The Energy Access Opportunity:

The View from Zanskar

Jonathan Mingle

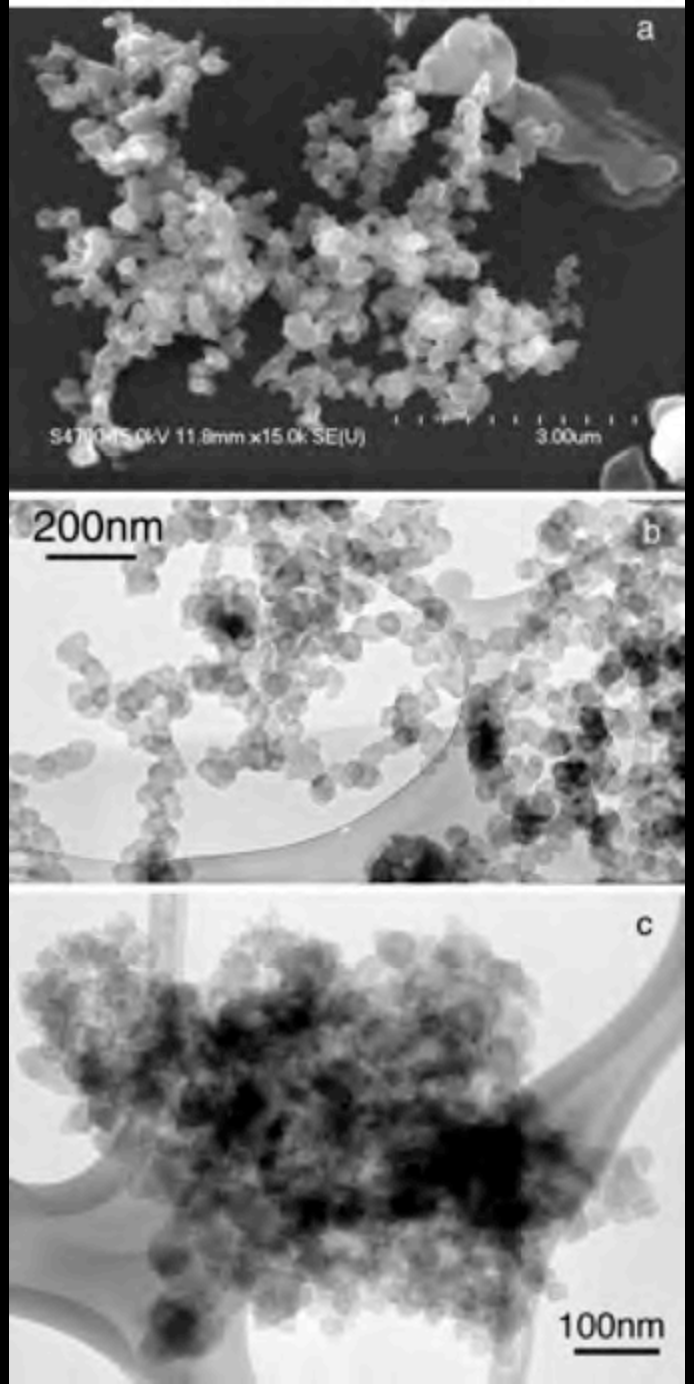
iSEE Congress – September 14, 2016

Kyrgyzstan
XINJIANG
Tajikistan
QINGHAI
Afghanistan
JAMMU AND KASHMIR
HIMACHAL PRADESH
TIBET
Pakistan
PUNJAB
UTTARAKHAND
ARUNACHAL PRADESH
HARYANA
Nepal
UTTAR PRADESH
SIKKIM
Bhutan
NAGALAND
RAJASTHAN
MEGHALAYA
BIHAR
MANIPUR
Bangladesh
TRIPURA
Google
JHARKHAND
MIZORAM
MADHYA PRADESH
GUJARAT
WEST BENGAL
India

