



# State of Play: Sustainable Energy in Humanitarian Settings

Photo Credit: Edoardo Santangelo / Practical Action





Tell us about you!  
- Poll -

# Presenter

---

**Marco Albertini**, International Committee of the Red Cross (ICRC)

Marco Albertini has 15 years of international experience in team coordination and project management in the fields of water and power supply and rehabilitation of infrastructures for essential services. He is currently the Knowledge Manger for the ICRC Water and Habitat Unit at Geneva HQ.



# ICRC – Overview

## General overview of realities Humanitarian Context

- More than 130 million people in need of humanitarian aid in 2018
- Conflict and violence main trigger of crisis
- Traditional emergency response and protracted crises
- Battlefield moving to heavily-populated civilian areas
- Climate change, sustainability imperative and access to digital technologies

## Purpose to Webinar Series

New needs and vulnerabilities

Evolution of traditional humanitarian response



ICRC



unitar  
United Nations Institute for Training and Research

# ICRC – Operational Scope

- **What we do?**

- We are on the ground in over 90 countries
- Neutral, Impartial, Independent
- Assist and Protect victims of armed conflict and violence

- **Need for Sustainable Energy**

To accelerate an effective energy transition by improving access to safe, resilient and sustainable energy to crisis-affected people and essential services while reducing ICRC's environmental footprint

- Operations: For households, For infrastructures
- Assets: For our own premises and structures

# Presenters

- **Francois Delfosse**, Doctors Without Borders (MSF)
- **Madeleine Marara**, Office of the United Nations High Commissioner for Refugees (UNHCR)
- **Sergio Rivero**, Food and Agriculture Organization of the United Nations (FAO)
- **Raffaella Bellanca**, World Food Programme (WFP)
- **Eva Mach**, International Organization for Migration (IOM)



# MSF – Operational Scope

- An international, independent medical humanitarian organisation
- Providing medical assistance to people affected by conflict, epidemics, disasters, or exclusion from healthcare.
- Synergistic roles as both medical and humanitarian;
- Prospect to addressing some of the direct (natural disasters), ecosystem mediated (diseases & malnutrition) and indirect (migration & conflicts) impacts of anthropogenic environmental changes on human suffering, including economy-generated environmental disasters.

*Presented by: François Delfosse, Project manager Environmental Roadmap, MSF,*

[francois.delfosse@geneva.msf.org](mailto:francois.delfosse@geneva.msf.org)



# MSF – Operational Scope

- Need for Sustainable Energy:
  - Urgency to address the institution's own impact on the environment.
  - In the spirit of the *Do No Harm* principle, MSF has a **social responsibility** to take serious consideration of the way we are organized and to manage our footprint in terms of growth and modus operandi.
- Imperative to:
  - Reduce dependency on fossil fuel energy (acknowledging our **extreme dependency to fossil fuels** of all our activities: transport and supply, food production, heating, communications, pharmacy industry...)
  - Reduce environmental footprint and its associated costs;
  - Enhance power supply resilience.

Presented by: François Delfosse, Project manager Environmental Roadmap, MSF,

[francois.delfosse@geneva.msf.org](mailto:francois.delfosse@geneva.msf.org)

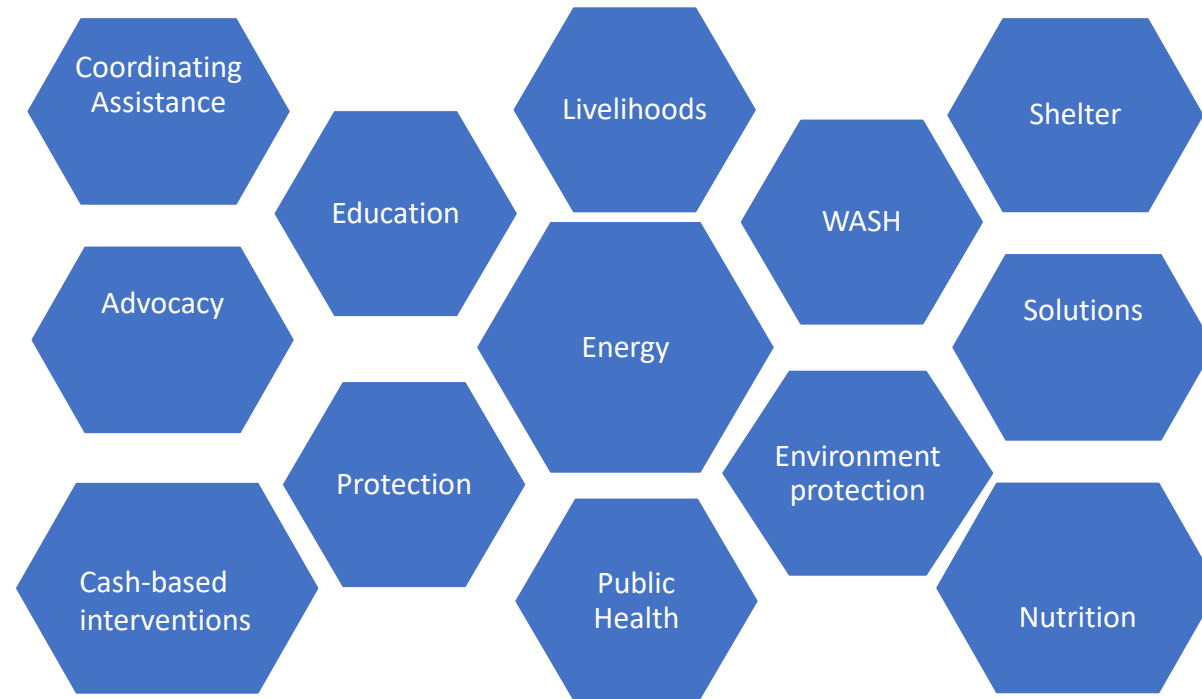




# UNHCR – Operational Scope

## What we do?

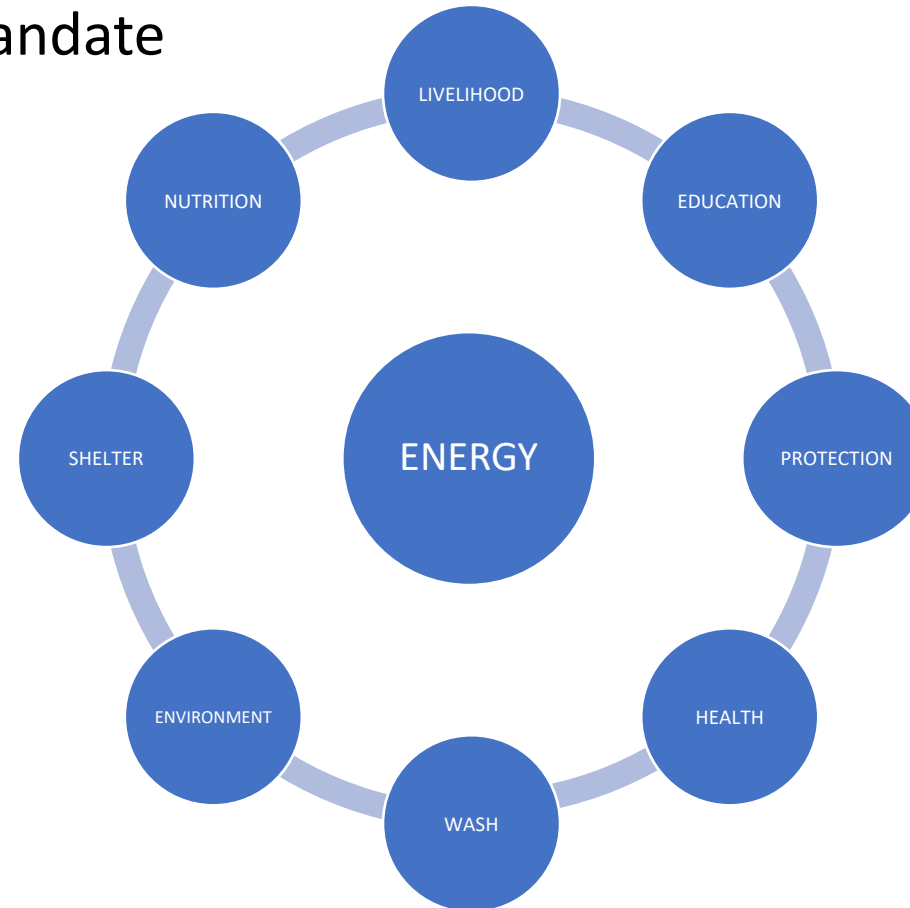
- UNHCR's core mandate is to ensure the international protection of uprooted people worldwide
- UNHCR field interventions(not-exhaustive):



# Need for Sustainable Energy

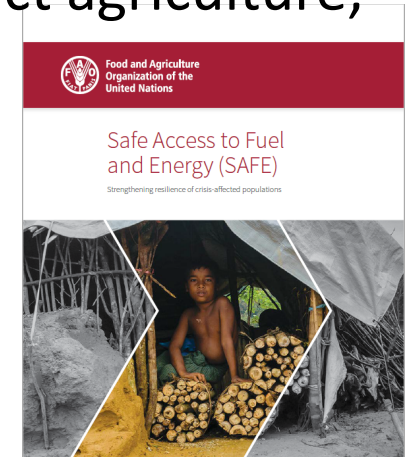
UNHCR energy need is twofold:

- Operational energy need: running of its offices and staff accommodation in remote areas
- Energy as a basic need for refugees and an enabling factor to ensure that UNHCR meets its protection mandate



# FAO – Operational Scope

- What we do?
  - Improve food security
  - Increase the resilience of livelihoods to threats and crises that affect agriculture, food and nutrition (focus on environment and rural households)
  - Coordination
- Need for Sustainable Energy
  - Fuel-efficient stoves and energy efficient cooking practices
  - Renewable bioenergy value chains
  - Renewable energy in agri-food chains (solar pumping, cold storage, milling etc...)
  - FAO Infrastructures (offices, shared facilities with line ministries etc...)



# WFP – Operational Scope

- What we do?
  - Assisting **86.7 million people** in around **83 countries** each year, the World Food Programme (WFP) is the leading humanitarian organization saving lives and changing lives, **delivering food assistance in emergencies** and **working with communities to improve nutrition and build resilience**.
- Need for Sustainable Energy
  - Energy for Food security (access to energy along the Food System)
  - Cooperation with School Feeding Programme (76,000 schools, 18M children)
  - Energy Efficiency from WFP Engineering and WFP Environment



# IOM – Operational Scope

- What we do?
  - The International Organization for Migration is the leading intergovernmental organization in the field of migration and is committed to the principle that humane and orderly migration benefits migrants and society.
  - IOM works with its partners in the international community to assist in meeting the growing **operational challenges of migration**, **advance understanding** of migration issues, encourage social and economic development through migration and **uphold the well-being and human rights of migrants**.
- Need for Sustainable Energy
  - Inclusion of sustainable energy in external policy/advocacy and internal policy/strategy
  - Transitioning to low-carbon energy sources and better energy efficiency in facilities and operations
  - Inclusion of sustainable energy in projects and programming related to humanitarian operations and migration management

A dark green, irregularly shaped graphic with a splatter effect, containing white text. The graphic is centered on a white background and has a rough, hand-painted appearance with some lighter green splatters around its edges.

