



WEBINAR

# Gender Responsive Cooling: Using Data to Build Resilient Livelihoods

28 JUNE 2023

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# Gender Responsive Cooling

Using Data to Build Resilient Livelihoods



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# Chilling Prospects Special: Gender and Access to Cooling

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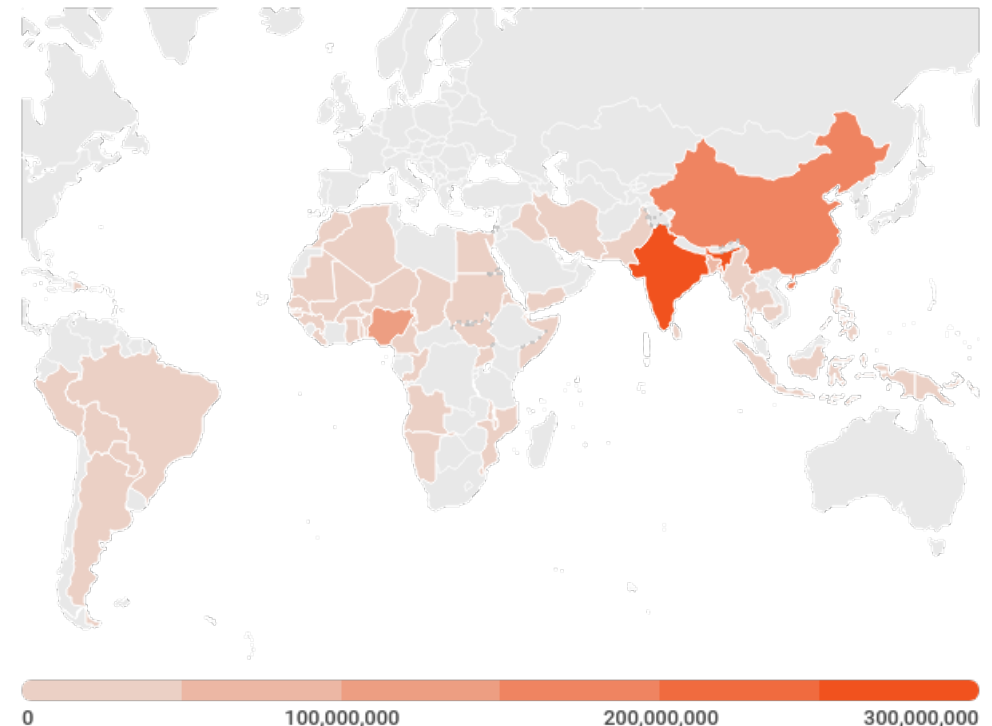


**1.2 billion people are at high risk** because they lack access to cooling in 2022.

In **54 high-impact** countries, the population at high risk includes:

- 371 million people in **poor rural settings**
- 797 million people in **poor urban settings**

Another **2.47 billion lower-middle income** people lack access to **efficient and affordable** cooling options.

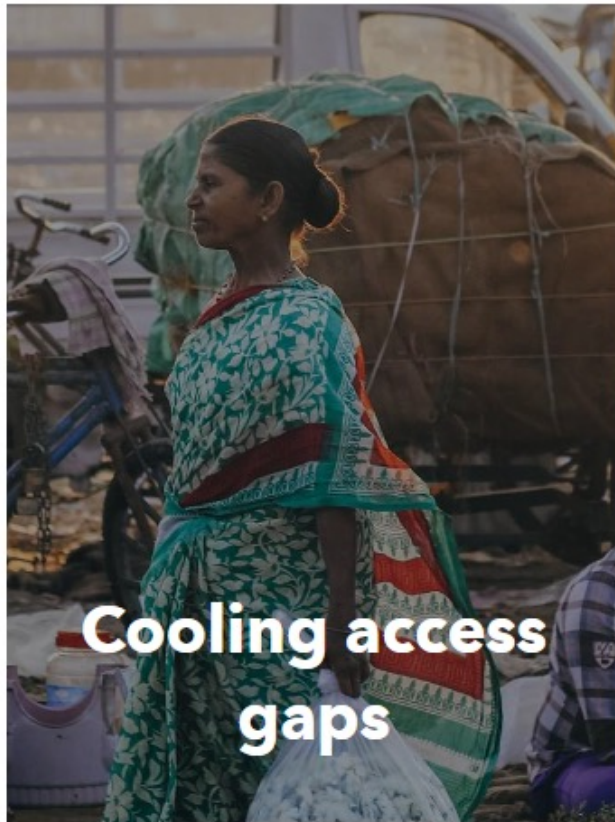




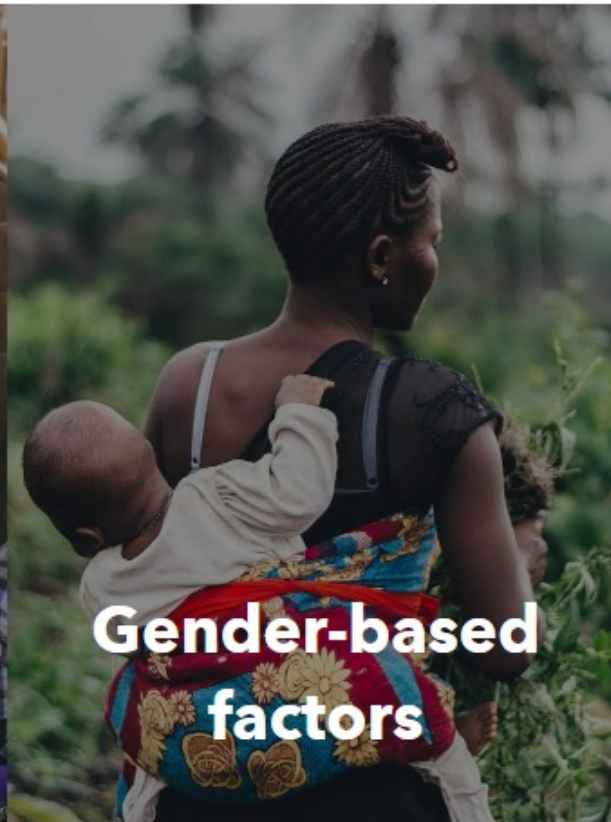
# Chilling Prospects Special: Gender and Access to Cooling