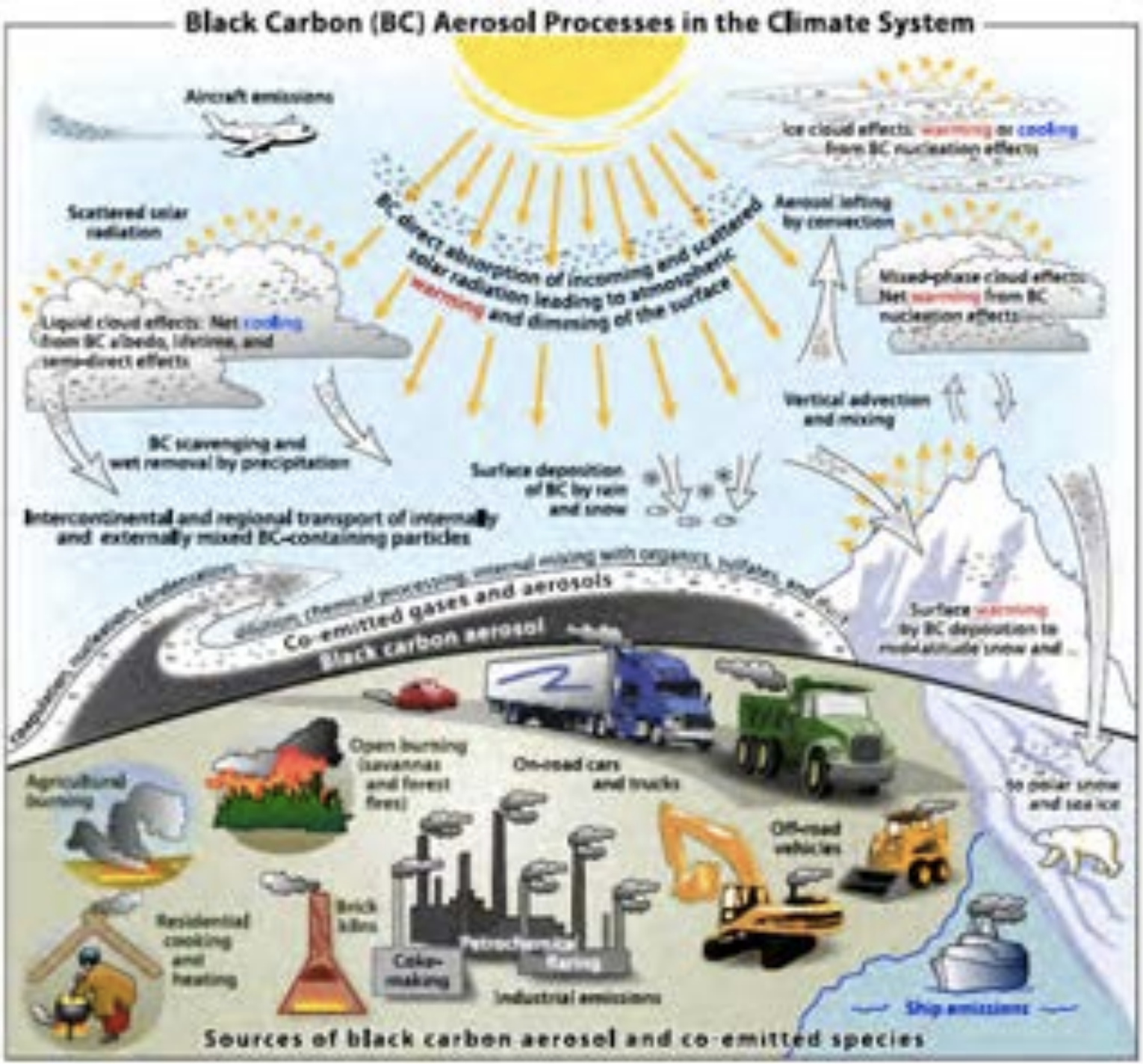
CHINA
Gilgit Agency
Shaksgam Valley
XINJIANG
NORTHERN AREAS
Baltistan
Siachen Glacier
Aksai Chin
PAKISTAN
Kupwara
Baramula
JAMMU AND KASHMIR
Ladakh
Kashmir
Srinagar
AZAD KASHMIR
Poonch
Anantnag
XIJANG (TIBET)
Doda
Rajauri
Udhampur
Jammu
Kathua
INDIA

