

Climate Finance for Powering Healthcare

Summary of Main Findings

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Acknowledgement

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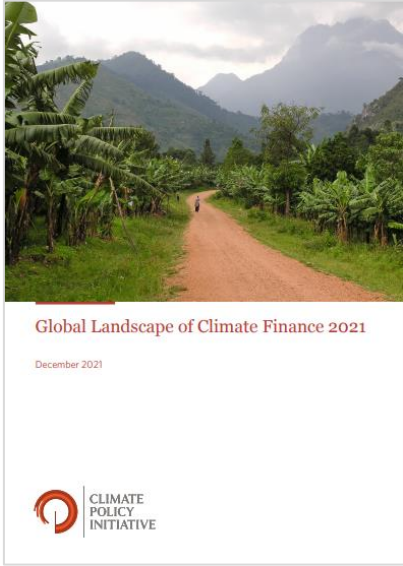
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What is the potential for climate finance to advance electrification and climate proofing of healthcare?



US\$ 4.9 bn is needed to electrify two thirds of healthcare facilities in 63 countries to deliver quality healthcare

US\$ 632 bn of climate finance was disbursed in 2019/2020 across the world.



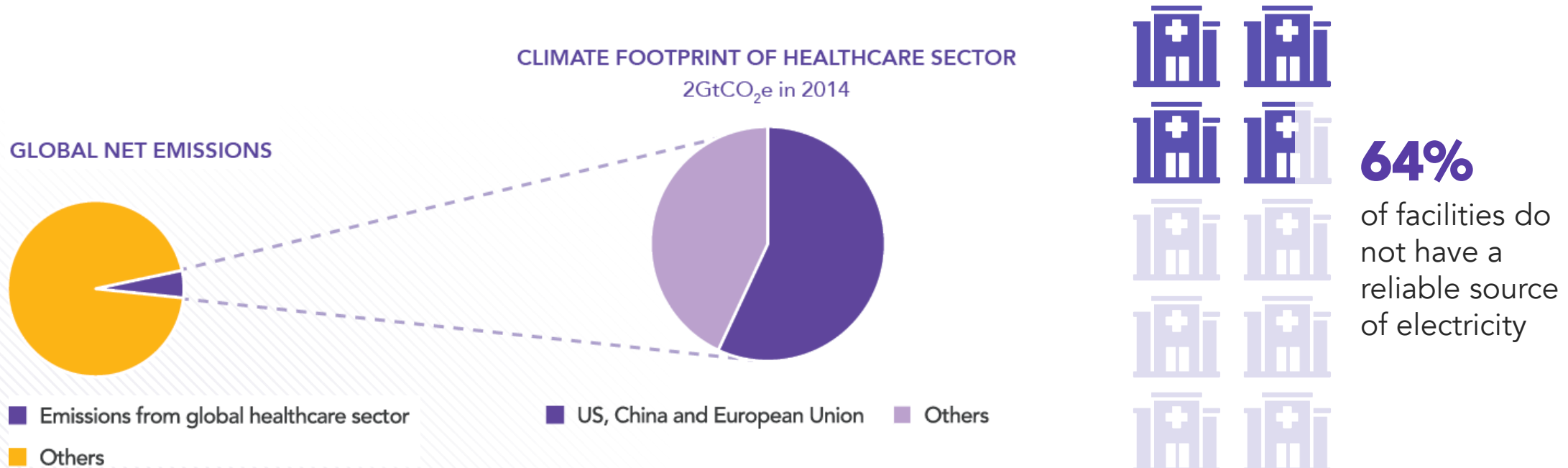
SECTION ONE

The climate rationale

The climate and economic benefits from
climate proofing healthcare facilities



The global healthcare sector is contributing to climate change... but in LMICs healthcare facilities have unmet energy needs



And healthcare facilities in Asia and Africa are already being impacted by climate effects



Climate hazards, such as cyclone, heat wave, flood, etc.



Damage to building and medical supplies

Disruption to critical services, such as electricity, water and access roads

Temperature increase, erratic rainfall

Increased demand on healthcare services from climate related health impacts

Increased cooling and energy needs of healthcare facilities

 **Disrupted health services**
e.g. 8 million people in Pakistan lost access to urgent health services when Pakistan 2022 floods damaged 10% of all healthcare facilities

For example,



Of the 5,681 healthcare facilities in Nepal

CARBON FOOTPRINT

22% do not have a 'regular' supply of electricity →

12% have a diesel generator →

13% have on-site renewable energy system

90% of grid electricity from hydropower and 2% is thermal

USD 36,500 spent by all facilities per year on ~38,987 litres of fuel to power the facility, representing **97 tonnes CO₂e.** (~10% of emissions from facility vehicles)

VULNERABILITY

Healthcare system already being impacted by climate change, which is projected to worsen in the future. For example, 600,000 additional people will become at risk of malaria, and 400,000 for dengue.

Increasing exposure of healthcare facilities to extreme weather events

There are proven 'solutions' to reduce healthcare facilities carbon footprint and increase their climate resilience

||↓ GHG MITIGATION POTENTIAL →|| RESILIENCE POTENTIAL

<p>Decentralized RE system</p>	<p>Avoided GHG emissions from diesel generators and/or grid electricity</p>	<p>Secure supply of electricity as natural disasters disrupt the grid, but RE system itself needs to withstand extreme weather</p>
<p>Energy efficient appliances</p>	<p>Reduced demand for energy and therefore reduced generation (and less pressure on renewable energy capacity additions)</p>	<p>Reduced impact of disruptions to electricity supply. Energy efficient cooling measures helps manage impact of increased heat</p>
<p>Energy efficient buildings</p>	<p>Many of same building design measures reduce energy consumption.</p>	<p>Buildings able to withstand impact of extreme weather events</p>



The solutions also offer direct health and financial benefits

✚ DIRECT HEALTH BENEFITS

🏠 DIRECT FINANCIAL BENEFITS

Decentralized RE system

Allow 24/7 operation and new services. Reduced indoor air pollution from generators

Reduced expenses of fuel for generators

Energy efficient appliances

Reduced indoor temperature of facilities. Reduced indoor air pollution from kerosene lamps