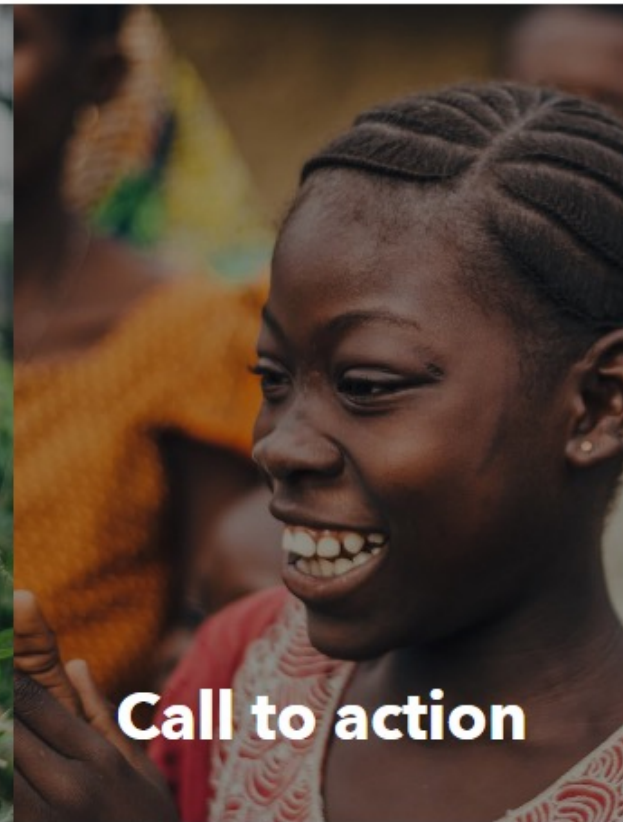
Chilling Prospects integrates a **gender lens** in the global access to cooling analytics and makes a call to action for **gender-responsive cooling**



