International Institute of Refrigeration

THE INTERGOVERNMENTAL ORGANISATION

for the development of refrigeration and heat pump technologies

Why refrigeration matters

The cooling and heating sectors combined account for about 49% of global final energy consumption. Cooling is the fastest-growing demand segment addressing issues particularly affecting the most vulnerable regions such as access to safe and quality food and health products, as well as responding to global warming, population growth, and the increasing demand for digital technologies.

At the same time, heating accounts for the largest share of energy use of the two applications. 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.

Refrigeration, which provides both cooling and heating needs for various applications, has long been underestimated and remains widely misunderstood, despite playing a fundamental role across all sectors. It is time to recognise its true importance.

Science-led innovation and technology transfer

Meeting food, health, digital infrastructure and climate challenges demands continuous innovation in the refrigeration sector. The IIR links researchers, industry experts, and policymakers through the development of scientific information, and its promotion in conferences, briefs, and reports. The IIR turns scientific progress into practical and reliable applications.

Global climate action and growing demand for cooling

Global demand for refrigeration technologies continues to rise. The IIR provides the latest scientific knowledge and data to support the deployment of energy-efficient systems, climate-friendly refrigerants, renewable energy solutions, and heat pump technologies for decarbonisation and energy security.

Refrigeration in numbers

20%
of global electricity for cooling

x2
cooling demand by 2050

40%
of data center energy consumption for cooling

12%
of global food production lost due to insufficient cold chains

20%
pharmaceutical products damaged due to improper storage

Public health, food safety and security

Cold chains are vital for food safety and security, and safe access to temperature-sensitive medical products. The IIR supports sustainable, efficient cold chains by offering science-based guidance and best practices to reduce losses and ensure reliable access to essential goods.

International governance and regulations

All countries must implement ambitious action plans to meet global climate commitments, including the Paris Agreement and the Kigali Amendment. The IIR supports this by providing trusted scientific knowledge, data, and tools to inform evidence-based policies, and help countries develop effective strategies aligned with international commitments.

Strengthening global collaboration

The IIR is an independent intergovernmental organisation committed to advancing refrigeration science and heat pump technology for a sustainable future through the development and promotion of scientific knowledge.

The IIR is a pioneering institution in the field of refrigeration, established by France's Minister of Commerce, André Lebon, following a proposal by Dutch Nobel Prize laureate Kamerlingh Onnes at the first International Congress of Refrigeration held in 1908.

With its global network of scientists and experts, **the IIR is the only intergovernmental organisation to combine scientific and technical expertise** relating to all aspects of refrigeration and heat pump technologies and their applications. From food safety and quality, to health and cooling systems for data centres, air conditioning and heat pumps, cryogenics for medical applications, liquefied natural gas, and cutting-edge technologies.

The IIR plays a pivotal role on the global stage, sharing its firm belief that sustainable refrigeration and heat pump technologies should benefit all.

The IIR provides scientific and technical support to policymakers to assist them in developing strategies and policies aimed at achieving global environmental and climate development goals. Through research, knowledge dissemination, technical recommendations, expert consultations and advice, the coordination of scientific conferences, and delivering capacity-building programmes and training courses, **the IIR supports decision-makers, industry stakeholders, and the international scientific community.**

The IIR is also a key consortium partner in numerous European and international projects, bringing its expertise to support the most vulnerable economies and promote equitable access to safe, sustainable, and efficient refrigeration and heat pump solutions.

Some of IIR's Milestones

1908
IAR founded in Paris

The IAR (International Association of Refrigeration) was founded by: Kamerlingh Onnes, André Lebon and Jean de Loverdo (engineer at the Ministry of Agriculture, FR) with the aim of gathering thought leaders in the low temperature field.

1920
From IAR to IIR

Recognised as an intergovernmental organisation, the IAR became the International Institute of Refrigeration, a global scientific network with 16 commissions focusing on science, regulation, education, and economics.

1935
Technical Committee

The Technical Committee, a liaison body formed of 7 committees, uniting physicists and mechanics shaping the refrigeration sector, was set up at the suggestion of Gardner Poole, President of the American Institute of Refrigeration.

1954
The IIR international agreement

The IIR's intergovernmental status was recognised under the aegis of UNESCO in Paris, qualifying as an autonomous scientific organisation abiding by international law, dedicated to promoting refrigeration worldwide.

1966
Headquarters agreement

The IIR and the French government agreed upon diplomatic provisions, privileges and immunities of the headquarters on French soil.

