



Building Urban Resilience

15th Kawasaki International Eco-Business Forum
Kawasaki City, 7 February 2019

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International Environmental Technology Center
Osaka, Japan



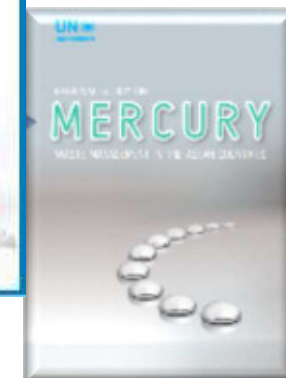
The International Environmental Technology Centre's vision is for countries to implement sustainable solutions to environmental challenges, with focus on holistic waste management.



IETC Publications:

Waste Management Outlooks and Thematic Assessments

- Global Waste Outlook
- Regional Waste Outlooks
- Mountain and SIDS Outlooks
- Mercury Waste Assessment



www.unep.org/publications/

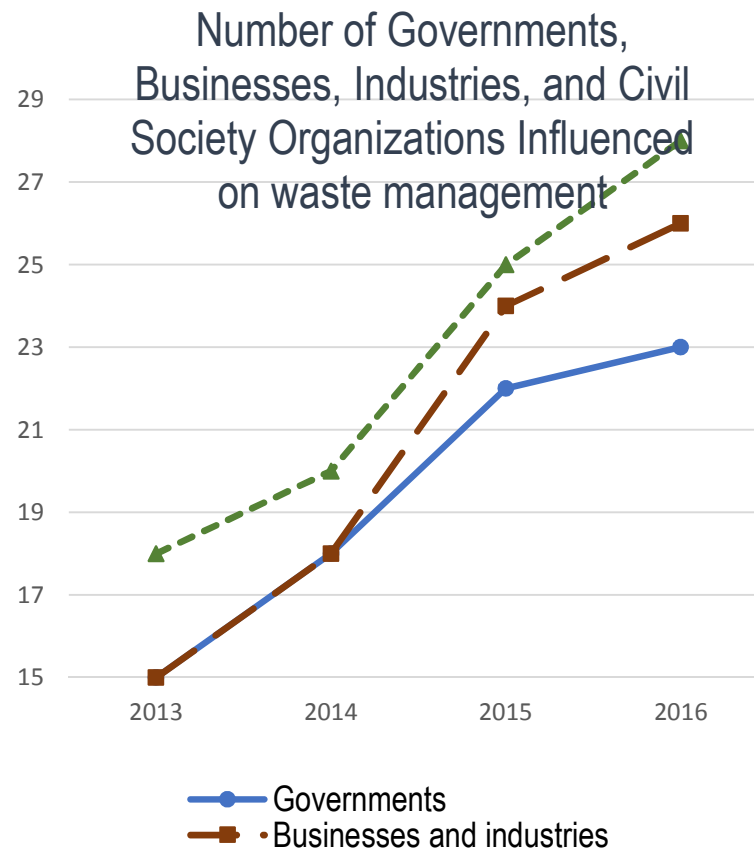
IETC Publications: Guidelines and Tools

- Guidelines for National Waste Management Strategies
- Guidelines for Framework Legislation for Integrated Waste Management
- Compendia of Technologies for the Recovery of Materials from Electronic Waste, Used Tyres, ...



www.unep.org/publications/
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IETC: Results



