
A CSE | DownToEarth ANNUAL
CLIMATE CHANGE
STATE OF
AFRICA'S
ENVIRONMENT
2025
Extreme Weather ■ Migration ■ Food Security
■ Water ■ Disease Burden ■ Climate-Debt
■ Carbon Trade ■ Adaptation
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CLIMATE EMERGENCY
STATE OF
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CLIMATE EMERGENCY

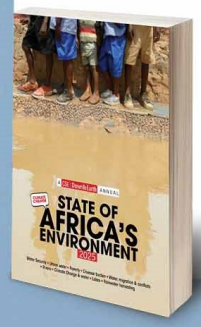
HIGHPOINTS

Global warming causing **carbon dioxide levels** are now the **highest** than they have been in the last **800,000 years**

Year 2024 is the **first year to cross the 1.5 °C** Paris Agreement threshold annually

Last **8 years** have set the **records for the highest ocean heat** content. The ocean warming has accelerated in recent decades

Most people **born in the new millennium** have already spent **half of their lives** on an unprecedentedly **hot planet**



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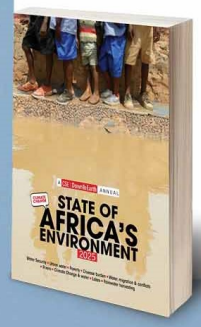
CRISIS AFRICA

HIGHPOINTS

Over the **past 60 years,** Africa has recorded a **warming trend** that has generally been **more rapid** than the global average

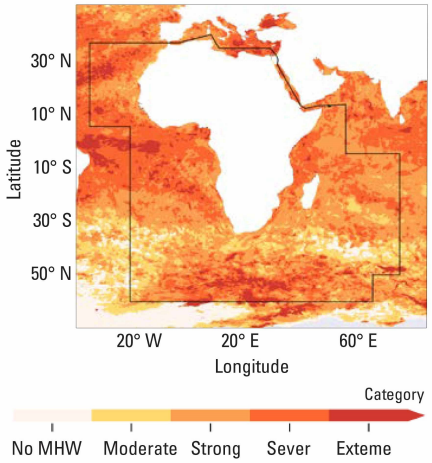
The year **2024** was the warmest year on **record for Africa.** Warming in the continent has exceeded the limits of natural variability

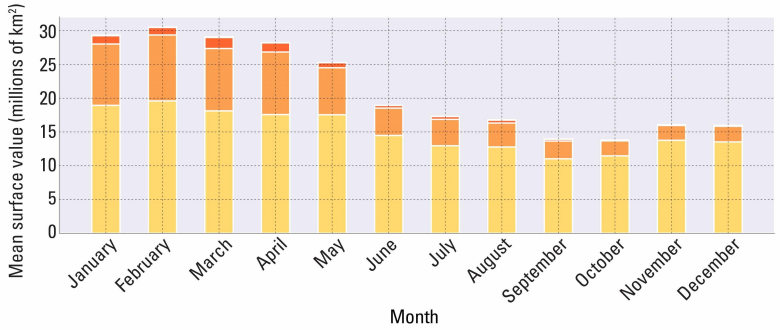


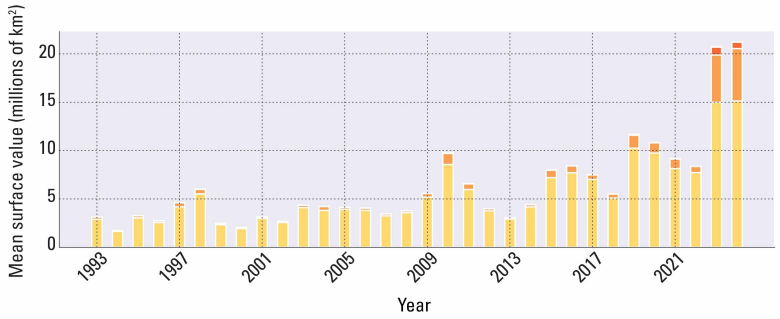
Almost the **entire ocean area around Africa** was under marine **heat waves** in 2024

The period between **2021 and 2025** is the most devastating **five-year stretch** in terms of **human toll** from weather, climate and water-related disasters

MARINE HEATWAVES

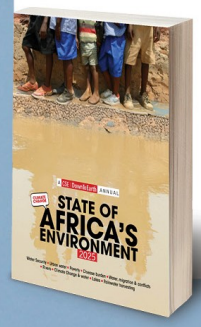






Left: Map of MHWs by category for 2024 for WMO Region I Africa (black line) from Copernicus Marine Service. Right: Monthly mean surface area covered by MHWs during 2024 (upper panel), and annual mean surface area covered by MHWs over the entire record (lower panel). The categories are indicated by the colours in the bar at the bottom of the left panel.

Source: State of the Climate in Africa 2024, World Meteorological Organization



Watermark of climate change
Recognize the human face

- We know climate change is not about the single event but about the increased frequency of the events
- Each year, each month extreme weather is breaking a new record
- Each region of the world is devastated; Revenge of Nature
- This is breaking the backs of the poorest who are worst impacted
- They are losing their capacities to cope with these repeated and frequent events coming on the back of existing poverty
- Climate change is exacerbating poverty

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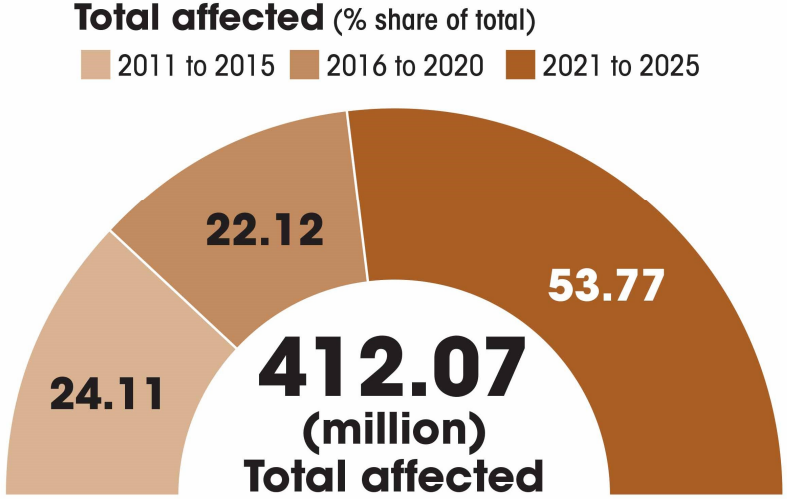
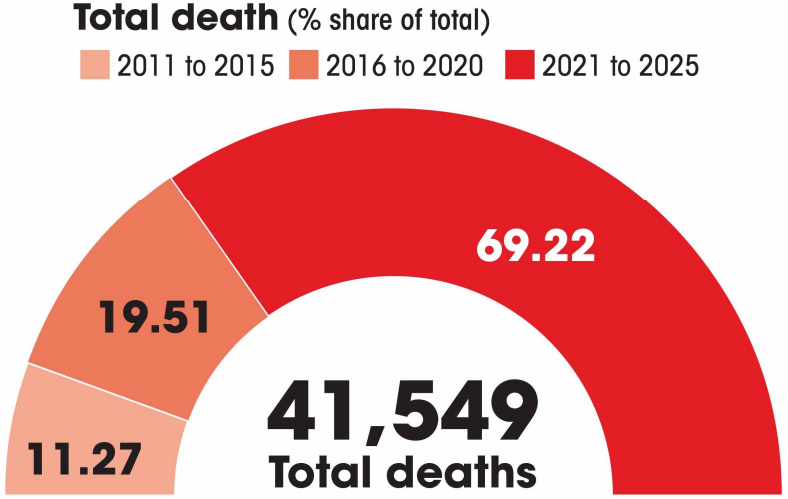
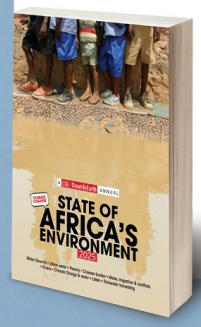
Human toll of extreme weather events in Africa: 2021–2025, the most devastating and deadliest period in 15 Years