Tell us about you!  
- Poll -

# Presenter

---

**Owen Grafham**, Chatham House

Owen Grafham joined Chatham House in May 2014. During his time in the Energy, Environment and Resources department, he has managed Chatham House's research and outreach on energy for displaced populations and the institute's work on energy-use inside the humanitarian system.



# Section 2: Nexus – Transversal Nature of Energy

## “The Energy Transition...and what it means for humanitarian agencies”

Owen Grafham

Department Manager, Energy, Environment and Resources

Chatham House



# The energy transition

Figure 1: SE4All Global Tracking Framework

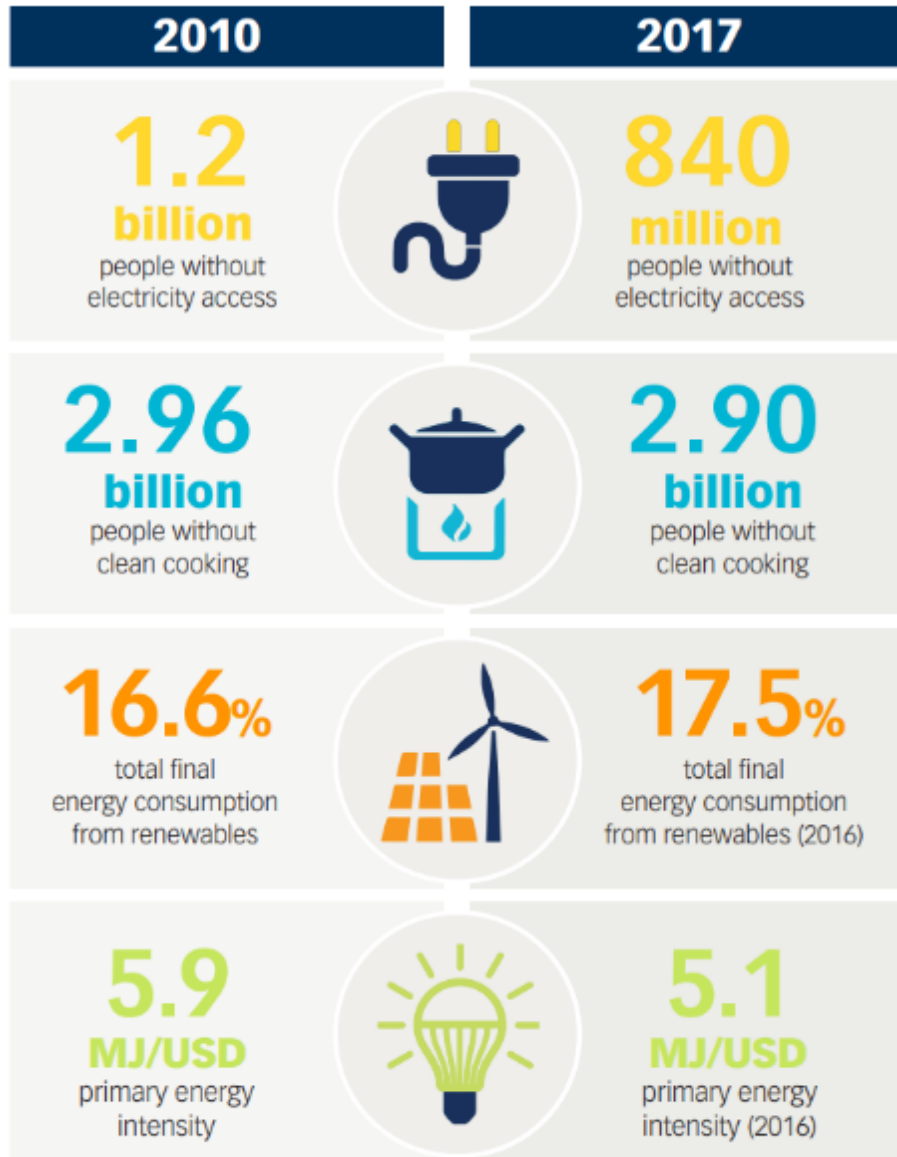
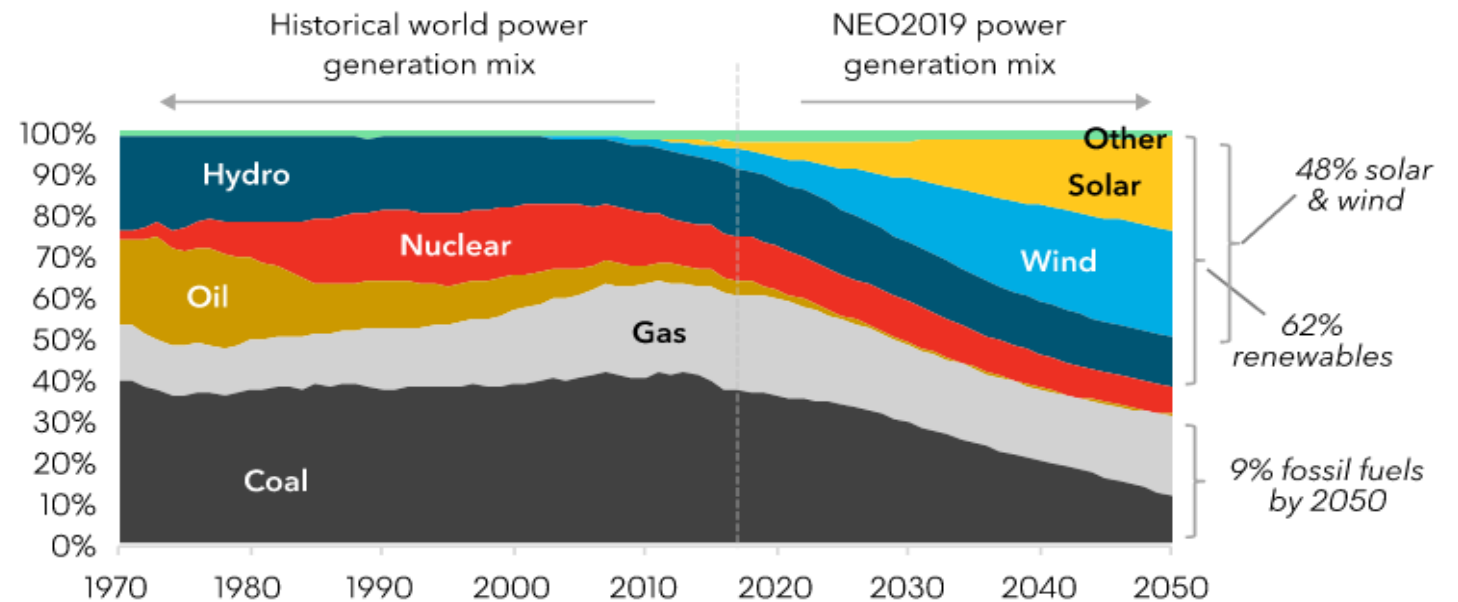
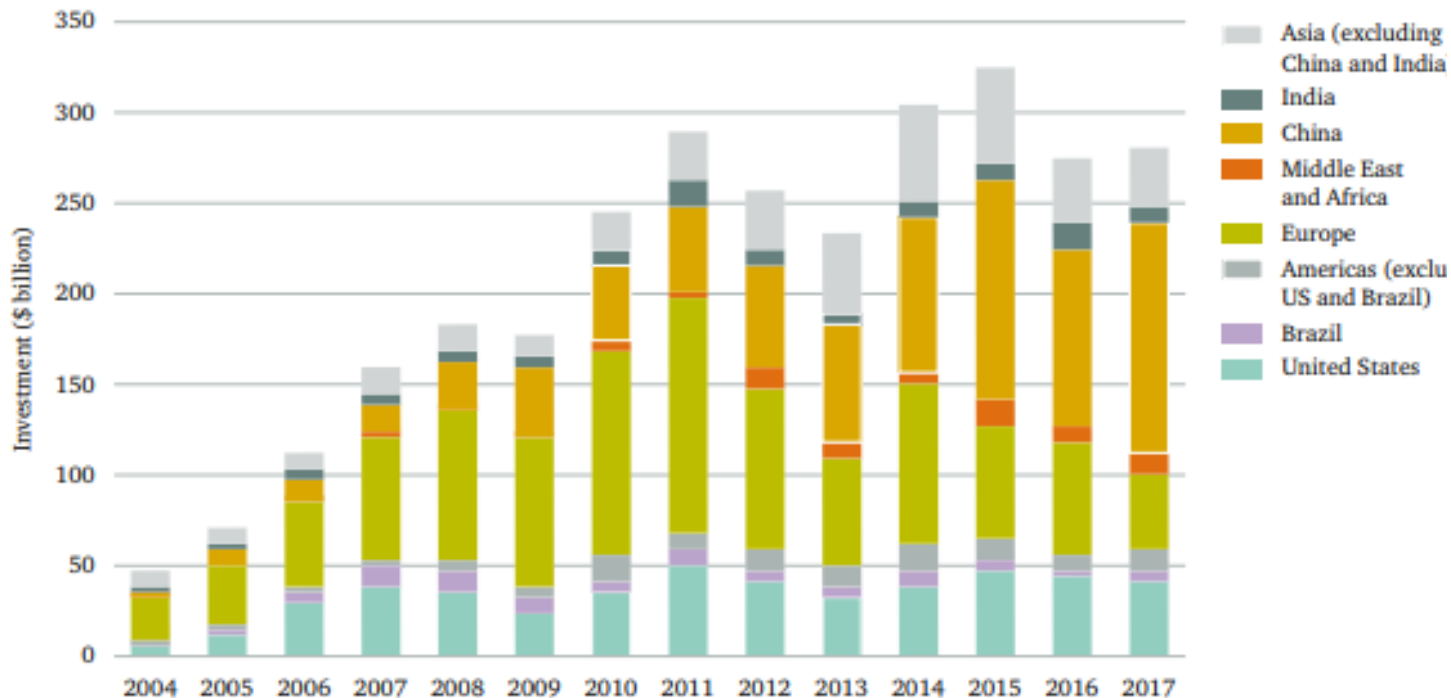