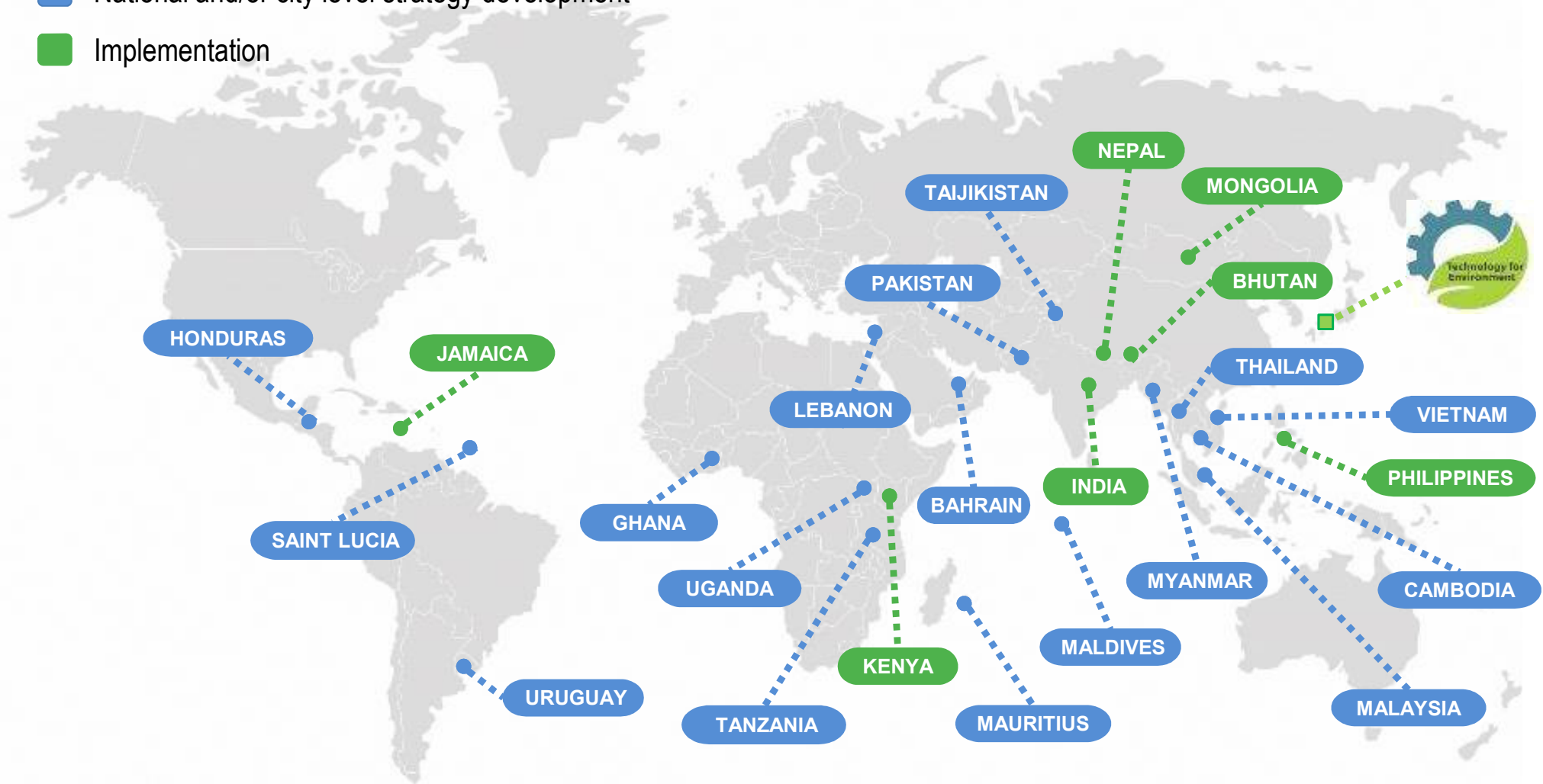
Penang, Malaysia



Bagan Ajam wet market waste composting plant

IETC support to countries around the world

- National and/or city level strategy development
- Implementation



Cities and countries are working with IETC to improve Waste Management Governance

Phnom Penh, Cambodia



Phnom Penh Capital Administration developed a Waste Management Strategy and Action Plan



Varanasi, India

Varanasi city developed a holistic waste management strategy for the city.