Reduced expense of electricity from grid or fuel for generators

Energy efficient buildings

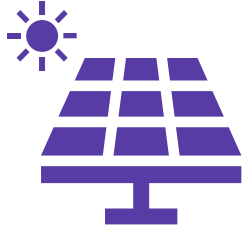
Climate resilient buildings

Reduced indoor temperature of facilities. Reduced human injuries from damaged buildings

Reduced expense of electricity from grid or fuel for generators. Avoided cost of replacing damaged building and equipment



For example,



If one health facility replaced the use of fossil fuel generator with a **stand-alone solar PV system**:

↓ MITIGATION BENEFITS

It would save approximately **1.4 – 4.2 tonnes** CO₂ per year

💰 FINANCIAL BENEFITS

It would save approximately **630-1,411 USD** per year



If one health facility replaced the use of kerosene lamps with **solar lanterns**:

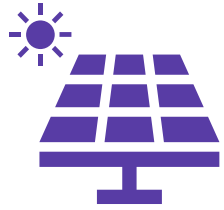
↓ MITIGATION BENEFITS

It would save approximately **0.7-1.3 tonnes** CO₂ and **0.3-0.6 tonnes BC** per year

💰 FINANCIAL BENEFITS

It would save approximately **295-591 USD** per year

For example,



If all energy deficient health facilities replaced the use of fossil fuel generator with a **stand-alone solar PV system**:

Number of facilities

152,101 energy-deficient healthcare facilities
78% total

Upfront Investment

USD 3,000 per KWp
USD 1.4-2.6 billion for country



Annual cost savings

USD 673-1,540 per facility
USD 125-207 million for country

Annual GHG emissions savings

1.5-4.4 tCO₂ per facility
0.29-0.5 MtCO₂ for country

Number of facilities

37,722 energy-deficient healthcare facilities
79% total

Upfront Investment

USD 3,000 per KWp
USD 0.88-0.97 billion for country



Annual cost savings

USD 501-1,022 per facility
USD 34-36 million for country

Annual GHG emissions savings

1.3-3.8 tCO₂ per facility
0.12-0.13 MtCO₂ for country

Number of facilities

3,613 energy-deficient healthcare facilities
44% total

Upfront Investment

USD 3,000 per KWp
USD 59.6 million for country



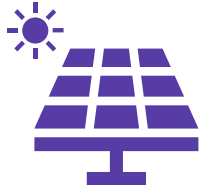
Annual cost savings

USD 717-1,671 per facility
USD 2.9-5.1 million for country

Annual GHG emissions savings

1.5-4.4 tCO₂ per facility
6,291-11,017 tCO₂ for country

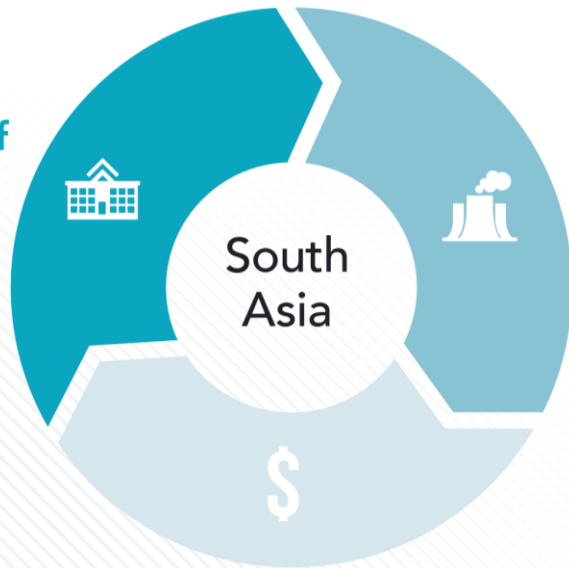
For example,



If all energy deficient health facilities replaced the use of fossil fuel generator with a **stand-alone solar PV system**:

Number of facilities

179,503
energy-deficient
healthcare
facilities
75% total



Annual cost savings

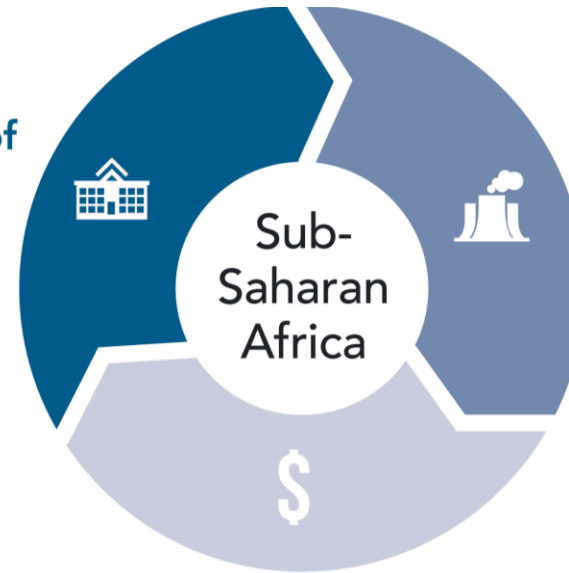
USD 136-201 million for region

Annual GHG emission savings

0.33-0.54
MtCO₂ for
region

Number of facilities

123,228
energy-deficient
healthcare
facilities
72% total



Annual cost savings

USD 37-62 million for region

Annual GHG emission savings

0.35-0.43
MtCO₂ for
region

Despite the climate and economic rationale, there are significant financial and other barriers to adoption.

- 1. High upfront CAPEX:** e.g. Rate of return can be up to 25 years for solar.
- 2. Regular operating and maintenance costs:** OPEX can stretch public budgets
- 3. Non-financial barriers:** Information and capacity, access to finance, local technology providers etc.
- 4. Wider healthcare sector constraints:** e.g. lack of trained professionals

Public sector investment, including climate finance, is required to incentivize investments into climate proofing healthcare facilities.

Each climate proofing measure has its own financing needs. Different potential financing models could cover these costs.