Source: EM-DAT database, accessed on July 9, 2025



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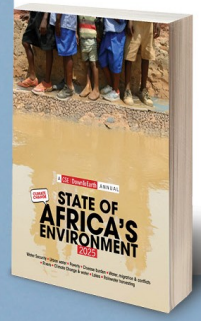
AFRICA AND CLIMATE CHANGE



In 24 African nations, extreme events affected more people in the last five years than in the entire previous decade

People affected in Africa by **extreme weather events** (% share of total in 2011 to 2025)

2011 to 2015 | 2016 to 2020 | 2021 to 2025

	% share of total people affected in 15 years (2011 to 2025)			Total affected (in millions)
	24.11	22.12	53.77	412.07
Algeria	9.39	65.49	25.12	0.38
Angola	24.27	39.52	36.21	7.96
Benin	39.12	2.84	58.03	0.25
Botswana	2.11	22.74	75.15	0.20
Burkina Faso	51.25	22.74	26.02	13.49
Burundi	4.85	24.56	70.58	0.42
Cabo Verde	0	67.33	32.67	0.14
Cameroon	9.79	1.12	89.09	3.52
Central African Republic	2.07	2.1	95.83	2.49
Chad	23.09	20.07	56.84	9.59
Comoros	15.42	71.33	13.25	0.48
Congo	1.12	37.05	61.83	0.86
Côte d'Ivoire	0	83.19	16.81	0.07
DR Congo	0.9	2.24	96.86	29.47
Djibouti	0	66.71	33.29	0.58
Egypt	0.34	89.17	10.5	0.06
Eswatini	0.06	99.8	0.15	0.73
Ethiopia	31.77	3.75	64.48	51.33
Gabon	82.6	0	17.4	0.09
Gambia	87.71	6.23	6.06	0.56
Ghana	9.57	86.85	3.58	1.30
Guinea	14.06	12.1	73.84	0.44
Guinea-Bissau	0	100	0	0.01
Kenya	40.25	45.67	14.07	25.82
Lesotho	21.93	57.06	21.01	3.34
Liberia	0	23.23	76.77	0.07
Libya	0.12	1.23	98.64	1.63
Madagascar	11.03	71.23	17.74	6.82
Malawi	41.15	4.63	54.22	22.97
Mali	28.31	54.26	17.44	12.59
Mauritania	11.28	88.16	0.56	6.47
Mauritius	0.06	22.6	77.33	0.13
Mayotte	0	0	100	0.23
Morocco	4.8	95.14	0.06	2.60
Mozambique	3.76	46.04	50.2	17.76
Namibia	45.82	13.67	40.51	4.09
Niger	34.13	32.1	33.77	19.32
Nigeria	21.8	6.7	71.5	33.21
Réunion	0.99	0.75	98.26	0.03
Rwanda	10.74	53.96	35.3	0.17
Sao Tome and Principe	0	0	100	0.22
Senegal	79.87	16.61	3.52	2.15
Seychelles	100	0	0	0.01
Sierra Leone	29.63	24.88	45.49	0.09
Somalia	36.73	13.6	49.66	31.38
South Africa	18.89	4.81	76.3	16.11
South Sudan	4.27	32.37	63.36	17.30
Sudan	25.35	8.33	66.32	19.34
Togo	0	70.01	29.99	0.10
Tunisia	0	93.51	6.49	0.08
Uganda	39.93	18.56	41.5	1.94
Tanzania	12.99	25.9	61.11	8.59
Zambia	0.17	15.55	84.28	13.74
Zimbabwe	22.26	37.61	40.13	19.37

Data not available for Canary Islands, Eritrea and Saint Helena; Source: EM-DAT database, accessed on July 9, 2025

In 23 African nations, extreme events killed more people in the last five years than in the entire previous decade

Human deaths in Africa by **extreme weather events** (% share of total in 2011 to 2025)

2011 to 2015 | 2016 to 2020 | 2021 to 2025

	% share of total people deaths in 15 years (2011 to 2025)			Total number of deaths
	11.27	19.51	69.22	41,549
Algeria	29.84	4.59	65.57	305
Angola	38.49	42.45	19.06	556
Benin	7.35	8.82	83.82	68
Botswana	57.14	0	42.86	21
Burkina Faso	48.28	51.72	0	58
Burundi	59.6	23.84	16.56	302
Cabo Verde	90.0	10	0	10
Cameroon	15.59	30.65	53.76	186
Canary Islands	0	0	100.0	2
Central African Republic	11.11	0	88.89	18
Chad	2.83	7.79	89.38	706
Comoros	33.33	66.67	0	12
Congo	22.09	23.26	54.65	86
Côte d'Ivoire	30.39	44.61	25.0	204
DR Congo	4.7	11.71	83.59	4,637
Djibouti	0	100.0	0	21
Egypt	66.18	32.35	1.47	204
Eswatini	100	0	0	11
Ethiopia	0	34.13	65.87	671
Gabon	100	0	0	1
Gambia	7.14	35.71	57.14	28
Ghana	29.41	60.59	10	170
Guinea	47.06	0	52.94	34
Guinea-Bissau	0	100.0	0	3
Kenya	22.44	40.65	36.91	1,658
Lesotho	92.86	0	7.14	28
Liberia	0	0	100.0	2
Libya	0.12	0.03	99.85	13,225
Madagascar	36.52	25.65	37.83	920
Malawi	16.27	4.76	78.97	1,807
Mali	24.86	16.18	58.96	173
Mauritania	15.09	56.6	28.3	53
Mauritius	73.33	0	26.67	15
Mayotte	0	0	100.0	35
Morocco	36.14	23.49	40.36	166
Mozambique	20.4	47.89	31.71	1,750
Namibia	87.1	0	12.9	124
Niger	16.83	25.33	57.83	1,200
Nigeria	26.24	23.38	50.38	2,477
Réunion	10.0	0	90.0	10
Rwanda	3.96	63.21	32.83	530
Sao Tome and Principe	0	0	100.0	8
Senegal	55.1	44.9	0	49
Sierra Leone	2.66	95.03	2.31	1,167
Somalia	36.5	23.91	39.6	548
South Africa	8.83	16.07	75.09	1,064
South Sudan	70.87	25.73	3.4	206
Sudan	20.38	46.98	32.64	1,011
Togo	0	100.0	0	11
Tunisia	0	75.0	25.0	16
Uganda	2.49	10.25	87.26	3,249
United Republic of Tanzania	21.64	20.22	58.14	633
Zambia	0	70.0	30.0	10
Zimbabwe	13.67	85.87	0.46	1,090