**Cooling access  
gaps**



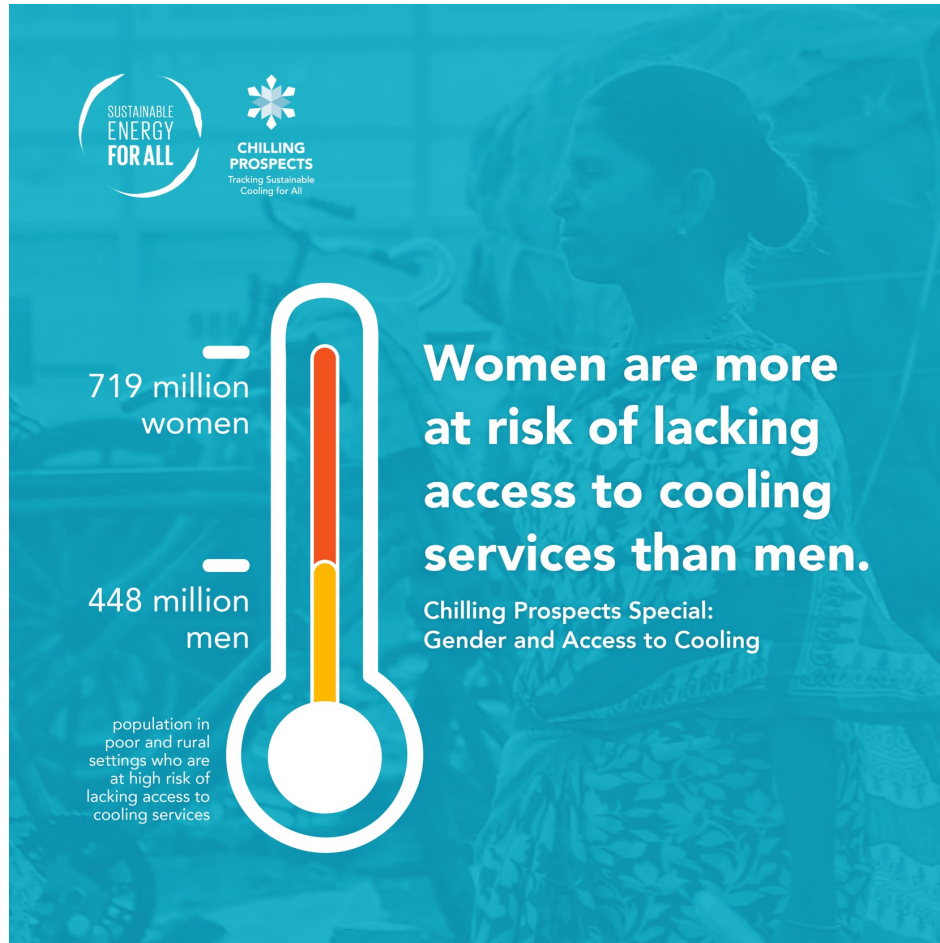
**Gender-based  
factors**



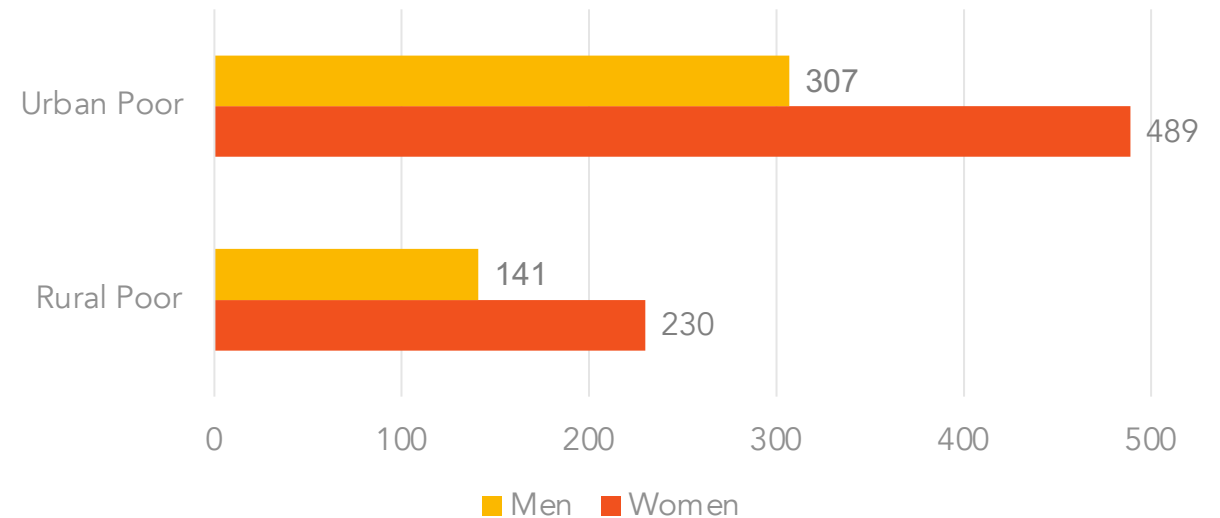
**Call to action**

# Chilling Prospects Special: Gender and Access to Cooling

**719 million women** and **448 million men** living in rural and poor areas at high risk of lacking access to cooling services



Populations at high risk of lacking access to cooling in 54 high-impact countries, by gender in 2022 (millions)











# High-risk factors for access to cooling








## General High-risk Factors

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-  No access to electricity
-  Income below poverty line
-  Poor ventilation and construction
-  No access to refrigeration for food
-  Farmers lack access to cold chains
-  Vaccines exposed to high temperatures

## Gender Specific High-risk Factors

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-  Electricity access gap
-  Poverty
-  Household dynamics
-  Health
-  Work conditions and resources

## Poverty and household dynamics

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**Extreme poverty** precludes essential energy services and exacerbates gender inequalities.

Women are expected to shoulder an **additional burden** – due to gender norms – during a heatwave, exacerbating heat stress.

**Men are often seen as the breadwinners** in the household, which gives rise to different heat-related risks and cooling needs.

- 80% of people in extreme poverty live in rural areas.
- By 2030, 83.7% of the world's extremely poor women and girls will live in:
  - 62.8 % Sub-Saharan Africa
  - 20.9% Central and Southern Asia

### Gender-disaggregated data:

- ✓ How women and men experience poverty within the same household
- ✓ Cooling needs as a result of gender norms



## Health and wellbeing

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**Physiological and social** attributes linked to gender — i.e. pregnancy, type of employment or access to support networks — pose distinct challenges to the ability of both sexes to adapt and even survive.

**Passive cooling and electrification** of health facilities to ensure refrigeration of medical products and vaccines can reduce heat vulnerability of women and children.

- Roughly 1 billion people in low- and lower-middle-income countries are served by healthcare facilities without reliable electricity.

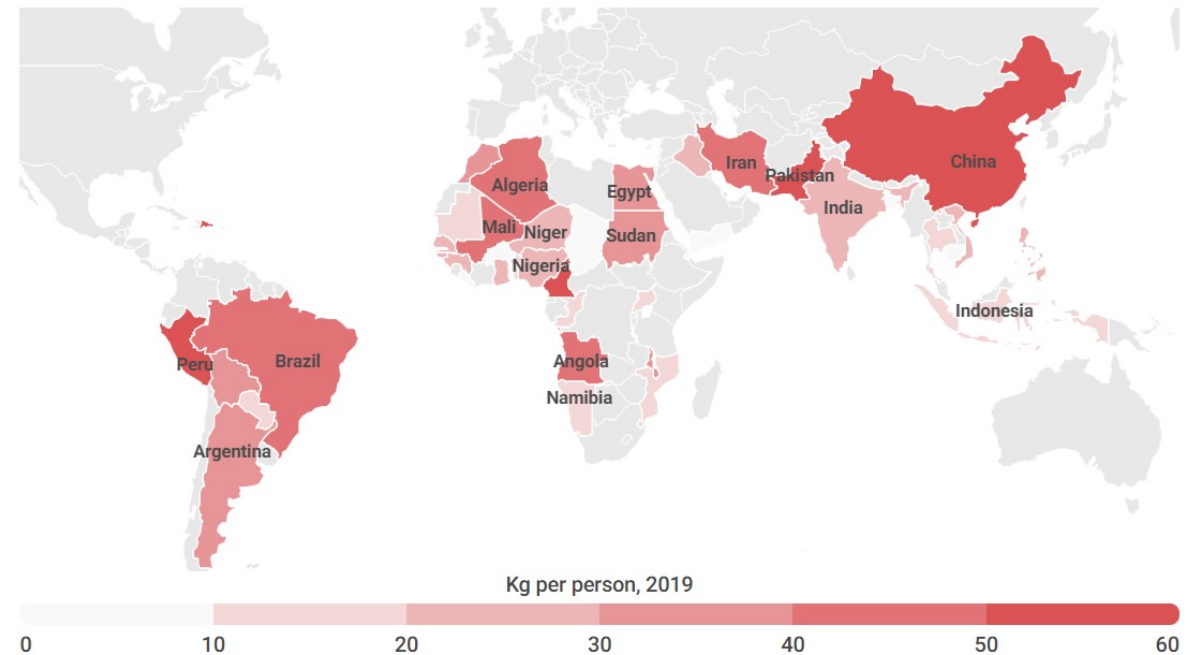
Improved data is needed to assess how social networks, pregnancy, segregation, freedom of movement and other factors affect heat vulnerability.