TYPE OF COSTS	DESCRIPTION	POSSIBLE FINANCING MODELS
CAPEX	Upfront cost to design, purchase, transportation and/or installation.	<ul style="list-style-type: none"> • Government (or third-party) finances through EPC type contract or provides subsidy for facilities to directly procure technology. • A company leases the technology or supplies renewable energy as a service to the facility (shifting the CAPEX to the company, not facility) at a commercial or subsidized rate.
OPEX	Regular operation, maintenance and servicing costs	<ul style="list-style-type: none"> • Government increases financing of facilities and/or facilities increase user fees.
Additional/ enabling costs (non-financial)	Cost associated with engaging stakeholders, designing projects, piloting technology, policy and regulatory reform etc.	<ul style="list-style-type: none"> • Credit enhancement instruments and long-term concessionary loans to encourage private sector participation in providing/ servicing the clean technology solutions e.g. guarantee mechanisms. • Technical assistance to strengthen policy and regulatory framework and build institutional capacity.
Healthcare systems investments	Costs associated with increasing human resource capacity and quality of services etc.	<ul style="list-style-type: none"> • Government increases financing of healthcare sector and/or facilities increase user fees.

Given that healthcare facilities are typically extremely cash strapped, climate finance can serve as an additional external source of financing.

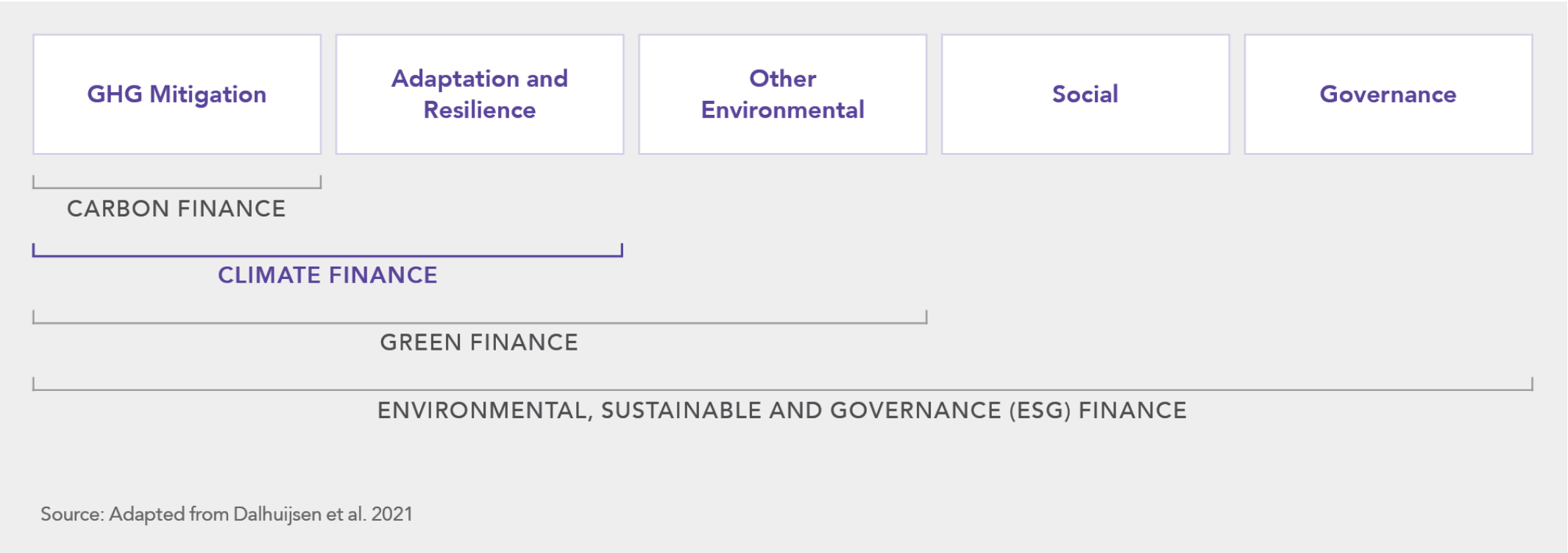
SECTION TWO

The potential of climate finance

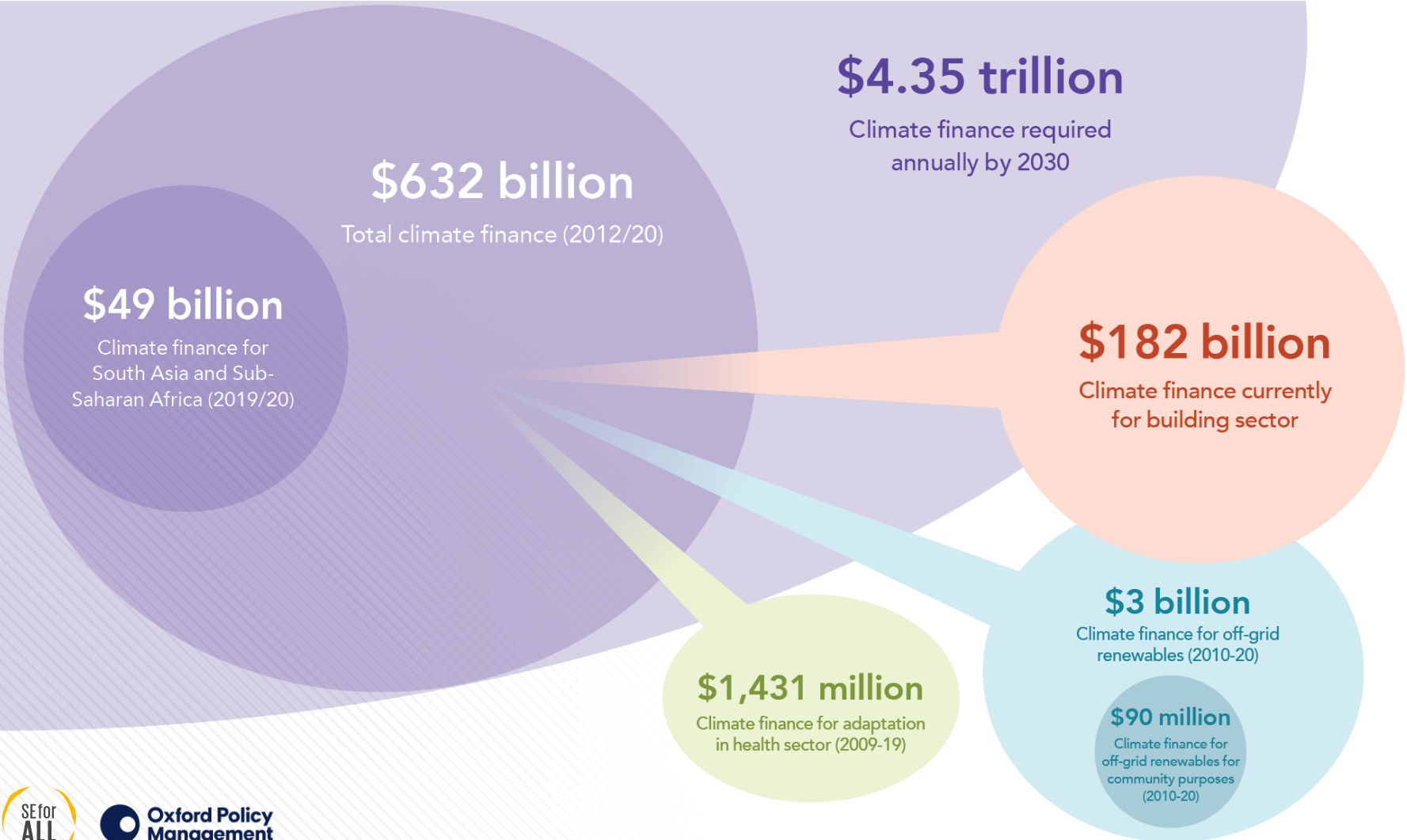
Landscape assessment of climate finance for
climate proofing healthcare facilities



