











EUROPE AND CENTRAL ASIA (ECA) OZONE2CLIMATE MEETING WITH MONTREAL PROTOCOL OFFICERS AND RAC ASSOCIATIONS / EXPERTS AND PARTICIPATION IN SMEITS / KGH'S 50TH INTERNATIONAL HVAC&R CONGRESS AND EXHIBITION IN BELGRADE, SERBIA, 4-6 DECEMBER 2019

#### **INFORMATION NOTE**

#### Introduction

This meeting has been organized by the Regional Montreal Protocol Network for Europe and Central Asia (ECA network) of UNEP Law Division's OzonAction Programme in cooperation with Ministry of Environmental Protection of Serbia, the national HVAC&R Association SMEITS / KGH and UNDP Serbia.

It is part of the regional network services which OzonAction's Compliance Assistance Programme (CAP) provides to Article 5 (developing) countries as an implementing agency of the Multilateral Fund for the Implementation of the Montreal Protocol.

The meeting took place in parallel with the 50th International HVAC&R Congress and Exhibition organized by SMEITS / KGH taking place in Belgrade, Serbia, 4-6 December 2019. This allowed representatives of the national RAC associations / RAC experts to participate in selected sessions of the conference and learn about latest technology developments in industrial, commercial and domestic refrigeration and air-conditioning, safety.

In the past, similar approaches to arrange ECA meetings in parallel to international conferences proved to be successful and cost-efficient and exposed the RAC experts to latest technology developments:

- 13<sup>th</sup> IIR Gustav Lorentzen Conference on Natural Refrigerants taking place in Valencia, Spain, in June 2018
- 7th IIR Conference on Ammonia and Carbon Dioxide Technologies in Ohrid, Macedonia FYR, in May 2017.
- 47th International KGH Congress and Exhibition on Heating, Refrigeration and Airconditioning in Belgrade, Serbia, in November 2016.



The ECA network has longstanding cooperation with Serbia's national refrigeration and air-conditioning (RAC) association SMEITS / KGH and has organized technology roundtables and exhibition booths as part of Serbia's HCFC phase-out management plan (HPMP) at the SMEITS / KGH congresses since 2011.

In 2019, it is the 50th International HVAC&R Congress and Exhibition organized by SMEITS / KGH and UNEP has been selected to be awarded for the longstanding support and cooperation provided. The congress website is: http://kgh-kongres.rs/index.php/en/.

This event was therefore a welcome opportunity to allow Montreal Protocol officers and representatives of RAC associations / experts from the ECA region to participate in the International HVAC&R Congress and Exhibition organized by SMEITS / KGH and the technology roundtable organized by ECA OzonAction.

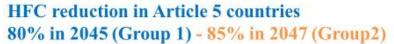


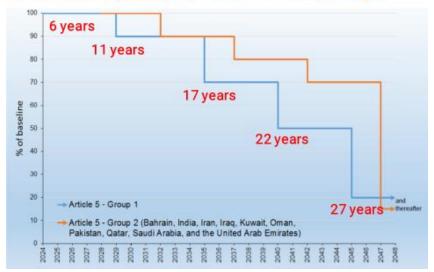
## **Background**

The meeting took place in the context of the Kigali Amendment, which has been agreed by the parties to the Montreal Protocol in 2016. It aims to phase-down high global warming hydrofluorocarbons (HFCs) and transforms the Montreal Protocol into a powerful treaty for climate protection. It is expected to significantly contribute to the objectives of the Paris Agreement i.e. reducing the global warming by 0.4 degrees C by 2100.

It entered into force in January 2019 and introduced control measures for HFC production and consumption (baseline, freeze and gradual reduction steps), extended the licensing system requirements and reporting obligations to HFCs and will ensure financial support for developing countries to phase-down high global warming HCFs.

The first control measures for developing countries is the freeze in production and consumption of HFCs at the baseline level in 2024 for group 1 countries. Group 1 countries will achieve a 10% reduction in 2029 and a final reduction of 80% below the baseline in 2045.





