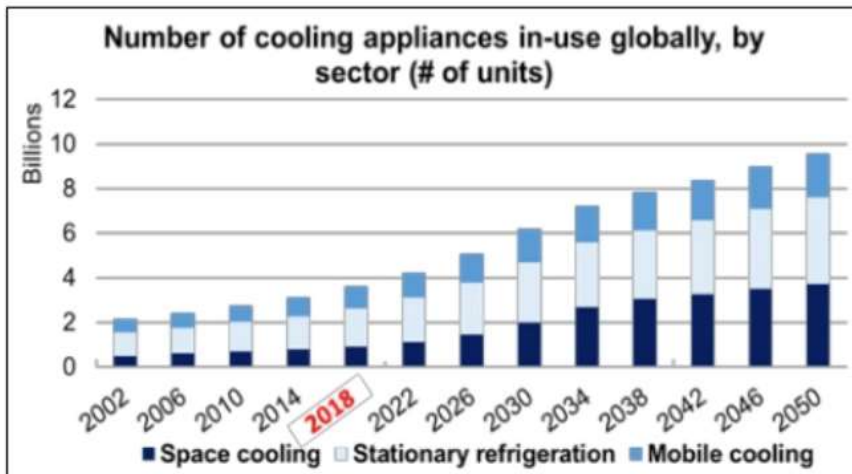


SERVICING INDUSTRY IN AFRICA  
AND IN OTHER DEVELOPING  
COUNTRIES

Tuesday, 5 November 2019 | 18:00 - 20:00 | Iran room

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- **19 pieces of cooling equipment added per second for next 30 years.**
- Energy consumption grows to 9,500 TWh by 2050.
- Exceeds IEA's implied "energy budget" for cooling in its 2°C Scenario by more than 50%.
- Projected that 80% of the RAC market will be located in developing countries by 2030.





# THE GAMBIA: 'SUPER TECHNICIANS' TRAINING AND INSTALLATION OF 200 ENERGY-EFFICIENT R290 ACs



UNITED NATIONS  
INDUSTRIAL DEVELOPMENT ORGANIZATION

Ms Franziska Menten  
Project Coordinator  
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## Demo project – The Gambia, Refr & ACs

- Promote the demonstration, deployment, and transfer of innovative low-carbon technologies to increase energy efficiency of AC/refrigeration systems, while minimizing the discharge of chemicals damaging to the ozone layer
- Combination of technical assistance on policy and regulation, technology transfer, capacity building and awareness-raising.
- 200 new technology units (R290 Split AC systems) and upgrade of 2 industrial refrigeration facilities.
- 20 public and private local organizations benefitting from this, ensure a good basis for the intended behavioural change.





Region	West Africa
Country	The Gambia
Technology Types	R290 split room air conditioners & Energy optimization in existing industrial refrigeration system
Sector Type	RAC & industrial refrigeration
Results	EE improvements of 15-20% and installation of 200 units in hospitals, schools and private sector completed
Project Amount	\$495,000
Donor	GEF





The most important for the success of the project...





## 6 steps to efficient cooling:

1. Choice of refrigerant (can typically influence efficiency by 5-10%)
2. Equipment design and selection of components
3. **Proper installation** (e.g. practices, location)
4. **Proper and regular maintenance operations** (charge, cleaning of coil and filters)
5. Reducing cooling load
6. Efficient building/construction models



**Hydrocarbons in Small  
A/C Applications  
Installation Guidelines**





# Some best practice examples:

- ★ Train-the-Trainers schemes to establish a cascading system of highest qualified senior technicians to train medium and junior level staff
- ★ Smartphone applications for technicians for on-site handling of flammable, toxic refrigerants
- ★ Technology exhibitions and pilot conversions: use policy and technology capacity for a faster adoption of alternative refrigerant technology in real-life applications
- ★ Study tours to neighbouring countries, case study sites, training institutes and exhibitions in other countries
- ★ E-learning courses in national language, such as “REAL Alternatives” scheme in 13 working languages (EU-funded project with open access)
- ★ “Refrigerants Driver’s License”: globally recognized minimum qualification scheme for sound refrigerant management
- ★ Technology exhibitions and pilot conversions: use policy and technology capacity for a faster adoption of alternative refrigerant technology in real-life applications
- ★ Universal RAC training kit with pre- and post-assessment of training and checklists, minimum teacher qualification and equipment, venue requirements for theoretical and practical training, text books, manuals, etc.
- ★ “Refrigerant Literacy Course”: for non-technical people, such as NOUs, energy efficiency or climate change-related personnel to interact with technical staff
- ★ Use of labels with pictograms on RAC equipment and cylinders to involve illiterate technicians



*Thank you!*

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