## Workplace and agriculture

Women are often involved in **post-harvest activities** which rely significantly in cooling services to ensure agricultural outputs and yields.

- Women represented on average 36.7% of all agricultural workers in 2019 and up to **50%** in many African countries.
- Every year, farmers in **India** incur nearly **USD 12,520 million in post-harvest losses** due to inadequate storage facilities and a lack of energy infrastructure

Food losses per person in high-impact countries for access to cooling





## Workplace and agriculture

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**Female-dominated sectors** such as garment, textile and brick kilns and **male-dominated sectors** such as construction call for immediate action to protect formal and informal workers.

- 80% of the workforce in the textile, garment are women

In informal workplaces that **lack access to basic sanitation facilities**, including toilets, women tend to avoid drinking water throughout high temperature days.

- Data is urgently needed to assess the extend of the population working in informal settings and guide gender-responsive cooling interventions.
- Gender-responsive solutions in agriculture could not only reduce gender inequalities but significantly reduce food losses globally.



**Thank you!**

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# Where do we stand on gender progress in the energy sector?



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# Introduction



## Efficiency for Access

A global coalition working to promote high-performing appliances that enable access to clean energy for the world's poorest people. It is co-managed by CLASP and Energy Saving Trust and consists of 20 Donor Roundtable members, 19 Programme Partners and 34 Investor Network Members.



## LEIA

The Low Energy Inclusive Appliances (LEIA) programme is Efficiency for Access' flagship programme, focused on research and innovation. It is funded by UK aid and the IKEA Foundation.



- [Assessing the Inclusivity of the Solar Lighting and Appliance Sector](#)



# Typical Profile of a Solar Appliance User

- 19 household surveys spanning 5,483 solar lighting and appliance customers in 8 countries.
- Self-reported data from 9 product manufacturers and distributors

**Survey data suggest that the solar lighting and appliances sector is serving a homogeneous demographic. The typical solar product user is:**



A man in his early forties



Connected to the grid



In sub-Saharan Africa



Living in a rural or peri-urban area



With 4-5 members in his household



Employed, with at least a secondary education



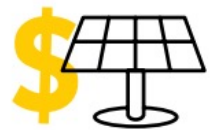
Above the poverty line of USD \$3.20 per day



Does not have a disability



Included in the formal financial sector



Able to leverage financing to purchase their appliance



# Gender Inclusivity Insights

23%

- Women make up **23% of the workforce** in solar lighting and appliance companies, indicating the field is heavily male-dominated. This trend mirrors the broader energy sector where women make up just 22% of the total workforce.

84%

- **84% of companies** did not report gender-disaggregated employment data. Even fewer (4%) reported gender disaggregated **pay data**.

72%

- Many companies specialize in (72%) and/or distribute (25%) appliances and productive use equipment. However, only 5% of surveyed distributors carry the niche or nascent appliances traditionally perceived to benefit women.



# Gender Inclusivity in Cooling

- For cooling technologies like fans and fridges, our sample found that 22% and 39%, respectively, were owned by women.
- Even within these margins, our sample suggests that women with access to solar products are better educated and more likely to be employed in some capacity than the average women in their region.
- Women comprised less than 40% of our sample - suggesting access barriers to solar lighting and appliances across sales, ownership, and use for women.
- Most data collection efforts aim to interview the head of the household. In most cases, this person is a man.



# Recommendations for Inclusive Surveys

To effectively promote gender-focused interventions, surveys could incorporate the following information:

1. Identification of the product's primary users.
2. Examination of how the primary users employ the product.
3. Assessment of the product's impact on the primary users.



**Leave No One Behind**



# Recommendations for Inclusive Data Collection

During the process of data collection, it is important to consider the following points:

1. Adoption of a gender-inclusive sampling approach to ensure equal representation of both women and men.
2. Conducting intra-household interviews to gather input from both men and women within the same household.
3. Disaggregating stakeholder groups during interviews or focus groups to create opportunities for women to express themselves freely.
4. Utilisation of both female and male interviewers or data collectors, while providing gender sensitivity training.



**Make Inclusivity a Core Value**



## CONTACTS

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# How can our data processes be made more gender inclusive?