As of November 2019, the Kigali Amendment has been ratified by 88 parties including Albania, Armenia and Montenegro. The countries are now focusing on setting up institutional and legal framework to prepare for the HFC phase-down under the Kigali Amendment. This includes the establishment of licensing and quota system for HFCs, enhancing training on the containment of HFCs and the safe use of HFC alternatives including natural refrigerants, adopting safety and performance standards, introducing certification schemes for technicians and log-books for RAC equipment. It also requires closer cooperation with national climate focal points and energy efficiency experts.

## **Outputs and impact**

Meeting participants were acquainted with latest ozoneand climate-friendly technologies and attended the Ozone2Climate technology roundtable which was organized by UNEP and SMEITS / KGH as part of Serbia's HCFC phase-out management plan (awareness component). They discussed recent technology



developments and the relevance of energy-efficiency of RAC equipment for climate protection and the Kigali Amendment implementation. The participants had the opportunity to strengthen their networks with international RAC experts and among Montreal Protocol offers and representatives of RAC associations. It is expected that Montreal Protocol officers are in a better position to take informed decisions when setting policies and developing HCFC phase-out and HFC phase-down strategies. And representatives of RAC associations have in mind clearer roadmaps of necessary RAC sector actions to comply with the Montreal Protocol provisions.

### **Observations and conclusions**



The conference organizer SMEITS KGH provided excellent logistical support in cooperation with UNDP Serbia. The ECA meeting was organized with rather short notice using additional CAP funding. It was attended by all ECA countries except Albania because of the emergency related to the earthquake.

Additional experts included Mirjana Ilijin (UNIDO), Didier Coulomb (IIR), Alex Pachai (Johnson Controls), Kemal Fayraktar (REHVA, TTMD), Vasil Eftimov (RAC expert), Slobodan Peijkovic (SMEITS / KGH) and Tonko Curko (AREA, Croatian RAC association).

Following the presentations by the refrigeration and air-conditioning (RAC) experts on the situation and challenges in the RAC sector / servicing sector in their respective countries, Tonko Curko explained how Croatia, as a former developing country, managed to phase-out HCFC and to comply with the EU F-gas regulation once it had joined the EU. Didier Coulomb informed the participants about recent IIR initiatives and conferences.

Alex Pachai presented the world's first H2O–NH3 heat pump system in Aarhus extracting heat from the harbor water and feeding it into the existing city district heating system. Aarhus is committed to achieve carbon neutrality by 2030 and the installation of the new system is part of the strategy.

Kemal Bayraktar brief participants about the activities of REHVA and the Turkish Society of HVAC and Sanitary Engineers and invited to attend REHVA conferences and exhibitions. Vasil Eftimov informed on the use of flammable and natural refrigerants in North Macedonia. Myahri Saparova provided feedback on the training of Turkmen RAC trainers on the safe use of alternative refrigerants in the regional training center in Yerevan, which took place the same week as the ECA meeting in Belgrade.



As part of the ECA network meeting, Slobodan Peijkovic arranged the site visit of the MediGroup Hospital in New Belgrade with energy-efficient R-410a water to water heat pumps providing space heating, space cooling and domestic hot water (DHW). The 200 kW heat pump system was installed in 2018 using R-410a as refrigerant and extracting heat from the ground water. There was some discussion on the choice of the refrigerant.

The RAC sector is crucial for the Montreal Protocol implementation. During the meeting, a set of 42 RAC sector actions has been reviewed to share information between countries on what type of actions are already taking place, are planned in the near future or not yet envisaged. The objective of this table is to provide inspiration and encouragement to apply good examples, to exchanges lessons learned and experience related to these RAC sector actions and to allow regional harmonization where applicable. The ECA tracking table on RAC sector actions is a living document which will be updated periodically. It is available in English and Russian and attached to the mission report (Annex I).