Data not available for Eritrea, Saint Helena and Seychelles; Source: EM-DAT database, accessed on July 9, 2025

Insecurity in a climate risked world
Makes poor poorer/adds to violence and migration

- Each disaster takes away development dividend
- As events become more frequent, survival becomes more difficult
- No option but to move – migrate – **to cities to new countries**
- Add to growing insecurity in world
- But complex
- No disaster is only because of climate change; farmers already caught in pincer attack of increased input cost; ecosystems vulnerable because of bad development
- No migration only because of one extreme weather event; multiple events break the backs of people who have no ability to cope

MIGRATION

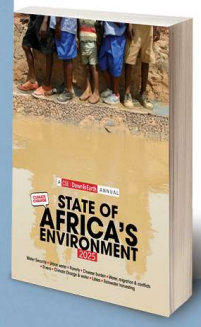
HIGHPOINTS

Africa would have the **highest rate of displacement** or migration due to impacts of the climate emergency

Nearly **222 million people** in Africa were affected by weather, climate and water-related disasters between 2021 and 2025

The number of displacements due to disasters increased from **1.1 million** in 2009 to **6.3 million** in 2023

East African countries in the Intergovernmental Authority on Development economic bloc could see up to **10.5%** of their population on the move by **2050**



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AFRICA AND CLIMATE CHANGE

AFRICA: INTERNALLY DISPLACED PEOPLE (IDPS)

16.6m
at the end of 2024

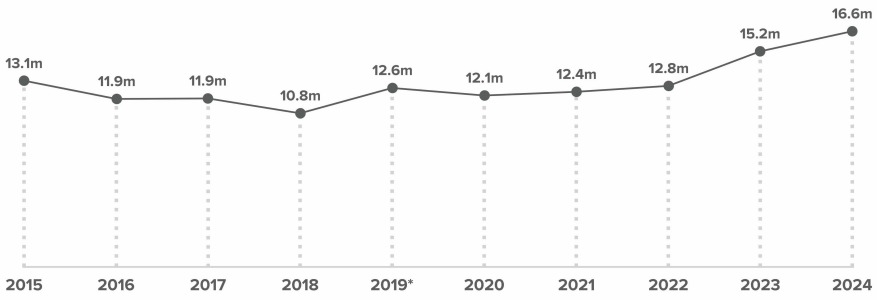
20%
Share of the global total

16.4m
IDPs by conflict and violence

203,000
IDPs by disasters

Countries with the most IDPs

Number of IDPs (2015-2024)



Total number of IDPs in millions; *First year disaster data is available
Source: Global Report on Internal Displacement 2025 by Internal Displacement Monitoring Centre

INTERNAL DISPLACEMENTS (MOVEMENTS)

5.7m
during 2024

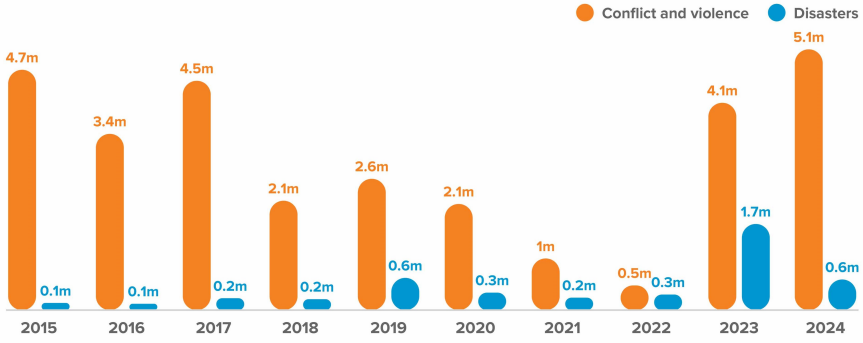
9%
Share of the global total

5.1m
Internal displacements by conflict and violence

599,000
Internal displacements by disasters

Countries with the most internal displacements

Internal displacements (2015-2024)



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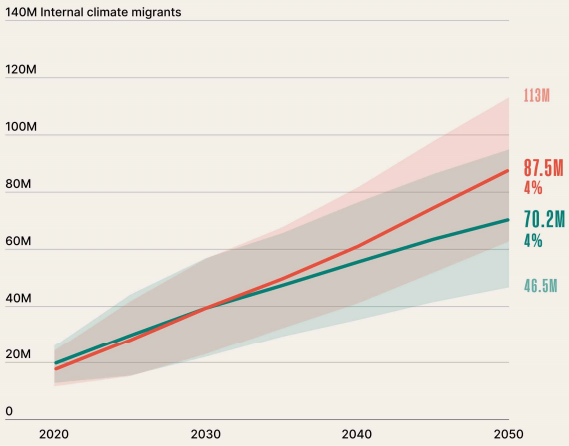
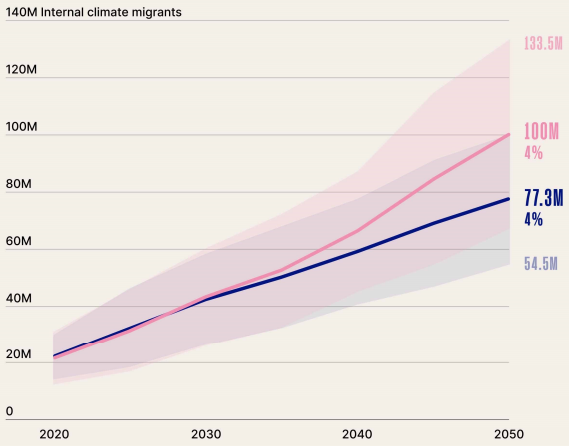
CLIMATE MOBILITY WITHIN AFRICAN COUNTRIES FROM 2020 TO 2050



Internal climate mobility in Africa under high GHG emission scenarios (and % over total population)

- High Road scenario
- Rocky Road scenario
- Uncertainty (95% CI)
- Uncertainty (95% CI)

Source: ACMI Africa Climate Mobility Model, 2022.

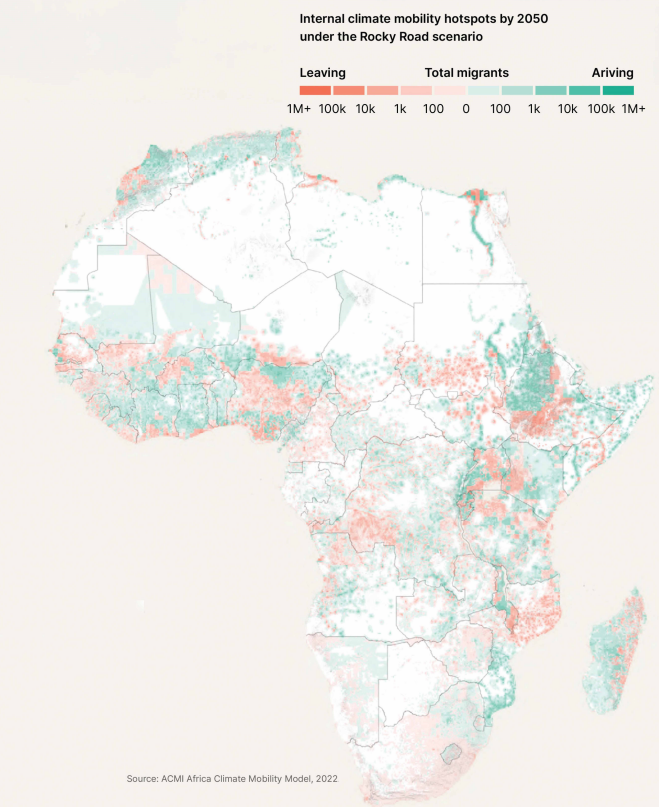


Internal climate mobility in Africa under low GHG emission scenarios (and % over total population)

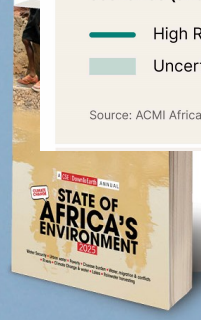
- High Growth & Low Emissions scenario
- Low Growth & Low Emissions scenario
- Uncertainty (95% CI)
- Uncertainty (95% CI)

Source: ACMI Africa Climate Mobility Model, 2022.