Waste characterization in residential and commercial units



Waste characterization in hotel, institutional and religious units



International Environmental Technology Centre



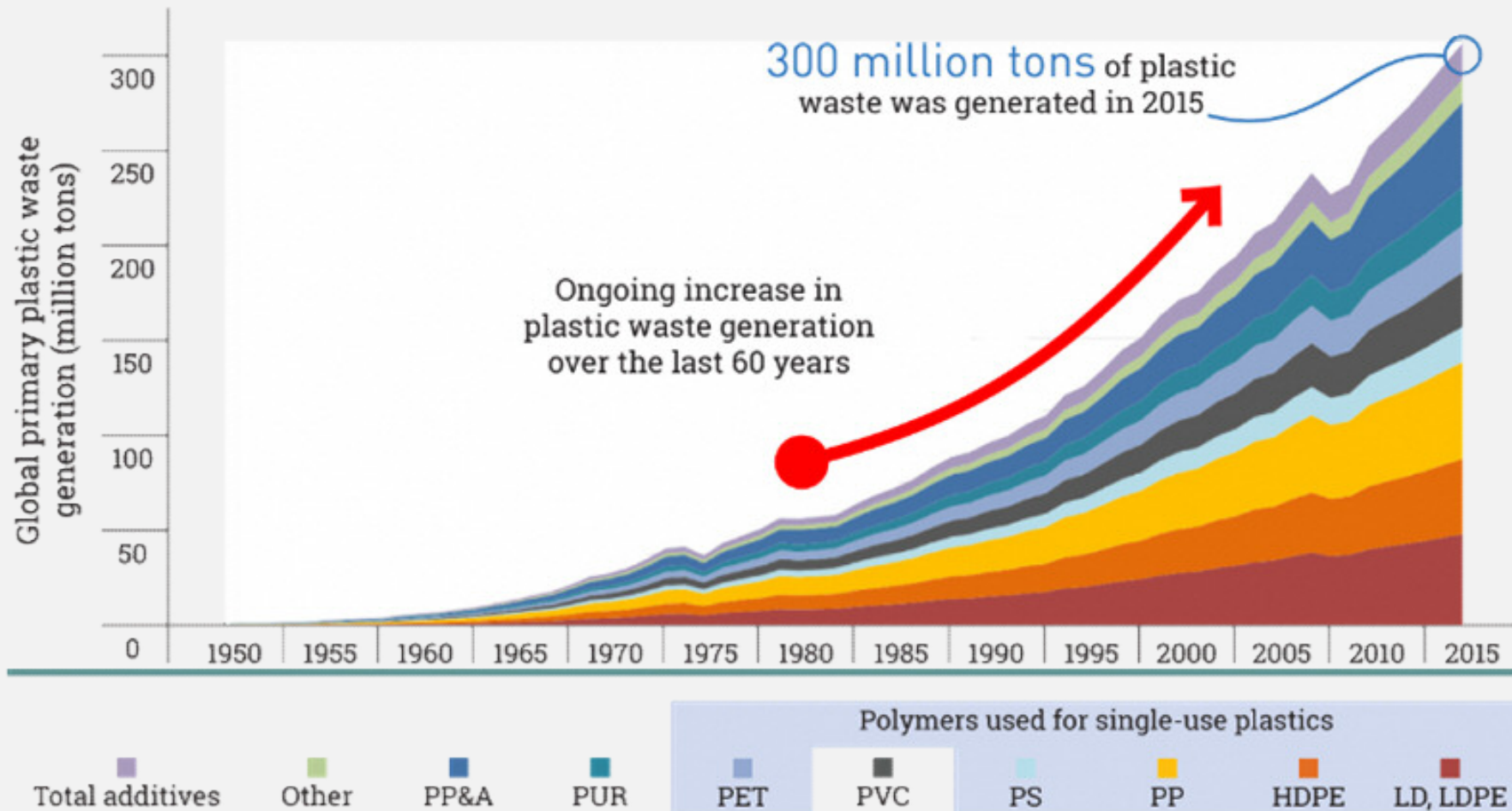
Our Vision

UN Environment IETC assists countries to identify and implement **sustainable technological solutions** to **environmental challenges**



