



# Energy Access: Humanitarian Relief

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# Background

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- 89% of people living in refugee camps have no access to electricity.
- 2014-15 electricity bill for the Zaatari camp in Jordan was \$8.7 million.
- Climate change and environmental damage are increasingly identified as important factors in the frequency and impact of disasters.
- IPCC projects that the number of forcibly displaced people is likely to grow because of climate change.



# Energy Access Technologies



# Environment

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- CO2 emissions:
  - No specific studies looking at the impact on CO2 emissions for lighting.
- A solar light replacing a kerosene lantern can save 0.092 tCO2 e/year?
- Does not consider life-cycle emissions.
- Environmental degradation:
  - Reduce the amount of firewood collected.
  - Following a lantern distribution 96% collect less cooking fuel each week.
- Concerns about the waste associated with solar lanterns.

# Security and Protection

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- Lack of adequate light often cited as a barrier to using WASH facilities.
- A survey at Goudoubo refugee camp in Burkina Faso found:
  - Only 4% of households would females go out after dark.
  - In 18% of households no one would leave the tent after dark.
- A UNCHR study following a lantern distribution found 60% of respondents felt safer using the bathroom at night.
- Protection from snake and animal bites when traveling at night.
- Ability to charge mobile phones can improve perception of safety.
- Light not necessarily the answer to SGBV but usually appreciated.



# Security and Protection

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- 2008 fire caused by an oil lamp at a refugee camp in Nepal injured 100 people.
- 2013 fire at a refugee camp in Thailand killed 37 people and left 2,300 people homeless.
- 2015 fire at a Syrian refugee camp in Lebanon killed a baby and injured several others.



# Health

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- Very little research on the health impacts in a humanitarian context.
- Indoor air pollution/ respiratory health:
  - ~20,000 deaths in refugee camps per annum according to WHO.
  - Complex and also include cooking
- Poisoning:
  - 50 - 70% of all off-grid cases caused by kerosene.
  - Can be resolved with child-safe containers?
- Risk of electrocution from illegal connection.
- Clinical services:
  - Vaccine and blood storage.





# Livelihoods

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- Education:
  - Little evidence in humanitarian relief.
  - Plenty of evidence in development context.
- Income generating opportunities:
  - Work after dark.
  - Little evidence for impact in humanitarian relief.
- A UNHCR study in found 86% of solar lantern beneficiaries said the new lantern allowed them to study at night.
- Saving money:
  - ~\$1.50 per day current costs.
  - Solar potentially <\$0.50 per day.



# Future Research

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- LCA for energy access solutions
- Personal vs communal lighting
- Economic assessments
- Actual vs perceived impacts
- Do solar lanterns actually replace kerosene lanterns?

# Conclusion

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- Energy is still largely uncoordinated and unaccounted in humanitarian response.
- Refugees have consistently called for improved lighting to make them feel safer and increase their ability to read and study at night.
- The best available technologies will save lives and improve living standards.
- Modern energy services are likely to increase total CO2 emissions.
- SDG number seven is to “ensure access to affordable, reliable, sustainable and modern energy for all”.
- The barriers are not technological. They are political and financial.

Thank you. Any Questions?