Figure 2: Global power generation mix



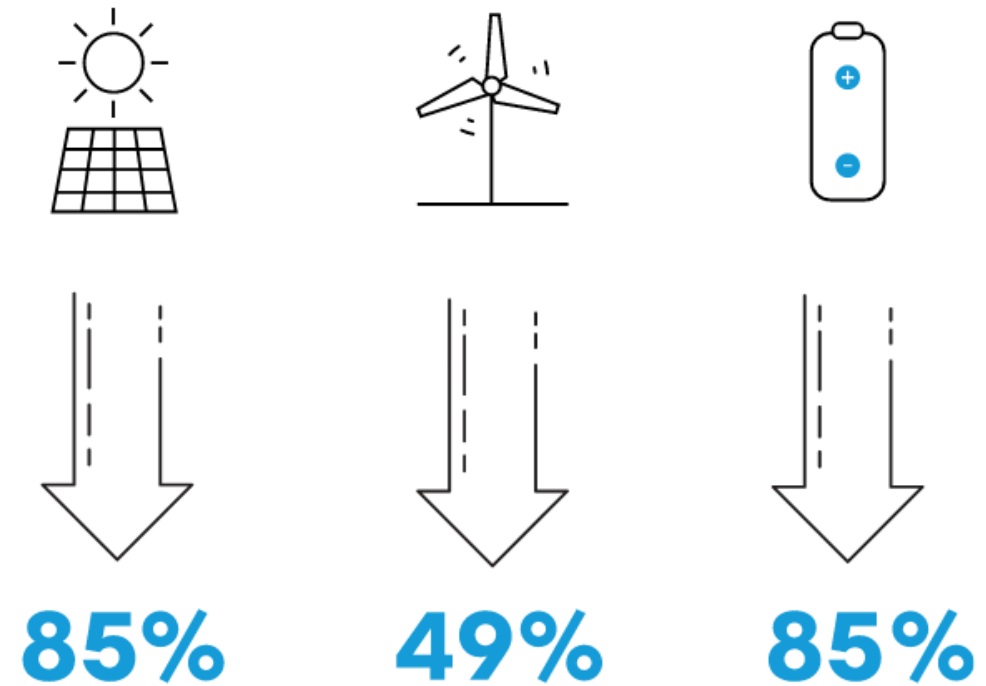
# The energy transition

Figure 3: Global investment in renewables by region (\$ billion)

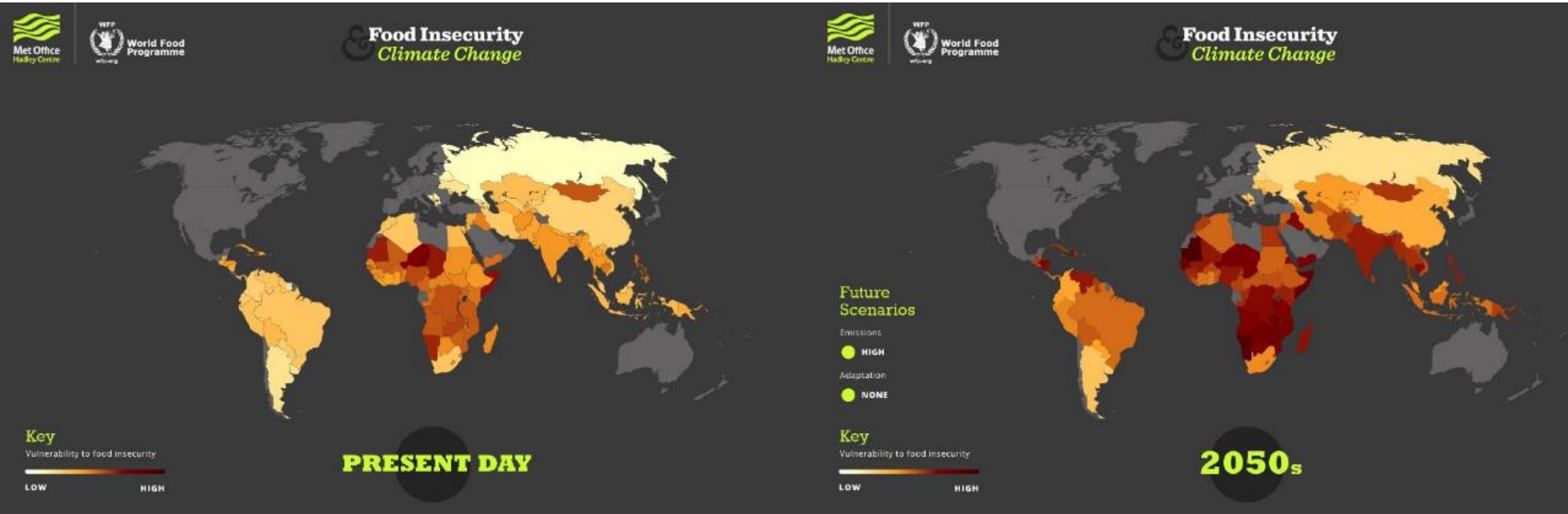


Source: FS-UNEP (2018), *Global Trends in Renewable Energy Investment 2018*.

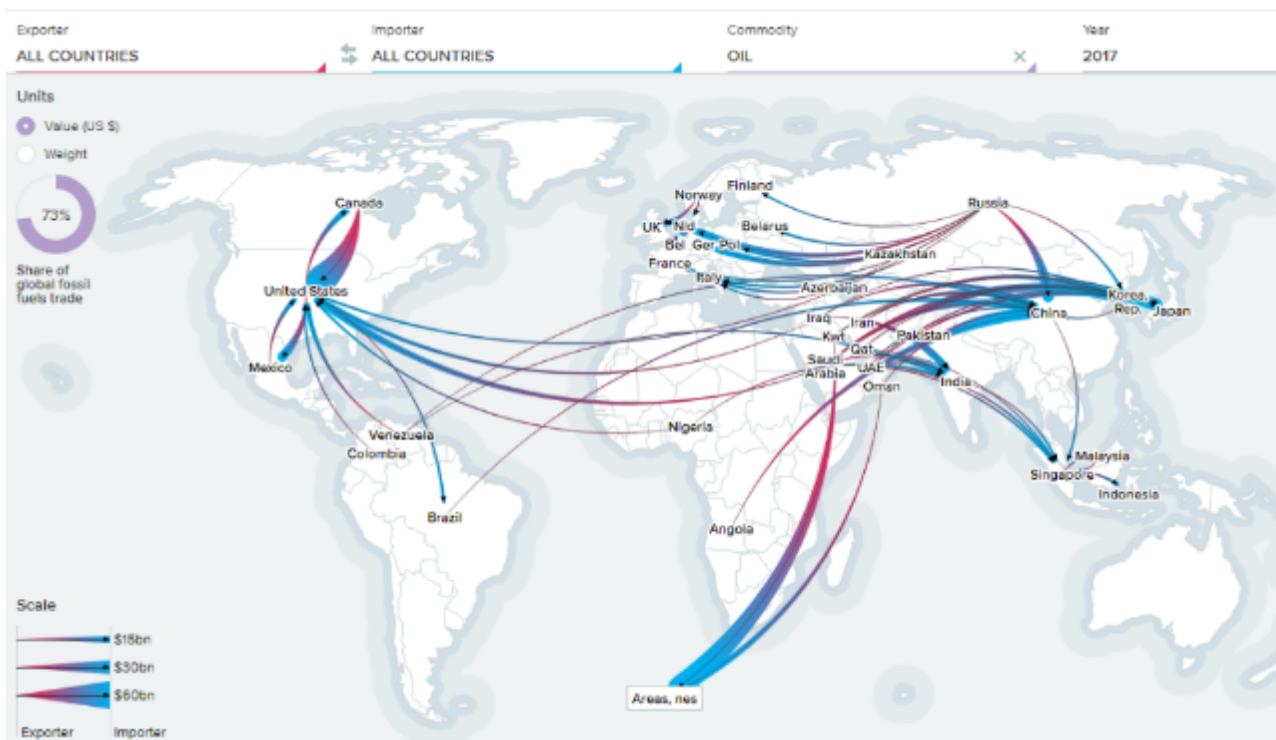
Figure 4: Technology cost declines since 2010



# Implications of the energy transition



# Implications of the energy transition



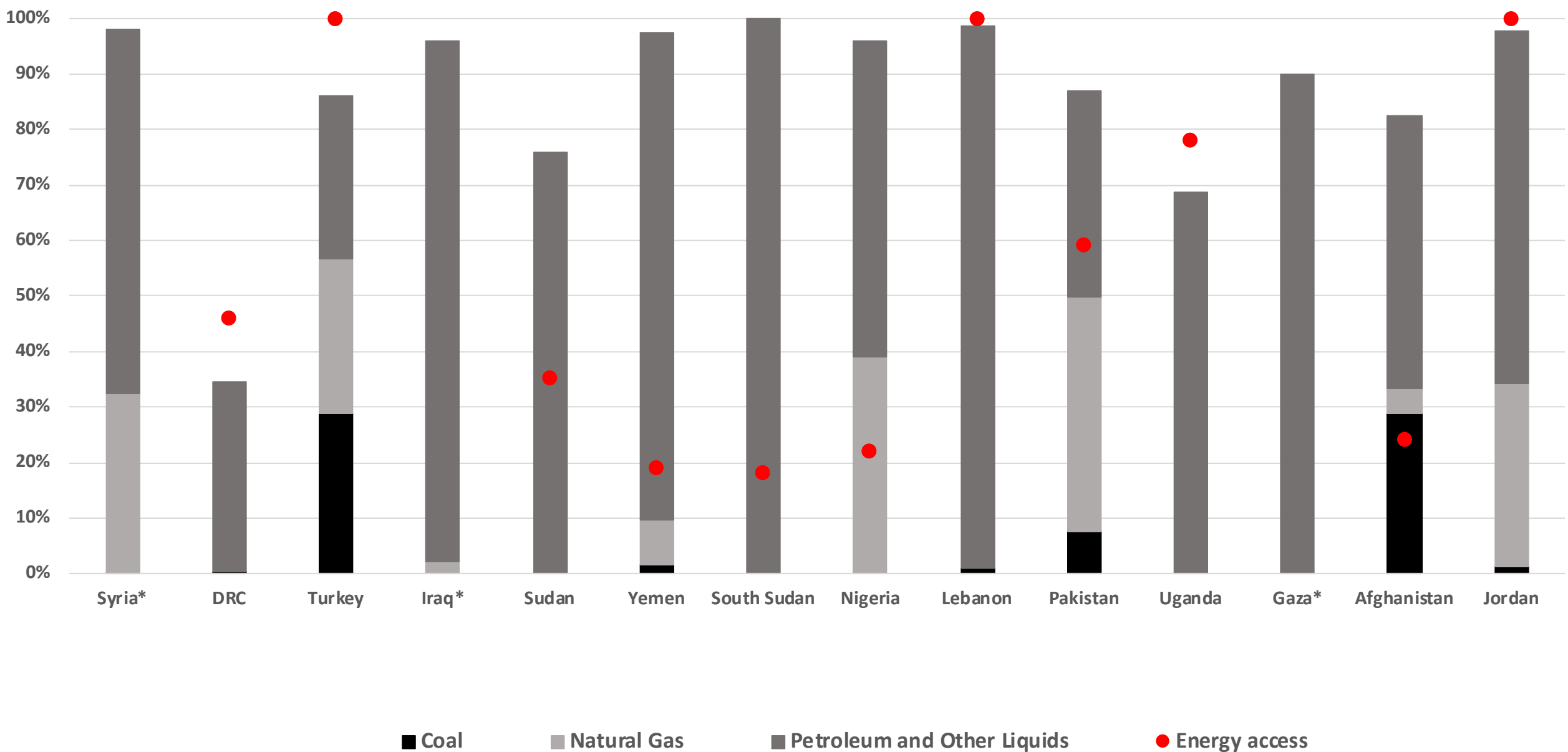
Country	Total Refugee Population	Global Horizontal Irradiance (GHI)
Colombia	7,411,086	1846
Syrian Arab Rep.	7,131,909	2001
Iraq	5,324,268	1986
Dem. Rep. of the Congo	3,313,147	1849
Yemen	3,276,830	2373
Turkey	3,114,321	1726
Nigeria	2,910,695	2003
South Sudan	2,869,352	2038
Sudan	2,699,846	2324
Pakistan	2,510,025	2017

**Table 2: Largest refugee hosting states and corresponding solar PV potential**

Source: Global Solar Atlas, <http://globalsolaratlas.info/> <sup>[1]</sup> & UNHCR 2015 data, populations excluding self-settled camps.