Since 1987
Active participation in climate protocols:

Montreal Protocol, Kyoto Protocol, Paris Agreement, Kigali Amendment.

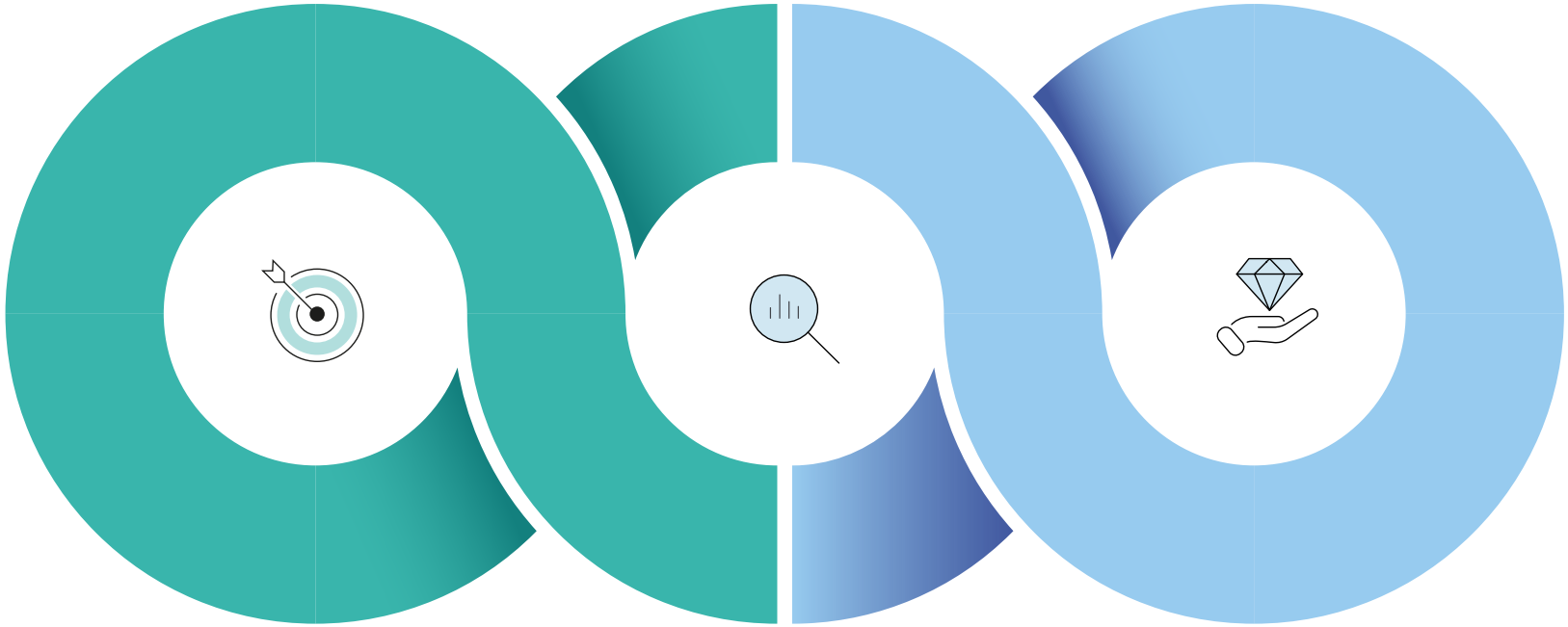
2019
Rome Declaration

UN Member States underlined the importance of international cooperation to promote the development of the cold chains.

2025
The IIR celebrated World Refrigeration Day in Paris,

with industry leaders, scientists, and international organisations, repositioning refrigeration as a critical infrastructure for sustainable development, human well-being, animal welfare and climate resilience.

What drives us



Our Mission

The intergovernmental organisation for the development of refrigeration

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.

Our Vision

Science of cold in action

Sustainable refrigeration and heat pumps for all.

