2025 ACTIVITY REPORT

International Institute of Refrigeration

Science of cold in action

About the IIR

Founded in 1908, the International Institute of Refrigeration (IIR) is an independent intergovernmental organisation committed to advancing refrigeration science and technology for a sustainable future through the development of science-based energy-efficient, low-impact refrigeration solutions.

By fostering global collaboration and building knowledge on all aspects of refrigeration and heat pump technologies, we play a crucial role in tackling pressing issues such as food security, healthcare, and climate change.

Through our extensive international network, commissions of experts, and scientific initiatives, we bridge the gap between knowledge and action, highlighting refrigeration's role as critical infrastructure for all life forms on our planet.

See our website for more information.

1. Foreword

One of the goals set out for the International Institute of Refrigeration (IIR) for 2025 was to have a louder and more active voice in the refrigeration and heat pump sector. At the IIR, we believe in the power of actions, and this year a key focus has been on bringing forth scientific knowledge to implement projects grounded in the latest scientific developments and demonstrate the value, and critical importance of refrigeration and heat pump solutions globally.

The IIR is the only intergovernmental organisation bridging the gap between research and action to advance refrigeration science and heat-pump technology. We work with researchers, policy makers and industry experts in 59 countries to tackle pressing issues from climate impacts and energy demand to food security, health, and equitable access to modern technologies. These interconnected challenges can only be addressed through inclusive and collaborative international cooperation.

The aim of this report is to outline the actions taken by not only the IIR head office over 2025, but also all those who contribute to our organisation including the IIR member countries, the Scientific and Technical Council of the IIR, partners and our global network of experts and researchers working together through IIR conferences, working groups, and collaborative initiatives. Your continued support is what makes our community so strong. We thank you for your efforts, they have not gone unnoticed, and they have been vital to the role we play on the global stage in advancing sustainable, clean and resilient refrigeration solutions worldwide, while supporting the energy transition through an increased adoption of heat pumps.

This report is structured in three sections – our voice in the sector, the connections we create, and the knowledge we share. I invite you to not only discover the role we played in shining a light on the sector in 2025, but also to understand how you can join us in strengthening international cooperation and advancing sustainable refrigeration technologies for all in 2026 and beyond.

Yosr Allouche, IIR Director General

Yosr Allouche

Our mission is to foster collaboration and enhance knowledge on all aspects of refrigeration and heat pump technologies and their applications to contribute to a sustainable future for all.

TABLE OF CONTENTS

2025 – Translating our values into concrete actions

Our actions are guided by our values.

Knowledge is the pillar from which we build engagement and collaboration in the most inclusive way possible to ensure we are bringing trustworthy scientific research to benefit all forms of life on our planet.

KNOWLEDGE

ENGAGEMENT

COLLABORATION

DIVERSITY, EQUITY & INCLUSION

2025

Q1 Laying down of the IIR strategic action plan.

Q2 Engaging the global community around our scientific mission - World Refrigeration Day Celebrations, 7th TPTPR conference, 18th Cryogenics conference.

Q3 Collaboration for research - 1st Adaptation conference.

Q4 Global representation to underline the urgency of refrigeration for all life forms - MOP37 + COP30, publication of UNEP briefs focusing on Article 5 countries and capacity building in Jordan.

Our activities are also continually aligned with many Sustainable Development Goals, as we work not only to have an impact through the knowledge, partnerships, and projects that we support, but also to internally review our activities and identify where to focus our efforts to reduce emissions across all scopes.

The SDGs we contribute to via projects and partnerships:

2 3 4 6 7 8 9 11 12 13 17

IIR top achievements and impact in 2025

PROJECTS AND CAPACITY BUILDING

5 EU and International projects

36 demonstrators and technology sites implemented supported by IIR (21 ENOUGH, 6 SophiA, 5 INDEE3, 4 AGRI-COOL)

SCIENTIFIC GOVERNANCE AND COMMUNITY

10 commissions and 2 sub commissions

390+ experts in the network contributing to furthering research

12 working groups

330+ members

59 parties to the treaty

EVENTS AND SCIENTIFIC EXCHANGE

10 IIR-led events (conferences, side events and webinars)

140+ papers presented

1464 attendees connecting to share scientific knowledge

4 high-level panels bringing science, government and policy together

PUBLICATIONS AND DISSEMINATION

23 publications (8 in open access for enhanced knowledge thorough a wider dissemination)

21985 downloads equating to the dissemination of vital scientific knowledge

CAPACITY BUILDING AND TRAINING

2 capacity building programs (middle east and africa)

220+ people received training

2.

A voice to represent the sector

The IIR uses dialogue to drive global sustainable refrigeration practices and commitments for wellbeing and economic development

The development of refrigeration requires strong international cooperation. By structuring scientific cooperation and supporting informed decision-making, the IIR helps ensure that refrigeration and heat pump solutions deliver measurable benefits for sustainability and resilience.

As part of our mission, we translate the scientific knowledge generated by our global and diverse network of top scientists into concrete, practical solutions and clear recommendations. This enables member countries and all stakeholders to take action based on independent and unbiased scientific information, in full respect of national contexts and development pathways.

This was at the core of IIR Director General, Yosr Allouche's, statement at our World Refrigeration Day event in 2025, when she reminded us that "the IIR is a home for all engineers, scientists, national associations, policymakers, industry representatives, and all those who share the vision of equitable and sustainable access to refrigeration for all."

Reinforcing our global presence in 2025

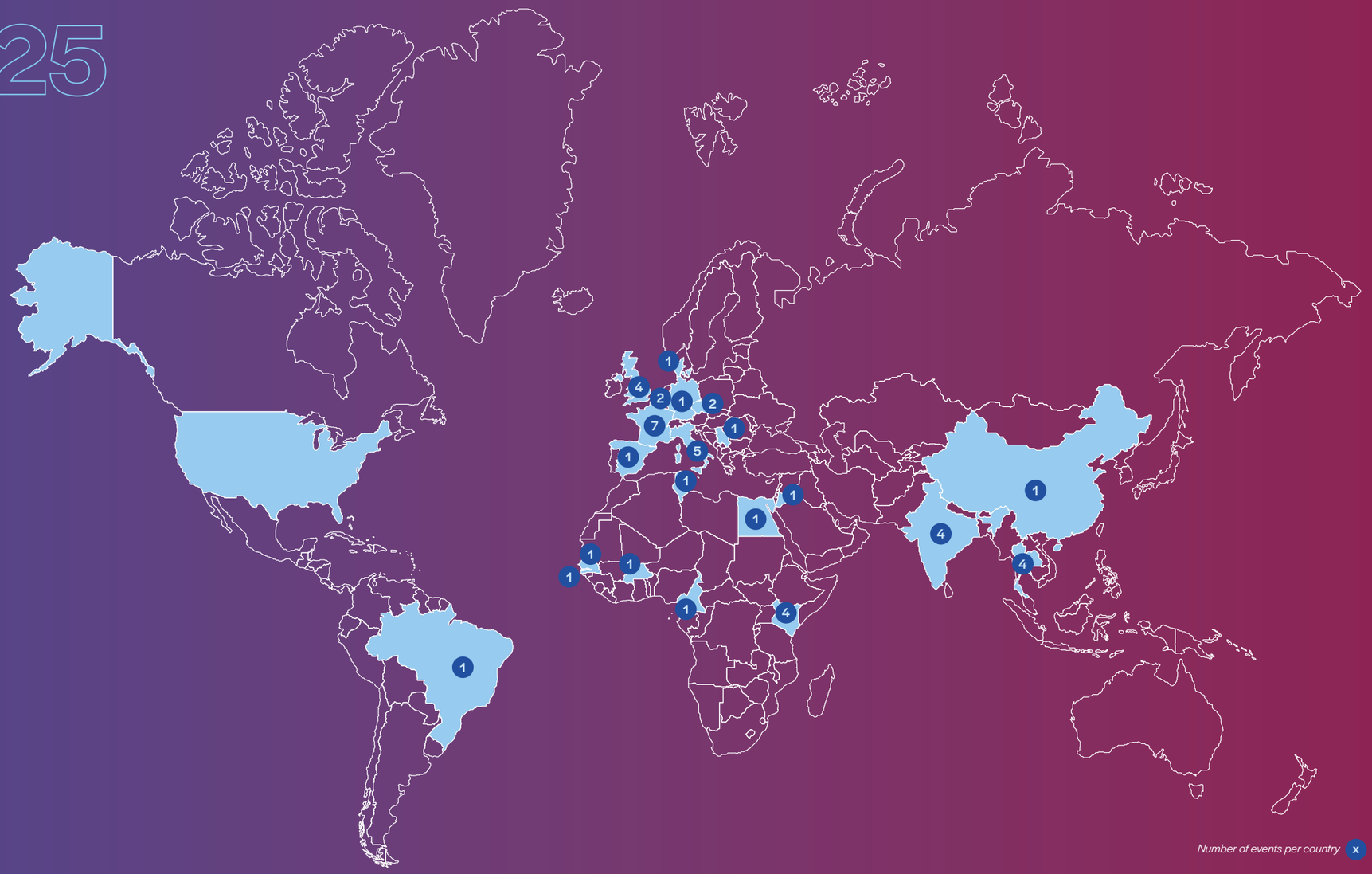
During 2025, we welcomed the opportunity to strengthen our ties with these countries. Our meetings and collaboration with their embassies and national representatives demonstrate our shared commitment to furthering international cooperation for the future of global sustainable refrigeration practices.