<sup>[1]</sup> Note that the values outlined in this table are drawn from a number of geography specific assumptions related to temperature, irradiance, dust coverage etc. We have used estimates for a medium sized commercial plant, not individual solar panels, as for this many people this would be the more energy efficient solution.

## with Largest Displaced Populations Due to Conflict, 2016



■ Coal

■ Natural Gas

■ Petroleum and Other Liquids

● Energy access

\*Inadequate data on energy access levels which have been affected by conflict.

Notes: The remainder of primary energy mix in these countries is hydropower and in some cases, a small amount of wind and solar. Biomass and charcoal is predominant in some countries but not counted as primary (commercially traded) energy in the statistics. Displaced populations refer to both internally displaced people (IDPs) in conflict affected countries and refugees in host countries.

# Implications for humanitarian agencies: The 'do no harm' agenda

In 2007, Secretary-General Ban Ki-moon set the goal for all UN organizations to achieve carbon neutrality by 2020.

And many organizations are also cognisant of the energy/environment challenge:

**WFP:** “humanitarian actions that save lives today carry a carbon cost for future generations”

**NRC:** “It is absolutely essential that we understand how sensitive the environment is to impact from our operations, and that we work to reduce that impact”.

**Save the Children:** “We recognise that historically, neither the monitoring nor reporting environmental impact have been set as organizational priorities, despite an awareness of the importance of reducing our environmental footprint”



ICRC



unitar  
United Nations Institute for Training and Research

# Implications for humanitarian agencies: financial savings

- “**Agencies are paying too much for the energy they consume.** They are overwhelmingly dependent on oil fuel for electricity generation, even though renewable energy solutions are reducing costs for those deploying them in similar conditions. **Well-below-optimum standards of efficiency in buildings, generator use and fleet management are also the norm**”.
- We estimate that around 5 per cent of humanitarian agencies’ expenditure goes on diesel, petrol and associated costs such as fixing generators. **That would mean that the sector spent some \$1.2 billion on polluting fuel in 2017.**
- Based on current best-practice, the sector could save at least 10 per cent of fuel costs on ground transport, 37 per cent through behaviour change and more efficient technologies, and 60 per cent on generation – all using currently available, affordable and proven practice and technology changes. **At current prices, this could mean operational savings of over \$517 million a year for the humanitarian sector.**

moving  
energy  
initiative

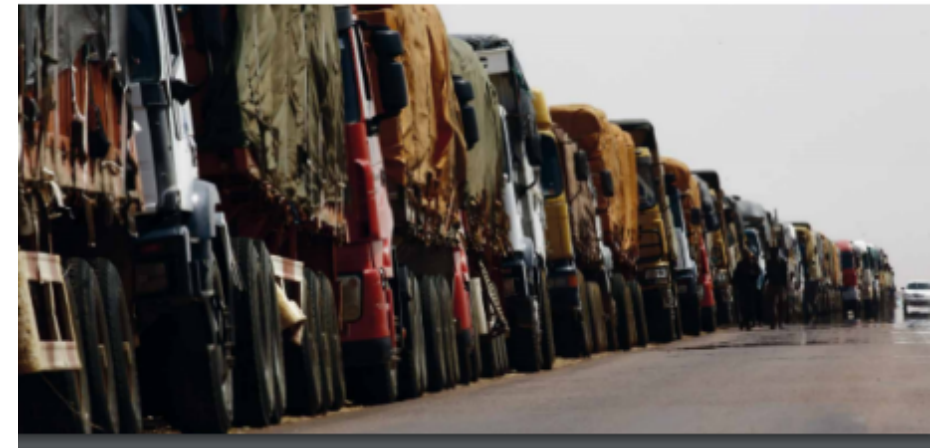
clean energy for refugees

Research Paper

## The Costs of Fuelling Humanitarian Aid

Owen Grafham and Glada Lahn

December 2018



# Energy & Gender

- The risks associated with cooking and firewood collection
- Lung and eye health
- Lighting and feelings of insecurity
- A complex relationship
- Maternal care and obstetrics – e.g. lighting for night births
- Mainstreaming a gender-sensitive lens in energy programming

Drawing on Bradley and Liakos (2019) forthcoming



# Energy & Health

Clinics in the field [growing examples of solar use e.g. MSF, IRC in offgrid locations]

Refrigeration of medicines and vaccines, power for diagnostic equipment etc.

Hospitals as centres for energy transformation and bill savings to help improve conditions and care (e.g. MEI Mafraq & RE4R research)

Many non-medical linkages – respiratory health (cooking), street lighting for safety, water treatment, waste treatment and sanitation, temperature

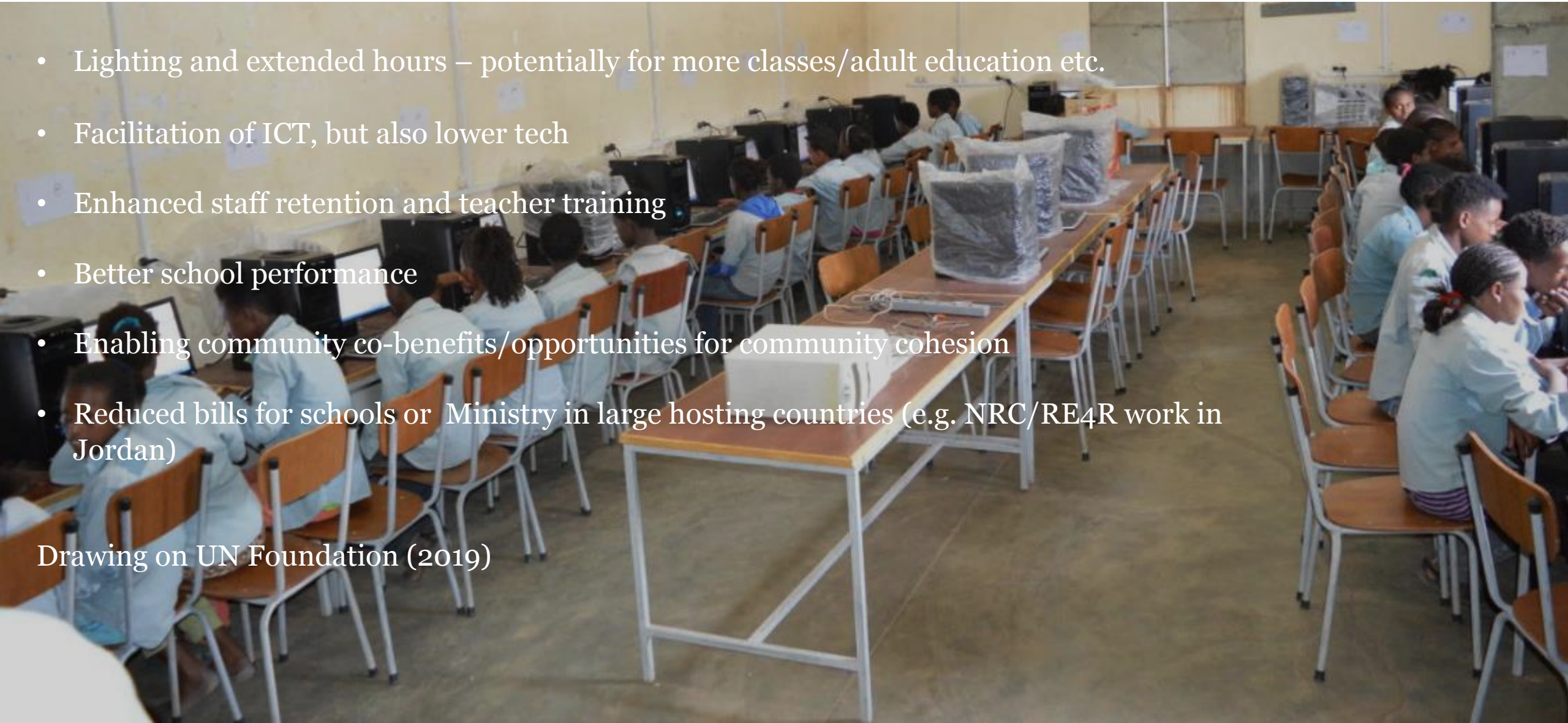
According to respondents, MEI home green retrofitting project found improved energy conditions reduced stress-levels, increased family harmony



# Energy & Education

- Lighting and extended hours – potentially for more classes/adult education etc.
- Facilitation of ICT, but also lower tech
- Enhanced staff retention and teacher training
- Better school performance
- Enabling community co-benefits/opportunities for community cohesion
- Reduced bills for schools or Ministry in large hosting countries (e.g. NRC/RE4R work in Jordan)

Drawing on UN Foundation (2019)



# Energy & Livelihoods

New productive activities possible (examples from Burkina Faso)

Higher productivity, increased income from current streams

More time available for productive activity

Better quality goods/services

New income streams

Opportunities to engage and build capacity of local companies delivering energy services

- 58% OF HOUSEHOLDS WITH OFF-GRID SOLAR SYSTEMS UNDERTAKE MORE WORK AND ENTERPRISE THANKS TO CLEAN, AFFORDABLE, ELECTRICITY.

- 36% OF HOUSEHOLDS NOW MAKE AN AVERAGE ADDITIONAL \$35 PER MONTH, MORE THAN 50% OF MONTHLY GDP PER CAPITA.

- 44% REPORT SPENDING MORE TIME WORKING WITH NEW LIGHT MAKING PREVIOUSLY DARK HOURS PRODUCTIVE.