The agenda of the technology roundtable included presentations on CO2 air-conditioning in high-speed trains, trends in industrial refrigeration, heat pumps for cooling, heating and hot water production, ammonia heat pumps, monitoring energy efficiency, climate change and HVAC&R systems, Kigali Amendment and OzonAction resources, implementation of enabling activites in Serbia, F-gas regulation and Real Alternatives initiative in Croatia, refrigerant recovery, recycling



and reclaim (RRR), new manufacturing plant of ammonia systems in Serbia, using NH3 safely, water-water heat pumps, CO2 commercial systems using ejector technology, comparative analysis of electricity consumption, air-water heat pump modelling, comparative refrigerants study and R22 alternatives in ice ring applications.

# **Meeting documents**

The tracking of table of RAC sector actions is attached as Annex I. Meeting documents including the recommendations and presentations will be made available from the OzonAction website / meeting portal:

 $\frac{www.unenvironment.org/ozonaction/networks/europe-central-asia}{www.ozonactionmeetings.org/europe-and-central-asia-eca-ozone2climate-meeting-montreal-protocol-officers-and-rac-associations-4~.}$ 

### **Contacts**

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# Annex: ECA tracking table of RAC sector actions (English)

RAC sector actions	ALB	ARM	BiH	GEO	KYR	MDN	MOL	MNE	SER	TUR	TKM	ROM
RAC association												
RAC association operational	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	PLA	YES
RAC association congress	NO	NO	NO	YES	YES	NO	NO	NO	YES	YES	NO	YES
RAC association publications	PLA	NO	PLA	NO	YES	NO	NO	NO	YES	YES	PLA	YES
RAC association website	PLA	NO	YES	NO	YES	YES	YES	NO	YES	YES	PLA	YES
RAC association involved in HPMP activities	YES	YES	YES	YES	YES	YES	YES	PLA	YES	YES	NO	YES
Training on good practices and containment (HCFC, HFC)	120	120	120	120	120	120	120	120	120	120	110	120
Training needs assessment related to HCFC and HFC technologies	YES	YES	YES	YES	YES	YES	PLA	YES	YES	YES	YES	YES
Training center with trained trainers and HCFC / HFC equipment	YES	YES	YES	YES	YES	PLA	YES	PLA	YES	YES	YES	YES
Code of good practice for HCFC / HFC technologies	YES	NO	PLA	YES	YES	YES	YES	YES	YES	YES	NO	YES
Training curriculum on good practices and containment	YES	NO	YES	YES	YES	YES	YES	PLA	YES	YES	YES	YES
Training on good practices and containment (mandatory)	NO	PLA	PLA	PLA	NO	YES	YES	YES	YES	YES	YES	YES
Training on good practices and containment (mandatory)  Training on good practices and containment (voluntary)	YES	PLA	YES	YES	YES	YES	NO	NO	NO	YES	YES	YES
Certification on good practices and containment (voluntary)	PLA	PLA	PLA	YES	YES	YES	YES	YES	YES	YES	NO	YES
Certification on good practices and containment (manuacity)  Certification on good practices and containment (voluntary)	NO NO	PLA	YES	NO	NO NO	YES	NO NO	NO NO	NO NO	YES	YES	YES
Training on safe use of alternative technologies (HC, CO2, NH3, HFO)	140	FLA	IES	140	140	TES	140	140	140	TES	TES	TES
	PLA	PLA	YES	YES	PLA	YES	PLA	YES	YES	?	PLA	YES
Training needs assessment related to alternative technologies												
Training center with trained trainers and alternative equipment	PLA PLA	YES NO	PLA DLA	NO NO	PLA	PLA PLA	NO VEC	PLA PLA	NO NO	YES	PLA NO	YES