Czech Republic, Sudan, Uzbekistan, Malaysia, Jordan, Belgium, Italy, Turkey, Cuba, Romania, Bulgaria, Norway, Slovakia, Sweden, Poland, Slovenia, Russia, New Zealand, Austria, Djibouti, Cameroon, Senegal, Denmark, Egypt, Tunisia.

IIR Activities Around the World 2025

The IIR has 59 member countries, and we firmly believe in the importance of global cooperation. We actively support and organise events in our member countries and around the world creating solid platforms where scientific knowledge is continuously shared, best practices are exchanged, and innovative solutions are translated into actions.

This map shows our international presence (combining IIR representation, commissions work, co-sponsored and other events) over 2025.



Connecting with the IIR Online

FEBRUARY USNC/IIR MEETING
GREEN COOLING SUMMIT

ENOUGH WEBINAR
The recent Advances in Food Freezing

JUNE USNC/IIR MEETING

MOP37 SIDE EVENT LIVESTREAM
Cold Chain Technologies in Hot Countries: From Storage to Transport

WEBINAR
Refrigeration at Every Scale: From Homes to Supermarkets

WEBINAR
Marine Refrigeration: Keeping the Catch Cool from Sea to Shore

WEBINAR
Refrigerated Transport in Hot Climates: Challenges and Innovations

FRANCE (7) AFF "Vœux du froid", IEA Workshop / IIR Statutory Meetings (Feb & Jun) / World Refrigeration Day / AFCE Colloque, SIFA Trade Show

CAMEROON (1) SophiA4Africa Project Capacity Building Session

BELGIUM (2) Daikin Konwakai summit / IEA 10th Annual Global Conference on Energy Efficiency

USA (6) ASHRAE Winter Conference / February USNC/IIR meeting / 2025 IIAR Natural Refrigeration Conference and Heavy Equipment Expo / 7th IIR Conference on Thermophysical Properties and Transfer Processes of Refrigerants (TPTPR) / ASHRAE Annual Conference / June USNC/IIR meeting

CZECH REPUBLIC (2) 18th IIR Conference on Cryogenics / Eurovent Summit in Prague

DENMARK (1) Danfoss Symposium and RTCO meeting

SPAIN (1) BETTED mid-term conference at Food4Future

UNITED KINGDOM (4) ENOUGH retail sustainability workshop / 1st IIR Conference on Refrigeration Adapting to Rising Temperatures / 14th International Conference on Compressors and their Systems / ACES Summit Birmingham

ITALY (5) EHPA Heat Pump Technologies Exhibition and Conference / Clima 2025 15th REHVA HVAC World Congress / AGRI-COOL consortium meeting , Centro Studi Galileo 21st European Conference / Refrigera 2025

THAILAND (3) OEWG-47 (Open-ended Working Group of the Parties to the Montreal Protocol) side event "Cooling systems Emissions from Data Centres" with CCAC, UNEP and U4E / OEWG-47 Side Event by GIZ Proklima / OEWG-47 side event – "International Training and Certification Standards for RACHP" with Centro Studi Galileo, ATF, AREA and IGSD

SENEGAL (1) IIR Meeting with Minister of Energy and the Director General of AEME

THE GAMBIA (1) ECOWAS Sustainable Energy Forum (ESEF 2025)

INDIA (4) AICCS (All India Cold Chain Exhibition) / INDEE+ annual meeting part 1 / ACREX India 2025 / INDEE3 kickoff

GERMANY (1) SophiA final consortium event

KENYA (4) World Cold Chain Symposium 2025 / MOP37 (Meeting of the Parties to the Montreal Protocol) / IIR-UNEP OzonAction Side Event at MOP37 / IIR Director General Statement at MOP37

BRAZIL (1) COP30 / IIR Statement at COP30 (Conference of the Parties to the UN Framework Convention on Climate Change)

BURKINA FASO (1) International Conference for the Popularisation of Refrigeration in Africa

JORDAN (1) Sustainable Cold Chain Solutions for Agri-Food Training for the FAO-EBRD and RSS project

CHINA (1) 10th International Conference on Compressor and Refrigeration

EGYPT (1) 9th International Exhibition and Conference for HVACR, Thermal insulation and Energy

SERBIA (1) 56th International HVAC&R Congress and Exhibition

TUNISIA (1) One Health Conference

The IIR's voice on global stages - key messages strengthening international cooperation

Highlighting the essential role of refrigeration for well-being and economic development is central to our mission.

Drawing on the complete range of sectors covered by our expert network, we provide evidence-based knowledge and recommendations at international, regional and national levels so that all stakeholders can deepen their understanding of how we can achieve sustainable refrigeration for all.

As an example of our role as a global platform that convenes scientific expertise and amplifies evidence-based perspectives on the international stage, in June 2025, we convened an international event in celebration of World Refrigeration Day (WRD) in Paris to bring together global views on the sector and where scientific evidence and expert discussions confirmed their relevance and urgency. It was an opportunity to not only showcase technological advancement but also to set the stage on what actions needs to be taken in various regions of the world. IIR recommendations were well echoed and reinforced during the event, the main messages were as follows:

Refrigeration as a term is now clearly defined

Refrigeration, as defined by our Scientific and Technical Council, encompasses the cold chain for food and health products, air conditioning, cryogenics, and heat pumps. It is a cross-cutting sector that influences vital aspects of economic and social development.

This sector represents a sovereign concern, not a mere technical afterthought

National leaders from Indonesia to Senegal, Nigeria to Côte d'Ivoire, from Japan to France, and the European Union affirmed that refrigeration must be treated as a strategic public good. Food security, public health, energy efficiency, and climate resilience all depend on reliable, efficient, and sustainable refrigeration systems.

Constance Maréchal-Dereu, Head of the Industry Department at the French Ministry of Economy, reflected on France's scientific and industrial legacy in refrigeration and emphasised that refrigeration is not only essential for comfort, food, and health, but also a strategic solution for climate and energy challenges. She underlined the importance of public-private-research collaboration to accelerate thermal decarbonisation.

> "We must work together – policy makers, research, industry, and users – to build the solutions of tomorrow that improve citizens' well-being through sustainable technologies."

Professor Rokhmin Dahuri, Former Minister of Marine Affairs and Fisheries, and current Member of Parliament of the Republic of Indonesia, shed light on the importance of the food and health cold chain for all nations as "a silent but indispensable backbone of human civilisation."

The establishment of national refrigeration committees is urgent

A major achievement of the event was the shared recognition of the need to establish national refrigeration committees. These committees, including representatives from government, industry, academia, and civil society, will serve as platforms for enhanced collaboration, policy development and integration, and capacity building.

Science must remain at the core of policy-making and industrial innovation

Effective policymaking must be founded in scientific evidence to navigate challenges with precision and accountability. Evidence-based approaches ensure decisions are grounded in reliable data, and informed by independent and objective analyses.

Our network demonstrated their readiness to be involved in this approach, and an Expert Directory and Laboratory Directory is available on our website for all IIR members to facilitate international collaboration based on proven expertise.

The world needs to align policy, industry and science

> "Applied research must be co-created with engineers and policymakers to achieve impact."
>
> *Andy Pearson from Star Refrigeration.*

Better alignment between policy, industry, and science is essential, harmonising standards and streamlining regulations can accelerate the adoption of low carbon technologies. At our event, global industry leaders shared cutting-edge innovations on refrigerants, cold storage, data centre cooling, and heat pumps.

> "Technologies to decarbonise refrigeration are avaiable. Natural refrigerants, waste heat recovery and digital solutions are just some examples. We need incentives and adequate policies to scale."
>
> *Andrea Voigt,*
> *from Danfoss Climate Solutions.*

International cooperation is essential

Strengthening international cooperation across science, industry, and policy is vital to ensure we deliver collective action. By engaging in and supporting an international organisation active in the refrigeration sector, countries demonstrate the value they place on this strategic field and their commitment to addressing its challenges in a coordinated manner. Such cooperation enables organisations to work hand in hand with member countries and regions to innovate on refrigeration applications, while science and data inform policies that align energy, environmental, and health priorities. International cooperation becomes an effective and powerful driver in contributing to a sustainable future in which refrigeration plays a central role for all.

> “Cooling is the new nexus – health, food, and energy. And cooperation is the only path forward.”
>
> *Martina Otto from the United Nations Environment Programme (UNEP).*

At the 47th Open- Ended Working Group (OEWG-47) meeting under the Montreal Protocol, we took part in a dynamic and thought-provoking side event organised by GIZ Proklima on the topic of one of our core values – DEI (Diversity, Equity and Inclusion).

Despite some progress, both cultural and structural barriers continue to limit women’s participation in the sector.