- SOURCE: “POWERING OPPORTUNITY – THE ECONOMIC IMPACT OF OFF-GRID SOLAR,” GOGLA

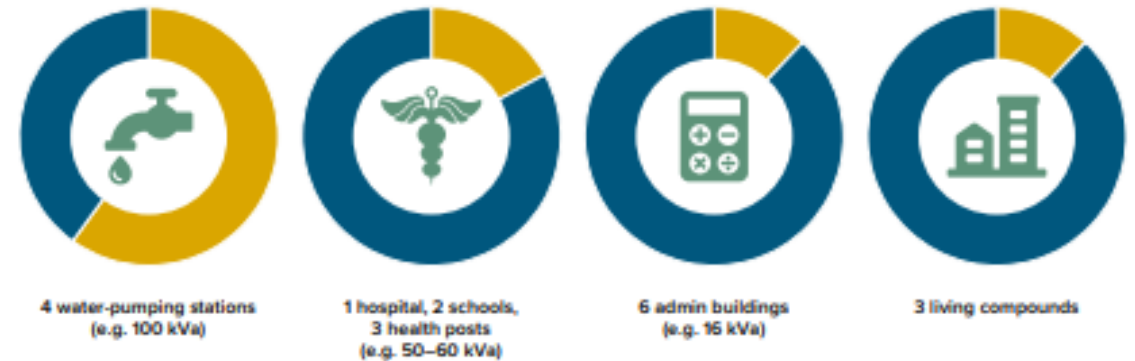
# Energy & Water

Proven area where renewable energy solutions (solar water pumps) can lead to huge reductions in costs for humanitarian agencies vs diesel pump solutions (see IOM/Oxfam). Often one of the largest energy expenditure items for humanitarian agencies (see right).

Improve access to water for refugees

Improve hygiene and sanitation

Figure 7: Share of diesel budget per end use in Nyarugusu refugee camp, Tanzania, 2017



Source: Fohgrub, T. (2018). 'Options for Diesel replacement in refugee camps' – Case Study Nyarugusu, UNITAR (reproduced with permission).

# Presenter

---

**Thomas Fohgrub**, United Nations Institute for Training and Research (UNITAR) / Global Plan of Action (GPA)

Thomas is the head of the Coordination Unit for the Global Plan of Action for Sustainable Energy Solutions in Situations of Displacement, which is hosted at the United Nations Institute for Training and Research and is steered by 13 key organizations from humanitarian aid and development assistance. He is working within UNITAR at this topic since two years.



# Framework for Action: Sustainable Energy Solutions for the Humanitarian Sector

Thomas Fohgrub, Head of the GPA Coordination Unit

# Key Challenges



Energy is not a common priority in humanitarian assistance



Humanitarian settings are not included in national or international energy-access agendas



High investment costs difficult to commit on short term budgets



Limited expertise and capacity to plan or implement sustainable energy solutions



No standard or common data sharing practices or platforms

# What is the Global Plan of Action?

## Vision of the GPA

Every person affected by conflict and natural disaster has access to affordable, reliable, sustainable and modern energy services by 2030.

**Multi-stakeholder process to accelerate and support the energy transition for humanitarian partners.**

Inclusive

Multi-sectoral

Holistic

Needs based

Multi-agency and partner collaboration



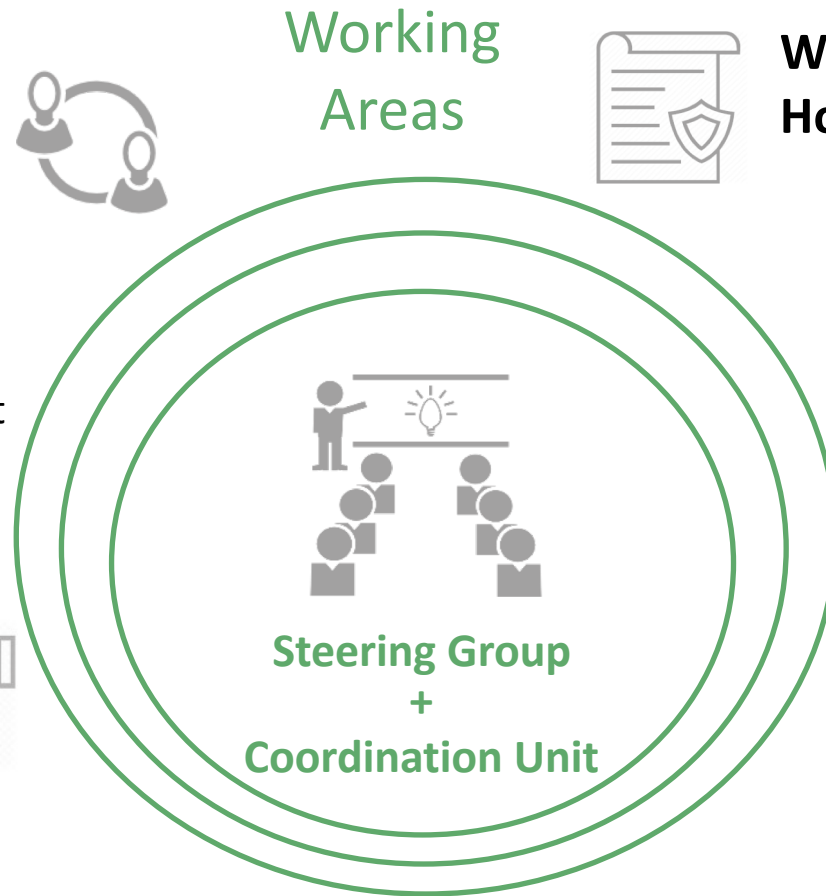
# GPA Priorities – 2019

## Working Area 1: Planning and Coordination

- Humanitarian Energy Conference – July, Addis Ababa ([registration open until 28 June](#))
- Institutional advisory and support on energy strategies

## Working Area 5: Data, Evidence, Monitoring & Reporting

- Building / Adaptation of an Energy Needs Assessment Tool, convening a common set of indicators, coordinating ongoing assessments



## Working Area 2: Policy, Advocacy & Host Country Resilience

- National-level dialogues energy in displacement mainstreaming into resilience plans (e.g. GCR & GCM)

## Working Area 3: Innovative Finance

- Working with UN Agencies, Private Sector and NGOs - creating a framework for sustainably powering humanitarian operations

## Working Area 4: Technical Expertise, Capacity Building & Training

- Series of Webinars, developing a Humanitarian Energy training hub

# How to get involved



**Contact the SAFE Working Group** for inter-agency connection, technical support and sharing lessons of energy projects and programs: [info@safefuelandenergy.org](mailto:info@safefuelandenergy.org)

**Contact the GPA Coordination Unit** for support on the institutional level: [energy@unitar.org](mailto:energy@unitar.org)



**Join a working group of the GPA** : <http://bit.ly/GPAWorkingGroups>

Quarterly online open forums for exchange on humanitarian energy on the thematic working areas.

- Finance, contact Mark Gibson ([mark.gibson@unitar.org](mailto:mark.gibson@unitar.org))
- Technical Expertise and Capacity Building, contact Aimee Jenks ([aimee.jenks@unitar.org](mailto:aimee.jenks@unitar.org))
- Policy and Data, contact Suzy Huber ([suzanna.huber@unitar.org](mailto:suzanna.huber@unitar.org))



**Come to the Humanitarian Energy Conference, Addis Ababa 31 July – 1 August:** <http://bit.ly/HECRegistration>

**Capacity Building Working Group Call:** 27 June

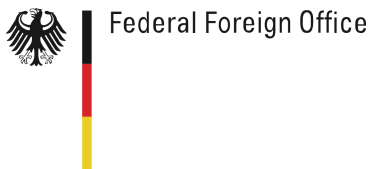
**Tune in to the next Webinars,** Starting back in September – December 2019

# Steering Group Members

**Steered by:**



**Supported by:**



# Presenter

---

**Sergio Gelli**, International Committee of the Red Cross (ICRC)

Sergio Gelli works for the International Committee of the Red Cross- ICRC, as the Energy Initiatives Senior Advisor to the Board of Directors.

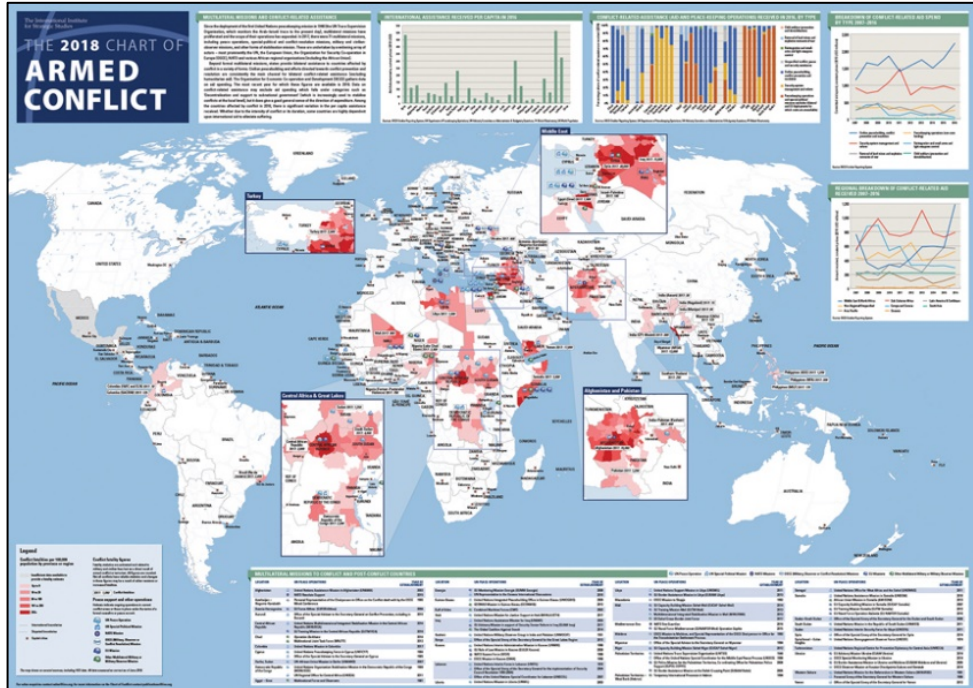
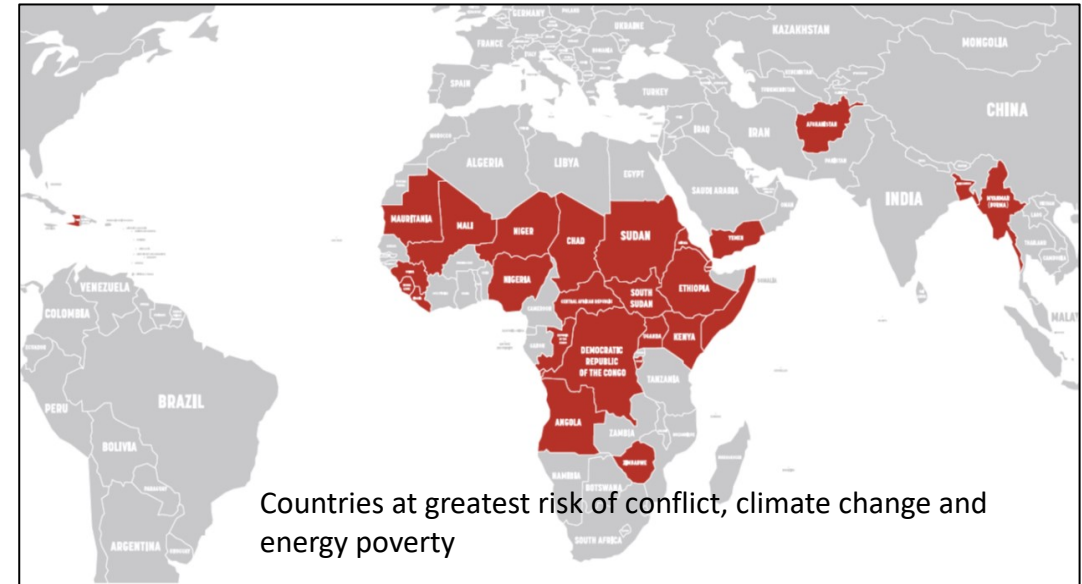
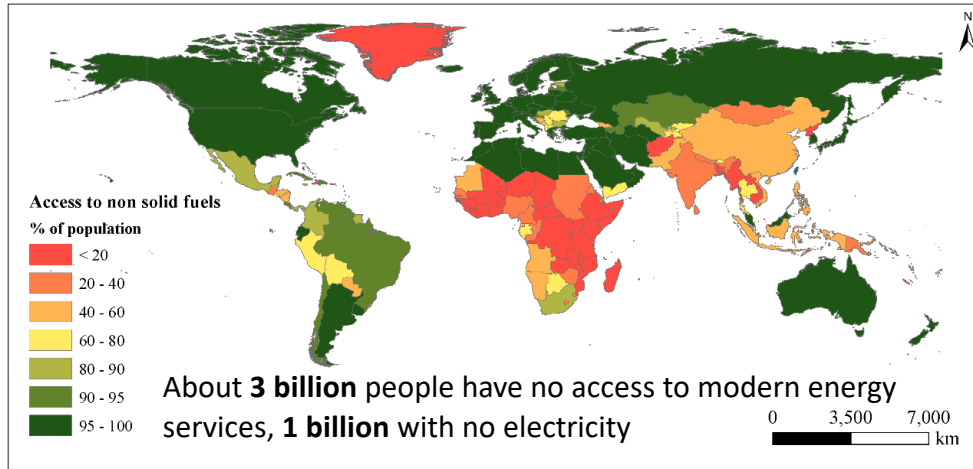
Before joining the ICRC and covering roles of progressive responsibilities in the field and at Headquarters where he was until 2018 Deputy Head of the Water and Habitat Unit he worked for various organizations as Consultant in Public Health engineering in the Humanitarian Sector.