CONTINENTAL HOTSPOTS DEPICTING THE NUMBER OF PEOPLE MOVING OUT OF AND INTO SPECIFIC AREAS OWING TO CLIMATE IMPACTS



Source: ACMI Africa Climate Mobility Model, 2022



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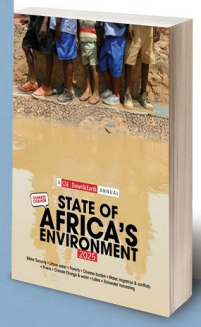
We know this is about climate change
But it is also not about climate change

The mismanagement of our natural resources; our land; agricultural systems; distress of farmers; our water and sanitation systems will add to the crisis

It is a double-whammy



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FOOD SECURITY

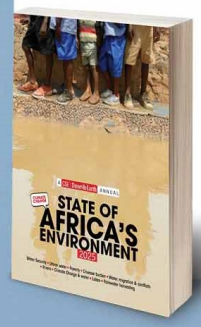
HIGHPOINTS

Global warming of 2°C would put over **50%** of the continent's population at risk of undernourishment

Climate change is likely to affect **cocoa production** in West and Central Africa. The area is responsible for over **70%** of the world's cocoa production

Climate change combined with land degradation causing a decline of **18%** in agricultural production

Climate change is leading to widespread outbreaks of **plant diseases**. This has the potential to not just wipe out livelihoods but also can trigger hunger and death



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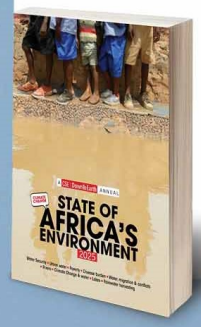
WATER

HIGHPOINTS

Current world water gaps of nearly **458 billion cubic meters/year** is projected to increase by 6% under the 1.5°C warming scenario

High water stress caused by global warming will displace up to **700 million Africans** by 2030

Countries need to integrate the **water and climate agendas** at a national level through national adaptation and resilience planning and at the regional level, through transboundary cooperation



HEALTH

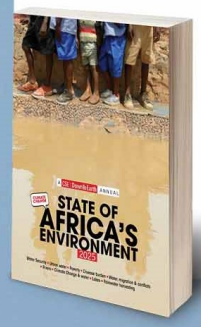
HIGHPOINTS

A 14% rise in malaria transmissions in 2023, putting an additional **147-171 million** people at risk by 2030

Infants exposed to tropical cyclones either in the womb or within their **first year of life** are more likely to die

Global burden of cholera has shifted to Africa, where there was a **125% increase** in cases in 2023 compared to the previous year

Thawing risks **reawakening dormant viruses**, bacteria and fungi, some tens of thousands of years old



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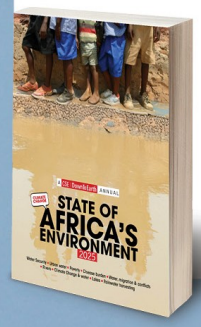
Growing burden of malaria

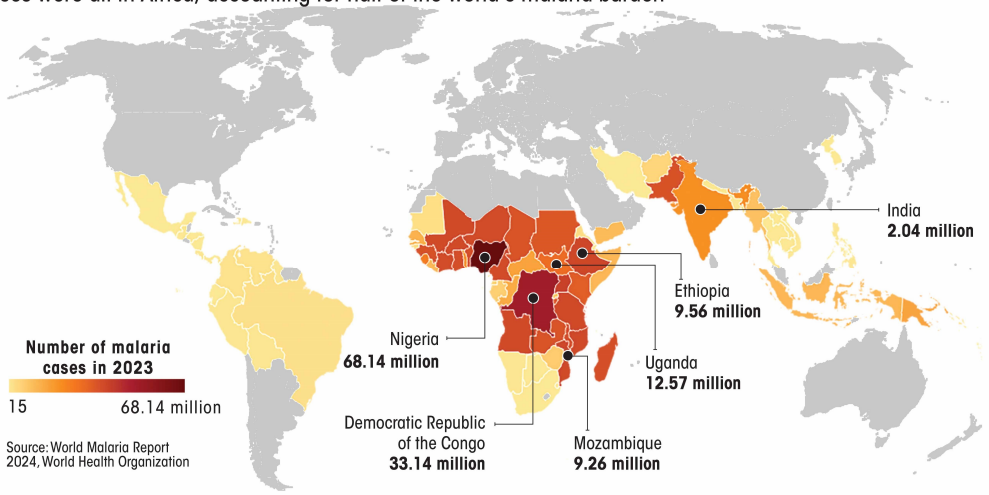
About climate change; intense heat and more water

But also, about mismanagement of water; without drainage it will add to malaria incidence