Photo by Nicolas Villaume

Black carbon aggregates



From Bond et al. 2012, JGR



Bond et al 2012

Photos courtesy of David Breashears, GlacierWorks

Each year…

4.3 million premature deaths due to household air pollution

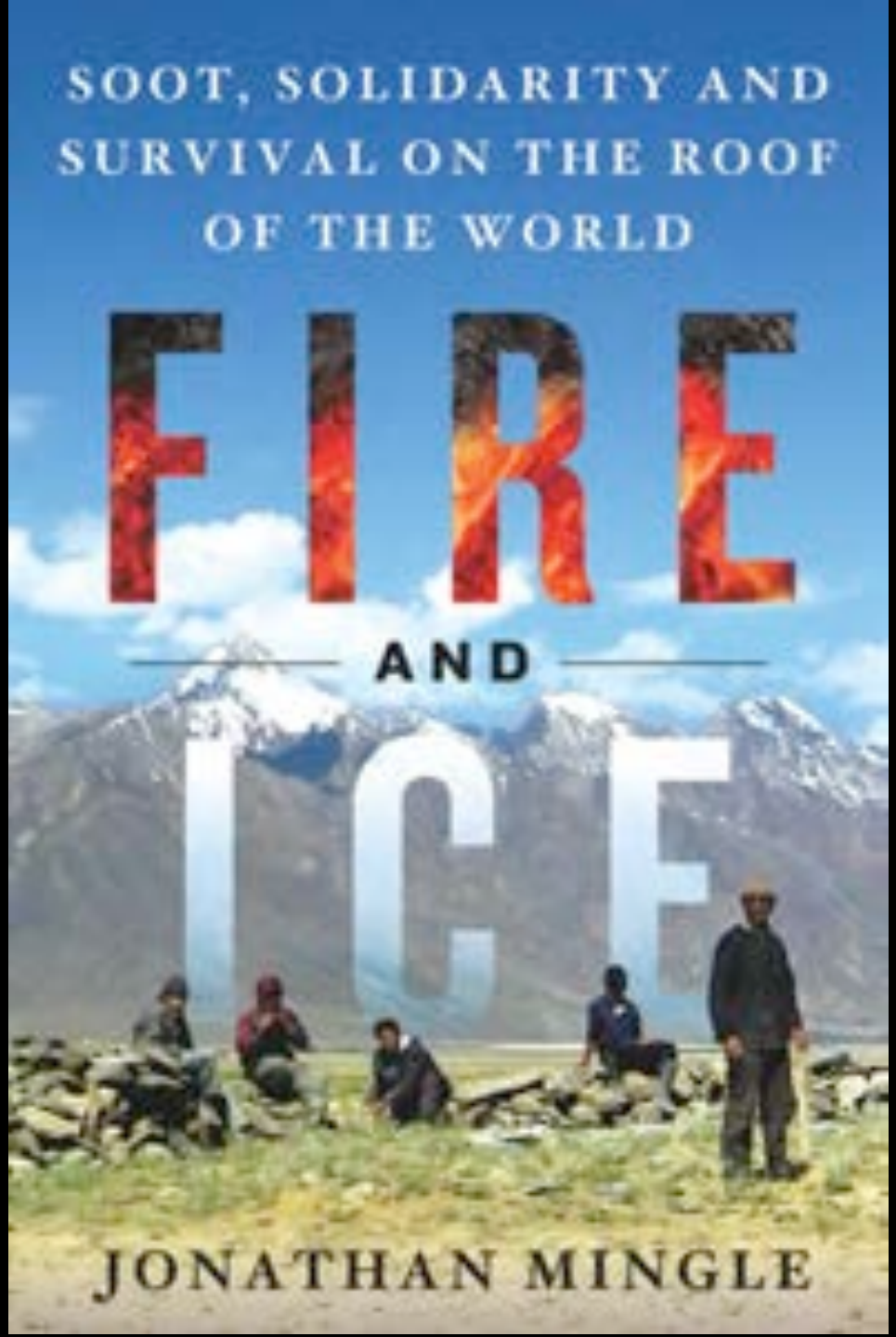
3.7 million premature deaths due to outdoor air pollution