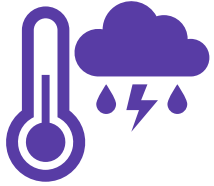
Could climate finance be used to cover these costs?



Climate finance is flowing to relevant low-carbon and resilience solutions (but not at the scale needed)



For example,



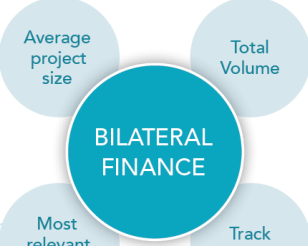
Climate finance is supporting four Pacific countries to increase the resilience of their health systems to climate change

USD 17.85 million of GEF funding and USD 76 million of co-financing (from the four national governments and WHO and UNDP), the funding proposal for the 5-year project was first submitted in early 2015 and approved for implementation in 2020

Project includes site-specific vulnerability assessments and cost benefit analysis for '**climate-proofing**' measures: **Structural elements** (e.g., roofs, doors, windows), **supportive elements** (e.g., drainage and flood protection); **non-structural components** (e.g., computers, diagnostic equipment) to withstand extreme weather events

There are 5 most relevant climate finance sources for climate proofing healthcare facilities

Huge range
From small grants under \$1m to billion-dollar programmes

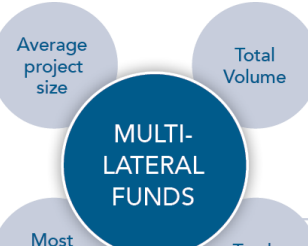


\$38bn
In 2019/20. Direct financing only (not via DFI)

Many donors
e.g. Germany, Austria, Denmark, UK, US, Sweden, Switzerland

Yes
e.g. USAID's \$3m grant programme under Power Africa to electrify healthcare

~\$2-250m
e.g. GCF project sizes, from <\$10m to >\$250m. GEF project sizes, from <\$2m to >\$2m

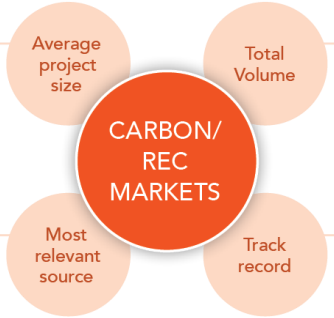


\$4bn
In 2019/20.

GCF (and others)
GCF is largest with relevant mandate. Others, e.g. AF, will support pilots

Yes
But only a few examples, e.g. \$17.9m GEF project on climate resilient health systems in 4 countries in Pacific

Depends
For VCM: \$70,000 - \$350,000 assuming carbon price of \$3.59
For D-REC: \$20-30 per MWh (higher than typical REC)



\$2bn (VCM) / \$18m (REC)
In 2021.

D-REC and VCM
For solar system, D-REC feasible and VCM also relevant

Yes
But small scale. D-REC financed solar system in West Africa.

~\$1-10m
With some examples of up to \$50 million.

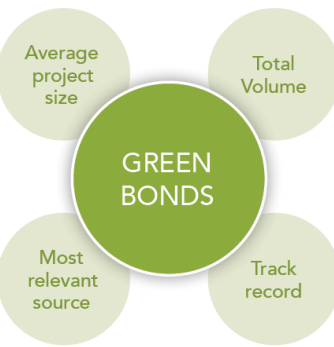


\$5bn
In 2019/20.

Many foundations
e.g. for energy access: MacArthur, IKEA, Rockefeller, etc.; for healthcare systems: Bill and Melinda Gates Foundation, etc.

Yes
e.g. \$51 million IKEA Foundation grant on powering healthcare initiative in India

~\$100m - 1bn
In 2022, 100% bonds under \$100m and 44% above \$1 billion

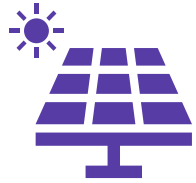


\$1 trillion
In 2023.

Sovereign green bonds
Issued by governments, with examples in India, Nigeria and Egypt

No
But Nigeria's first \$29m sovereign bond included solar energy for education facilities

For example,



The use of RECs (and VIUs) to promote quality healthcare delivery in Uganda

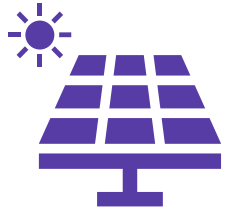
Kyabirwa Surgical Center in Uganda now runs on **100% renewable energy** (46,574 kWh) in an effort to improve both access to reliable electricity and the quality of surgical care with measured outcomes

GSI finances operational costs of the facility using **Decentralised RECs** – for MWh of RE generated - and **Verified Impact Units (VIUs)** – for surgical care outcomes. In 2023, they are 'selling' a bundle of RECs across multiple facilities in Uganda, including the Kyabirwa Surgical Facility, and 1,600 digitally linked and verifiable surgical procedure outcomes.

