(Energy)Lab OXFAM

Clean Energy & Just Energy Transition

Introduction

Cambodia is in the midst of an energy transformation. In the early 2000s, most of Cambodia's electricity came from fossil fuel sources like heavy fuel oil. But by 2023, 57% of electricity was sourced from renewable energy including solar, hydro, and biomass [1]. This should keep increasing, as the country is committed to generating 70% of its electricity from renewables by 2030 - a bold step towards a sustainable and climate-resilient future.

Cambodia has also made huge progress in connecting people to the electricity grid. In 2003, only 19% were connected to the grid. Today, over 99% of villages are connected. However, there are still approximately 120 remote villages that lack access to the electricity grid.

But this transition to clean energy must also be a "just" one - ensuring no Cambodian is left behind as the country moves away from fossil fuels. A just energy transition means empowering all citizens, from rural villagers to city residents, to access affordable, reliable clean power and to share in the benefits.

In this booklet, we will explore why clean energy is crucial for Cambodia's development, the key principles of a Just Energy Transition, and how you can get involved in building a brighter and more sustainable tomorrow. Before we get into those topics, we will first provide some basic terminology.

[1] Electricity Authority of Cambodia. (2024). Salient Feature of Power Sector for 2024. https://www.eac.gov.kh/site/index?lang=en

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What is Clean Energy?

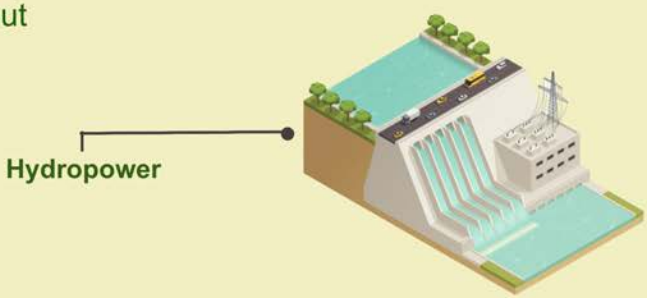
Clean Energy refers to energy sources that are sustainable and environmentally friendly. They produce little or no greenhouse gas emissions (GHG) and are crucial tools in combating global warming.

Common Types of Clean Energy and Their Benefits and Drawbacks:

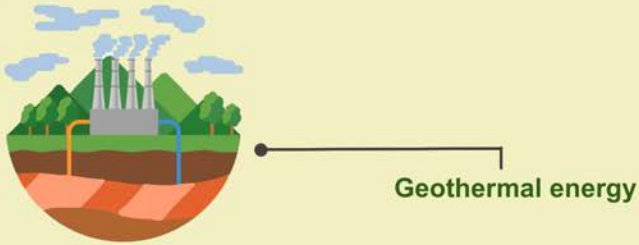
- **Solar energy (energy from sunlight)**
  + Benefits - Clean, renewable, low operating costs, can be decentralised for off-grid/rural electrification, can be developed with other uses like agriculture
  + Drawbacks - Variable energy supply, upfront investmen required

- **Wind energy (energy from the wind)**
  + Benefits - Clean, renewable, large scale, low operating costs
  + Drawbacks - Variable energy supply, potential impacts on wildlife

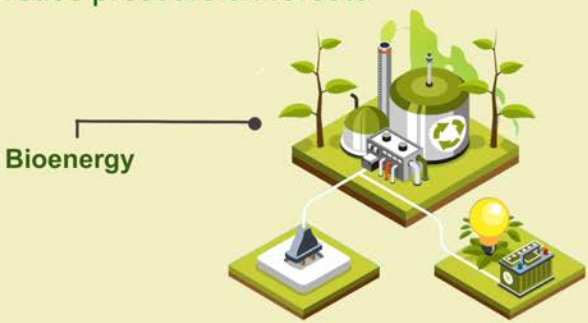
- **Hydropower (energy from the flow of water)**
  + Benefits - Renewable, reliable energy supply
  + Drawbacks - Potential environmental and social impacts, seasonal output