$5.1 trillion cost to global economy

3.1 billion without clean cooking

1.1 billion without electricity

1 billion with unreliable electricity


SOOT, SOLIDARITY AND SURVIVAL ON THE ROOF OF THE WORLD
FIRE
AND
ICE
JONATHAN MINGLE

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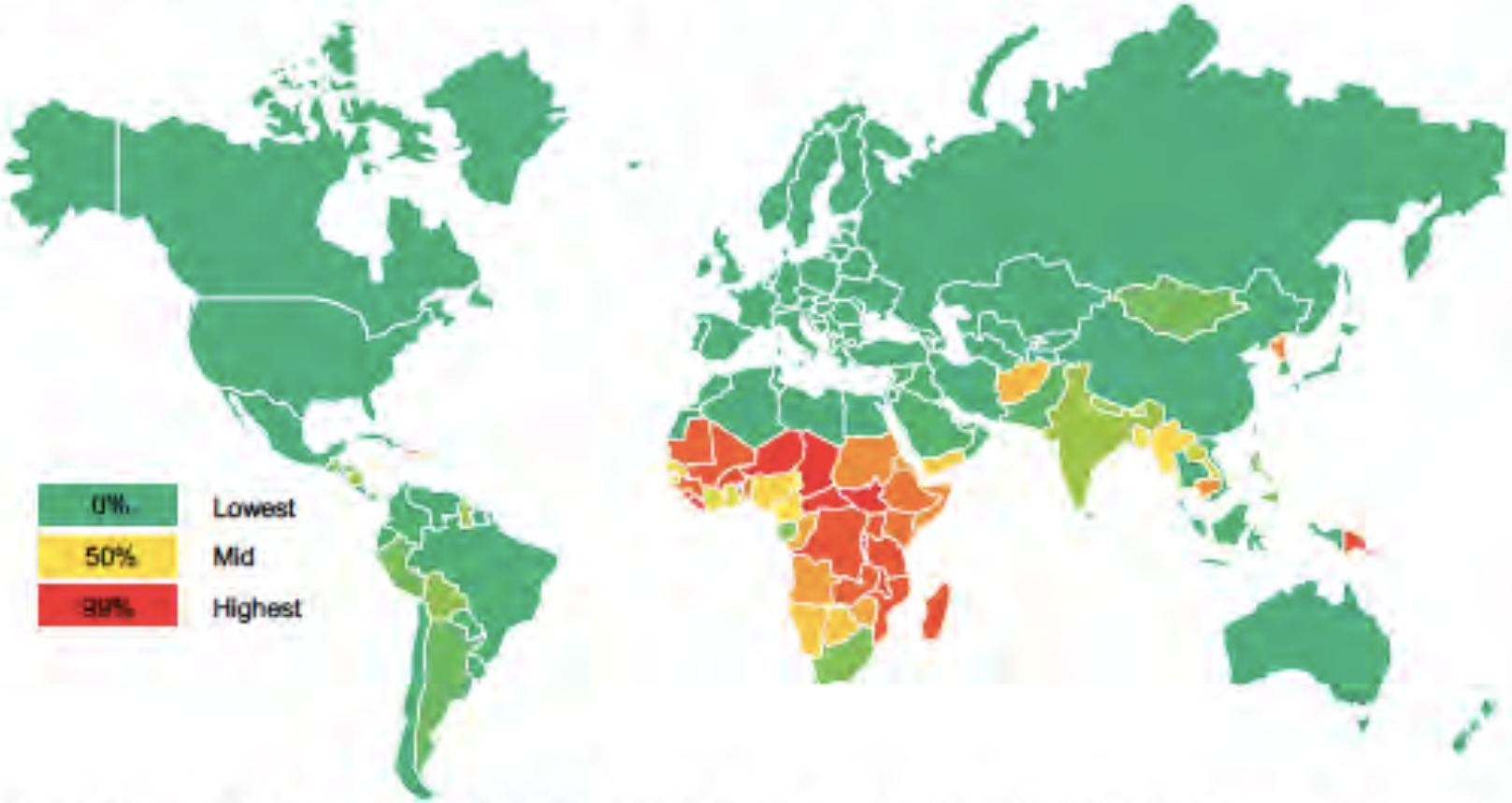
Sustainable Development Goal 7:

“Ensure access to affordable, reliable, sustainable and modern energy for all” by 2030.