A single source of climate finance will not cover all the types of costs for climate proofing facilities

	BILATERAL FINANCE	MULTILATERAL FUNDS	PRIVATE FOUNDATIONS	CARBON/ REC MARKETS	GREEN BONDS
Can it finance CAPEX?	Yes, via grant or low-cost loan	Yes, via grant or low-cost loan	Yes, via grant or low-cost loan	Partly, and can unlock additional sources of finance.	Yes, government can finance via the debt security of the bond.
Can it finance OPEX?	Not typically. Projects are time limited so not long-term solutions.	Not typically. Projects are time limited so not long-term solutions.	Not typically. Projects are time limited so not long-term solutions.	Yes, ongoing sale of credits can provide long-term finance.	Not typically, typically finances only capital costs.
Can it finance enabling environment?	Yes, including technical assistance, piloting, capacity building etc.	Yes, including technical assistance, piloting, capacity building etc.	Yes, including technical assistance, piloting, capacity building etc.	Not directly, Finance is provided on basis of verified emissions reductions.	No, typically finances only capital costs.
Can it finance health outcomes?	Yes, depending on priorities of the donor, projects can have multiple objectives and outcomes.	No, while co-benefits are encouraged, this would need additional co-financing source.	Depends, on the priorities of the foundation.	Not directly, but parallel tradable credits for social impact can be generated.	No, but broader social bonds can cover all ESG outcomes.

For example,

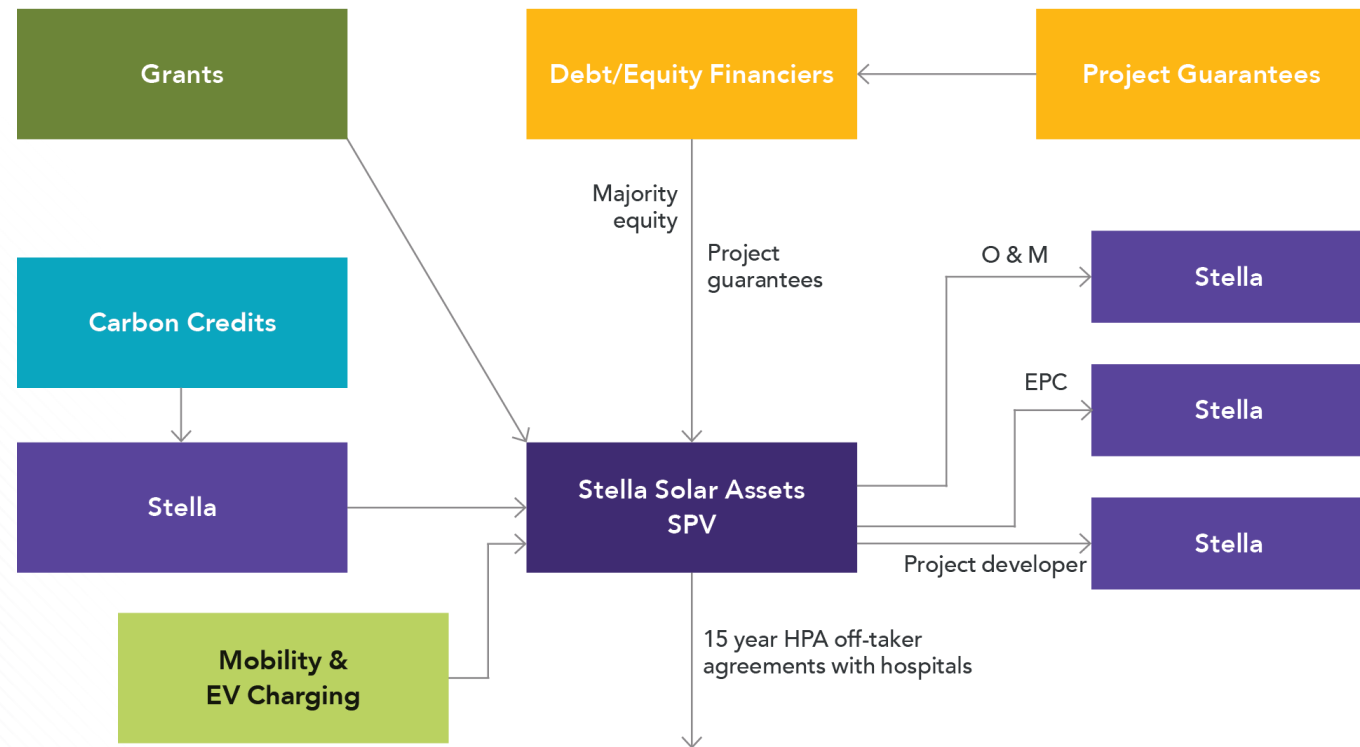


Pilot in four health facilities in Ghana is combining climate finance and other sources for the installation and maintenance of solar energy systems

“The mix of carbon financing/DRECs, grants, and concessionary financing backed by project guarantees unlocks the viability of projects to provide affordable, reliable, and clean energy access to health facilities, while guaranteeing returns to investors.”