> “The IIR reaffirms its commitment to promoting diversity, equity, and inclusion in the refrigeration sector. With only 6% female representation, the sector must act decisively to become more inclusive, sustainable, and representative of the global talent pool.”
>
> *Souhir Al-Hammami, IIR Director of Scientific and Technical Information Department.*

We also intervened at the July 9 Side Event titled “International Training and Certification Standards for RACHP: Advancing Energy Efficiency and Preventing Refrigerant Emissions”.

This side event emphasised that harmonised international training standards and robust certification schemes are essential tools for ensuring sustainability in the sector as well as to contribute to the goals of the Montreal Protocol. Experts including members of the IIR team shared global best practices and examined national certification schemes such as those in the EU, USA, China and Tunisia.

> “Technician certification is essential for safe, efficient, and compliant HVAC systems. Governments play a key role in setting adequate regulation and enforcing certification programs, and international collaboration in designing and harmonising effective standards”.
>
> *Marco Duran, IIR Head of Policy and Global Partnerships.*

Read more about the event.

118 Years of International Cooperation for the Development of Refrigeration

We firmly believe that a just refrigeration transition and equitable access for all can only be achieved through collaboration among all refrigeration stakeholders, supported by policy decisions grounded in independent and unbiased scientific knowledge. The IIR is at the forefront of this endeavour. Echoing the call to strengthen international cooperation, we were honoured to undertake an official visit to Senegal in September 2025, where our Director General, Yosr Allouche, met with the Minister of Energy, Petroleum and Mines of Senegal, His Excellency Birame Soulèye Diop, and Mrs. Mame Coumba Ndiaye, the Director General of AEME (Senegal Agency for the Economy and Energy Management).

> “Countries need to engage in international cooperation through the IIR to ensure this sector takes its rightful place in the global climate and energy agenda through a trustworthy scientific route."
>
> *Yosr Allouche - IIR Director General.*

This visit was also an opportunity to discuss the need for improved sectoral structuring and governance, so that both refrigerants and energy efficiency, key applications such as agriculture, health, research, industry are addressed equally, and that all sectors can gain access sustainable refrigeration solutions. Building on these messages, we advocated for increased stakeholder engagement at all levels, and raised awareness for the actions required at major global events. This included our active participation in MOP37 and COP30.

MOP37 Nairobi, Kenya 3-7 November 2025

COP30 AMAZÔNIA

Our mission of advancing refrigeration science and technology for a sustainable future means that the IIR is intrinsically linked to the work of the Montreal Protocol. Global action coordinated through this treaty is enabling the world to eliminate nearly 100 ODSs (Ozone Depleting Substances), including chlorofluorocarbons (CFCs) and hydrochlorofluorocarbons (HCFCs[1]), which were widely used in refrigeration, air conditioning, and aerosols.

The future of the refrigeration sector has a critical role to play in keeping the 1.5°C goal alive. It is therefore essential that the responsibilities and challenges facing refrigeration and heat pump technologies are addressed at the highest-level international events such as the Meeting of the Parties to the Montreal Protocol and the UNFCCC Climate Conference. This year, Prof. Graeme Maidment President of IIR Commission E2 on Heat Pumps and Energy Recovery, as well as Petter Nekså, member of the Norwegian Delegation to the IIR, represented the organisation at COP and actively participated in these meetings to contribute their expertise and support informed decision-making.

At MOP37, we communicated our support and encouragement for international cooperation on refrigeration.

> “The IIR encourages all governments to establish national inter-institutional platforms to coordinate sustainable refrigeration efforts across all applications and bring together relevant stakeholders. Refrigeration and heat pumps are critical infrastructures, and the only way to properly advance health, food security, energy efficiency, and sustainability via a truly all-encompassing strategy.”
>
> *Yosr Allouche, IIR Director General.*

At COP30, we focused on the urgency of the need to take action.

Graeme Maidment, President of IIR Commission E2: Heat Pumps and Energy Recovery (in representation of Dr. Yosr Allouche, IIR Director General).

> “Today, 12% of the world’s food production is still lost due to inadequate cold chains, food that could nourish nearly one billion people. As global temperatures and populations rise, cooling demand will accelerate, heightening vulnerability to heatwaves and threatening progress on health and development.”
>
> *Graeme Maidment, President of IIR Commission E2: Heat Pumps and Energy Recovery (in representation of Dr. Yosr Allouche, IIR Director General).*

These statements are also followed with actions across the year:

In May, our CaRe Working Group introduced the “Women in Cooling” Database, developed by Mr Zhe Tao, intern at Global Cultural Adventurers, and in collaboration with founding partners of INWIC (the International Network of Women in Cooling). After an initial survey conducted with UNEP OzonAction in 2022, this year marked the launch of a unique database to shed light on the ongoing challenges faced by women in the industry. Recent updates in 2025 include data from Zimbabwe. View the database here.

In June, our Director General, Yosr Allouche joined the “One Health” MENA summit hosted by the Ministry of Health in Tunisia supporting the implementation of the “one health” approach in the region. This event was within the framework of the UNEP, WOAH, WHO and World Bank quadripartite, and an opportunity for Yosr Allouche to engage with African ministers on behalf of the IIR, sharing the importance of the “*Declaration of Carthage*”. One of the main outcomes of the summit was to consider refrigeration as a cornerstone for an effective implementation of this declaration. During the event, Dr. Allouche talked about the often-overlooked role refrigeration plays in both food and health systems and how without it human and climate resilience remains out of reach at the key session entitled "Building up the immunity: A Dialogue on Vaccines, Vaccinations, and Cold Chains in the One Health Era" alongside speakers from Baylor College of Medicine, USA, and Institut Pasteur Tunis.

Learn more about the event.

In September, as partners of the SophiA project, we presented a policy brief and the Women in Cooling Database at the SophiA Final Consortium Event in Karlsruhe, Germany. This was an opportunity to underline the opportunities and barriers associated with the switch to natural refrigerants in Africa, and to address structural challenges such as the limited availability of equipment and refrigerants in the continent, which can result in high tariffs on imported refrigeration technologies.

Read more in the policy brief.

In December, following the launch of Jordan’s National Cooling Action Plan, the IIR team including Judith Evans, Vice-President of Section C of the Science and Technology Council (Commissions C1 and C2) together with the Food and Agriculture Organization (FAO) organised and delivered a capacity building training session to cold chain operators, stakeholders and policy makers to support the development of sustainable cold chains. The training programme informed attendees of the critical role cold chains hold in safeguarding food quality and reducing losses, optimal temperature and humidity control for perishable goods, measurement tools and techniques for accurate monitoring, and standard operating procedures for handling, storage, transportation, and documentation. The event combined theory and practice with a technical visit to the Amman Central Market cold stores.

Read more about the event.

2025 IIR Policy Recommendations

#1

Refrigeration Is a critical Infrastructure

Refrigeration is a critical component of the economy, impacting food security, public health, energy systems, and climate change mitigation and adaptation. As global temperatures rise, the demand for sustainable refrigeration solutions is becoming increasingly urgent.

Promote National Governance Models

#2

Establish a national governance model, such as national refrigeration committees, to structure the sector and ensure its transversal nature is addressed effectively, coordinate policies, integrate refrigeration into climate and energy strategies, and align with global sustainability goals like the Paris Agreement and Kigali Amendment.

#3

Heat Pumps Are Essential for the Energy Transition and Security

Heat pumps, as a refrigeration equipment, are a cornerstone of the global energy transition. They provide highly efficient heating for buildings and industrial processes, reduce energy consumption, cut greenhouse gas emissions, and support the shift away from fossil fuels.

Develop National Cooling and Heating Action Plans

#4

Create frameworks to address the growing demand for sustainable refrigeration, including Minimum Energy Performance Standards (MEPS), labelling schemes, and rebates for energy-efficient appliances.

#5

Support Developing Countries

Provide financial and technical assistance to developing nations to build cold chain infrastructure, reduce food loss, and ensure access to refrigeration for health and food security, while leapfrogging to energy efficient and clean refrigeration solutions. This support must be accompanied by investment in the training and upskilling of technicians, who are essential to the safe installation, operation, maintenance, and long-term performance of these technologies. Leverage international climate funds and public-private partnerships to mobilise resources.

Invest in Workforce Development

#6

Address the labour shortage in the refrigeration sector by expanding vocational training and apprenticeship programmes.

#7

Encourage Innovation and Energy Efficiency

Support research and development in energy-efficient refrigeration technologies, including the use of natural refrigerants and renewable energy sources. Promote buildings passive cooling strategies to reduce reliance on energy-intensive air conditioning.

Comply With Global Agreements

#8

Implement measures to reduce emissions from high-GWP refrigerants, including leakage control, refrigerant charge reduction, and end-of-life recovery. Encourage the adoption of low-GWP refrigerants and natural refrigerants.

Download the full publication and summary for policymakers here to learn more.

3.

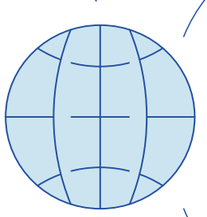
Connecting the thinkers, the planners and the doers ”[2]

The IIR is a global platform, a scientific hub connecting all stakeholders in the refrigeration and heat pumps sector.

As a longstanding scientific intergovernmental organisation bridging the gap between research and action to advance refrigeration science and heat-pump technology, we recognise the importance of creating the time and space for knowledge exchange.