# ICRC

- Energy Challenge 2019-22: challenges, drivers and orientations
- ICRC's energy transition roadmap: challenges, ambitions and approach
- Putting the pieces together: Gaza Resilience show case

# ICRC



## *Our challenge*

Harnessing sustainable energy services for the current and future wellbeing of crisis-affected people while ensuring carbon neutral operational growth

# ICRC

## Our challenge

Harnessing sustainable energy services for the current and future wellbeing of crisis-affected people while ensuring carbon neutral operational growth



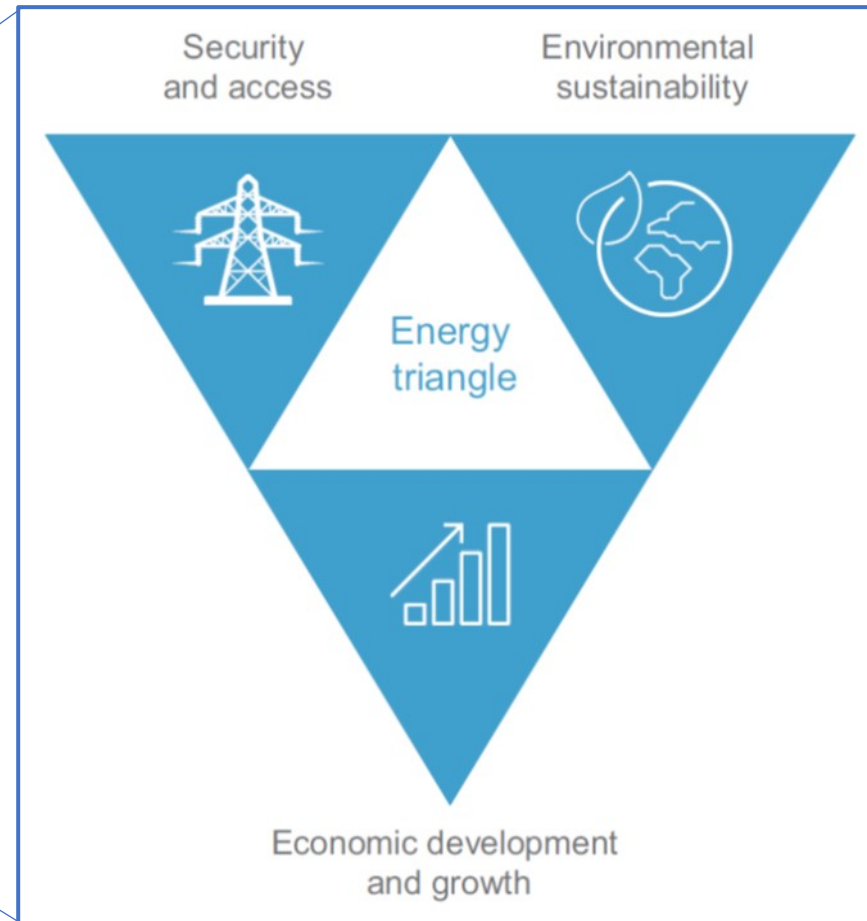
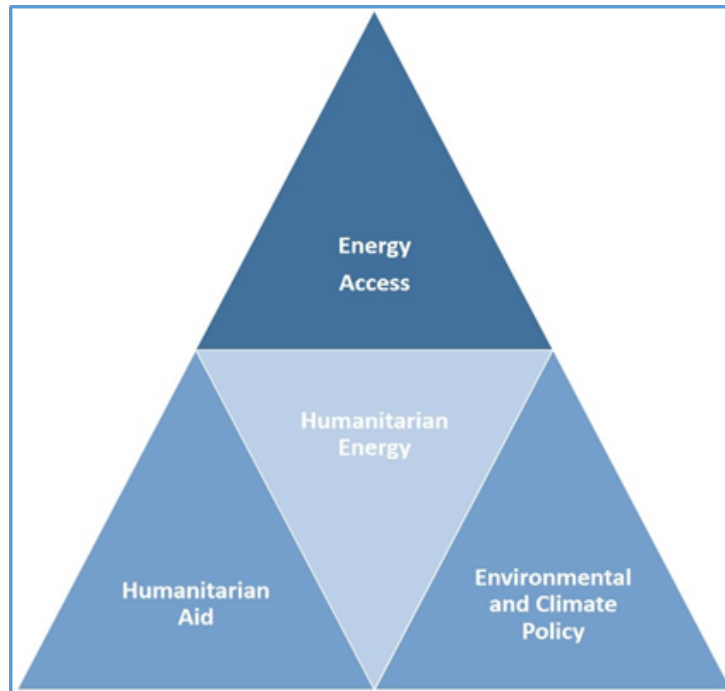
-  Influencing behaviours
-  Sustainable Impact
-  Working with others
-  An inclusive workplace
-  Digital Transformation



# ICRC

*The opportunity:*

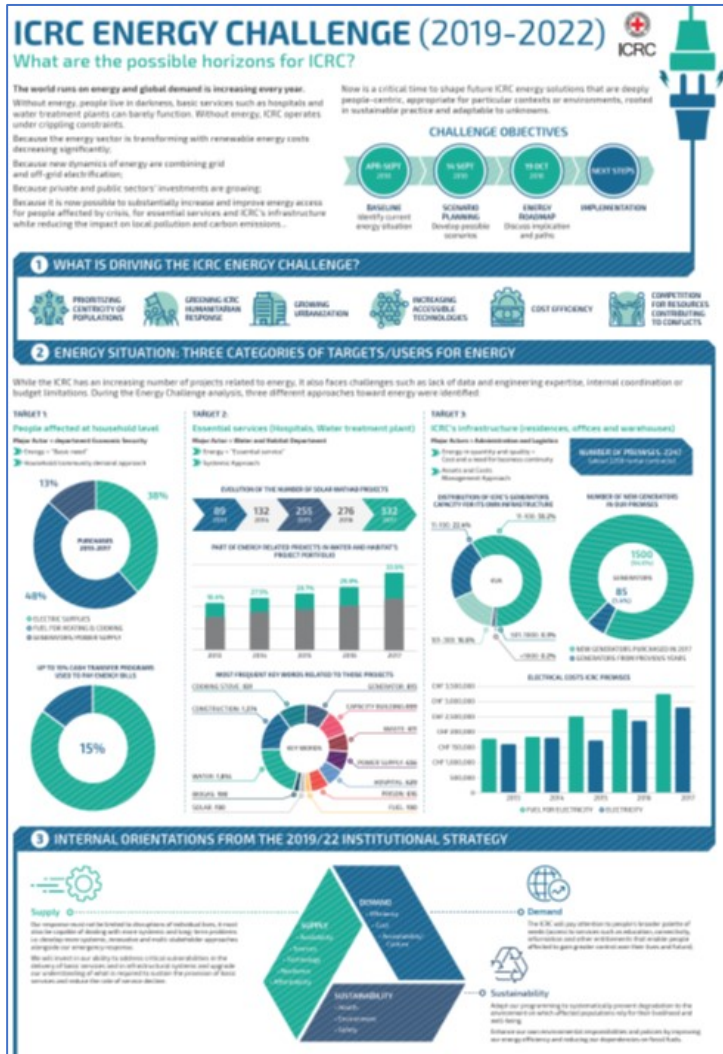
Think long-term and integrate energy access and resilience into core relief-to-recovery operations





*Our starting point:*

A baseline to understand our overall energy demand and consumption patterns



Increasing number of projects related to energy in OPS and RES, but....