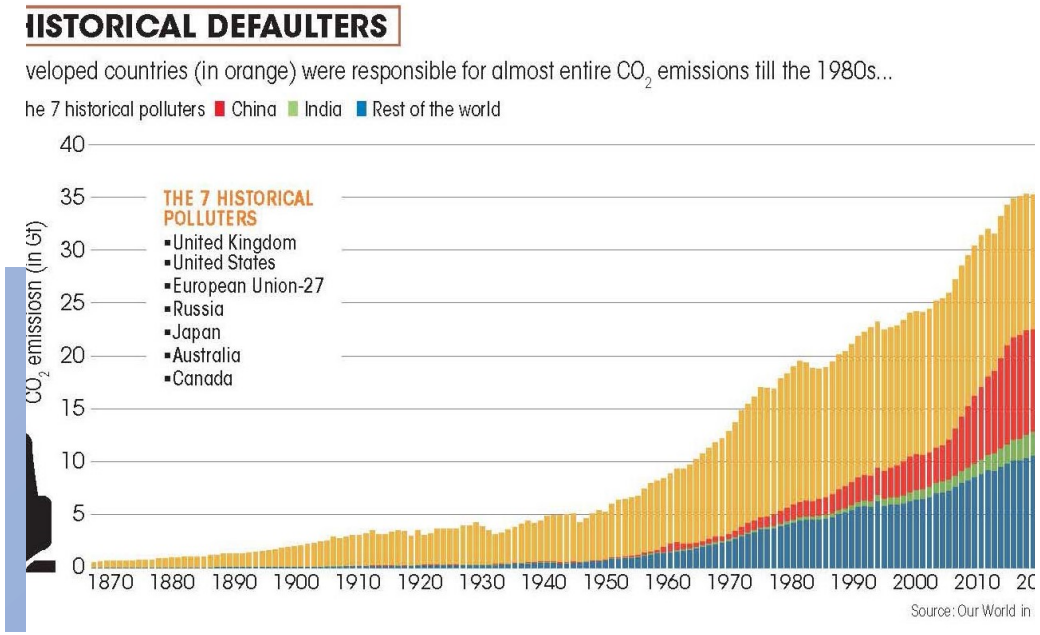


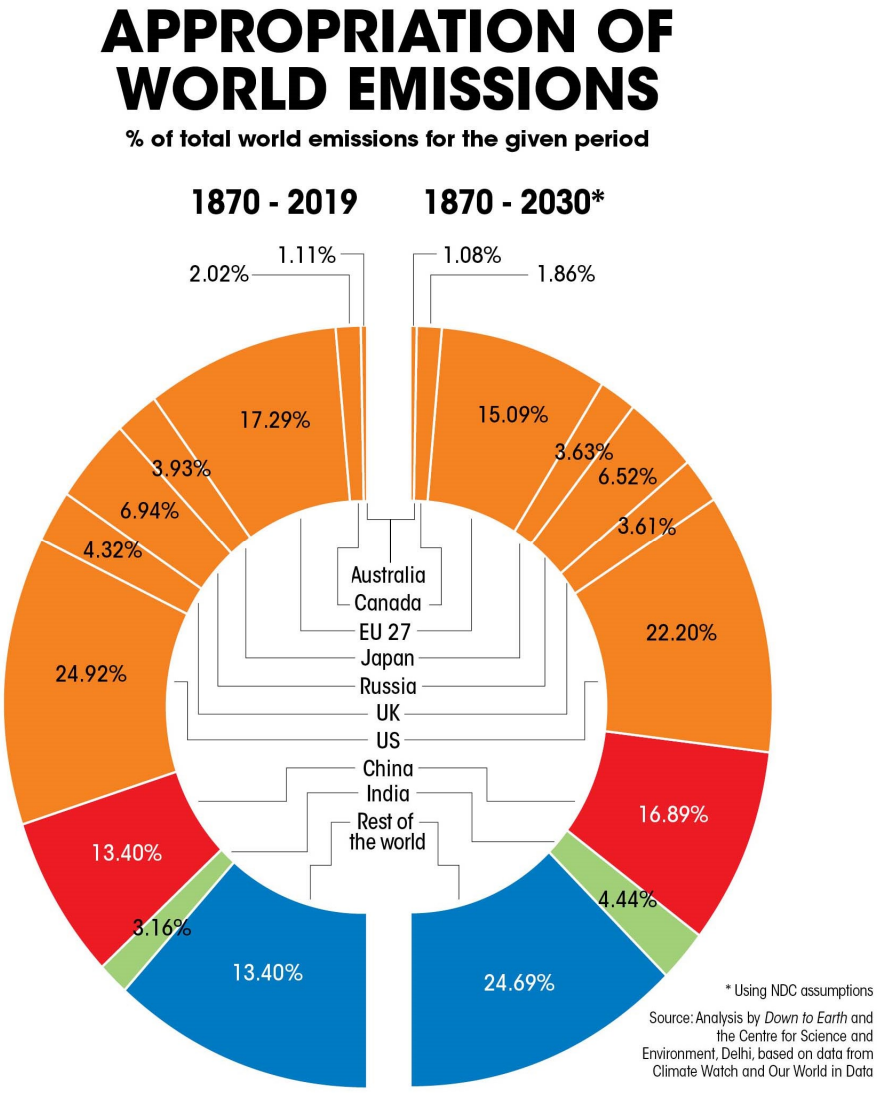
COUNTRIES WHERE MALARIA STINGS

In 2023, at least 80 countries reported malaria cases. The five countries with the highest number of cases were all in Africa, accounting for half of the world's malaria burden



Historical and current burden: what does this mean for the rest of the world that needs the right to grow





+ now a ‘Trumped’ world

- Today climate change is being denied
- Action to combat climate is being dismantled
- **Drill baby drill** is the mantra – fossils are back with a bang
- The implications could be devastating
- 1. US had peaked emissions in 2005; **now may increase**. Artificial Intelligence (AI) datacenters are expected to drive energy demand
- 2. Other countries will also follow US lead as cost of energy transition gets contested and inconvenient

This is when world is close to exhausting its carbon budget to keep world below 1.5 degree C rise

We wish
But we cannot wish away the poor

- World will run out of carbon budget at current rates by end of this decade
- **But millions in the world need space to grow; this growth will add to emissions; will add to the climate risks**
- **We can see cost of transition is not cheap/not easy -- need to make links with what is happening in the already developed world**
- So, transition will need concessional finance so that countries can leapfrog – develop but without the intensity of emissions
- **This is why climate justice is an imperative for cooperative climate action**

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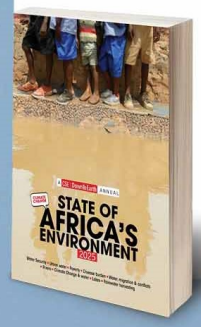
CLIMATE DEBT

HIGHPOINTS

Rich countries have achieved up to **70% of their economic growth** by appropriating more than their fair share of the **atmospheric commons**

The world's **1% super rich** accounts for **16% of global carbon emissions**, the same caused by the world's poorest 66%



African nations are projected to spend close to **30% of their revenue servicing debts in 2025;** leaving no funds to spend on climate loss and damages

In Zambia, Ghana and Cameroon, the external **public debt service exceeds** the losses from climate **by over 50 times**