**data.org**

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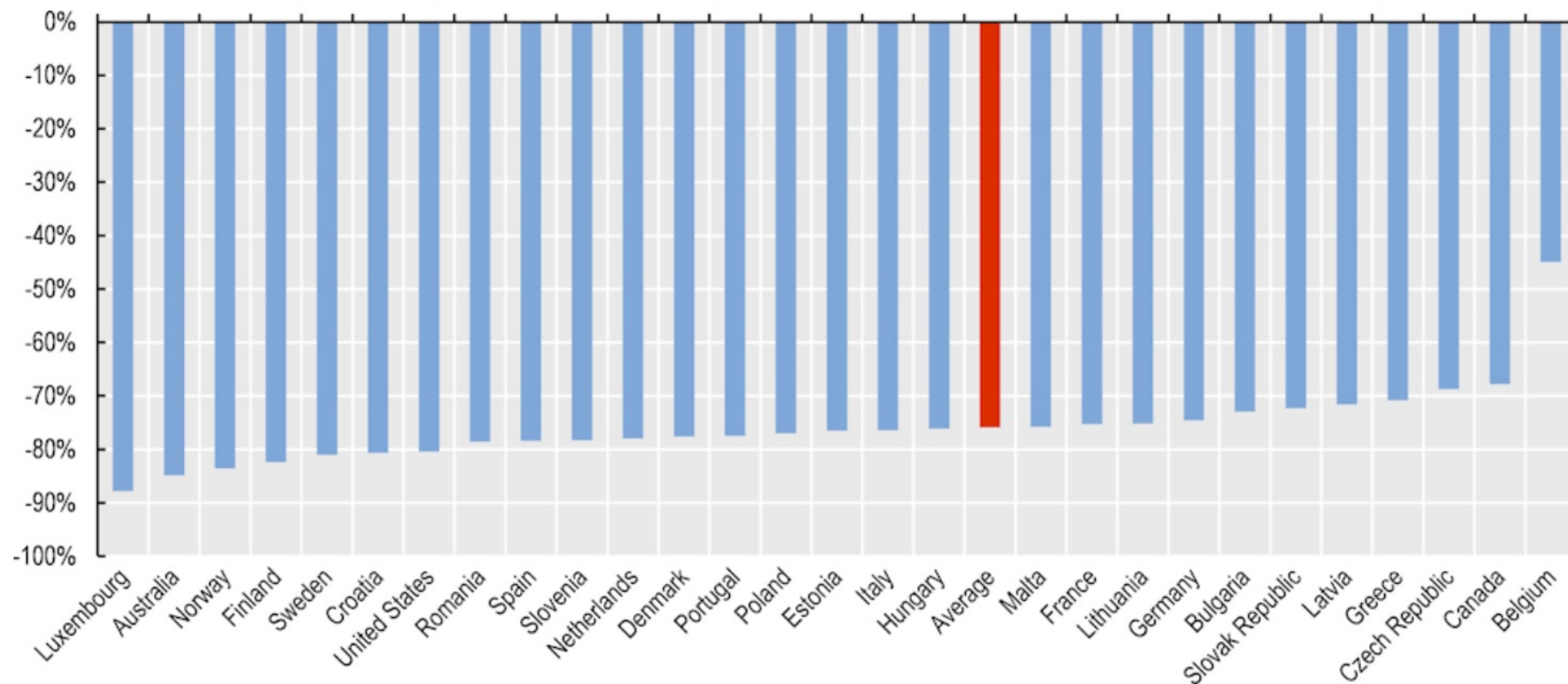






Figure 19.1. **Female participation in the energy sector workforce is lower than that of men**

Gender gap in employment in the energy sector for selected countries, 2018, percentage



Note: Data behind this graph are collected and prepared every four years. The gender employment gap is calculated here as:  $[\text{Employed Women (\%)} - \text{Employed Men (\%)}] / [\text{Employed Men (\%)}]$  in the given sector/year/country among the employed working age population (aged 15-59).

Source: IEA (2022[3]), *Gender and Energy Data Explorer*, <https://www.iea.org/data-and-statistics/data-tools/gender-and-energy-data-explorer>.

[Link to Source](#)

Marginalisation leads to under-representation, in all sectors

# Best practices in gender data collection

## Key Considerations

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- Ensure people identifying as women are meaningfully involved in question development, testing, and evaluation.
- Where needed, work to establish community norms around gender data collection.
- Collect all gender data with a specific and well-defined goal.
- Ensure data are collected, used, maintained, and shared with strong privacy, confidentiality, and ethical standards in place to reduce the risk of data disclosure and misuse.
- Make it accessible, in every sense of the word.
- Measure usage and impact frequently.

data2x0

UN  
WOMEN

WOMEN  
COUNT

THE WORLD BANK  
IBRD • IDA

**Gender Data Portal**

WOMEN  
DELIVER





# Making it memorable with use cases



In our orbit



Women's World Banking



Canada 





## CONTACTS

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# Gender Responsive Cooling Implementation Story

YOUR VIRTUAL COLD  
CHAIN ASSISTANT ←

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Increase and ease access to sustainable cooling for smallholder farmers, to reduce postharvest loss and improve farmers' livelihood



## Business model innovation

- Partner with local companies to offer cold storage with **Cooling-as-a-Service**.
- No need for farmers' upfront investment.
- ✓ Companies are incentivised to use energy-efficient equipment.



## Digitalisation

- Replace manual operations with mobile application (**Coldtivate**).
- Increase efficiency at the cold rooms with remote monitoring and IoT.
- Improve accountability and build trust in the solution.



## Capacity building

- Inform smallholder farmers about potential benefits of cold storage.
- Develop training material on postharvest handling and cold room management.

**40%** of produce lost in developing countries due to lack of cold storage

**2%** Of smallholder farmers have access to finance options. In Nigeria, nearly 80% of the farmers are smallholders, of which 78% have no access to financial services.



**1/3** of food produced globally goes to waste or is lost.

**\$936** billion worth of food lost annually



**≥15%** reduction in incomes of **470 million** smallholder farmers



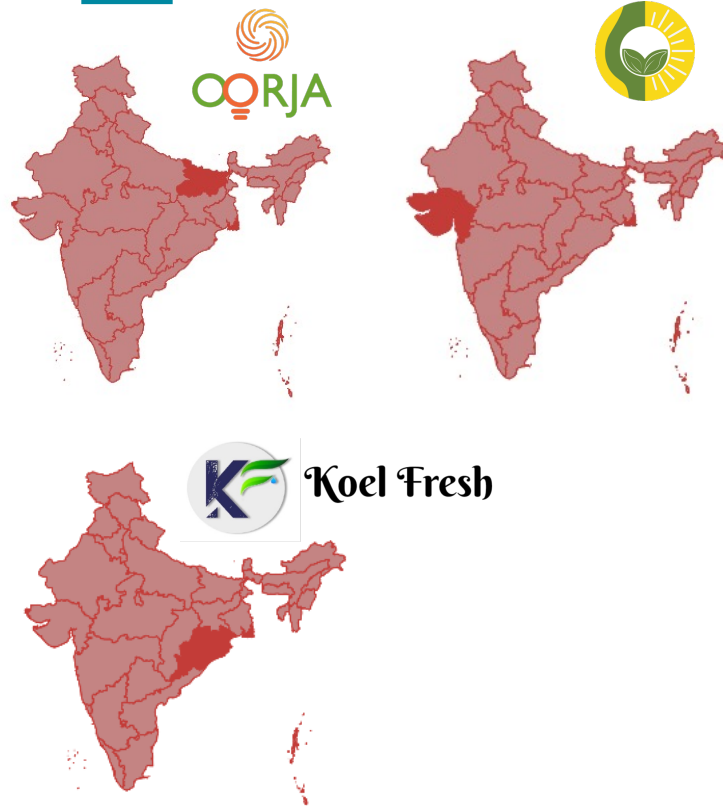
**73%** of the rural women workforce is part of the agricultural sector.