- ✗ Policy engagement
- ✗ Evidence, monitoring and reporting
- ✗ Coordination among key functions
- ✗ Financing
- ✗ Expertise

# ICRC



## *Key workstreams*

Expanding energy access sustainability requires **access to transparent analytical tools and data**, monitoring of energy uses with social sciences to **trigger behavior changes**, and **proper energy planning**



ICRC



energypedia



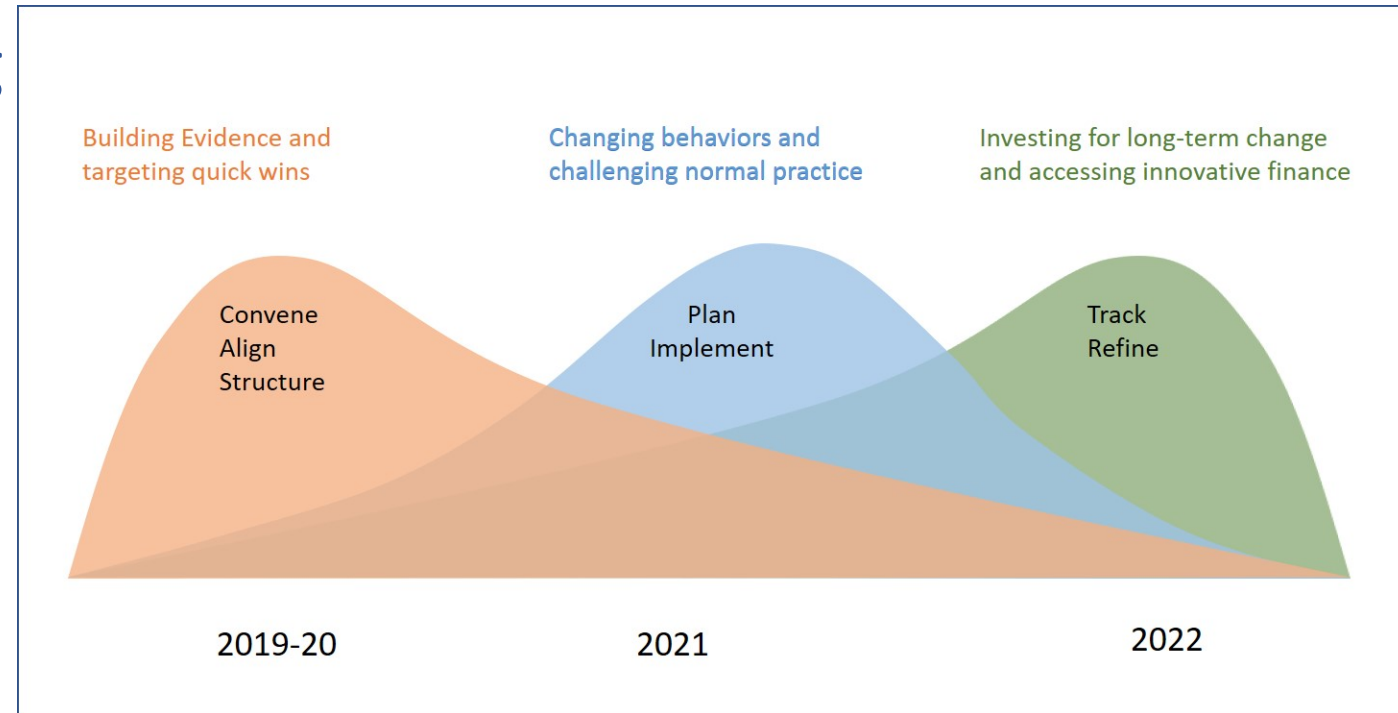
unitar

United Nations Institute for Training and Research

# ICRC

*A new mode of action:*

- Innovative technical and financing partnerships to increase and accelerate investments in humanitarian settings
- Energy as enabler to assess the breakdown of systems and build resilient operations that support livelihood and essential services' continuity



# ICRC

## *Our Roadmap: objectives and high level outcomes*

**Improve access to sustainable energy for crisis-affected people and essential services**

**Reduce ICRC energy consumption and dependency on fossil fuels**

**Expansion of energy access markets and strategic energy planning**

**Investing for impact with development finance institutions and donors**

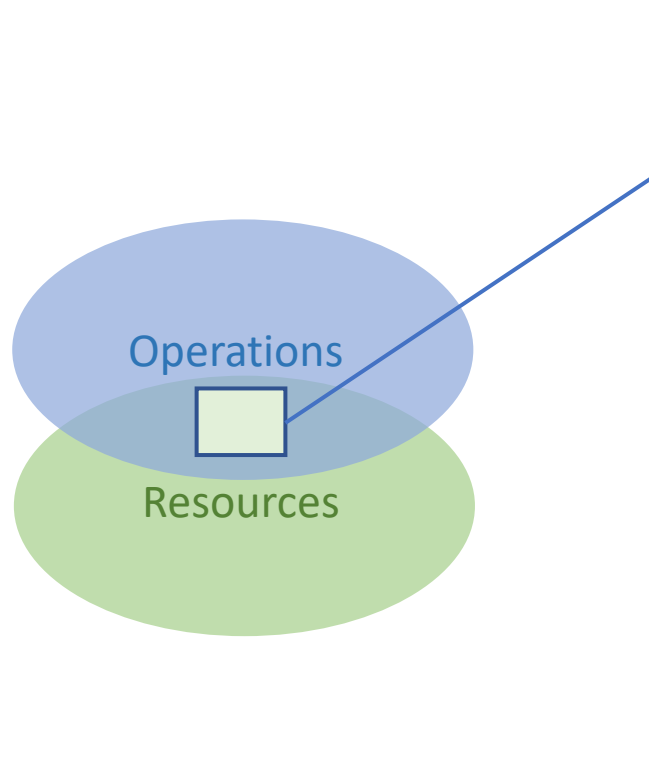
**Transactional relationships**

Service delivery  
Sub-contracted work  
Funding relationships  
Transferred risk

**Partnerships**

Co-created activities  
Mutual accountability  
Complex relationships  
Shared risk

# ICRC



Energy Delivery Models

+

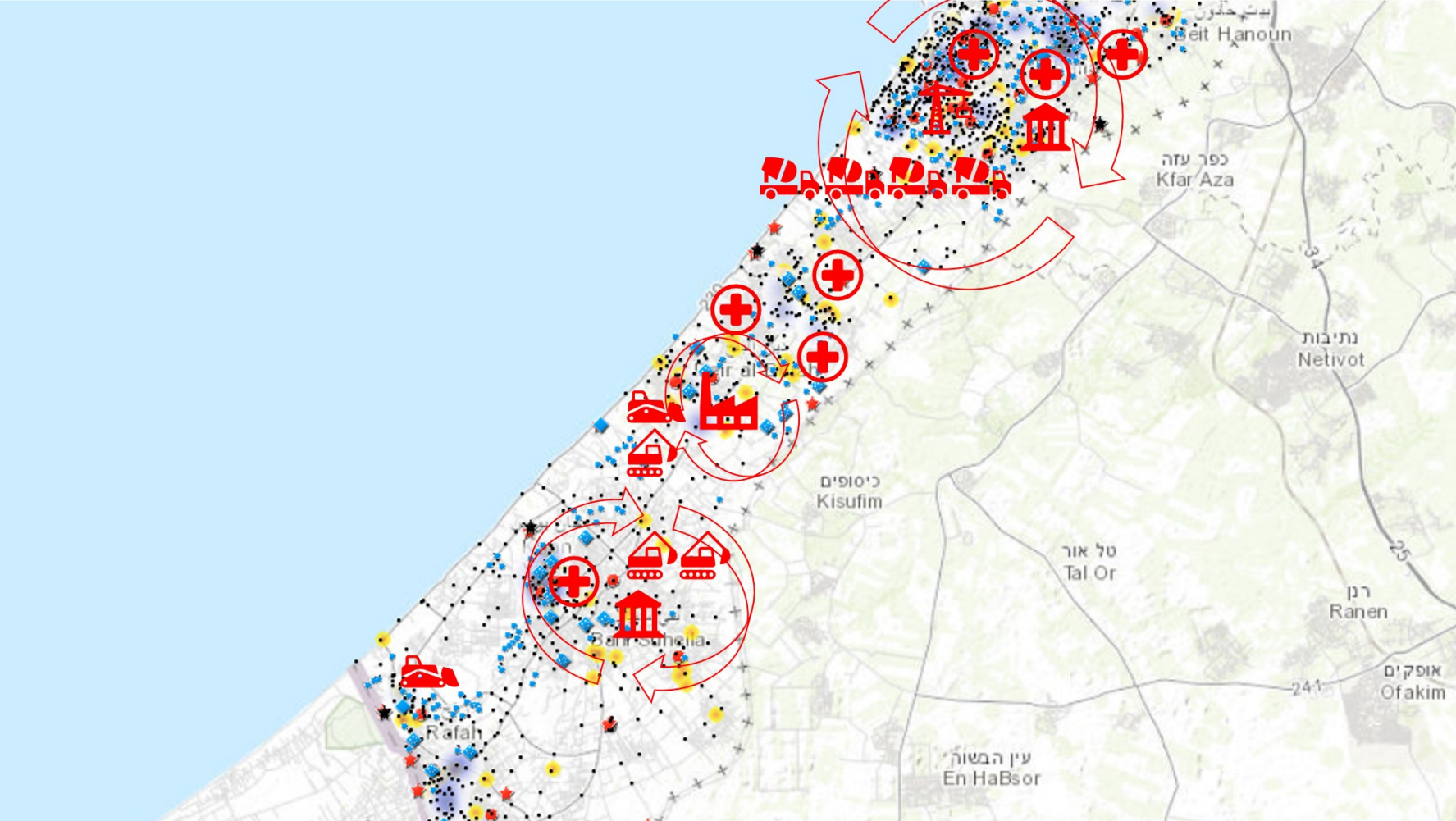
New Financial Mechanisms

=

accelerating an effective energy transition

# Case study: Gaza resilience

# ICRC

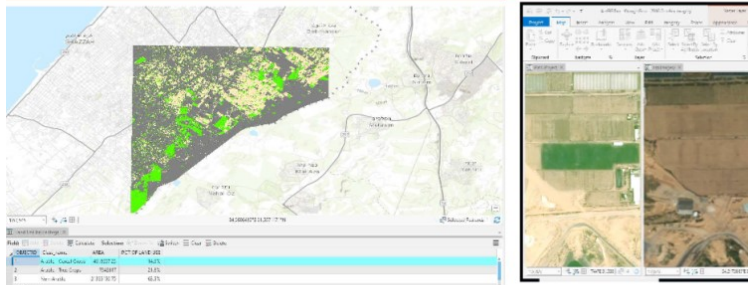


- Safe evacuation of wastewater
- Continuity of water supply
- Continuity of power supply
- Emergency response

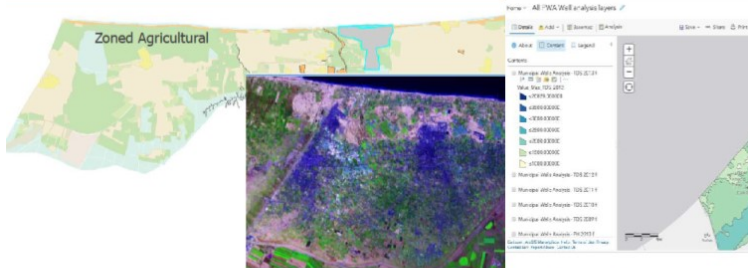
# Case study: Gaza resilience

ICRC

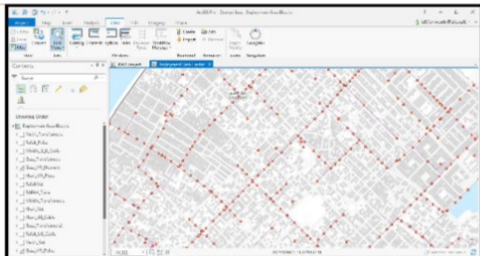
Actual Food Production Land Use Change Detection: (