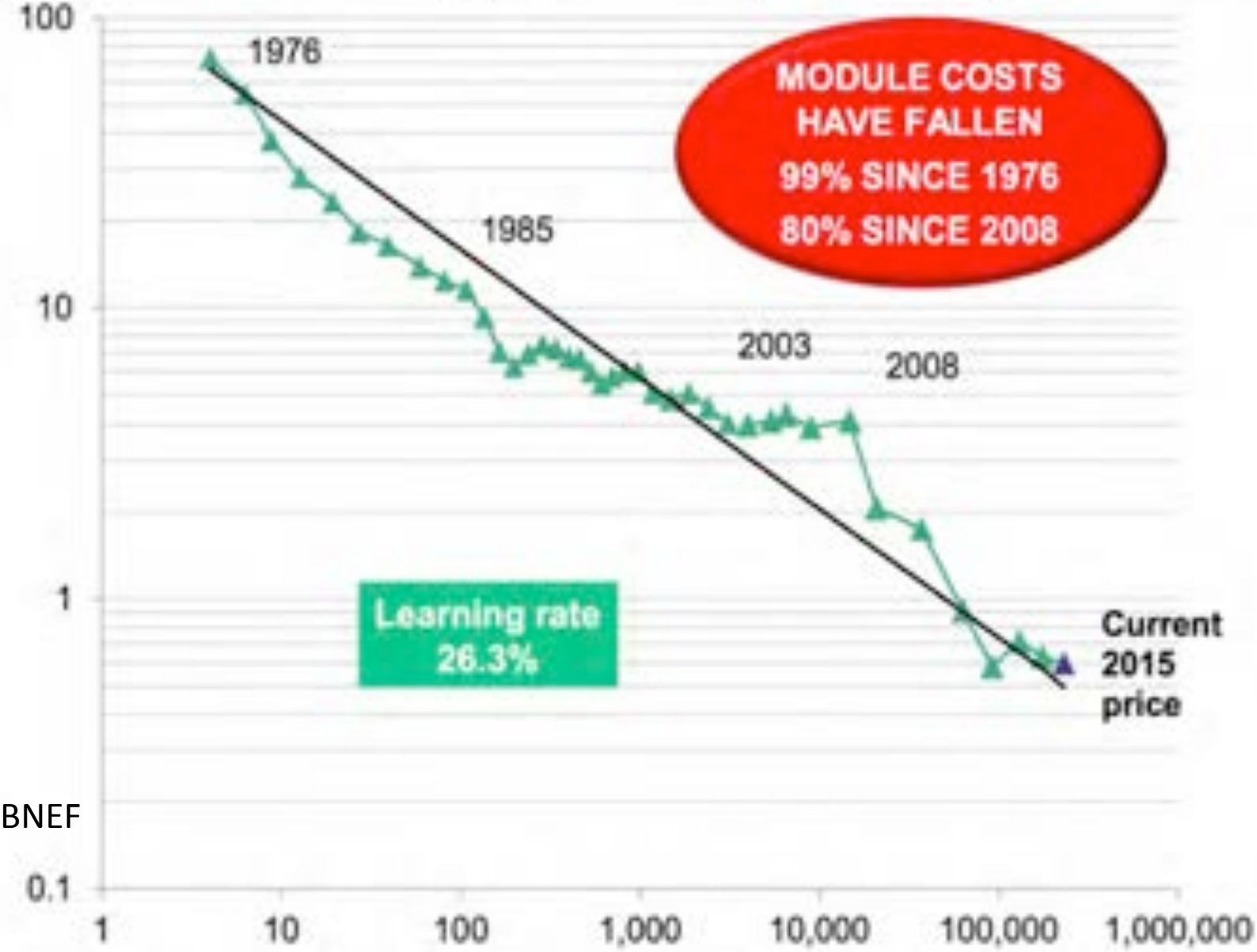
Figure 1: Share of population without grid access (percent of total)



Source: World Bank, Bloomberg New Energy Finance. Note: Figures refer to 2012 data.