In 2025, we continued building the space for dialogue, connections and knowledge-sharing, ensuring that scientific evidence remained central to decision-making processes. We consulted our members and stakeholders to diversify and improve the ways scientific information is communicated to our target audiences, while also engaging our network to amplify IIR messages and broaden their reach.

260+
private members
Researchers, consultants, students)



75+
corporate members
(Industry leaders, universities, research laboratories, emerging tech companies)

390+
experts
(Commission members)

IIR Conferences

Our cycle of 10 IIR conferences are the focal point for global experts to convene on topics related to the work of our 10 Commissions. Not only are our conferences an opportunity for industry leaders, researchers and policy makers to connect, but also to present the latest research, innovative solutions and strategic insights to advance sustainable refrigeration and heat pump technologies. We firmly believe in the power of collaboration; by working together, sharing knowledge and evidence in our community, we are stronger and can drive meaningful progress for global practices.

In 2025, our three IIR-owned conferences resulted in the dissemination of 140 peer-reviewed research papers. These papers contribute with state-of-the-art scientific and technical knowledge, supporting innovation and addressing the technological challenges of tomorrow's refrigeration needs.

2025 IIR CONFERENCES AT A GLANCE:

CONFERENCES	Participants	Papers	Downloads*	Organisers & sponsors	IIR Commissions
18th IIR Conference on Cryogenics, April 7-11, Prague, Czech Republic.	138	52	51	**ICCEX**, ILK Dresden, SHI, PGS Group, vor-buchner	A1, A2, and C1
7th IIR Conference on Thermophysical Properties and Transfer Processes of Refrigerants, June 15-18, College Park, USA.	90	42	84	**University of Maryland,** ASHRAE	B1
1st IIR International Conference on Refrigeration Adapting to Rising Temperatures, August 10-13, Manchester, UK.	120	46	85	**Institute of Refrigeration**, orbia, Star Refrigeration and J&E Hall, ASHRAE, BESA, **British Refrigeration Association**, CIBSE and the Cold Chain Federation	B1, B2, C2, D1, D2, E1 and E2

* Downloads of proceedings and summaries combined

This year saw the inauguration of a new joint conference, the 1st IIR International Conference on Refrigeration Adapting to Rising Temperatures. During the event, studies confirmed the need to revise design standards and operational assumptions for traditional cooling systems that struggle under high ambient temperatures, and a best practice framework was implemented with the **launch of a UK-led initiative to develop a Code of Practice for Designing, Maintaining, and Operating Refrigeration Systems under Climate Stress,** in collaboration with IOR, IMechE, CIBSE, CCI, BSRIA, LSBU, and the UK Environment Agency.

During the 7th IIR Conference on Thermophysical Properties and Transfer Processes of Refrigerants (TPTPR), participants **looked behind the scenes of four cutting-edge facilities** at the University of Maryland, including the Daikin Energy Innovation Laboratory and the Small and Smart Thermal Systems Laboratory. This was a unique opportunity to discover the latest technology and lab equipment for the development of solid-state refrigerants, microfluidic cold plates, and advanced heat exchanger technologies.

Finally, the 18th Cryogenics Conference demonstrated the **continued value and appreciation of international fora for exchange and participation in the sector.** With attendees from 23 countries, the combination of research, industrial applications and biology attracts an international audience.

This conference is one of the most important and renowned in the field because of the variety of topics relating to numerous sectors from fuel transportation to medical research. During the event, attendees had the opportunity to experience cryotherapy first-hand in a local cryochamber and to visit the Facility of Helium Liquefier System and Laboratories of Low Temperature Physics Department at Charles University Prague.

> Why is this important? The compressor is the heart of the system. It is the highest electricity consumer component in RACHP systems, and therefore the largest potential for efficiency gains. It can consume up to 70%. It accounts for more than 10% of the total industrial electricity use in the UK."
>
> Yosr Allouche, IIR Director General.

Celebrating World Refrigeration Day 2025

KEY DATA

18 June 2025, Paris, France

170+ attendees (high-level government representatives, industry leaders, scientists, and international organisations)

Sponsors:

Carrier, Chereau, Daikin, Danfoss, IIAR, Sofrigam, Mayekawa, Climalife, ENOUGH, SophiA.

Speakers from:

Governments:

Indonesia, Nigeria, Côte d'Ivoire, France, Senegal, European Commission.

International partners and organisations:

IIR, UN, the Multilateral Fund for the Implementation of the Montreal Protocol, European Commission, UNESCO, UNIDO, UNEP, WOAH, CCAC, IFC, FAO, BSRIA, IIAR, GIZ Proklima.

IIR:

IIR Director General, Science and Technology Council, President of the General Conference of the IIR.
Presidents of Sections A, C, D, E, E1 Commission Member.
Director of Scientific and Technical Information, Head of Policy and Partnerships.

Industry leaders:

Carrier, Chereau, Daikin Europe, Danfoss Climate Solutions, IIAR, Sofrigam and Climalife.

Held under the theme "The critical role of refrigeration and heat pumps solutions in advancing human well-being, animal welfare and climate sustainability," we organised a high-level event to demonstrate that refrigeration goes far beyond being a niche technical field, it is a cross-cutting sector vital for a thriving and resilient society.

The event marked a turning point for the IIR and our community as it allowed us to reaffirm the value of our historical status, and to strengthen our identity. We follow in the footsteps of visionaries who understood that collaboration across science, industry and policy is the only way to achieve progress. Their heritage left to the IIR today is a strong community. A community which allowed us to convene a wide range of voices to the event to share their work and contributions, assess current challenges, understand the needs and strengthen the network in order to drive the sector forward.

The event also provided a strategic opportunity for us to prepare for the future by fostering alliances, adapting to the sector's needs and challenges and advancing our mission of sustainable and equitable refrigeration for all.

We achieved this by organising four panels on cross-sectoral themes:

- High-Level Country perspectives: *Addressing national needs for refrigeration applications to ensure food, health and energy security*
- Scientific perspectives: *Scientific information and research as the foundation for advancing refrigeration and heat pump technologies*
- Industry leaders: *refrigeration innovations and technology solutions for well-being and climate sustainability*
- International cooperation: *strengthening the science, industry and policy nexus to ensure resilient, accessible and sustainable refrigeration*

The event also offered a rare opportunity to discover historical documents, publications, and the stories of emblematic figures who have shaped the refrigeration field. Visitors to our historical exhibition gained a unique perspective on how past innovations and visionaries continue to inspire future advancements.

Read the full event report. Walk-in Cold Rooms

Consortium partner projects in 2025

The EU SophiA Project

2025 was the closing year for the SophiA project, a 4-year project led by Karlsruhe University of Applied Sciences (HKA), in which the IIR and consortium partners developed and demonstrated off-grid and sustainable technologies that contribute to strengthening the medical cold chain in four rural clinics in Burkina Faso, Cameroon, Uganda and Malawi from October 2021 to September 2025.

These technologies consist of containerised solutions that provide cold storage for medicines and vaccines, clean water and back-up electricity using solar energy, energy efficient systems and environmentally friendly refrigerants.

TARGET AUDIENCE

Four rural health centres located in four different climatic regions:
Burkina Faso, Cameroon, Uganda and Malawi.

Objectives:

Enable access to carbon-neutral energy for:electricity. Heating and cooling of food and medicine, safe and clean drinking water.

Design, build, install and monitor demonstrators in four climatic regions.

Partners:

SDGs the project contributes to 3 7 9

On September 23, the containerised SophiA unit at Mua Mission Hospital was inaugurated in Malawi, and launched in Cameroon and Uganda on September 24 and 30 respectively, adding new capabilities in power, heating, cooling and safe water for healthcare in an off-grid setting.

The SophiA project also ran training sessions on the operation and maintenance of the solutions as well as capacity building for stakeholders on the role of sustainable health cold chains, theoretical courses and practical workshops on photovoltaic and solar thermal systems, refrigeration, SCADA, water treatment, and the PVsteamCube.

KEY FIGURES FROM THE PROJECT'S 2025 EVENTS:

TYPE OF TRAINING	Locationa	Date	No. of participants*
Train-the-trainer	Cameroon	January 2025	35 (6)
Train-the-trainer	Germany	Sept 2025	30 (6)
Local stakeholder	Uganda	June 2025	~25 (6)
Noble Banadda Summer School	Switzer-land	Sept 2025	60

*(Women)

AGRI-COOL

We are a member of the consortium of the AGRI-COOL project, led by the University of Twente (UT), implemented within the framework of a European consortium and running from June 2024 to May 2028. Its goal is to assess innovative containerised off-grid solar-powered cold storage systems and implement four technology demonstrations in farms in South Africa, Cape Verde, Somalia and Zimbabwe.

The IIR team brought visibility to the AGRI-COOL project at the ECOWAS Sustainable Energy Forum in Banjul (The Gambia), at the World Cold Chain Symposium ahead of MOP37 in Nairobi (Kenya), and at the 1st International Conference on Refrigeration in Africa in Ouagadougou (Burkina Faso) where Halima Thraya, Chair of the IIR Working Group "Cold Chain in Hot Countries" involved in AGRI-COOL represented our institution.