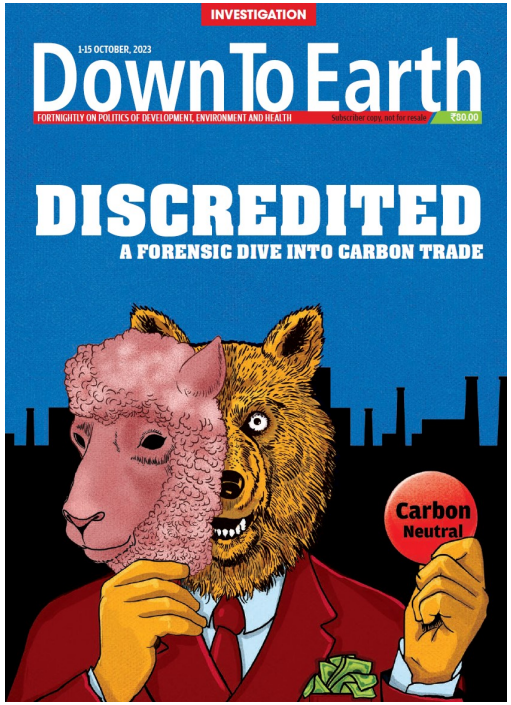
Finance: not adding up

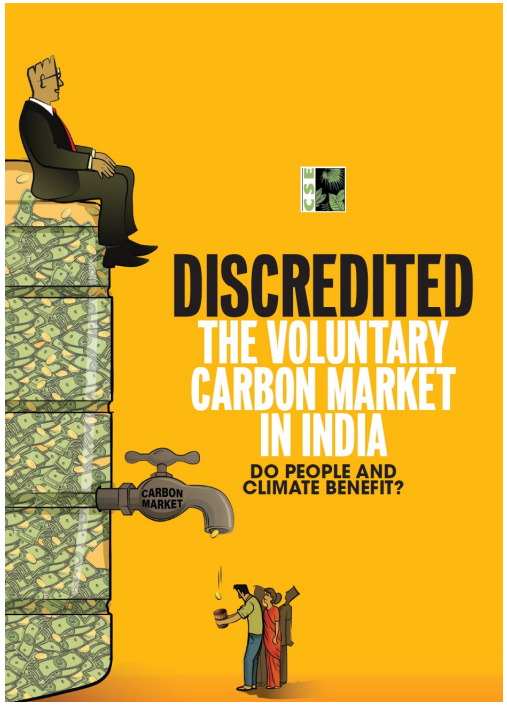
- CSE report: **Beyond climate finance**
- Climate finance grossly inadequate;
- But more importantly
- Money not going where it is needed most; Africa and other developing countries; their cost of capital is high.
- Money is not grant but debt or loans; adds to financial burden to countries already under pressure to service debt; Today vulnerable countries spend as much in repayment of interest as they need for climate finance for their NDC
- Cost of capital is high which makes transition expensive; Interest rates in Africa are up to 20%; India 10-12%
- Countries cannot service new and old debt; now worse, they are hit also by extreme weather disasters, which adds to their development costs

New games: markets not working

Private sector financing is expected through trade in carbon
Countries will sell carbon credits; these will ‘offset’ emissions.
CSE did detailed investigation into voluntary carbon market in India
India is 2nd largest supplier of credits

We found that it was not working for planet or people; only for the army of consultants; verifiers





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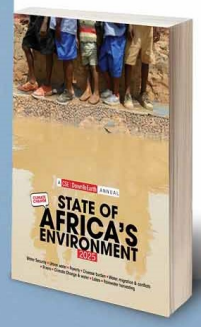
CARBON MARKET

HIGHPOINTS

By 2024, Africa had about **one-fifth of the carbon credit projects** listed in top carbon market registries

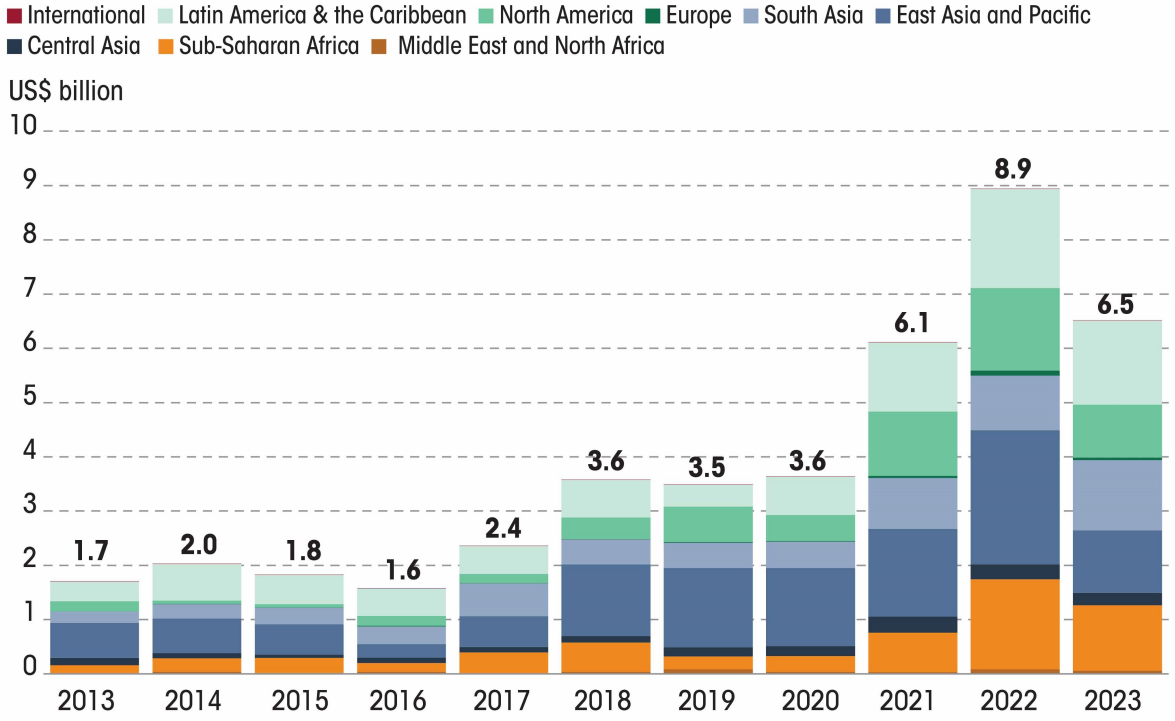
Between 2013 and 2023, **about 14% of the world's total or $5.9 billion** was invested in carbon **projects in Sub-Saharan Africa**



Most of the **carbon credit projects** in Africa are concentrated in two main areas: **forestry and land use, and community-based** projects like improved cookstoves

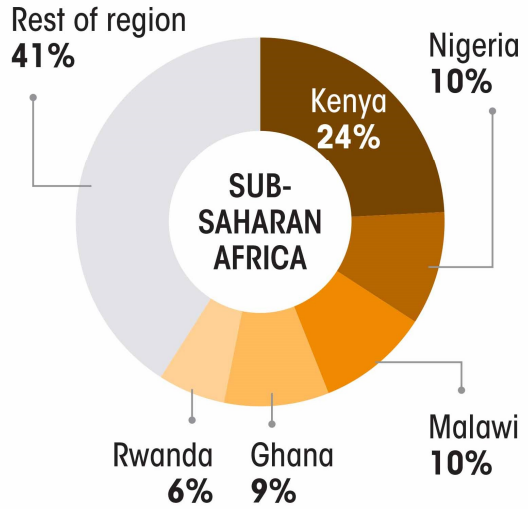
Although Africa doesn't have compliance carbon markets, the **voluntary carbon market has grown significantly** on the continent

ANNUAL VOLUNTARY CARBON-CREDIT PROJECT CAPITAL EXPENDITURE BY REGION



Data as of Sept. 30, 2024. Source: MSCI Carbon Markets

TOP FIVE COUNTRY SHARE OF REGIONAL PROJECT CAPITAL EXPENDITURE



Data as of Sept. 30, 2024. Data for project capital expenditure between 2013 and 2023.
Source: MSCI Carbon Markets