- Farmers' incomes are under pressure.
- The lack of access to cooling is forcing farmers to distress sell and rely on middlemen.
- Despite high demand, existing cold rooms are under-utilised.

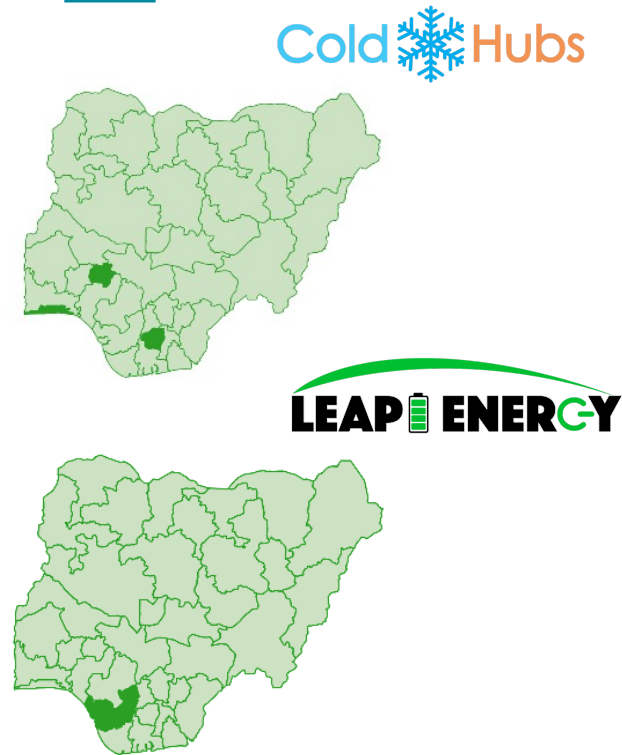




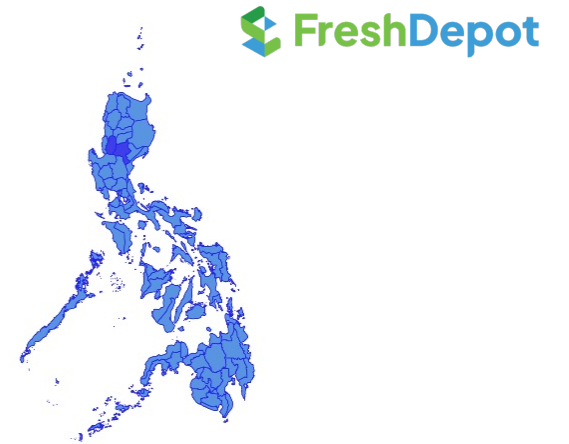
## India



## Nigeria



## The Philippines



## App adoption

- Ongoing pilots in 17 cold rooms
- 6500+ checked-in crates in Coldtivate

## Estimated impact

- -20% postharvest loss by using cold storage
- +20% farmer's revenue

# User-centred design and identified challenges

- Direct **feedback collection** from cooling companies, operators, and end users throughout the design and development process.
- **Assessment survey** with 900+ users revealed that:



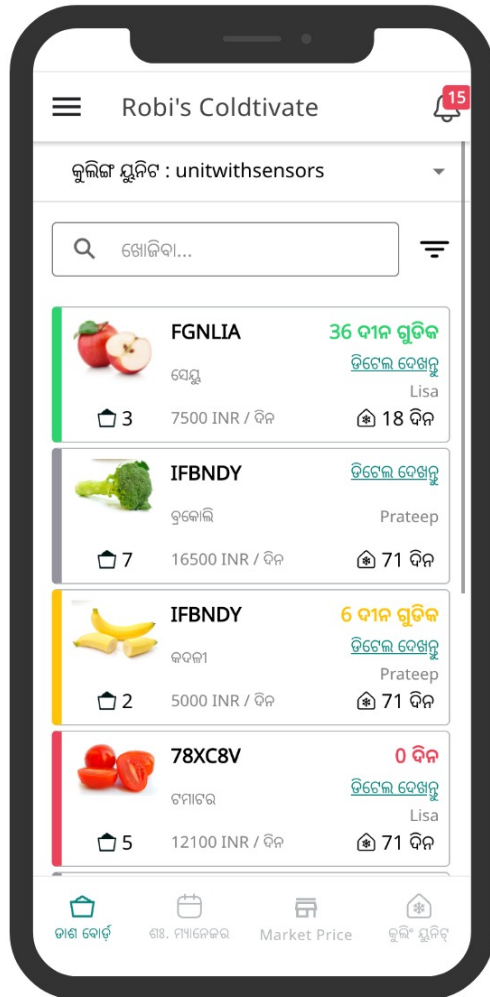
## Female smallholders are

- Less likely to own a phone (88 vs 75%), and less likely to own a smartphone (60% vs 31%).
- More likely to have little or no formal education (93% vs 64%)