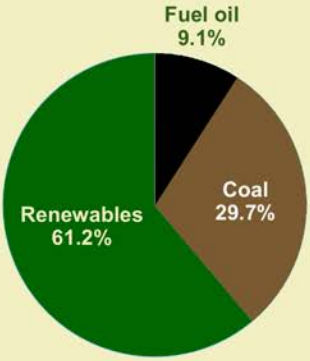
- **Geothermal energy (energy from heat within the Earth's surface)**
  + Benefits - Renewable, reliable energy supply
  + Drawbacks - Limited geothermal resources in Cambodia, high upfront costs



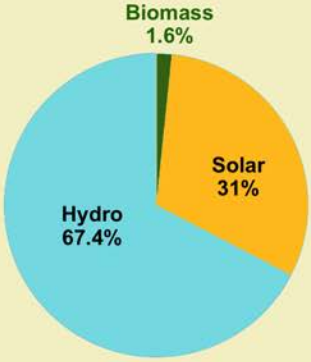
- **Bioenergy (energy from organic matter like plants and agricultural waste)**
  + Benefits - Renewable, can utilize agricultural/forestry waste
  + Drawbacks - Potential air pollution, competition with food/land use, can increase pressure on forests



Where did our electricity come from in 2024?



Domestic Power Source
(4,372 MW)



Renewable Power Source
(2,672 MW)

Source: Salient Feature of Power Sector for 2024 (EAC, 2024)

Why Clean Energy Matters for Cambodia's Future

Clean energy provides a wealth of benefits that can drive Cambodia's development and prosperity. Transitioning to clean energy is essential for Cambodia to meet its development goals and build a sustainable, prosperous future for everyone.

Energy Security: Cambodia currently relies on imported fossil fuels like coal and petrol to meet its energy needs. This makes the country vulnerable to global price volatility and supply chain disruptions. By transitioning to clean energy like solar and wind, Cambodia can enhance its energy independence, security, and reliability.

Climate Action: Cambodia is highly vulnerable to the impacts of climate change including frequent and unpredictable natural disasters like droughts and floods. A clean energy transition will ensure the country can minimise the generation of greenhouse gas emissions (GHG), mitigating its contribution to global warming while building a more robust and resilient climate for the country.

Economic Opportunities: The clean energy transition is expected to create thousands of new green jobs and business opportunities in Cambodia's energy sector. The global shift towards greener economies could create around 24 million new jobs worldwide by 2030. This will diversify Cambodia's economy, provide sustainable livelihoods, and boost local economic development.

Energy Access: Despite significant progress in recent years, some Cambodian households - especially in remote areas - still lack access to reliable and affordable electricity. Expanding access to electricity will improve quality of life and enable socioeconomic development. For example, decentralised clean energy infrastructure, particularly off-grid and mini-grid solar photovoltaic (PV) systems, can help meet basic needs such as lighting, fans, and mobile phone charging while off-grid systems with batteries can allow households to run a whole range of appliances.

Affordability: Clean energy solutions like rooftop solar can offer more affordable power for homes and businesses compared to the national electricity grid. This is particularly true in areas where grid electricity is costly or unreliable.

Just Energy Transition

What is a Just Energy Transition?

As Cambodia aims to increase its adoption of clean energy sources, it is critical that this transition is carried out fairly and equitably, benefiting all members of society and those affected by the transition. This is known as a "Just Energy Transition" - an approach that ensures the transition towards sustainability is inclusive while prioritising the needs of workers, communities, and the environment.

Cambodia has set ambitious targets to increase its share of renewable energy in the national energy mix. However, this transition must be carefully managed to avoid disproportionately burdening vulnerable populations or exacerbating existing social and economic inequalities. A Just Energy Transition can ensure that the benefits of clean energy - such as improved public health, job creation, and reduced emissions - are distributed fairly across Cambodian society.

Principles of a **Just Energy Transition**

The key elements of a Just Transition have emerged from consultation with key stakeholders who are working with communities and on energy project. Critical considerations ensure the benefits and burdens of the transition are shared.

Making Sure the Community's Voice Is Heard: Local communities should be actively engaged in the planning and implementation of clean energy projects. This ensures that their needs and priorities are reflected and that the transition delivers tangible benefits to those most affected, such as improved access to affordable electricity, job opportunities, and environmental protection. Meaningful community participation is essential for a Just Transition.