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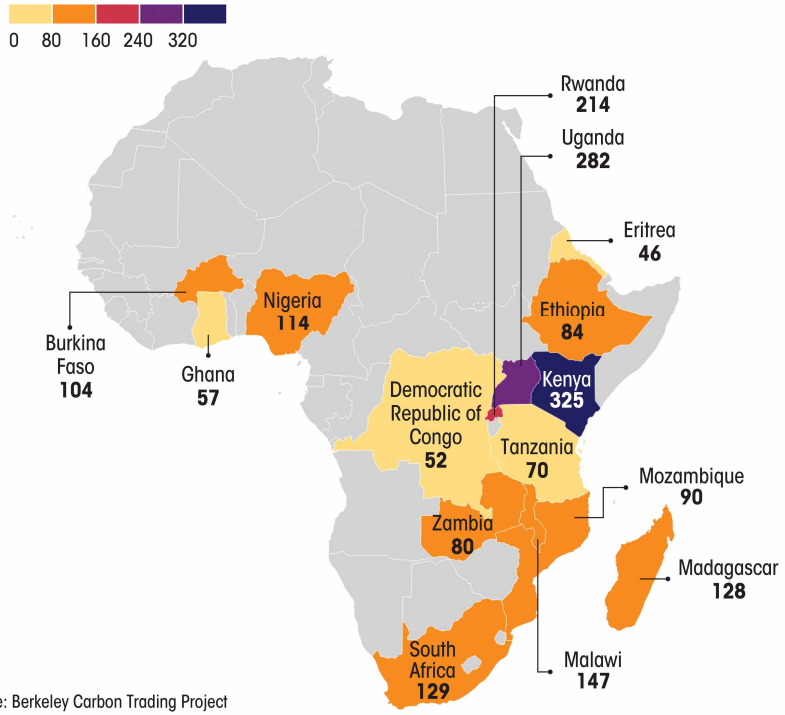
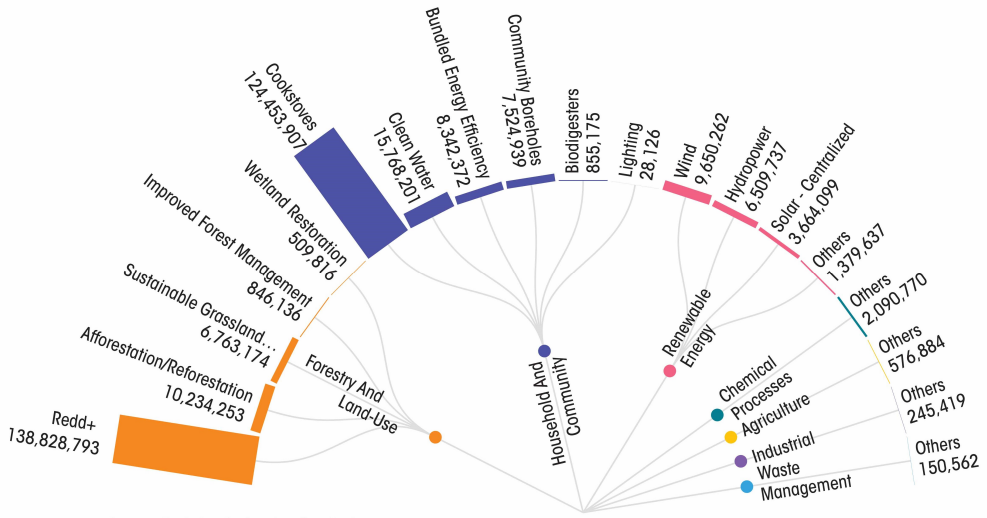
CARBON CREDIT PROJECTS IN AFRICAN COUNTRIES LISTED IN THE VOLUNTARY CARBON MARKET



Source: Berkeley Carbon Trading Project

TYPE OF CARBON CREDITS ISSUED TO VOLUNTARY CARBON MARKET PROJECTS IN AFRICA



Source: Berkeley Carbon Trading Project

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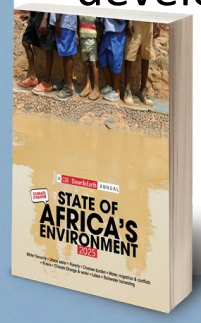
Cooking stoves

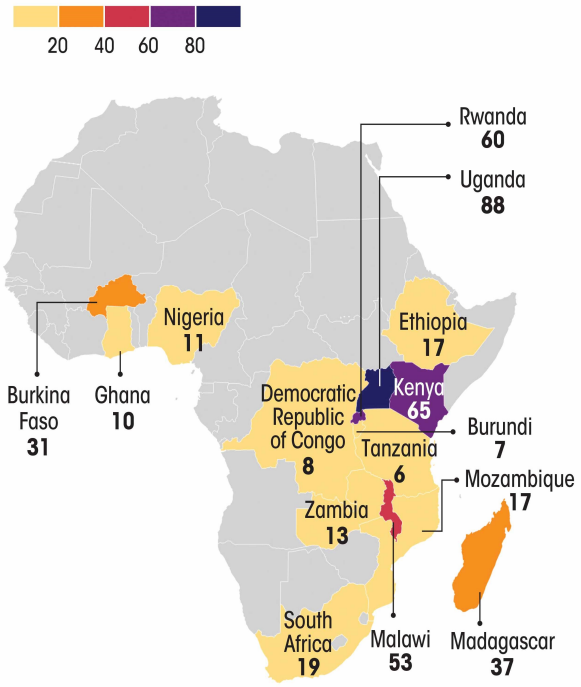
Overestimating the benefit to women and to reduction of CO2

Stoves often not used; but carbon credits earned

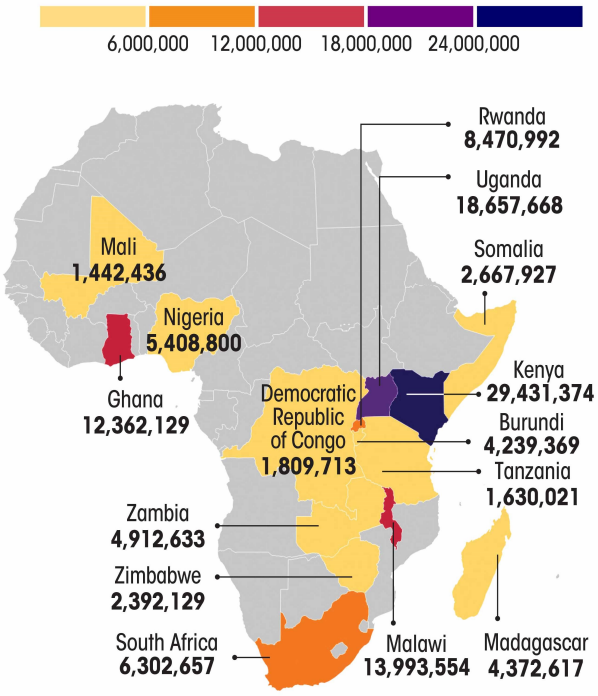
Little money goes to communities; lost in the world of auditors, developers and verifiers



REGISTERED COOKSTOVE PROJECTS IN AFRICA REGION



COOKSTOVE PROJECTS CREDITS ISSUED IN AFRICA REGION



Data source: Berkeley Carbon Trading Project

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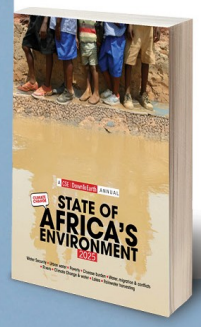
Huge opportunity
Win-win
Planting trees
Protecting trees
Earning carbon credits
But again, question is what is value of carbon credit being earned
Who is benefitting?