The deployment of AGRI-COOL cooling chambers starting with Cape Verde, Somalia, Zimbabwe and South Africa is expected to begin in 2026, as well as expanding funding opportunities for scaling up the systems, and reinforcing partnerships with West African universities.

For more information see the project website.

TARGET AUDIENCE

African rural communities and industries

Objectives:

Reduce food losses and waste.

Enhance food security.

Reduce the use of generators running on fossil fuels to mitigate climate change.

Partners:

SDGs the project contributes to 2 9 12

The EU ENOUGH Project

We were pleased to announce the completion of the ENOUGH project in September 2025 after four successful years.

The ENOUGH project, in which IIR took an active part in modelling emissions of the EU food cold chains as well as the estimation of its future emissions to 2030 and 2050, set a global benchmark for decarbonising the food supply chain. In addition, 21 real-world ENOUGH demonstrators were implemented, tested and demonstrated, key roadmaps outlining EU pathways to achieve carbon neutrality by 2050 for food retail, catering, cold storage, transport, and domestic sectors, in line with EU Green Deal objectives were published.

KEY FIGURES

21 real-world ENOUGH demonstrators

Creation of an energy roadmap of scenario pathways to reduce food cold chain emissions by 50% by 2050.

Objectives:

Reduce food losses and waste.

Support the EU's sustainable farm to fork strategy by providing technical, financial and political tools and solutions to reduce GHG emissions and achieve climate neutrality in the food industry.

Partners:

SDGs the project contributes to 7 8 9 12 13 17

Following a science-industry technical webinar on May 22 which presented recent progress in food freezing processes, we supported the ENOUGH retail workshop on May 27 to explore innovative, sustainable solutions in retail refrigeration, bringing together leading researchers, technology providers, and industry experts.

On June 13, a policy seminar was organised to highlight the importance of communicating research and innovation outcomes to policymakers and that the implementation of demonstration activities can inspire actors across the food sector to take action.

The project closed with a final workshop held in Manchester, UK, during the 1st IIR International Conference on Refrigeration Adapting to Rising Temperatures. We are proud to conclude that ENOUGH has shown that climate neutrality in the food supply chain by 2050 is feasible, with a 55% reduction possible by 2030. Nonetheless, net zero will depend on energy grid decarbonisation as well as the synergies between promising technologies and appropriate policies to scale up adoption.

Learn more about ENOUGH's workshops in 2025

The EU BETTED Project

As a consortium member of the BETTED project, led by the University of Brescia (UNIBS) and running from February 2024 to January 2027, we aim to contribute to the reduction of fossil fuels dependency fast forwarding energy transition.

On May 15, the project results were promoted during the dedicated BETTED project session at the conference Food 4 Future – Expo FoodTech held in Bilbao, Spain.

It was a key moment for the BETTED project Consortium, with the launch of toolbox and start of capacity building program, contributing to real-world strategies for improving energy efficiency in the dairy sector, highlighting its crucial role in the industry, the EU policies driving the energy transition, and the innovative technologies aimed at decarbonising dairy production processes.

TARGET AUDIENCE:

Companies (especially SMEs) belonging to supply chains in the dairy sector.

Objectives:

Foster the market uptake of energy efficiency measures including the use of renewables and the deployment of heat pumps at the value chain level.

Contribute significantly to the reduction of fossil fuels dependency fast forwarding energy transition.

Transform organisational energy cultures, enhancing skills and knowledge in sustainable value chains, thus promoting energy transition for companies.

Partners:

CHAMBER OF KORINTHIA · ehpa · escan s.r.l. the energy consulting · FEDERALIMENTARE · FIAB SPANISH FOOD AND DRINK INDUSTRY FEDERATION · IEECP · Fraunhofer ISI · RĪGAS TEHNISKĀ UNIVERSITĀTE · UNIVERSITÀ DEGLI STUDI DI BRESCIA

SDGs the project contributes to 7 9 12

In September, the BETTED Project launched the IIN Platform which includes a “Catalogue of Innovation” - a dedicated space where companies, technology providers, and service experts can showcase solutions or highlight specific needs. This matchmaking feature strengthens partnerships, paving the way for the adoption of innovative, energy-efficient technologies in the dairy sector.

In October, the BETTED project organised a webinar alongside EHPA and IEECP – two of the other consortium partners. This event, titled “Decarbonising the Dairy sector: workshop on Energy Efficiency, Heat Pumps & Biogas Across the Value Chain” brought participants and experts from various European countries to discuss practical pathways for reducing emissions and improving efficiency of dairy value chain.

The project's main pillars:

1

Establish a capacity building program including an e-learning platform.

2

Implement tailored and easy-to-use tools engaging companies operating in the same value chain.

3

Provide policy / regulatory recommendations aiming at speeding up the energy transition.

The Norwegian funded INDEE3 Project

INDEE3 kicked off in May 2025 led by Sintef Ocean. This project builds on the previous success of the INDEE+ project for which the IIR was a strategic partner, facilitating the project outreach and impact in India. We are supporting knowledge transfer between the Norwegian and Indian institutions and companies, notably by organising project workshops and disseminating results through our network and events.

In September, we participated in the project kick-off meeting at BITS Pilani in India. Partners and industry experts shared insights, case studies, and demonstrated technologies, including a flake-ice machine using propane – a promising solution for small fishing vessels.

For the IIR, our goal in participating in the project is to advance decarbonisation and environmentally friendly technologies in India's heating and cooling sectors, aligning with India's international commitments under the Kigali Amendment and national ambitions outlined in the India Cooling Action Plan. Through the project, we will extend access to efficient, climate-friendly heating and cooling, which is becoming increasingly vital due to rising temperatures, growing concerns about food security, and the significant contribution of the refrigeration and air-conditioning sector to global CO_2-eq emissions.

See the INDEE3 project page for more information.

TARGET AUDIENCE:

Indian institutions and companies

Objectives:

Support India's transition to low-carbon heating and cooling technologies.

Enhance the adoption of natural refrigerants.

Support lifecycle refrigerant management practices.

Develop more efficient cold chain solutions across sectors such as seafood, food processing and buildings.

Partners:

SINTEF, NTNU, Norwegian Environment Agency, Amrita Vishwa Vidyapeetham, BITS Pilani, CEEW The Council, ISHRAE

SDGs the project contributes to 4 9 12 13

Partnership highlights

The International Network of Women in Cooling (INWIC)

In 2025, the International Network of Women in Cooling, of which we are a founding member, launched a new mentorship programme. This is designed to support female professionals across all levels of the cooling sector, including technicians, engineers, managers, and industry leaders. Our support for INWIC is longstanding, and in 2025 it was further strengthened when our Head of Department for EU and International Programmes, Ina Colombo, was named President of INWIC.

On February 10, Yosr Allouche participated in a panel discussion titled “Stronger Together: How Male Allies Help Advance Women in HVAC” at the ARH Expo in Orlando. During the event, she presented findings from the co-authored paper “Women in North America in the Refrigeration, Air Conditioning, and Heat Pump Industry” to explain the educational pathways to careers in the RACHP Industry and better understand the difficulties women and minorities face in the workplace. Read the paper here.

In June, both Ina Colombo and Yosr Allouche participated in a Special Session on Women in Refrigeration and Air Conditioning at the 22nd European Conference organized by Centro Studi Galileo. During the sessions, Ina Colombo presented key findings from the paper titled “Women in the Refrigeration, Air Conditioning, and Heat Pump (RACHP) Industry in the European Region,” to underline the urgent need for greater support, visibility, and retention of women in the sector. Read the full paper here.

On September 24, Ina Colombo met with Sokhna Fall Diawara, President of RENAFF (an organisation bringing together over 200 female technicians across Senegal), and several executive members at the Social Integration Educative Centre in the Pikine-Guédiawaye suburb. This was an opportunity for Ina to speak to future technicians during an electrical engineering lecture and to encourage them to pursue their studies in this field. Learn more about the event.

See the INWIC website for more information on the network and its activities.

The International Energy Agency (IEA) Heat Pump Coordination Group

Throughout the year, we have demonstrated our commitment to advancing heat pump technologies through our participation in the IEA heat pump working group. Following the January workshop on "The Importance of Heat Pump Data for Policymaking and Innovation" which highlighted the critical need for continued collaboration, innovation, and data-driven policymaking to enable heat pump adoption globally, we were invited to join the peer-review process for the IEA’s Heat Pump Taxonomy project.

Through this partnership, leading institutions are sharing best practices and identifying research gaps to inform and build the technical foundations needed for greater harmonisation and comparability in data collection. The Heat Pump Coordination Group formed in 2024 by five IEA Technology Collaboration Programmes under the umbrella of the IEA’s Committee on Energy Research and Technology.

EBRD, FAO and the Royal Scientific Society

Part of the IIR’s mission is to disseminate knowledge on refrigeration technologies worldwide. In December 2025, in partnership with EBRD, FAO and the Royal Scientific Society, we led and delivered a specialised training programme for 25+ cold storage technicians and engineers in Ammam, Jordan.