The Plastic Challenge

Global primary plastics waste generation, 1950 – 2015



Priority actions to minimize single-use plastics

1

Improve waste management

2

Promote eco-friendly alternatives to phase out single-use plastics

3

Educate consumers to make environmentally friendly choices

4

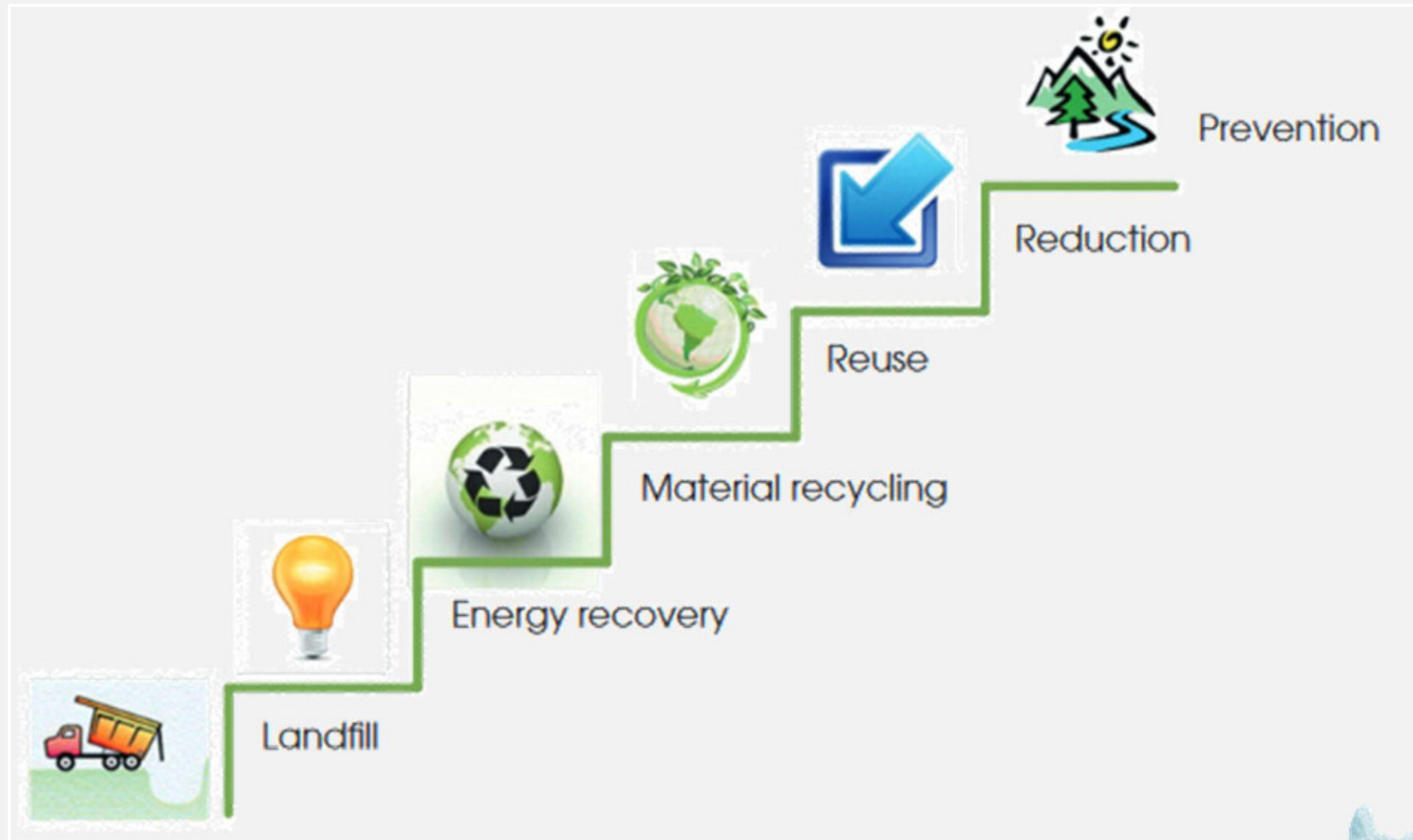
Enable voluntary reduction strategies

5

Ban or introduce levies on the use and sale of single-use plastic items

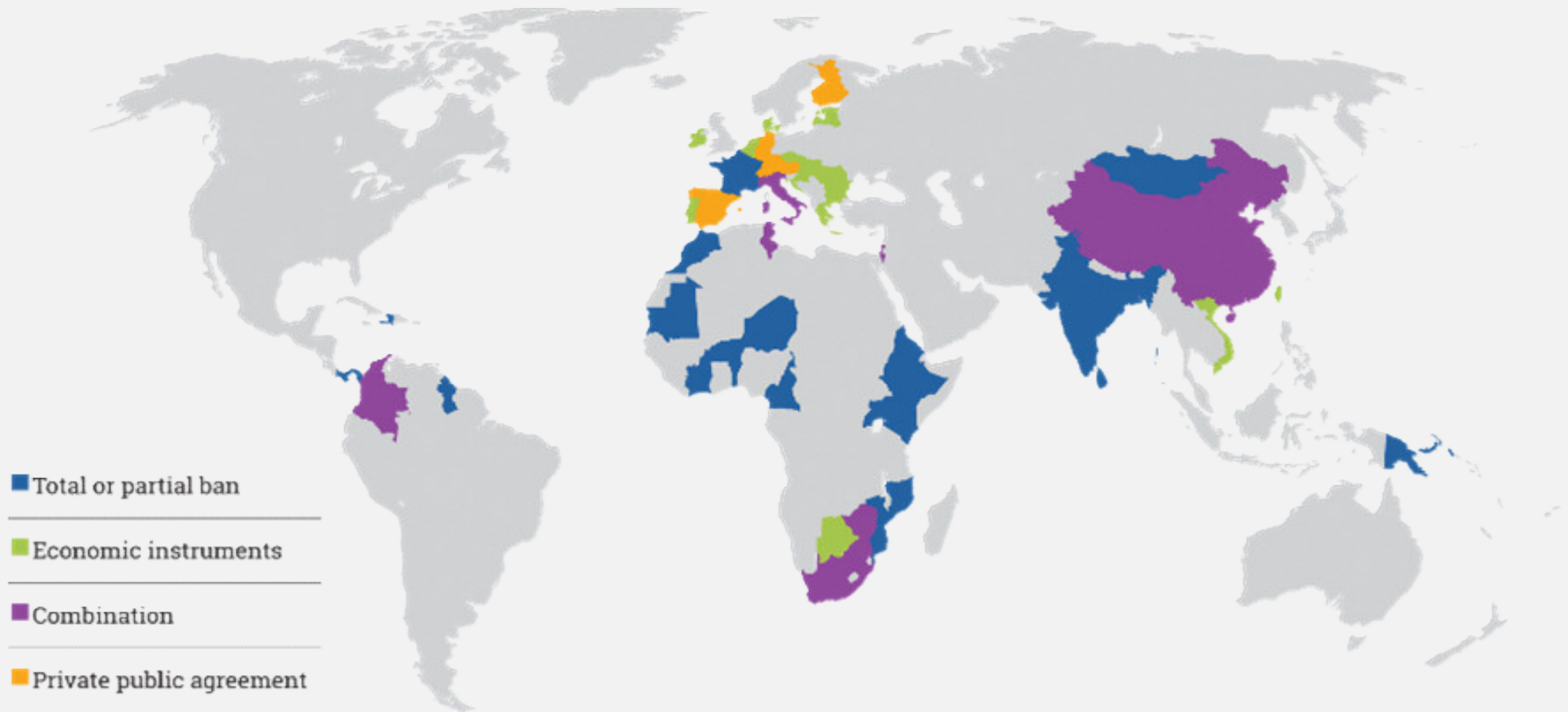