Code of good practice for alternative technologies			PLA		PLA		YES			YES ?	PLA	YES
Training curriculum on safe use of alternative refrigerants	PLA	NO.	PLA	NO	PLA	PLA	PLA	PLA	NO			YES
Training on safe use of alternative refrigerants (madatory)	PLA	PLA	PLA	NO	PLA	PLA	NO VEO	PLA	NO NO	?	PLA	PLA
Training on safe use of alternative refrigerants (voluntary)	YES	PLA	YES	YES	NO	PLA	YES	?	YES	YES	YES	YES
Certification on safe use of alternative refrigerants (mandatory)	YES	PLA	PLA	NO	PLA	PLA	NO	PLA	NO	?	PLA	PLA
Certification on safe use of alternative refrigerants (voluntary)	NO	PLA	YES	NO	NO	PLA	NO	?	PLA	?	NO	YES
Safety standards for alternative technologies	51.1		51.1		51.1	51.1			150	51.1		1/50
Safety standards for alternative refrigerants (mandatory)	PLA	NO	PLA	NO	PLA	PLA	NO	?	YES	PLA	NO	YES
Safety standards for alternative refrigerants (voluntary)	YES	YES	YES	YES	YES	YES	YES	YES	YES	PLA	NO	YES
Equipment logbooks and inventories												
HCFC equipent logbooks and inventories	PLA	PLA	PLA	YES	YES	YES	YES	YES	YES	NO	NO	YES
HFC equipent logbooks and inventories	PLA	PLA	PLA	YES	PLA	YES	PLA	YES	YES	PLA	NO	YES
Energy-efficiency measures												
Energy-efficiency legislation	YES	YES	YES	NO	PLA	YES	YES	YES	YES	YES	PLA	YES
Energy-efficiency labelling for equipment	YES	PLA	YES	NO	PLA	YES	?	YES	YES	YES	PLA	YES
Minimum energy-efficiency performance standards (MEPS)	PLA	PLA	PLA	NO	PLA	YES	?	YES	NO	PLA	PLA	YES
Ozone- and climate-friendly technologies								_				
Existing examples of ozone- and climate-friendly technologies	YES	YES	YES	YES	YES	YES	YES	?	YES	YES	YES	YES
Pilot or demonstration projects related to alternative technologies	NO	YES	NO	PLA	YES	PLA	YES	?	NO	YES	PLA	YES
Import bans or restrictions for HCFC products / equipment	YES	YES	YES	PLA	YES	YES	YES	YES	YES	YES	YES	YES
Import bans or restrictions for HFC products / equipment	NO	NO	NO	NO	NO	PLA	NO	PLA	NO	PLA	NO	YES
Placing on the market bans or restrictions for HCFC products / equipment	PLA	NO	PLA	NO	NO	YES	NO	YES	YES	YES	NO	YES
Placing on the market bans or restrictions for HFC products / equipment	NO	NO	NO	NO	NO	PLA	NO	PLA	NO	PLA	NO	YES
Financial mechanisms (incentives, taxes or tax exemptions)	PLA	PLA	PLA	NO	PLA	YES	NO	NO	NO	?	NO	PLA
Environmental fund (to finance incentives, destruction etc.)	NO	NO	PLA	NO	NO	NO	NO	PLA	NO	YES	NO	PLA
Refrigerant recovery and recycling												
Refrigerant recovery and recycling center operational	YES	YES	YES	YES	YES	NO	YES	NO	NO	PLA	NO	YES
Other RAC sector actions												
Ban of non-refillable refrigerant cylinders	YES	NO	PLA	NO	YES	YES	NO	PLA	PLA	YES	PLA	YES
Labeling of refrigerant cylinders	YES	NO	NO	NO	YES	NO	PLA	PLA	YES	YES	PLA	YES
Emission control measures (ban on venting, leakage detection)	YES	NO	YES	PLA	YES	YES	YES	YES	YES	YES	PLA	YES
Ban on new installations (HCFC, HFC)	PLA	NO	PLA	NO	PLA	PLA	YES	PLA	NO	YES	NO	YES
Use of UNEP OzonAction training materials and tools	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Date of last up-date	12.19	12.19	11.19	12.19	11.19	11.19	11.19	12.19	12.19	11.19	12.19	12.19
YES = Implemented PLA = Planned to be implemented												
NO = Not planned to be implemented ? = Unknown												