This programme strengthened the technical capabilities of cold storage professionals, supporting safer, more efficient cold chain systems and contributed to reducing post-harvest losses across Jordan’s food value chain. As part of the event, we also convened representatives from the Ministries of Agriculture, Health, Trade, and Energy, alongside stakeholders from the agrifood private sector, refrigeration manufacturers, farmers’ unions, and research organisations. The discussions created synergies between Jordan’s National Cooling Action Plan and the National Food Security Strategy, both launched in November.

EUROVENT

This year, we were pleased to engage with European manufacturers and professionals in the RACHP sector on key topics such as data centre energy performance and the latest European regulations at the EUROVENT Summit in September in Prague. Attending such a key event for the European RACHP community is a step toward closing the gap between scientific research and recommendations, and professional operational activities and challenges. Beyond this summit, which is an important platform for dialogue with professionals, the IIR and EUROVENT will reinforce collaboration by co-organising events, releasing joint publications and sharing data, sparked by our common objective to benefit the refrigeration sector at large.

The French Association of Refrigeration (AFF)

As both organisations are headquartered in Paris, we value our particularly close ties with our national counterpart – the French Association of Refrigeration (AFF). In January, we were honoured to take part in a round table at their *“Vœux du froid”* event where we emphasised the need for capacity building and awareness-raising to ensure the appropriate use and selection of technologies, taking environmental considerations into account.

Later in the year, we joined the AFF on their booth at SIFA - the Interprofessional Refrigeration and its Applications Trade Show – which provided a valuable opportunity for us to meet many corporate members and gain deeper insight into their needs.

In December, we were pleased to attend the association’s annual *“Journée des fluides”* followed by a medal ceremony in the evening where IIR Commission D2 Member, Gilles Labranque, was awarded the prestigious Charles Tellier medal.

We firmly believe in the importance of maintaining strong relationships with national associations to ensure that we understand their local needs to accurately represent them at a global level.

4.

Science as the cornerstone for progress

Science as the cornerstone for progress

390+ Experts
IIR Commission Members and Working Groups

569 Items Published in 2025

International Journal of Refrigeration
387 papers
12 issues
Available in

2 Technical Briefs
Available in

1 Policy Brief
Available in

1 Safety Guideline
Available in

4 Technology Briefs
Available in

One of the core objectives of the IIR and its working groups is to contribute to global knowledge on refrigeration and heat pump technologies. Each year we publish an array of content to further knowledge in the sector, ranging from technical briefs and policy outlines to conference proceedings, news items and larger specialised publications such as books.

IIR private and corporate members are entitled to a 25% discount on these documents, while our summaries are freely accessible.

Every brief we publish is grounded in scientific data and undergoes validation by international experts from the IIR network. We would like to extend our recognition to all contributors for their dedication over 2025.

IIR Publications in 2025

Download here

COOLING TECHNOLOGIES FOR SUSTAINABLE DATA CENTRES

With the increase in the importance of data centres for our ever more digital world, and the ***"global data centre cooling market valued at $157.3 billion in 2022, with projected growth at a compound annual rate of 17.1% through 2030"*** [3], it is not surprising that the topic was the focus of work by IIR Commissions E1 and B2. Combining the expertise of members working on air conditioning, heat pumps and energy recovery as well as refrigeration equipment, with the fact that **"cooling systems alone accounting for 40 of their [data centres'] energy use"** [4] our complete brief is a reference for energy conservation and emission reductions in data centre cooling systems. The document shares leading research, applications and insights regarding cooling architectures, AI-powered operation systems, system optimisation and recommendations for policymakers, researchers and industry leaders.

THE ROLE OF REFRIGERATION IN THE GLOBAL ECONOMY

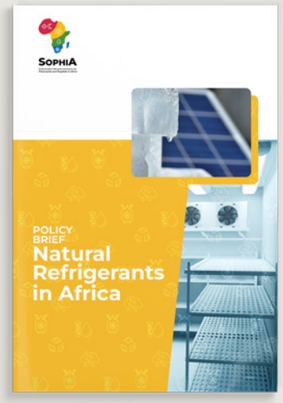
Refrigeration and heat pump technologies are critical to life on our planet, impacting food security, healthcare, energy efficiency and climate change, yet they are too often overlooked and invisible. ***"Refrigeration is essential for reducing food loss and waste, which currently amounts to 12% of global food production. Expanding cold chain infrastructure could save 475 million tonnes of food annually, enough to feed 950 million people."*** [5] To address this and other issues with clear recommendations of the actions to take at global and national levels, experts from the IIR Head Office and Commissions A, C and D put together the comprehensive technical brief titled "The role of refrigeration in the global economy".

Download here

SAFETY PROTOCOL FOR HANDLING CRYOGENICS LIQUIDS

Safety is a key concern in the refrigeration and heat pump sector, especially in the field of cryogenics where extremely low temperatures are involved for liquid nitrogen, helium and hydrogen, typically below –150°C (123 K). ***"By fostering a culture of safety and continuous improvement, organisations can effectively mitigate risks associated with cryogenic operations."*** [6] Cryogenics is used in many industries from medical to aerospace and this guideline was prepared by members of Commission A1 and A2. It is a key tool for risk reduction in the sector.

Download here



Download here

NATURAL REFRIGERANTS IN AFRICA

In accordance with the Kigali Amendment to the Montreal Protocol, ratified countries are phasing down the use of HFCs. However, we need to consider the specific situation encountered in many countries on the African continent - ***"HCFC-based systems still account for half of the African air conditioning market, highlighting the need for climate-friendly alternatives."*** [7] This policy brief has been designed by the SophiA EU project alongside the IIR team, ROCA Senegal, the Ghana Energy Commission and U-3ARC to help policymakers understand the key challenges and benefit from clear recommendations ranging from technology development to access to financing and regulatory infrastructure.

Stakeholders in the cold chain face many different challenges that evolve within the context of national efforts to meet the Montreal Protocol and the Paris Agreement, as well as local climatic conditions.

In order to support countries in their goal to strengthen their cold chains, we partnered with the United Nations Environment Programme (UNEP) OzonAction to release a series of technology briefs. These focus on Fishing vessels, Walk-in Cold Rooms (WICRs) in Article 5 countries, Commercial, Professional, and Domestic Refrigeration, and Road Refrigerated Transport in Hot Climates.

To demonstrate the value of these reports, here are some key findings they share:

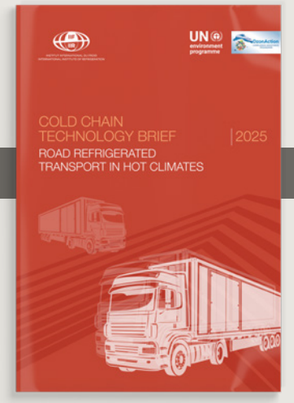
COMMERCIAL, PROFESSIONAL, AND DOMESTIC REFRIGERATION

"An estimated 13% of the world's food is lost in the supply chain from post-harvest up to, but not including, retail. Additionally, a further 19% of food available to consumers is then wasted at the retail, food service and household levels (UNEP, 2024)." [8]

WALK-IN COLD ROOMS IN ARTICLE 5 COUNTRIES

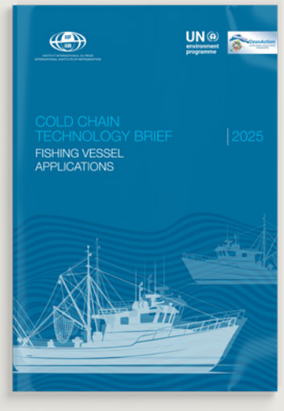
"With 31% of the global population relying on rural and traditional food systems – especially in Africa and Asia – small walk-in cold rooms are likely to be just as important for preserving nutritious perishable foods as large-scale cold storage facilities." [9]

Download the briefs here now to get all the data, insights, and recommendations



ROAD REFRIGERATED TRANSPORT IN HOT CLIMATES

"Heat waves, as part of extreme weather events and overall temperature increase, are now being experienced in temperate and continental climate areas with established cold chains (WMO, 2025; Copernicus, 2025). Consequently, transport challenges in hot climates are becoming a global issue." [11]



FISHING VESSEL APPLICATIONS

"Many refrigerants currently used in the global fishing fleet pose significant environmental challenges due to their high GWP and ODP. Refrigerant losses, which occur due to system leaks caused by the constant movement of vessels, account for up to 2% of the total maritime emissions (Hafner et al., 2019)." [10]

WEB OF SCIENCE AND SCOPUS

We are indexed in Web of Science - a leading bibliographic database that indexes scientific papers, conferences, and other academic publications. It is one of the primary platforms researchers use to access high-quality, peer-reviewed work. In 2026 we will also be indexing our conferences on Scopus. This marks an important step in increasing the global visibility and academic impact of the research presented at our events.

THE INTERNATIONAL JOURNAL OF REFRIGERATION

Knowledge being one of our core values, we are proud to share that in 2025, the International Journal of Refrigeration, our monthly publication of scientific papers by Elsevier, was ranked 9th by Google Scholar for the most cited publications in thermal sciences. With a cite score of 7.3, and an impact factor of 3.8, we warmly encourage all researchers to continue publishing with the IJR to enhance the visibility of your work.