FRANCIS ASANTE

CEO Africa, Stella Futura



SECTION THREE

Roadmap for non-governmental partners

Addressing barriers to using climate finance
for powering healthcare

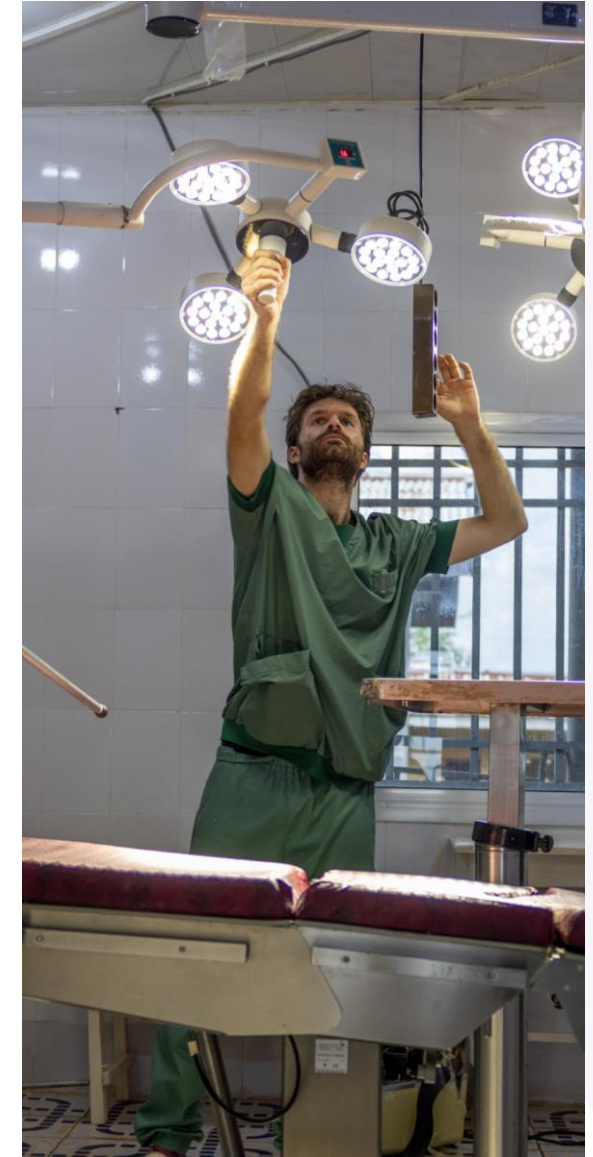
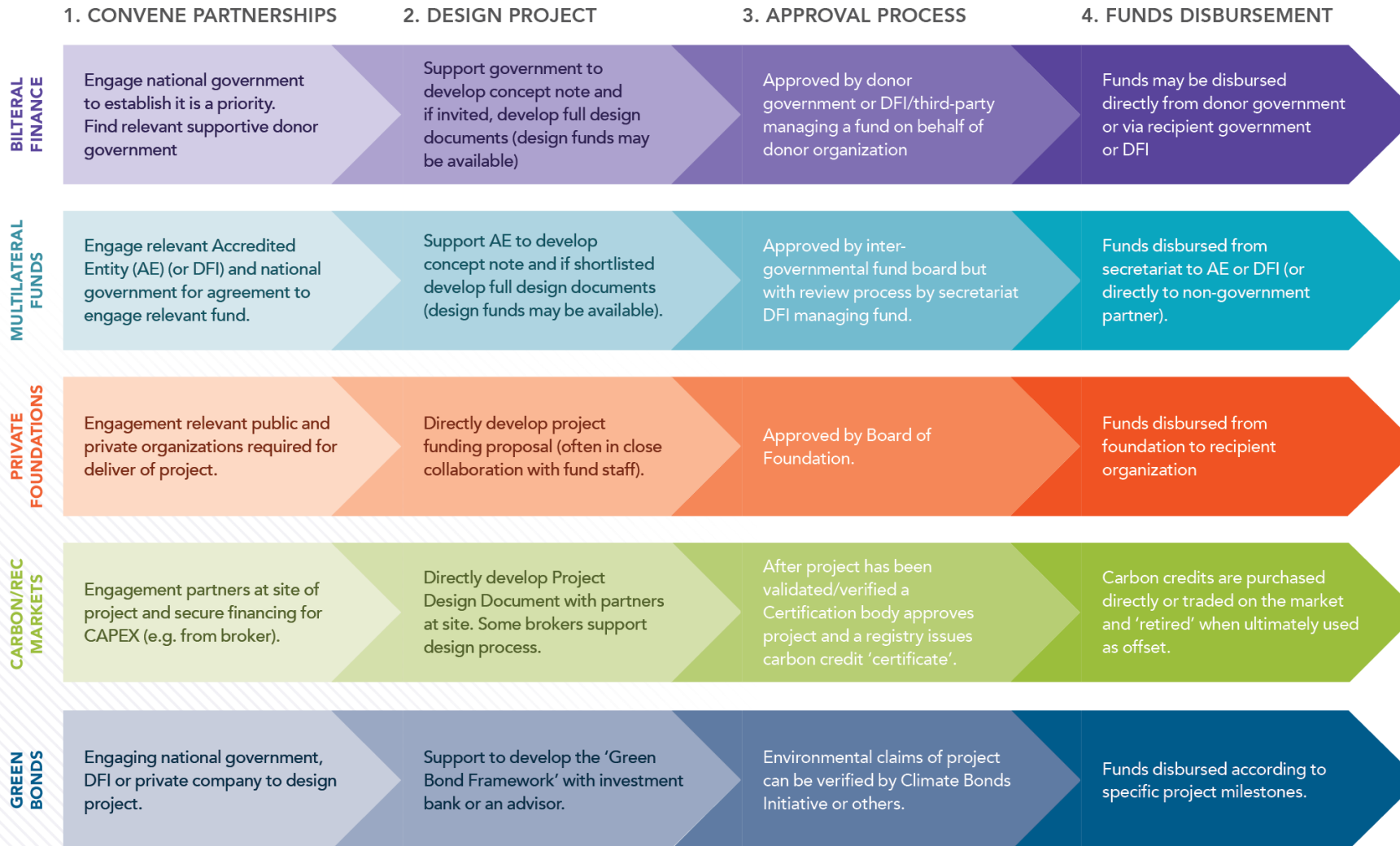
Each climate finance source has specific access requirements

BILATERAL FINANCE	MULTILATERAL FUNDS	PRIVATE FOUNDATIONS	CARBON/ REC MARKETS	GREEN BONDS
<p>e.g. USAID, UK International Climate Fund (ICF), German International Climate Initiative (IKI)</p> <p>Mitigation/adaptation projects and programmes funded through ODA</p> <p>Access: Variety of funding mechanisms, including competitive funds and government – government bilateral programmes</p>	<p>e.g. Green Climate Fund (GCF), Adaptation Fund (AF), Global Environment Facility (GEF)</p> <p>Funds the additional cost of reducing GHG emissions/ building resilience for a project/ programme</p> <p>Access: National governments (and/or implementing partners) submit proposals to fund, based on specific criteria</p>	<p>e.g. D-REC, Gold Standard, Verified Carbon Standard</p> <p>Projects receive a credit for volume of GHG emissions abated/RE produced</p> <p>Access: Project developers can develop and credit project under various registries for companies/countries to purchase to 'offset' their own emissions elsewhere.</p>	<p>e.g. IKEA Foundation, MacArthur Foundation, Rockefeller Foundation</p> <p>Foundations typically support non-profit organisations to deliver a low-carbon or climate resilient programme</p> <p>Access: Non-profit organisations design a project, often in close collaboration, with foundation staff.</p>	<p>e.g. Sovereign green bonds</p> <p>Projects with environmental claims can receive a form of fixed income security, as a low-cost alternative to a loan</p> <p>Access: Corporations or governments issue green bonds and can voluntarily get environmental claims certified by third-party.</p>