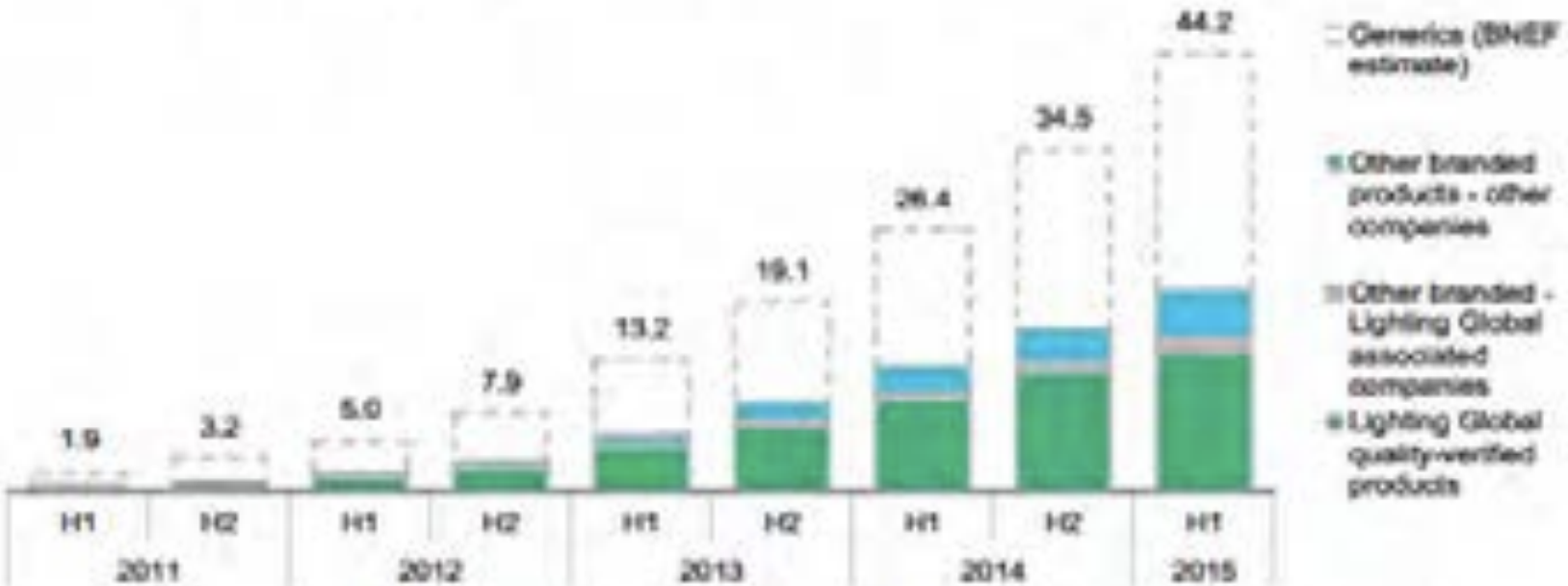
The Beautiful Math of Solar Power

Every time the world's solar power doubles, the cost of panels falls 26%



Source: BNEF

Figure 10: Estimated cumulative sales of pico-solar lighting products in sub-Saharan Africa and Asia, 2011 – H1 2015 (millions of units)



Source: Bloomberg New Energy Finance, Lighting Global, GOGLA. Note: These figures comprise branded and generic solar lanterns and small solar home systems of 10W or less.