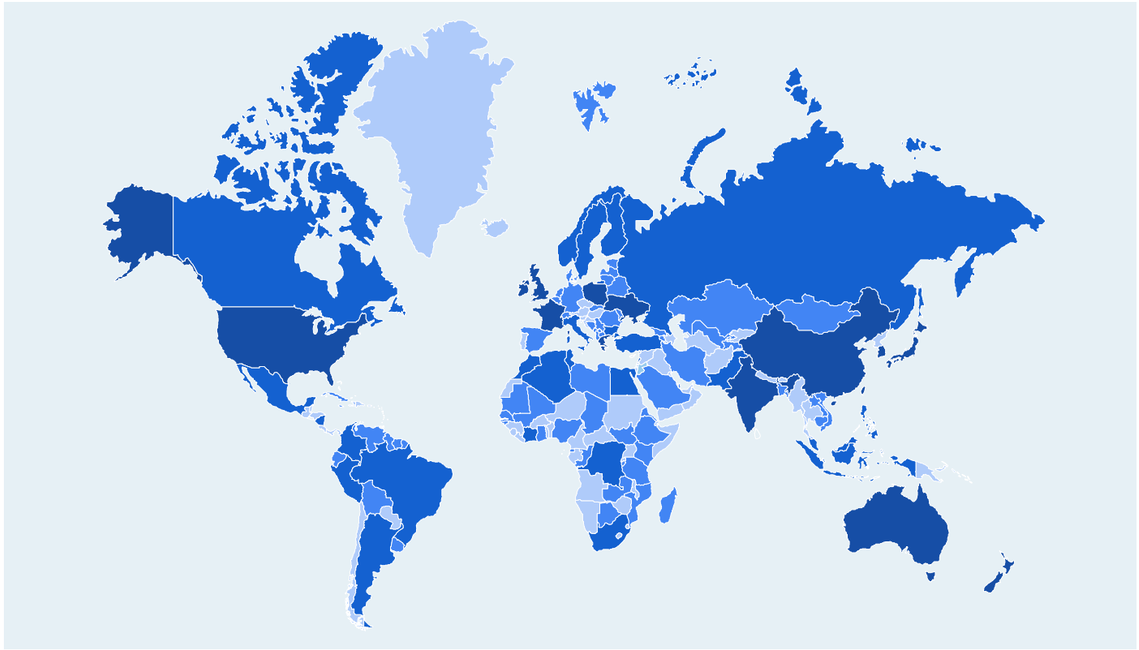
Dissemination

At the IIR, we believe in the importance of sharing key industry information and news - ranging from trends and research to policy or regulatory updates and member innovations, from conference proceedings and international programmes to our latest publications and events. We disseminate this information through our website and a bilingual monthly newsletter, extending access to non-members in 2025. We also share information via newsflashes, mailing campaigns and our LinkedIn page, ensuring as many people as possible can benefit from our knowledge base, events and information. Notable communication campaigns in 2025 include celebrating Heat Pump Day with a publication sale, Member spotlights, and sharing key terms from our Dictionary. Our website has dedicated sections for news items, sector monitoring, press releases, events calendar, publications and training courses and materials. Members can also sign up for customised alerts via our site to receive the latest news and research most relevant to their field.

Join the conversation on Linkedin.

Ensure you don't miss out on the latest news by signing up for our newsletter.

Our global audience **(website – 82,019 total active users in 2025)** includes visitors from all countries* across the world.



**Disclaimer - heat map provided by G4A - the presentation of countries on this map does not imply the expression of any opinion whatsoever on the part of the International Institute of Refrigeration concerning the legal status of any country, territory or area or of its authorities, or concerning the delimitation of its boundaries.*

Providing resources for our members

At the IIR, we have a wealth of knowledge at the service of our members. Our online database, FRIDOC, is the world's most comprehensive database dedicated to refrigeration information, containing over 110,000 references. We also have a unique library containing historical archives and unique documents. In 2025, we began a large-scale digitisation project to preserve these archives and to make them available to refrigeration professionals, researchers, and students.

41	**volumes digitised** in 2025
1666	**additional publications** on FRIDOC
112767	**records** currently available

Access the database here.

Knowledge-sharing

Webinars are a key tool for the IIR to get closer to our network, disseminate knowledge and expert insights to the widest audience possible.

With governments phasing out fossil fuel-based systems and tightening regulations on synthetic refrigerants, the industry is turning to natural alternatives, and hydrocarbons (HCs) are leading the way. In this context, we held our *"Domestic hydrocarbon heat pumps, key to a decarbonised future"* webinar on March 10, attended by 250+ participants. Watch the replay here.

We shared insights from our technical brief on Domestic Heat Pumps Using Hydrocarbons, with a specific focus on the European market, trends in the industry and future outlooks for hydrocarbon refrigerant adoption.

We also co-organised a side event at the 47th Open-Ended Working Group (OEWG-47) of the Montreal Protocol in Bangkok on July 7 titled "Cooling Systems Emissions from Data Centres".

This event brought together 70-80 experts, policymakers, and industry leaders to discuss sustainable solutions for managing emissions from data centre cooling.

This was an opportunity to not only understand the critical need to take action due to the huge amount of GHG emissions coming from data centre cooling systems, but also to share tools for the future. Resources made available at this session that you can benefit from today include the U4E Procurement Guideline for Sustainable Data Centres and Computer Servers and the IIR Technical Brief - Cooling technologies for sustainable data centres. Read more about the event.

At MOP37, we co-hosted a side event with UNEP OzonAction focused on strengthening knowledge on sustainable cold chain technologies in hot climates. The session attracted over 80 people including national delegations, leading researchers, and technical experts to explore innovative solutions for cold storage and refrigerated transport. Not only covering the urgency of the need for resilient and energy-efficient cold chains, the event also drew the link between climate action with economic growth. During the session there were technical presentations by Silvia Minetto President of IIR commission D2 refrigerated transport and Alan Foster President of Sub-Commission D1 on Refrigerated display cabinets who shared their expertise, informed Policy makers and National Ozone Officers on innovative technologies for commercial, domestic refrigeration as well as walk-in cold rooms and refrigerated transport.

"The cold chain is a critical link in the food value chain for reducing loss, preserving quality, and supporting food security." - Souhir Al-Hammami, Director of IIR Scientific and Technical Information Department.

Following the publication of these technical briefs in partnership with UNEP (United Nations Environment Programme) OzonAction, we held a series of webinars on refrigeration across all sectors, including marine cooling, and transport innovations. During these sessions we shared key insights from the publications, and opened the floor to new discussions and questions with the experts with as wide an audience as possible.

As we believe in continually sharing all knowledge to maximise its value for all, the replays of the webinars are freely available on our YouTube Channel.

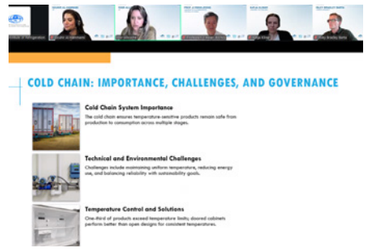
438 attendees from 36+ countries (all 3 webinars combined).

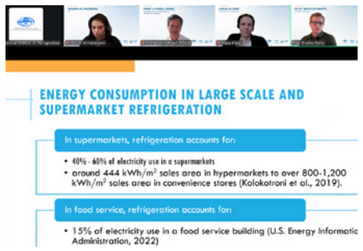
IIR Junior Member involvement

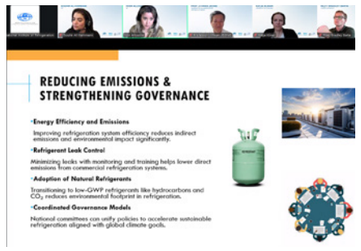
On May 13, our junior members from Commissions E1 and E2 organised and held a dedicated meeting to discuss ideas for increasing involvement and understanding the role of junior commissioners within the IIR. The discussion resulted in several proposals that were submitted to, and approved by, the Science and Technology Council at their June meeting. These proposals include expected participation of junior members in technical and policy briefs (supported by commission presidents), regular cross-commission junior meetings, and a special issue of the International Journal of Refrigeration dedicated to junior members.

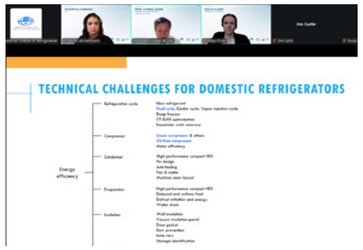
> "It is great to create a role specific to junior members within the IIR to improve participation and involvement. I think this will yield long-term gains in the transition of leadership and knowledge within the institute. I am excited to see how we will advance these initiatives in 2026."
>
> *Allannah Duffy, IIR Junior Member.*

Highlights from some of our 2025 webinars









5.

Conclusion

/ 2026

What to expect

We hope to make 2026 a year for concrete collaboration among all refrigeration stakeholders, the coordination of evidence-based policy decisions, and the strengthening of new and existing partnerships to share our knowledge and results ever more widely.

With emissions from cooling set to double by 2050, we urgently need to develop sustainable refrigeration practices that are based on independent and unbiased scientific knowledge.

The heating and cooling sector combined accounts for about 49% of global final energy consumption. Cooling is the fastest-growing demand segment while heating accounts for the largest share of energy use of the two. Decarbonising heating is no longer an option, it is essential for the energy transition, and heat pumps provide clean, efficient, and low-carbon heating, reducing dependence on fossil fuels and strengthening energy security.

