



Shamila Nair-Bedouelle (PhD, HDR)  
Head of OzonAction - Montreal Protocol  
UN Environment, Economy Division



Celebrating 10 years of partnering for  
**Responsible Use of Refrigerants**

29<sup>th</sup> Meeting of Parties, Montreal – Nov 2017



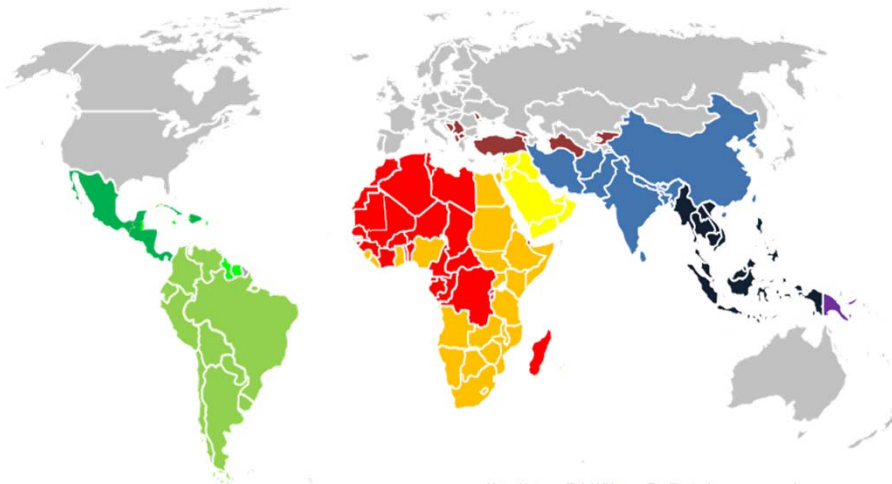
## Why ASHRAE & UN Environment OzonAction ?

1. Strategic and geographical presence
2. Together means combined access to governments and industry



**9 Regional Networks of National Ozone Officers**  
**147 developing countries**

**180 Chapters & 55,000+ members**  
**in 139 countries**



Note: Not an official UN map. For illustrative purposes only.

# Why Responsible Use of Refrigerants?



## ASHRAE & UN Environment OzonAction Cooperation; Background

1. Cooperation agreement signed in 2007
2. Why ASHRAE; ability to bring key industry experts under one roof, global reliance and acceptance of references and activities plus its presence in different countries regions
3. Many joint events and conferences jointly organized with ASHRAE
4. Biennial work-plans established since 2009 (2009-2010, 2011-2012, 2013-2014 and 2014&2015)
5. **New Work Plan for 2017-2018 launched at ASHRAE Winter Conference (Jan 2017)**

# ASHRAE – UN Environment 2017-2018 Work Plan

## ASHRAE-UNEP 2017-2018 Work Plan

# Working Beyond High-GWP Refrigerants

### What's different in the new work plan?

- Thematically oriented to one main goal to offer more focus in delivery
- Product based work plan i.e. no broad goals or action items
- Covers wide spectrum of beneficiaries within the main goal of the work plan
- Offer products and services that are not available in the field
- Include appropriate visibility for ASHRAE-UNEP cooperation through incorporating the outreach dimension in all goals and activities
- Ensure involvement and engagement of governments and ASHRAE teams around the globe

## 2017-2018 Main Theme

# Working Beyond High-GWP Refrigerants

### Main Goals

### Actions

#### Advocacy and Knowledge Sharing

- Global Conferences and Events
- Refrigerants Awareness Package
- Low- GWP Innovation Award Program

#### Training, Education and Practice

- Online Training Program on Refrigerants
- Contemporary Learning Tools for Universities
- Assessment Program for RAC Installations

## Under the new work plan; **Quick and Visible delivery**

### **Example from 2017 only...**

- **Cooperation at three international conferences:**
  - Sustainable RAC Technologies for Marine & Fisheries Sectors (Bangkok)
  - District Energy for Urban Development (Sharm El-Sheikh)
  - Developing Economies (Delhi)
  
- **Two Online Courses**
  - Refrigerants Literacy ( launched at OEWG-2017)
  - 2<sup>nd</sup> Course will be presented at MOP and launched early 2018
  
- **Two International programs initiated**
  - Sustainable O&M for RAC Installations
  - Global campaign to promote UN Environment University Course





# Join us today

To go through ASHRAE-  
OzonAction initiatives  
and products towards

Responsible  
Use of  
Refrigerants



UN ENVIRONMENT CONVENES THE FIRST INTERNATIONAL CONFERENCE ON SUSTAINABLE MARINE AND FISHERIES REFRIGERATION TECHNOLOGIES FOR OZONE AND CLIMATE PROTECTION



FACTSHEET 1

## Update on New Refrigerants Designations and Safety Classifications



The purpose of this fact sheet is to provide an update on ASHRAE standards for refrigerants and to introduce the new refrigerants that have been awarded an «R» number over the last few years and introduced into the international market.

### Standard 34

ASHRAE Standard 34, *Designation and Safety Classification of Refrigerants*, establishes a simple means of referring to common refrigerants rather than by their chemical name, formula, or trade name. ASHRAE assigns numbers and safety classification to the refrigerants based on toxicity and flammability data submitted by the refrigerant's producer. For

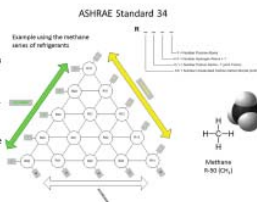
pure compounds, the numbers are based on chemical formula. For blends, numbers are assigned sequentially based on the completion of a satisfactory review of data provided by the refrigerant's producer. Information is available in the current edition of ANSI/ASHRAE Standard 34-2013.

### ASHRAE's Numbering System

Refrigerants are numbered with an R-, followed by the ASHRAE-assigned number.

Isomers (molecule with the same chemical formula as another molecule but with a different chemical structure) are identified with a lower case letter after the number (for example, R-134a). Refrigerant blends having the same pure components but with different compositions are identified with an upper case letter after the number (for example, R-401A and R-401B).

Refrigerants having the form R-xxxx are zeotropic (blends of two or more refrigerants whose liquid phase and vapor phase always have different composition), while those with the form R-Sxxx are azeotropes (blends of refrigerants whose liquid phase and vapor phase have the same compositions at a specific pressure).



# eLearning

## REFRIGERANTS LITERACY