Non-governmental partners can directly access some climate finance sources, and support access to others

BILATERAL FINANCE	MULTILATERAL FUNDS	PRIVATE FOUNDATIONS	CARBON/ REC MARKETS	GREEN BONDS
Can influence priorities of both recipient and donor governments. Some bilateral funds have direct access opportunities (usually smaller grants)	Can directly access some funds <i>if accredited</i> (restrictions and costs apply) or through <i>small grants mechanism</i> . Finance flows from DFIs for some funds.	Can directly access funds as recipient organisation	Can directly access funds as project developer or partner.	Can influence priorities of national government, DFI or company to encourage and support the design of the project.

Non-governmental partners' role differs at each step



Non-governmental partners can address these barriers to accessing climate finance for healthcare facilities

1 The potential GHG emissions savings for a single healthcare facility is too small to attract climate finance on its own

2 Limited capacity of healthcare facility professionals to design, manage and report on a project

3 National data on healthcare facilities is not consolidated and does not cover key energy and climate related indicators

4 The need for a low-carbon and climate resilient healthcare sector cannot be separated from improving health outcomes

5 Financing OPEX and finding local service providers is a risk for long-term sustainability of investments

6 A single source of climate finance is unlikely to cover the entire costs associated with the project

7 Long-term monitoring, reporting and verification (MRV) of energy, emissions and other results is an additional cost

8 Financial and economic benefits of low-carbon and clean technology solutions are affected by technology and fuel prices

9 Demand for low-carbon and resilient investments in healthcare facilities needs to be mobilized

The potential GHG emissions savings for a single healthcare facility is too small to attract climate finance on its own

- Carry out an in-depth survey of facilities including a bottom-up energy needs assessment, combined with top-down modelling of projected increase in demands, to get more accurate baseline data and estimates of potential GHG emissions savings.
- Focus on both mitigation and adaptation benefits, potentially as part of a broader focus on addressing the climate impacts on health (beyond just facilities) which will increase the scale of benefits that funds such as GCF and AF can support.
- Coordinate across multiple facilities to 'package' into a programmatic approach to the investments required.



ACTIONS REQUIRED

Limited capacity of healthcare facility professionals to design, manage and report on a project

- Bring together local healthcare experts, low carbon and resilient technology providers and those with experience accessing to climate finance to collectively design a project and identify which sources of climate and non-climate finance will be targeted.
- Utilize various international programmes and partners that regularly deliver trainings on climate finance to deliver targeted sessions for local healthcare professionals.



ACTIONS REQUIRED

National data on healthcare facilities is not consolidated and does not cover key energy and climate related indicators

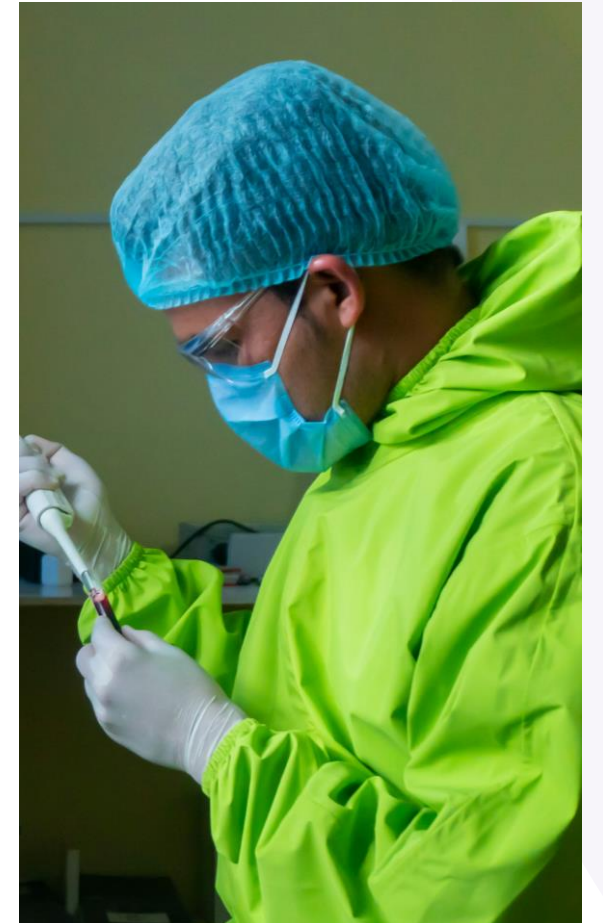
- Integrate key indicators related to energy consumption, GHG emissions and resilience within the regular health surveys carried out in many countries. At a minimum, this could use the common requirement for public facilities to report on expenditure including energy or fuel consumption but require a breakdown on expenditure for different sources of energy.
- Aggregate data collected by facilities (see below) and regularly report on progress in climate proofing health facilities. For example, this could be integrated within the existing Nepal Health Infrastructure Information (HIIS) System.



ACTIONS REQUIRED

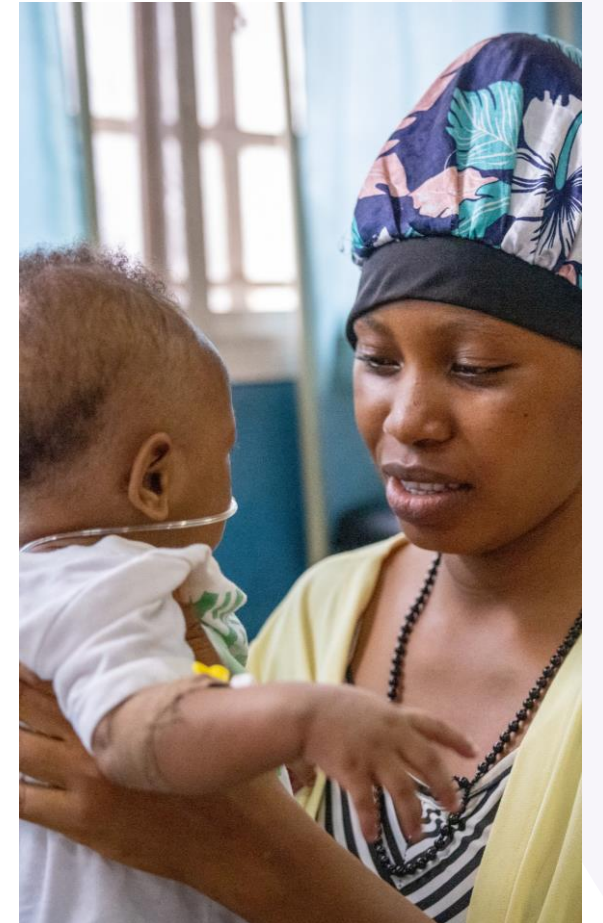
A single source of climate finance is unlikely to cover the entire costs associated with the project