We are counting on you, our network of member countries, researchers and industry partners, to continue supporting the IIR, and helping us to achieve this all the while staying true to our values of knowledge, integrity and collaboration.

IIR International Institute of Refrigeration

Sustainable refrigeration and heat pump technologies for all through international collaboration.
Science of cold in action

/ How you can get involved with the IIR

Access knowledge

Understand the past, the present and the future of the refrigeration sector on topics ranging from science and technology, health and economic impacts, or operational challenges and policies thanks to the IIR database that contains policy and technical briefs, conference papers, the International Journal of Refrigeration and much more.

〉 Since **1908**
over a century of scientific knowledge

Support careers & skills

Promote careers in refrigeration by sharing and using our professional resources and training materials. We are committed to ensuring that the refrigeration community is an integrated part of the national and international sustainable transition for a better future for all.

〉 A community of **330+ members**

Connect & exchange

Connect with us and our members at events, webinars and conferences, and amplify the shared voice in the sector to move forward reflections and discussions on refrigeration applications, upcoming technologies, environmental and economic considerations, and new policies.

〉 Cycle of **10 conferences**

Take action

Participate in national, European and International projects. We are a key consortium partner in many projects that support our mission of disseminating knowledge about refrigeration to improve the quality of life in a cost-effective and environmentally sustainable way.

〉 **5** EU and International projects

Recognition of service

The International Journal of Refrigeration (IJR) could not exist without the hard work of our dedicated team of reviewers and editors. We would like to thank Prof. Koji Matsumoto (Chuo University, Department of Precision Mechanics, Bunkyo-Ku, Japan) who this year announced his intention to retire from the position of editor after over a decade. You have been a highly valued asset for the IIR and for the IJR, and the whole refrigeration community thanks you for your support.

In memoriam

Dr. Reinhard Radermacher

IIR Honorary Member

Dr. Radermacher was an esteemed member of the IIR community, where his contributions were invaluable. He served with distinction as President of Commission B2 – Refrigerating Equipment from 2000 to 2003, as a member of Commission B1 – Thermodynamics & Transfer Processes from 1996 to 1999 and was an Honorary Lifetime Member of our organisation. His work in these roles, and throughout his career, has left an indelible mark on the field of refrigeration science and engineering.

Prof. Farès Charbel

Lebanese delegate to the IIR

Prof. Charbel coordinated the Arabic translation of the International Dictionary of Refrigeration and was instrumental in establishing a partnership between UniLaSalle and the IIR to launch a master's degree programme in urban food production, designed for students from French-speaking Africa and Lebanon. A dedicated Lebanese delegate to the IIR, he served as a Physics professor at UniLaSalle Polytechnic Institute in Beauvais (France), where he graciously hosted the IIR Executive Committee meeting in 2002.

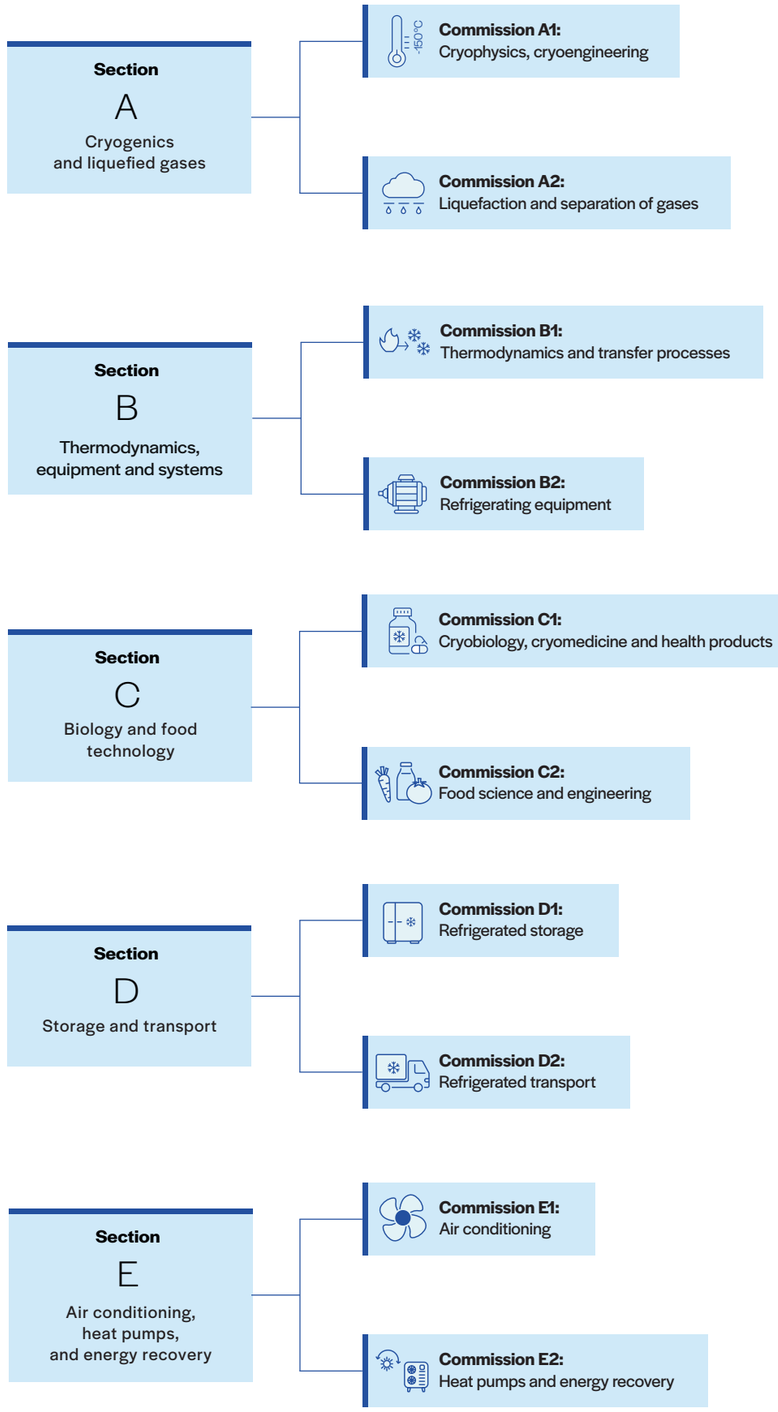
Governance of the IIR

The structure of the IIR intends to ensure the quality and neutrality of our actions. We are run by four statutory bodies – the General Conference, the Executive Committee, the Science and Technology Council and the Management Committee.

- The highest authority is the General Conference (GC). This body is composed of representatives appointed by member countries and is responsible for issuing the general directives on the organisation's operations. The General Conference meets once every 4 years at the International Congress of Refrigeration (ICR). The next ICR will be held in Seoul, Republic of Korea in 2027.
- The Executive Committee (EC) is made up of delegates from our 59 developed and developing member states, from all continents. The EC, expanded every four years in the form of a general conference, decides on the strategic directions, approves allocated budgets, activity reports, and elects the Director General. The Head Office, led by the Director General under the direction of the EC, carries out technical and administrative activities to ensure the implementation of the IIR's duties and actions.
- The Science and Technology Council (STC), composed of the presidents of five sections and ten commissions, covers the various uses and technologies of refrigeration and heat pumps. Each of these commissions has between 20 and 50 members, each with their own area of expertise, who write or review publications, organise conferences, undertake studies, collect data and take part in projects.
- The Management Committee (MC) is responsible for overseeing the operations of the Institute between meetings of the Executive Committee. It is composed of three representatives from the EC and three from the STC.

The Director General is ex-officio Secretary of the General Conference, the Executive Committee, of the Management Committee, and of the Science and Technology Council.

Structure of the Science and Technology Council



Governance of the IIR 2023-2027: organisational chart

General Conference
M. S. Kim
Republic of Korea

Executive Committee
R. Cermak
Czech Rep

Management Committee
R. Cermak
Czech Rep

Science and Technology Council
G. Cavalier
France

Section A
Cryogenics and liquefied gases
A. Srnka
Czech Republic

Commission A1
Cryophysics and Cryoengineering
S. Grohmann
Germany

Commission A2
Liquefaction and Separation of gases
P. Zhang
China

Section B
Thermodynamics, equipment and systems
E. Groll
USA

Commission B1
Thermodynamics and transfer processes
L. Cremasci
USA

Commission B2
Refrigerating equipment
J. H. Jeong
Republic of Korea

Section C
Biology and food technology
J. Evans
UK

Commission C1
Cryobiology, cryomedicine and health products
J. Gregor
Czech Republic

Commission C2
Food science and engineering
A. Le Bail
France

Section D
Storage and transport
R. Lawton
UK

Commission D1
Refrigerated storage
A. Hafner
Norway

Commission D2
Refrigerated transport
S. Minetto
Italy

Section E
Air conditioning, heat pumps and energy recovery
X. Li
China

Commission E1
Air conditioning
Y. Ge
UK

Commission E2
Heat pumps and energy recovery
G. Maidment
UK

IIR Director General
Y. Allouche
Tunisia / Norway

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