Our Core Values

Knowledge, Engagement, Collaboration, Integrity, Diversity, Equity & Inclusion (DEI)

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

Key figures

10 commissions
2 sub-commissions

390+ experts
in the network contributing to furthering research

Cycle of 10 conferences
including the quadriannual International Congress of Refrigeration

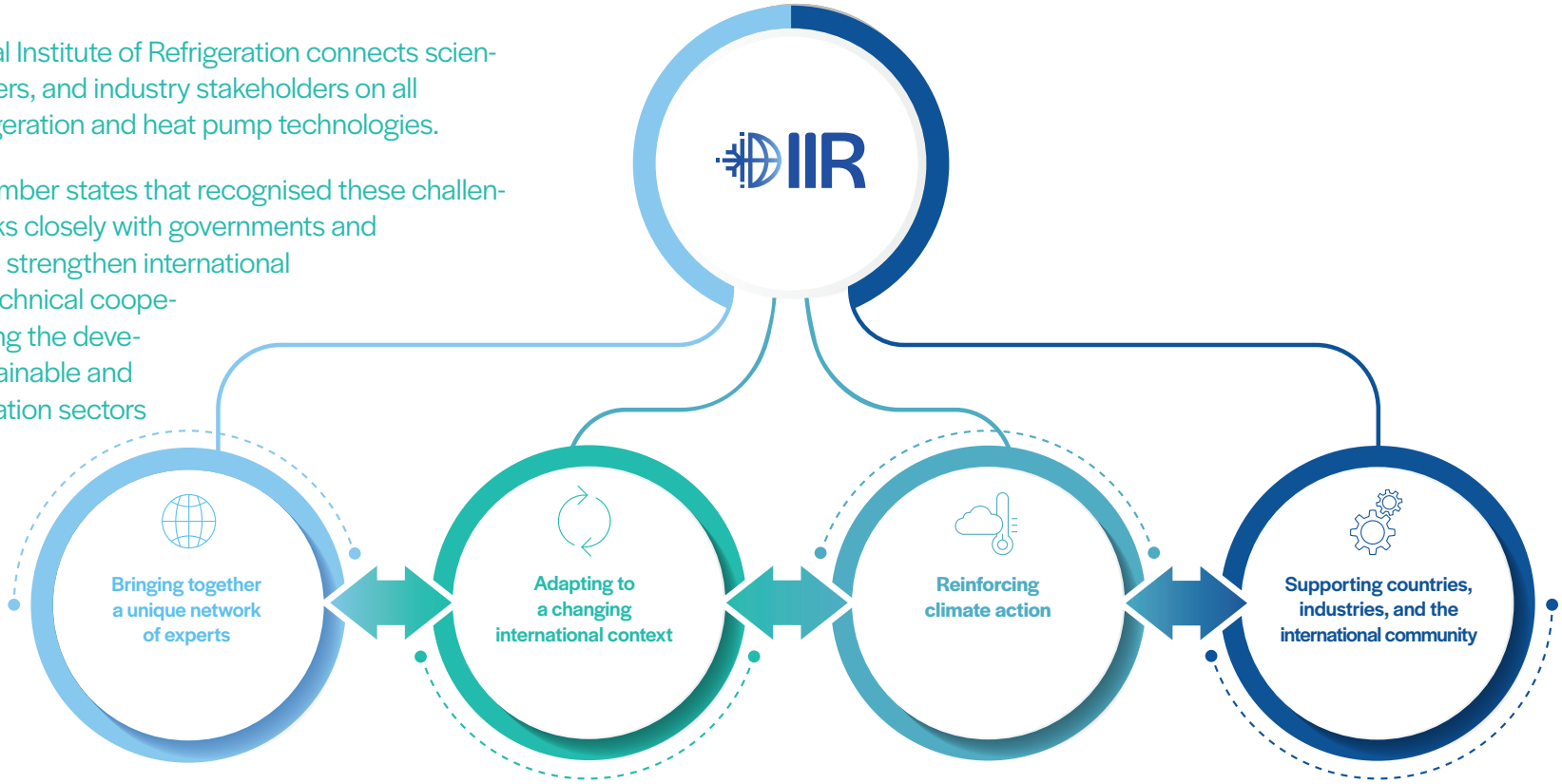
110,000+ references
in the FRIDOC database

59 parties
to the Treaty

Bridging science, policy, and industry

The International Institute of Refrigeration connects scientists, policymakers, and industry stakeholders on all aspects of refrigeration and heat pump technologies.

Founded by member states that recognised these challenges, the IIR works closely with governments and organisations to strengthen international scientific and technical cooperation, supporting the development of sustainable and resilient refrigeration sectors in all nations.



The IIR acts as a bridge between experts, building a global network dedicated to refrigeration and heat-pump science and technology. Bringing together researchers, policymakers, and industry stakeholders, it supports international collaboration and advances scientific and technical knowledge to address global challenges.

Since its creation, the IIR has fostered international cooperation and strengthened scientific knowledge across all fields of refrigeration, supporting key needs such as food security, public health, and climate resilience. In a context of growing global challenges, this mission is more critical than ever.