"Off Grid Solar Market Trends Report 2016", BNEF, Lighting Global

angaza
Your Pay-As-You-Go Partner

SunFunder

greenlight planet

simpanetworks

OFF-GRID ELECTRIC

d.light

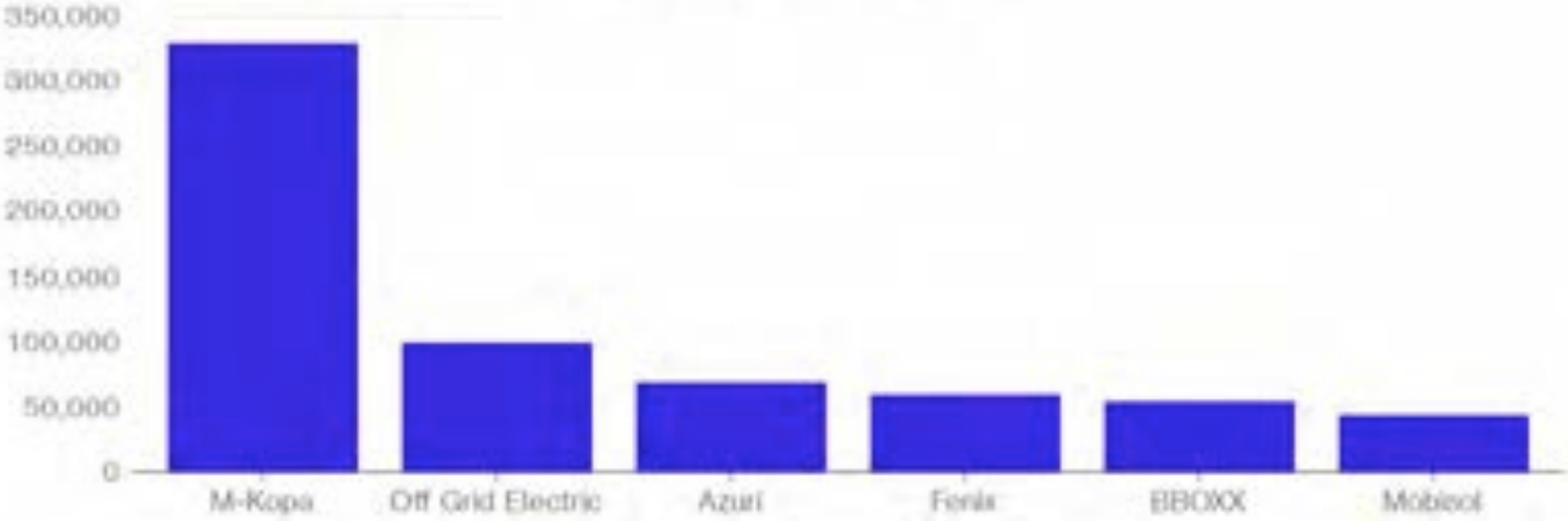
BBOXX

steama.co

BioLite

Off Grid Solar Taking Off

Cumulative unit sales of pay-as-you-go solar companies



Source: Bloomberg New Energy Finance
Note: Chart uses figures published between January - July 2016