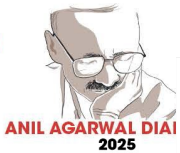
TOP 15 COUNTRIES BY CREDITS ISSUED IN THE FORESTRY AND LAND-USE SECTOR

	Afforestation/Reforestation	Improved Forest Management	REDD+	Total
DR Congo	663,322		41,321,427	41,984,749
Kenya	2,519,564		26,711,954	29,231,518
Zimbabwe			29,016,364	29,016,364
Zambia			15,624,491	15,624,491
Ethiopia	514,508		10,595,345	11,109,853
Tanzania	753,975		4,579,281	5333,256
Madagascar			5,245,823	5,245,823
Uganda	4,703,933			4,703,933
Malawi			3,325,607	3,325,607
Sierra Leone	482,771		2,672,520	3,155,291
Ghana	1,556,841			1,556,841
Central African Republic			904,170	904,170
Cameroon		846,136		846,136
Congo Republic	20,054		612,915	632,969
Guinea-Bissau			302,043	302,043
Benin			290,700	290,700
Niger	38,769			38,769
Togo	16,867			16,867
Mozambique	10,826			10,826
Egypt	1,905			1,905
Senegal	480			480

Data: Carbon Plan

What do we do? What is the challenge of countries of the South? Our agenda

- We cannot afford to not act
- Why?
- We need to improve environmental management for our sakes; we need to reduce health burden of pollution; provide water security in time when there will be more rain in fewer rainy days; provide livelihood security to farmers so that they grow food without losing soil fertility and add to cost…
- We need to act
- For us, climate mitigation is not the objective -- it is the added benefit. **This is the co-benefit approach**

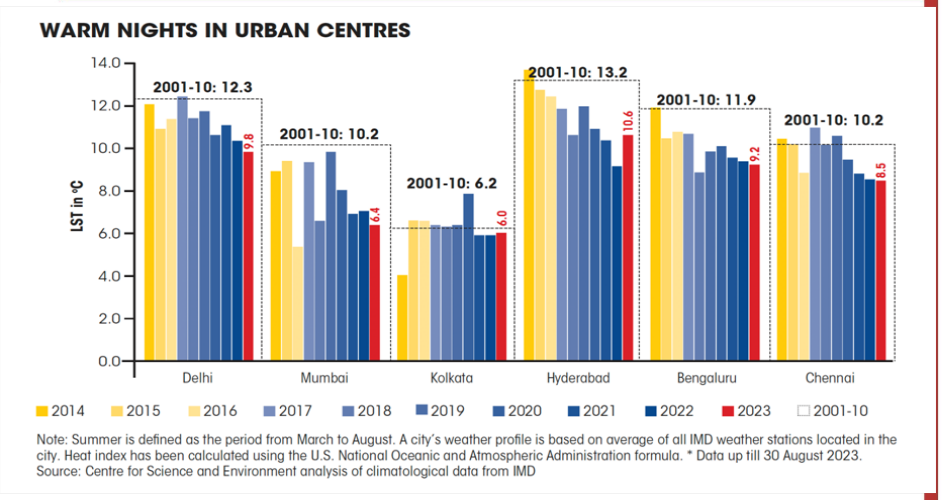


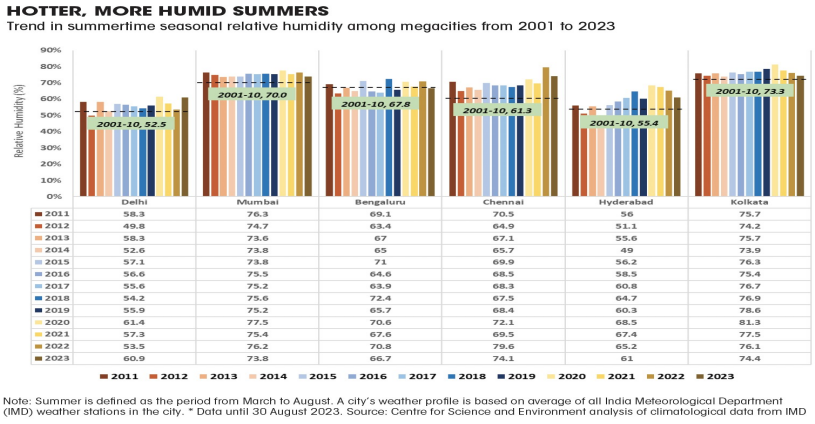
In our interest to reinvent
Take heat

It is getting warmer at night
It is getting more hot and more humid
Huge health impact; warmer nights means human body does not get time to recover

Why increased heat?
Climate change but not only climate change

It is about the way we are building our cities
Destroying green areas; water bodies
More concrete
More vehicles
More air conditioners
All add to make cities unhealthy
Our challenge is to rework growth for **thermal comfort for all**; this means reworking building design to city planning





The how: re-imagine the solution

- **Take air pollution** – Not about incremental steps for cleaning fuel and vehicle emission; bulk in our cities still do not drive; we need to reinvent mobility so that it is affordable for poor and modern and convenient for rich. **Our electrification agenda is about mobility transition**

- **Take water pollution** – Current paradigm of water supply and sewage treatment is capital and resource intensive. Cities across our world need to move towards local water harvesting and non-sewered sanitation systems so that excreta of all is intercepted and then then treated for **reuse** on land. This way the nitrogen cycle is not disrupted. Cities can also adapt to manage floods as lakes are the sponges for the future.

The how: circular economy

- **Take waste/garbage**: Current systems promote ‘visible’ cleaning – collection and transportation cost are high. Landfills are built near the homes of the poor. But now the poor are saying **Not-In-My Backyard and this then means households must segregate so that waste can be reprocessed; bio-CNG is one preferred option.** In this way waste is not waste but a resource.

- **Take industrial pollution**: Fly-ash from burning coal which pollutes water/land is a resource for cement to reduce use of limestone; bring down pollution; iron-ore slag makes cement. Circular economy

Inclusive and affordable=sustainable

- **Take agriculture**
- Method of farming is to invest to increase productivity; assuming this would increase farmers income. Even 'organic' comes at high costs
- But food costs need to be affordable; Farmers caught in double-triple pincer. Increased costs of inputs increases risk; hit by extreme weather destroys crops; import of 'cheap' subsidized food destroys farmer livelihoods
- Key is to reinvent agriculture so that it cuts input costs; **rework the idea of organic** so that it invests in soil replenishment; lower costs and higher returns

Natural capital = economic growth

- **Take forests**
- Africa's vast forests are its natural wealth; provide the world with a win-win to sequester carbon to absorb emissions
- But this needs to be valued and paid for
- Africa needs development based on its forest wealth; add value
- People need to benefit; countries need to benefit
- Our forests are habitats of people; We need to reinvent forestry so that communities grow; cut and grow again. We need a local wood-based economy
- We cannot meet the global goal of 30/30 for biodiversity unless we build economies of natural capital for local communities.
- **Localization is the agenda**

Our opportunity: **Rework economies in the age of climate change and Donald Trump**

- Trade has been driven by export of primary goods
- Trade rules are made to deny us right to value-add and benefit from production. Tariff escalation means that there is zero tariff on raw cocoa but finished chocolate gets 15-30%. Ghana farmers, for instance, earn less than 6% of the finished value. Timber, minerals, coffee..
- Opportunity is to be build local economies that will put money in the hands of the poor; build resilience; build green futures
- **Localization is our way ahead**
- **Great disruption could be our opportunity to demand this change**

Tough times but also big opportunities for new ideas to grow and take root/change our future

- We need to keep on track; our work together
- Keep the Focus; Keep the Faith
- Society needs courage and imagination for new ideas that can provide solutions that are so necessary
- We need to focus on what is working/best practices that can inspire change. We have a duty to hope
- **Because we know**
- Environment is not about luxury but survival
- **Because we know**
- Climate change is real; the threat is urgent