The IIR ensures refrigeration technologies align with global climate ambitions, addressing diverse sectoral and regional challenges. Drawing on its international network of experts, it provides independent insights and supports research that reflects societal needs, environmental priorities, and industrial capabilities.

The IIR actively supports countries and organisations in disseminating scientific knowledge, in the implementation of refrigeration action plans, undertaking research projects, and deploying technical capacity-building and training programmes. Through these efforts, the IIR strengthens its global network of experts and reinforces international cooperation across the entire refrigeration sector.

The IIR is structured to ensure impartiality and to actively promote research

The governance of the IIR guarantees the quality and neutrality of its actions while providing a platform for international collaboration.

The organisation is governed by four statutory bodies, comprised of members from countries which are party to the Treaty:

- **The highest authority is the General Conference (GC)**
  which is composed of representatives appointed by member countries, and is responsible for issuing general directives on the organisation's operations. The General Conference meets once every four years at the International Congress of Refrigeration (ICR).

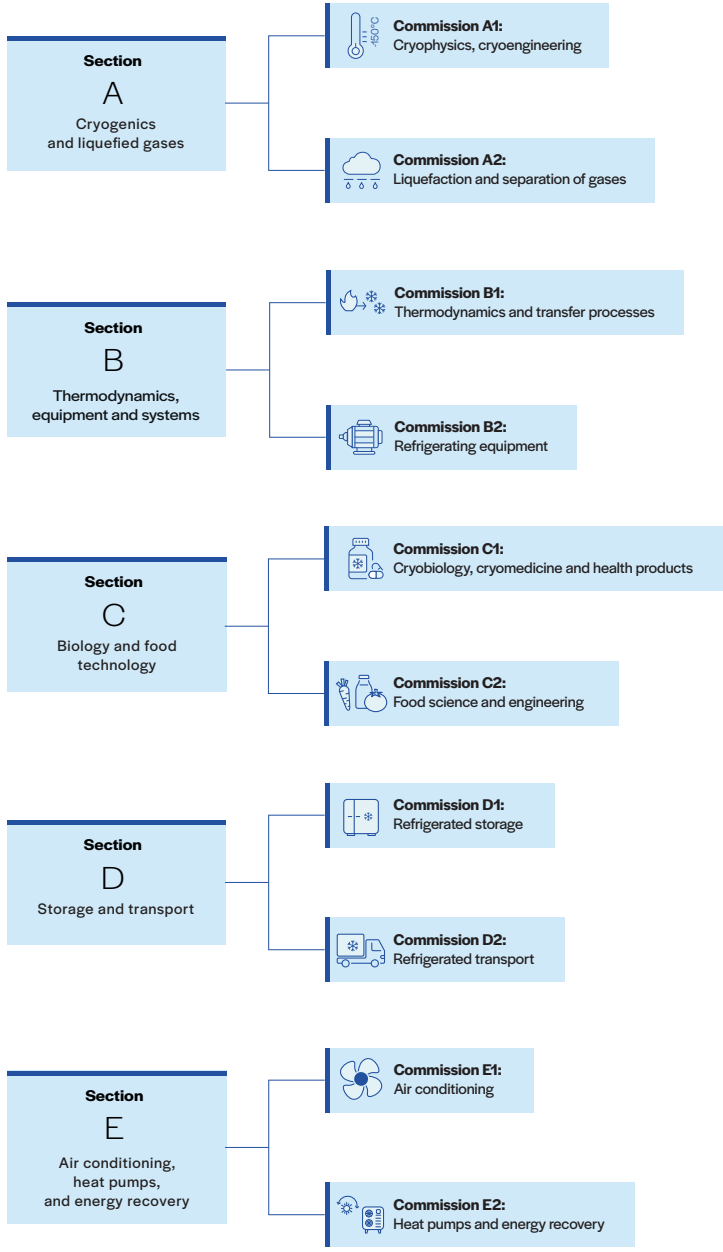
- **The Executive Committee (EC)**
  is made up of delegates from our 59 member countries, from all continents. The EC decides on the strategic direction, approves allocated budgets, activity reports, and elects the Director General.

- **The Management Committee (MC)**
  is responsible for overseeing the operations of the Institute between meetings of the Executive Committee.

- **The Science and Technology Council (STC)**
  coordinates the scientific and technical activities of the IIR. Composed of the presidents of five sections and ten commissions, the STC covers all uses of refrigeration and heat pump technologies.