Bloomberg

Photo by Karan Vaid,
courtesy Mera Gao Power

SUSTAINABLE ENERGY FOR ALL

WLPGA

GOGLA
Global Off-Grid Lighting Association

GLOBAL ALLIANCE FOR CLEAN COOKSTOVES

POWER FOR ALL

POWER AFRICA

LIGHTING AFRICA
Catalyzing markets for modern off-grid energy

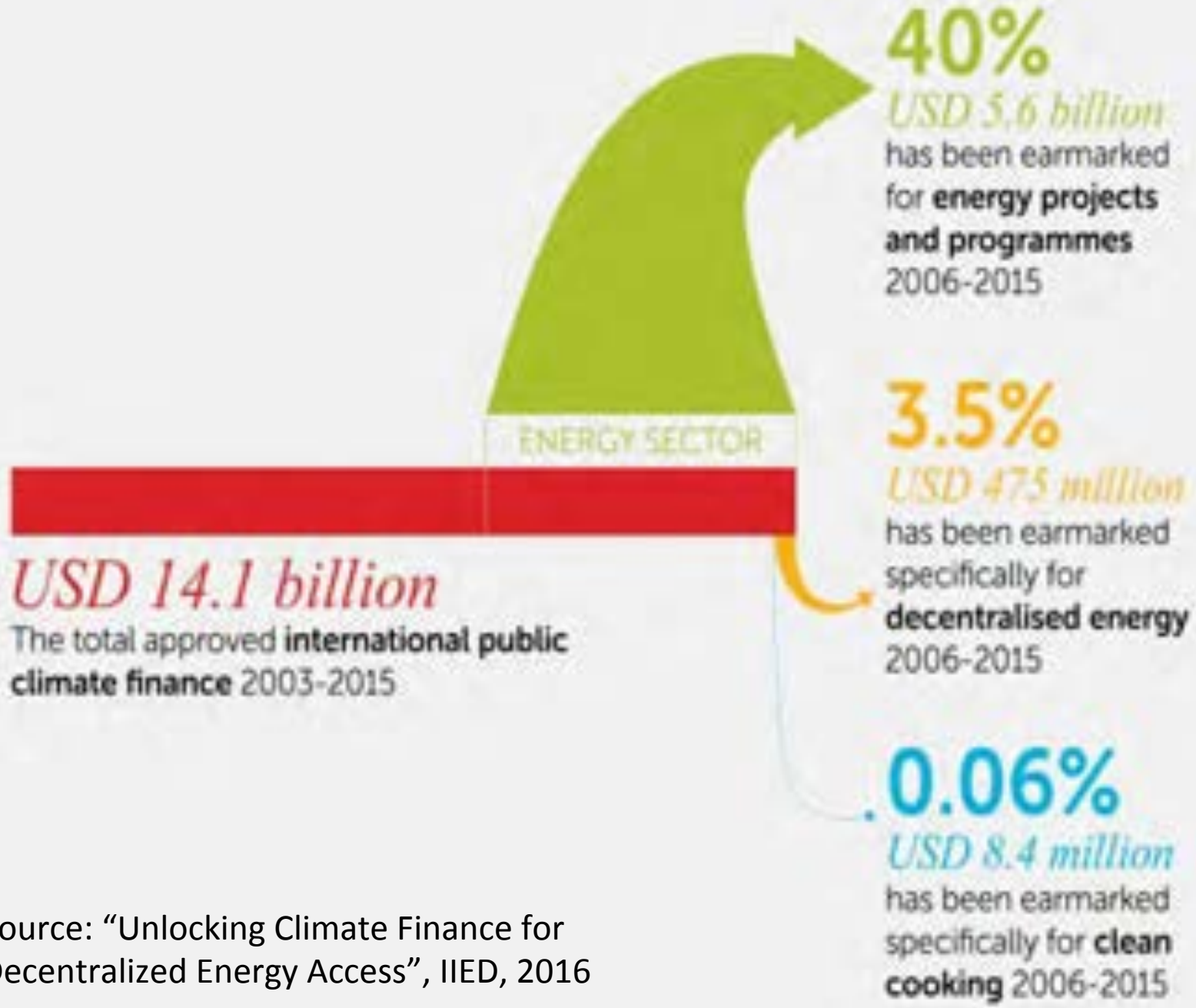
AN INNOVATION OF
WORLD BANK GROUP
THE WORLD BANK
IFC International Finance Corporation

INVESTMENT GAP: Through 2030…

$45 billion needed/yr for universal electricity access

$4.4 billion needed/yr for clean cooking

(IEA WEO 2014)



Source: “Unlocking Climate Finance for Decentralized Energy Access”, IIED, 2016

Decentralised energy access -
finance needed and current allocation from climate funds

USD 23 billion

The **additional annual financing needed** for decentralised energy access

USD 51 million

Current amount allocated to decentralised energy annually on average between 2006-2015

Just 0.2% of the **annual amount needed**

“If you want fire, you must endure the smoke.”

Viewpoint

Making the clean available: Escaping India's Chulha Trap

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HIGHLIGHTS

- Pollution from cooking with solid fuels is largest health hazard for Indian women and girls.
- 700 million Indians are caught in a trap using solid fuels with little change in number exposed for decades.
- Efforts to make the biomass fuel clean through advanced stoves have made only modest progress in decades.
- A major new effort is needed to make the clean available, in the form of gas and electricity.
- This will require forging new partnerships and rethinking how these fuels are currently promoted.

WAY TO-
LAKHANG GONPA
LOWER KUMIC

“We must act on values and aspirations as much as projections and predictions.”

- David Roberts

Future is Electric'

TOMARROW IS TOO LATE. WE MUST ACT TODAY.
KHAN
BIRD
JK 07
2629
DIPPER
ZESMA

Energy access “to do” list:

Fix the investment ‘plumbing’
Build policy ecosystems
Education/listening campaigns
Reform subsidies
International quality standards
Public-private partnerships

Paradigms and poverty in global energy policy: research needs for achieving universal energy access

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Keywords: energy access, energy research, energy and sustainable development

Abstract

This research letter discusses elements of a long-term interdisciplinary research effort needed to help ensure the maximum social, economic, and environmental benefits of achieving secure universal access to modern energy services. Exclusion of these services affects the lives and livelihoods of billions of people. The research community has an important, but not yet well-defined, role to play.

NEEDED:
Cross-disciplinary research
that focuses on:

energy services not technologies
infrastructure
end users' aspirations and needs
value-adding uses of energy
political economy, cultural context

WHERE THERE IS A
WILL
THERE IS A WAY

Kumix

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