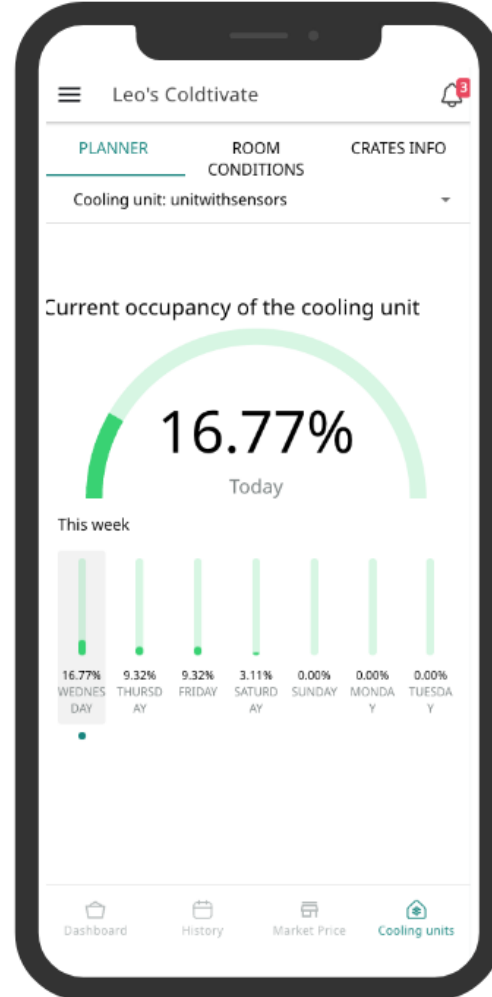




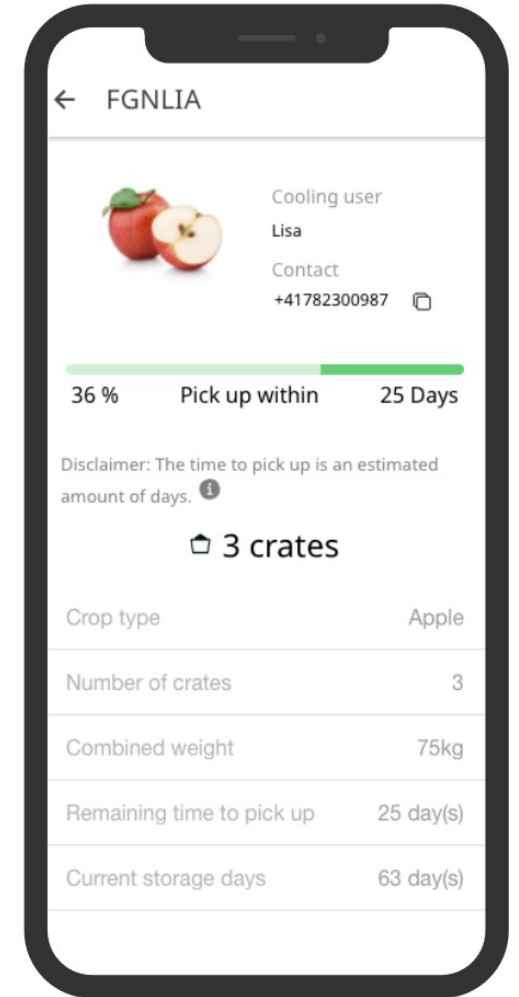
# Gender-intentional approach in app design



Translation in local languages



Pictorial descriptions



SMS-based notifications for farmers without smartphones



## Your VCCA Gender strategy

Promote a more gender-inclusive solution at multiple levels:

- Physical and cultural accessibility
- Empowering female farmers through awareness raising about cooling solutions and market dynamics
- Gender relations and challenges

## Your VCCA Incubator Program

Onboard 5 additional cooling companies to:

- Implement servitisation
- Integrate Coldtivate in their operations
- Draft or update gender strategy

## Community of Practice for cooling companies

- Share best practices for peer-to-peer learning
- Gender-centred design of trainings and material
- Support in Coldtivate adoption and development
- Gather data and raise visibility for financing of cold rooms

## SET ALLIANCE



## Comics for Farmer Training



FARMER 2 ARRIVES AT THE COLD ROOM, WHERE THE OPERATOR TELLS HER THAT PROPER AIR CIRCULATION AND EXPOSURE TO LOWER TEMPERATURES ARE VITAL IN MAINTAINING THE QUALITY OF HER CROPS. THE OPERATOR PROVIDES HER WITH A VENTILATED CRATE TO TRANSFER HER PRODUCE.



THE OPERATOR CHECKS THE FARMER'S NAME AND THE NUMBER OF DAYS SHE STORED HER CROPS. SHE IS CHARGED A NOMINAL COOLING FEE PER CRATE PER DAY.



FARMER 2 HEADS TO THE LOCAL MARKET.



BACK AT THE MARKET, FARMER 2 NOTICES THAT WHILE HER CROPS ARE FRESH...



...MOST OF FARMER 1'S CROPS HAVE PERISHED UNDER THE TARPAULIN.

## Training material

### MODULE 1: BRINGING YOU UP TO SPEED

#### LEARNING OBJECTIVES

1. Understand different stakeholders' operational roles and responsibilities using and benefiting from Your VCCA.
2. Learn about the different operational structures of the CaaS model under Your VCCA.
3. Onboarding 'Registered Employees' on Coldtivate.
4. Understand how your operational responsibilities manifest in Coldtivate.



Module 4\_Digital Twin and Sensors.mp4

### INITIAL QUALITY AT CHECK-IN?

YOUR VIRTUAL COLD CHAIN ASSISTANT

Orchard

Fruit quality: 100%

Storage room

90%?

When is the product harvested?

- Today
- Yesterday
- More than 2 days ago

Comments

- Assumes environmental temperature of 30 °C
- Future versions: XX days ago

Exit full screen (!)

21:47 / 1:05:21

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### DOCUMENTATION

FILL THE FORM AND GET ACCESS!