Paying Good Wages and Delivering Safe Working Conditions: Workers in the clean energy sector must be provided with fair compensation, strong labor protections, and safe working environments. This helps to create high-quality, sustainable jobs that support families and communities. Ensuring decent work in the renewable energy industry is crucial for making the transition socially equitable.

Minimising Environmental Impacts: The shift to renewable energy must be accompanied by robust measures to protect the natural environment and address any potential negative impacts on ecosystems and biodiversity. This includes conducting comprehensive environmental impact assessments, implementing mitigation strategies, and ensuring that clean energy projects are developed sustainably and responsibly.

Transparency and Accountability: The process of transitioning to clean energy should be guided by clear, transparent decision-making and inclusive governance structures that enable public participation and oversight. This promotes trust, ensures equitable outcomes, and empowers citizens to hold authorities and energy companies accountable.

Promoting Diversity and Gender Equity: The clean energy workforce and leadership should reflect the diversity of Cambodian society, with a particular focus on achieving gender balance and empowering women and marginalised groups. This helps to create a more inclusive and representative clean energy sector that benefits all members of the population.

Ensuring No One is Left Behind

Realising a Just Energy Transition in Cambodia will require concerted efforts to support vulnerable communities, workers, and households that may be disproportionately impacted by the shift away from fossil fuels.

By embracing the principles of a Just Energy Transition, Cambodia can strengthen its long-term development goals and create a more prosperous, resilient, and environmentally-conscious society.

Get Involved in Building Cambodia's Clean Energy Future

You can be a part of the clean energy transition in many ways:

- Learn: Expand your knowledge about clean energy and its benefits for your community. Attend workshops, read informative materials, and stay up-to-date on the latest developments.

- Engage: Speak up and get involved with local authorities, energy companies, and community groups shaping the transition plans in your area.

- Adopt: Make the switch to clean energy solutions like rooftop solar at home or in your business. Reduce your carbon footprint and save on electricity bills.

- Advocate: Support policies and investments that enable equitable access to clean, affordable energy for all Cambodians. Raise your voice to drive progress.

- Participate: Get involved in workshops, events, and initiatives that promote a just energy transition. Contribute your ideas and energy to the movement.

Together, we can build a clean energy future that unlocks opportunity, strengthens communities, and powers Cambodia's development for generations to come.

Test Your Knowledge

1. Which option best describes Clean Energy (CE)?

a. Energy derived from waste recycling
b. Energy derived from natural resources that will be replenished over time
c. Energy sourced from fossil fuels like coal and petroleum
d. None of the above

2. Which of the following statements refers to CE?

a. Energy that is taken from clean water
b. Energy that has undergone many cleaning processes
c. Energy sources that produce less/no carbon emission
d. All of the above

3. CE can be derived from RE, but not all REs are considered clean if the construction of the project causes significant environmental damage.

a. True
b. False

4. Which of the following is an example of a CE source?

a. Wind energy
b. Solar energy
c. Hydro energy
d. Bioenergy or Biomass
e. All of the above

5. Solar and wind energy are considered clean energy due to their low carbon dioxide (CO_2) emission throughout the entire life cycle.

a. True
b. False

6. Which of the following is TRUE about CE?

a. CE can help the environment
b. CE can reduce dependence on fossil fuels
c. CE can improve energy security
d. CE can reduce energy cost
e. CE can help the economy
f. All of the above

7. The problem with non-renewable energy sources are :

a. The sources are limited and will run out
b. They release greenhouse gas into the atmosphere
c. They are becoming more expensive
d. All of the above

8. The significance of deploying RE include :

a. Other energy sources will be used up and gone forever
b. We will run out of energy
c. Renewable energy can last forever
d. Renewable energy produces less pollution
e. All of the above

Answer :
1.b , 2.c , 3.True, 4.e ,5.True , 6.f , 7.d. , 8.e

To learn more about Clean Energy - Visit our website
www.energylab.asia and https://cambodia.oxfam.org

Got any questions? Please contact
info@energylab.asia or info.cambodia@oxfam.org

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