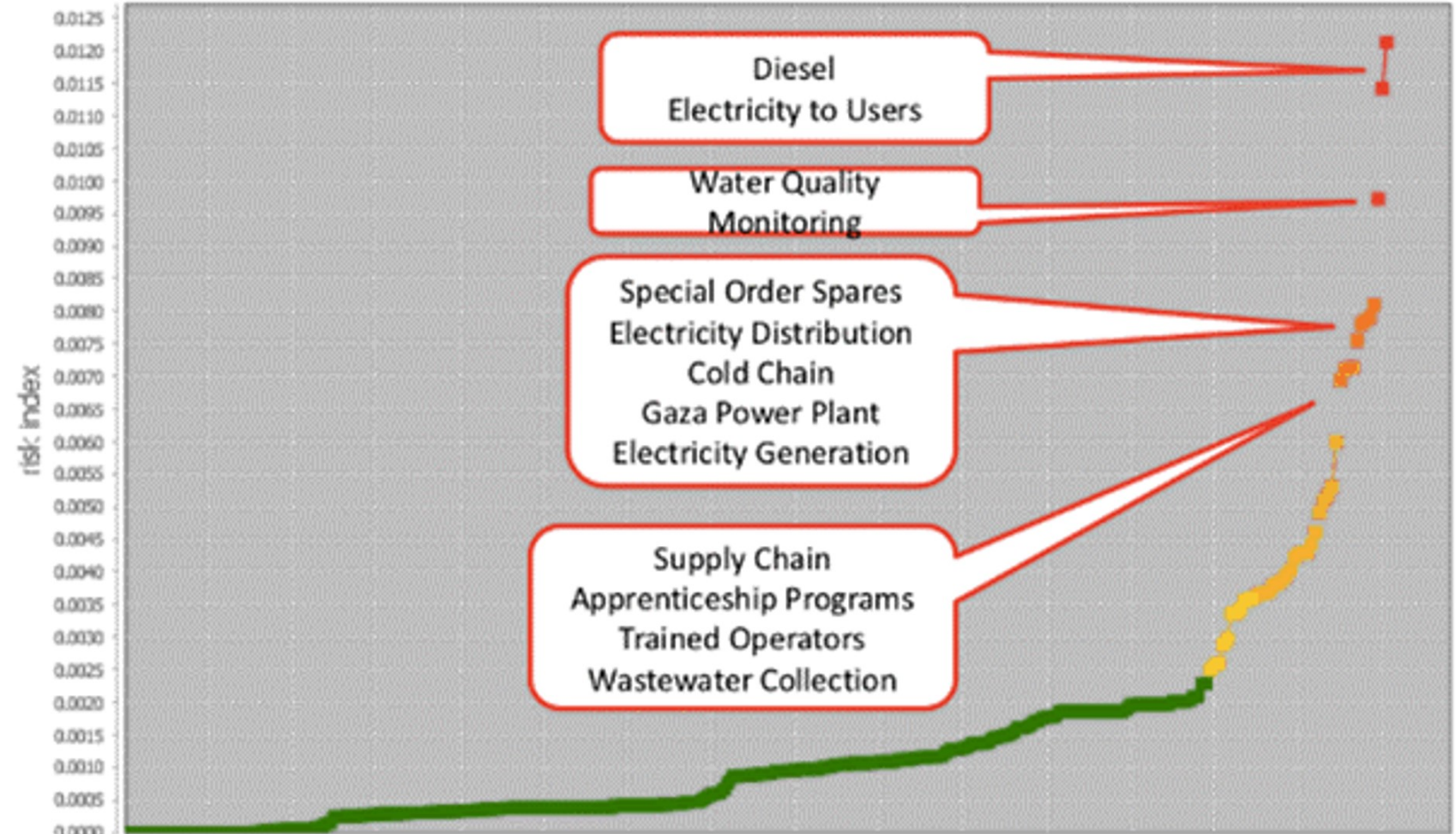
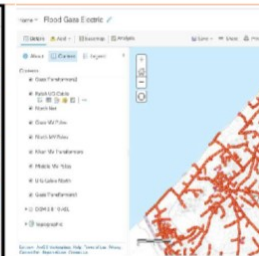
Land Use Mapping



Gaza City Electrical to MV Transformer

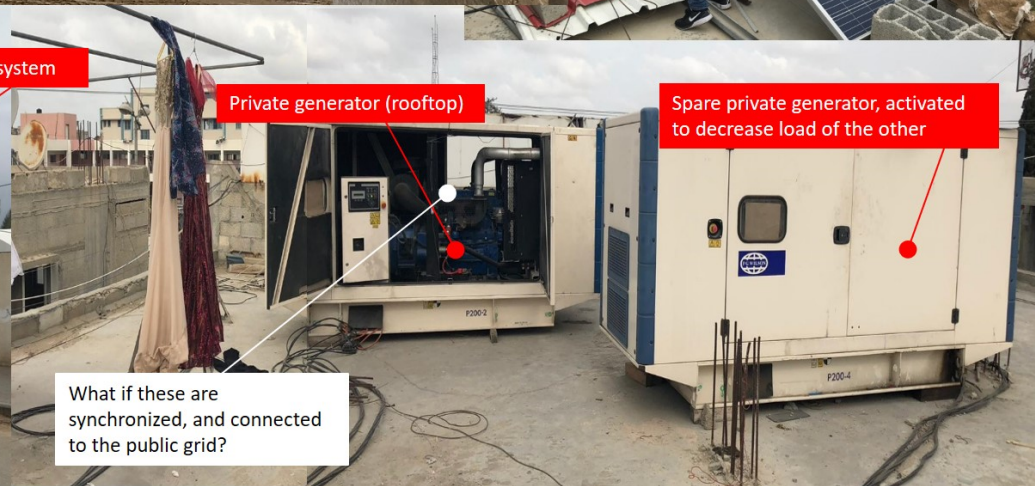
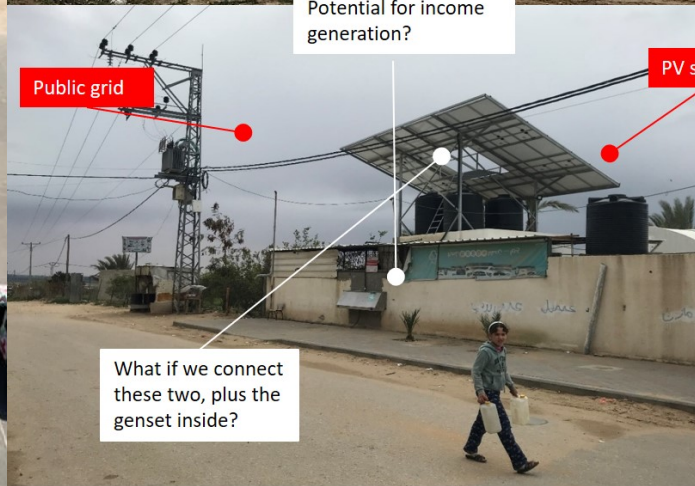
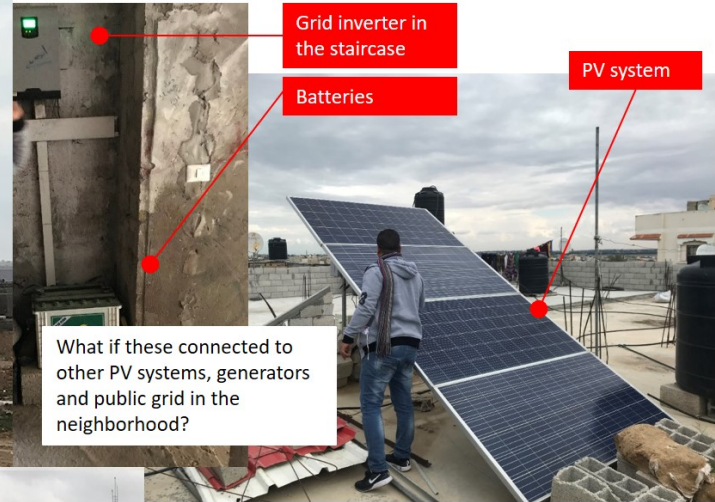
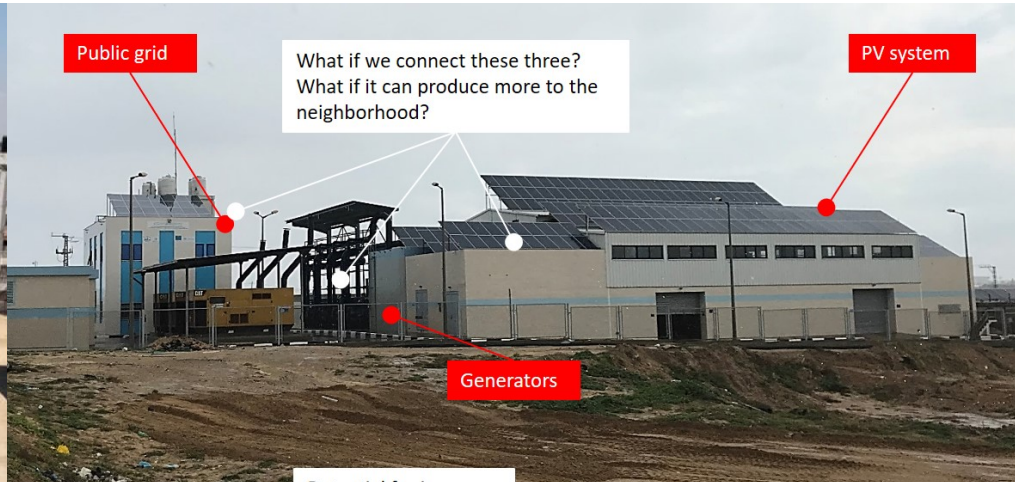


Gaza Strip MV Elec



# The Energy Delivery Model

# ICRC





# ICRC



# ICRC





- Q&A -

# Further Resources

## Global Plan of Action

- Framework, Full Version: <https://www.unitar.org>
- Website: <https://unitar.org>

## McKinsey

- Global Energy Perspective: <https://www.mckinsey.com>

## Moving Energy Initiative

- Costs of Fuelling Humanitarian Aid: <https://www.chathamhouse.org>
- KUBE Energy and MEI, Solar Energy Handbook - contracting models for sustainable power infrastructure: <https://mei.chathamhouse.org>
- Engaging the Private Sector on Energy in Humanitarian Sector: <https://www.chathamhouse.org>
- Heat, Light and Power For Refugees, State of Household Energy Access in Refugee Camps: <https://www.chathamhouse.org>
- Prices, Products and Priorities, Energy Access Working through Energy Market Systems in Kenya and Burkina Faso: <https://www.chathamhouse.org>

## WEF:

- Insight Report: <https://www.weforum.org/reports/fostering-effective-energy-transition-2019>
- Website: <https://www.weforum.org/system-initiatives/shaping-the-future-of-energy>

# Thank you

- Feedback: [info@energypedia.info](mailto:info@energypedia.info)
- Webinar documentation/Additional Resources:  
[https://energypedia.info/wiki/Webinar\\_Series:\\_Sustainable\\_Energy\\_in\\_Humanitarian\\_Settings](https://energypedia.info/wiki/Webinar_Series:_Sustainable_Energy_in_Humanitarian_Settings)