Bring together experts in a range of (climate and non-climate) financing instruments to consider what source is appropriate (including blended and hybrid options) for the different costs and investment needs of the facilities and develop a single integrated long-term financing plan



Financing OPEX and finding local service providers is a risk for long-term sustainability of investments

- Develop the long-term financing plan for each facility level investment, before exploring potential sources of climate finance, which should include OPEX but also future projections of growth in demand for energy.
- Provide start-up financing and business support to local companies to ensure sustained provision of O&M services.
- Add a condition to any contract for installation and maintenance of technology, such as solar systems, to train and support local businesses and community members to carry out O&M as part of a long-term effort of building a local ecosystem of service providers.
- Consider carbon markets as a potential source of finance to specifically cover O&M costs.



Digital Monitoring, reporting and verification (MRV) of energy, emissions and other results is an additional cost

- Support the design, piloting and roll-out of standardized digital system for facilities to monitor and report on energy, emissions and resilience indicators and factor the additional infrastructure and capacity building related costs into the long-term financing plan for the facility.
- Build on the efforts of various governments in the region to digitalize healthcare facilities, e.g. India's National Digital Health Mission, and ensure core climate indicators are incorporated into any system



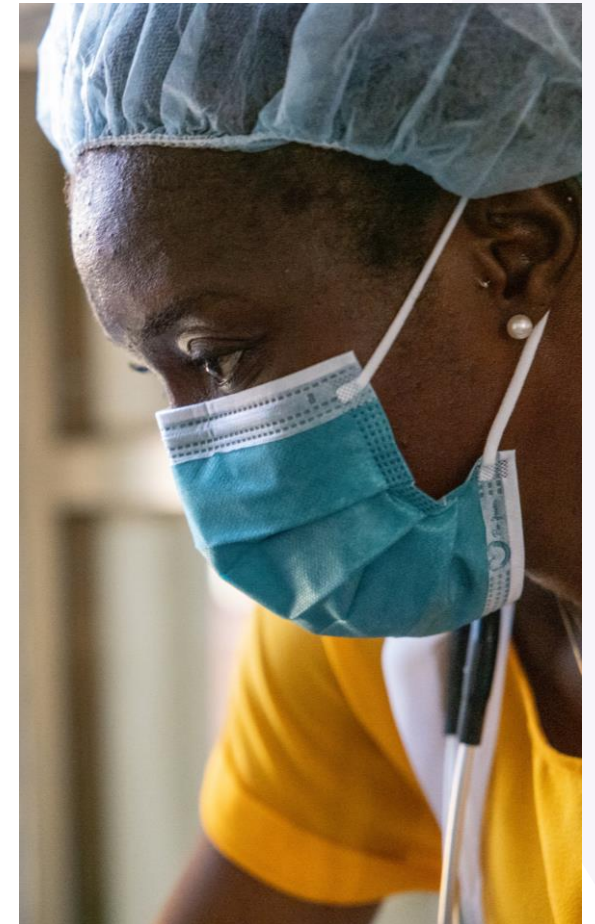
Demand for low-carbon and resilient investments in healthcare facilities needs to be mobilized

- Clear policy direction provided on the need for facilities to adopt low-carbon and climate resilient solutions, particularly within healthcare policy and regulation.
- Screening of healthcare programmes and schemes, to understand impact on energy demand, emissions and resilience and identify opportunities to support the adoption of climate solutions.
- Strengthen the engagement of the Ministries of Health and other healthcare agencies within policy discussion on climate change, and quantify the role and contribution of healthcare sector in achieving net-zero emissions.



Financial and economic benefits of low-carbon and clean technology solutions are affected by technology and fuel prices

- Introduce fiscal, policy and other types of incentives to make low-carbon and resilient investments more financially viable, which includes reducing any fossil fuel subsidies.
- Explore local currency-based financing for projects potentially through a blended finance approach with other sources of finance (pension funds, green bonds, infrastructure funds and development finance).



The need for a low-carbon and climate resilient healthcare sector cannot be separated from improving health outcomes

- Design projects that mobilize both climate and non-climate sources of finance, such as combining VCM or REC with tradable credits for verified social impact.
- Climate proof existing public healthcare programmes to identify direct and indirect opportunities to reduce GHG emissions and strengthen resilience, such as Nigeria's Basic Health Care Provision Fund, to ensure an integrated approach. The 'additional' costs of these investments could still be separately funded by climate finance.



Cutting across the actions required there are five key priorities for mobilizing climate finance for healthcare facilities

1
Identify facility-level climate and health needs

2
A long-term facility level and national financing plan should focus on the sustainability of investments

3
More collaboration between healthcare, energy and climate finance experts

4
A programmatic approach will help deliver economies of scale and strengthen the wider enabling environment

5
A digitalization of healthcare facilities, including monitoring emissions and energy consumption is required

Within five years, what can non-governmental partners achieve?

Raise awareness and increase demand for climate finance for healthcare facilities by national stakeholders

Bring together varied health and climate (and climate finance) professionals at the national and international level

Design a programme that is delivering climate benefits at scale

Within five years climate finance, in combination with other sources of development finance, could be supporting a large proportion of healthcare facilities across a handful of countries to reduce their carbon footprint and adapt to the impacts of climate change. **This will demonstrate the viability and costs-benefits at scale and catalyse even greater sources of financing**

Thank you

For more information, contact:

poweringhealthcare@seforall.org