\*Name \_\_\_\_\_ \*Country \_\_\_\_\_

\*Company \_\_\_\_\_ \*Email \_\_\_\_\_

Access →

<https://yourvcca.org/documentation/>



# Cooling company spotlight: the example of Koel Fresh

- **Koel Fresh** is an SME offering solar-powered cold storage in Odisha, India.
- Cold rooms are operated by female self-help groups (SHG) members with the help of the Coldtivate app.
- SHG helps customers with market linkage, using electric vehicles for bulk delivery.
- Koel Fresh is providing **extensive training** on:
  - Cold room operation and management
  - Digitalisation with Coldtivate
  - Entrepreneurship development and self-sustainability
  - Record keeping, finance handling and impact assessment
  - Engagement with farmers, customers, and bulk institutions
  - Peer-to-peer learning for promotion and awareness raising



# Cooling company spotlight: the example of Koel Fresh

## Gender-disaggregated Monitoring and Evaluation

- **User assessment survey** with 300+ interviews
- **Impact monitoring** with 50 regular users of a cold room in Rourkela, Odisha

**60%**

Of male farmers sell at the market. Only 50% of females do.

**2x**

Male farmers are two times more likely to own a smartphone than female farmers.

**17% to 4%**

Postharvest food loss reduced by using the cold room. Female farmers incurred in higher losses before room usage.

**+29.6%**

Reported revenue increase when using the cold room.

**Small farmers**

more likely to use the room because of shelf-life extension and market linkage.



## Data collected by the Coldtivate app provides invaluable insights:

- Gender-disaggregated analysis to better understand challenges faced by different user types
- Utilisation patterns and user survey data for cooling companies to prove impact, credit worthiness, and attract investments
- Farmer's track records of cold room usage and payment to access microcredit and loans

## Design of an Impact Dashboard in Coldtivate

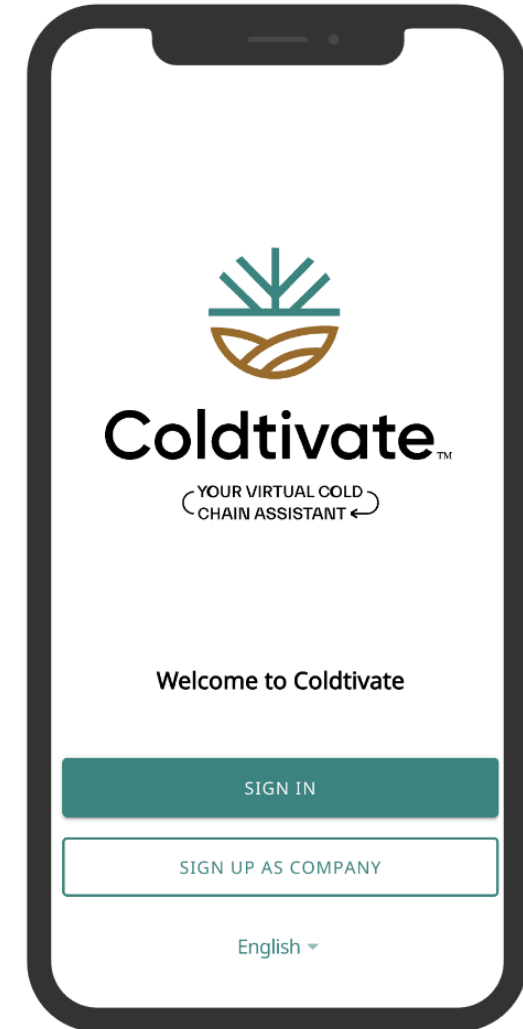
- Automatic analysis pipeline to expose aggregated data for impact monitoring, reporting, and proving business viability

CLIMATE | **LEDGER**  
INITIATIVE



Schweizerische Eidgenossenschaft  
Confédération suisse  
Confederazione Svizzera  
Confederaziun svizra

Swiss Agency for Development  
and Cooperation SDC



Download now at:

<https://yourvcca.org/nigeria/the-app/>



## CONTACTS

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# THIS IS COOL CHALLENGE

for Youth-led Sustainable Cooling Innovation

JUNE 2023

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# 2022 WINNER ANNOUNCED LIVE AT COP27 (SDG7 PAVILION)



**Solar Freeze**  
KENYA  
THIS IS COOL  
CHALLENGE 2022  
1ST PLACE WINNER



**Miti Mitaani**  
KENYA  
THIS IS COOL  
CHALLENGE 2022  
2ND PLACE WINNER



**Smartiphy**  
NIGERIA  
THIS IS COOL  
CHALLENGE 2022  
3RD PLACE WINNER



*"Today we have a new site with 2000 trees and over 100 youth who are watching over these trees. We were also able to use the resources from this ward to do a site mapping exercise [...] and start engaging local government authorities to secure support for long-term viability."*

**Ronny Mutua, Miti Mitaani**



## We want your #ThisIsCool Solutions!

Join the This Is Cool  
Challenge for Youth-led  
Sustainable Cooling  
Innovation

[seforall.org/thisis-cool-challenge](https://seforall.org/thisis-cool-challenge)



- ❄️ Cooling for Thermal Comfort
- ❄️ Cooling for Food, Nutrition and Agriculture
- ❄️ Cooling for Healthcare
- ❄️ Cooling and AI



[seforall.org/thisiscool-challenge](https://seforall.org/thisiscool-challenge)

APPLY HERE



## WHO CAN PARTICIPATE?

Entries may be submitted by individuals or groups of up to 5 individuals, all under 35 years of age.

## HOW WILL IDEAS BE ASSESSED?

A panel of experts from SEforALL and partners will assess submissions based on Goal Alignment; Functionality, Scalability and Implementation; Impact; Innovation.

## WIN UP TO USD 10,000!

- ✓ Cash prizes for one winner in each track
- ✓ One additional grand-winner cash prize
- ✓ One Cool Up Special Prize for natural refrigerants
- ✓ Spotlight features, networking and exhibition opportunities (incl. at COP28) from SEforALL and partners for finalists in each track





## ANY QUESTIONS?

For queries:

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