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



IIR members benefit from a wide array of expert services

Policy recommendations

The **IIR provides governments with scientifically proven recommendations**, and creates the platform for dialogue between policymakers, industry experts, and researchers.

The IIR also regularly participates in discussions with regulatory and international bodies.

Expert and unbiased scientific information

FRIDOC, the **IIR's database**, is the world's most comprehensive database dedicated to refrigeration information, containing **over 110,000 references.**

The database includes technical briefs, policy briefs, the International Journal of Refrigeration, conference proceedings, specialised books, references to scientific journals and other verified non-IIR publications, training materials, and technical documentation.

A global community of experts

The IIR is an international refrigeration network. **Its members are researchers, experts, R&D professionals,** academics, RACHP professionals, industry experts, country delegates and national commission members, who form a unique platform bridging science, policy, and industry.

Through this community, **the IIR promotes scientific collaboration and supports project development** to advance its goal of sustainable refrigeration for all.

Data and analytical tools

The **IIR collects and analyses reliable data and statistics, to develop tools** that support scientific research, collaboration and evidence-based policy making.

Some testimonials from the global network

At a time when we need to rethink our use of refrigeration technologies, the IIR acts as a bridge between research, industry and policy. For the French Ministry for Industry, the energy and ecological transition is one of the main drivers behind changes in the manufacture of refrigeration equipment and heat pumps, and it is particularly strategic for our ministry to be able to rely on the IIR to understand technological and economic developments in the sector."

Constance Marechal-Dereu
Head of the industry department at the Direction Générale des Entreprises, France.

Coming from the industrial business world, I have always appreciated the opportunities afforded by the Institute's conference events to meet leaders in the academic field and exchange ideas with them. That level of interaction between academic leaders from around the world and industrial engineers is not available to that extent in any other forum."

Andy Pearson
Group Managing Director at Star Refrigeration Ltd.
Member of Commission E1 since 1999. UK.

The Colombian HVACR Association, as a longstanding partner and ally of the IIR, supports its efforts to provide the industry and professional associations with credible and valuable data. This work strengthens organisations worldwide, builds trust among stakeholders, and highlights the key role of associations in advancing knowledge, policy, and best practices in refrigeration."

Claudia Sanchez
Executive Director, ACAIRE. Executive Secretariat, FAIAR. Federation (FAIAR). Colombia.

My continued membership over many years has benefitted me both professionally and personally. Professionally by keeping me informed about important developments in our industry, and personally from my many interactions with international experts, some of whom have become close personal friends."

Bruce I. Nelson, P.E.
CEO, Bruce V. Nelson Engineering LLC, USA.

I have presented my research on refrigerants and refrigeration technologies at IIR conferences, and played a leading role in bringing ICR2015 to Japan for the first time, serving as one of the key figures. The IIR's global network has been an essential foundation supporting my professional growth and international engagement in the refrigeration field."

Noboru Kagawa
Professor Emeritus, National Defense Academy of Japan
Visiting Professor, Waseda University Chair,
Carbon Neutral 2025 Committee, JSRAE. Japan.

Tunisia reaffirms its dedication to international scientific and technical cooperation in the field of refrigeration. Its active contribution to the International Institute of Refrigeration reflects the national will to promote a sustainable, innovative, and environmentally friendly cold chain."

Mbarek Benhmida
Industrial Refrigeration Directorate
Food Industries Directorate
Ministry of Industry, Mines and Energy. Tunisia.

As a key member of the IIR, it allows me to directly participate in the academic planning, technical discussions, and standard-setting of the global refrigeration and heat pump community, thus I have an extensive platform for exchange and cooperation with world-leading experts, which greatly broadens my academic vision and professional network."

Ruzhu Wang
Chair Professor, Shanghai Jiao Tong University, Vice President CAR. Vice-president of Commission E2. China.

The IIR provides focused access to technical resources via FRIDOC, the IJR and IIR sponsored conference series. Participation in the IIR conferences and being a member of the IIR Commissions has provided access to a worldwide network of like-minded researchers and industry practitioners. Being part of the IIR has significantly helped me build my expertise and accelerated my career development."

Don Cleland
Professor of Process Engineering
Massey University, New Zealand.

Conferences and events

The IIR organises conferences and events in its member countries, bringing together leading international stakeholders to exchange knowledge on the latest scientific and technological developments in the refrigeration sector. These events provide a unique platform for global experts to meet, collaborate, and share insights to shape the future of the field.

The IIR has a cycle of 10 flagship conferences including the Congress, featuring:

- International audiences
- Expert speakers
- Leading global sponsors
- High-quality technical content
- Innovative scientific papers

These events provide unique opportunities to strengthen cooperation in refrigeration within the international community as well as sharing the latest technological developments, best practices, and scientific research.

Participation in international events

As an intergovernmental organisation, the IIR also plays an active role in major global events related to climate, energy, and refrigeration technologies such as UN Climate Change Conferences (COP), Montreal Protocol meetings (MOP), regional and global fora and specialised seminars.

At these strategic gatherings, the IIR provides recognised scientific expertise, supports strategic discussions, and ensures that issues relating to refrigeration, air conditioning and heat pumps are at the forefront of international policymaking.

List of conferences:

IIR International Congress of Refrigeration / IIR-Gustav Lorentzen Conference on Natural Refrigerants / IIR Conference on Sustainability and the Cold Chain / IIR Conference on Thermophysical Properties and Transfer Processes of Refrigerants / IIR Conference on Solid-State Cooling, Heating and Energy Harvesting / IIR Conference on Compressors and Refrigerants / IIR Conference on Phase-Change Materials and Slurries for Refrigeration and Air Conditioning / IIR Conference on Cryogenics / IIR International Conference on Refrigeration Adapting to Rising Temperatures / IIR Conference on Heat Pumps and Air Conditioning

IIR...

...a strategic partner in key international projects

The IIR is a key consortium partner in many research and innovation projects on refrigeration and heat pump technologies benefitting from national, European, and international funding programmes.

IIR supports high-impact projects by mobilising IIR expertise, mobilising funds, and enabling low- and middle- income countries to deploy tailored technologies, while leading communication and dissemination efforts to share projects results and drive wider adoption.

The IIR's role is to ensure that applied solutions are scientifically proven, tailored to local contexts, and designed to have environmental and social benefits.

Some of our projects

The EU SophiA programme enables African countries to benefit from sustainable off-grid energy supplies and clean drinking water for rural and remote health facilities in Africa, thereby accelerating the sustainable development, growth and economic transformation, and ensuring improved access to energy and health services for all.

The main scope of **the EU BETTED project is to facilitate dairy supply chain SMEs** to foster the market uptake of energy efficiency measures including the use of renewables and the deployment of heat pumps. BETTED stands for Boosting Energy Transition of ThE Dairy value chain.

The Norwegian funded project, INDEE3, aims to support India's transition to low-carbon heating and cooling technologies. It demonstrates and promotes the use of natural refrigerants, improves refrigerant lifecycle management, and develops more efficient cold chain solutions across sectors such as seafood, food processing, and buildings.

The EU AGRI-COOL project aims to empower African rural communities and industries by enhancing food security, reducing waste and fostering economic growth, while contributing to achieve African countries' targets under the Paris Agreement.

Join a global network of experts

The IIR, fostering global collaboration and building knowledge on all aspects of refrigeration and heat pump technologies.

Our members recognise that refrigeration and heat pump technologies are essential for human wellbeing, adapting to rising temperatures, and to ensuring the safety and quality of food and medicines, as well as global economic development.

Joining the IIR means contributing to how independent and unbiased scientific knowledge and expertise shape our future through informed policies, industrial innovation, and international collaboration.

As a member, you will be part of strengthening an international network, and will benefit from access to:

- Policy and technical recommendations to guide national humanitarian and climate strategies and initiatives
- High quality data and analytical tools to support your decision making and projects
- Reliable and unbiased scientific content
- Opportunities to participate actively in our work and publications
- Opportunities to give visibility to your work and expertise on a global level
- R&D initiatives with international scope
- A global network of refrigeration experts, researchers, industry experts, and policymakers to exchange scientific and technical knowledge
- Opportunities to host IIR Conferences and the International Congress of Refrigeration to shape the narrative and highlight the contributions of your national efforts to the sector

Membership types:

COUNTRY MEMBERSHIP

Member countries are represented at IIR level by governments, ministries, and national institutions.

CORPORATE MEMBERSHIP

Corporate members include companies, associations, universities, research labs, training centres, consultants, and startups.

PRIVATE MEMBERSHIP

Private members include researchers, experts, R&D professionals, students, RACHP specialists, and interested individuals.

https://iifiir.org

Contact us for more information about membership types.

Join us today, and help shape a sustainable future for refrigeration.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