1

Improve waste management



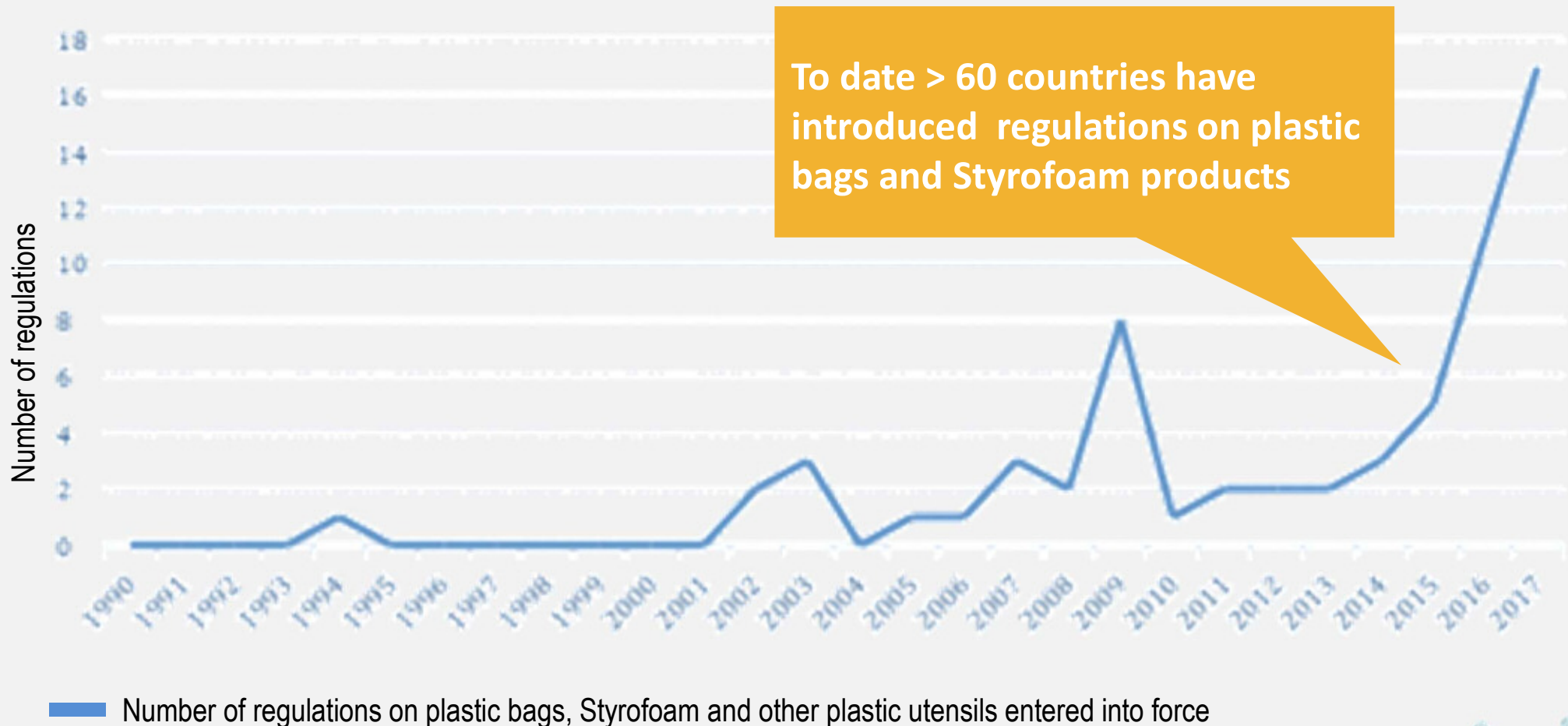
Global trends: types of regulations

National level plastic bag bans and Styrofoam regulations



Global trends: number of regulations

Estimated number of new regulations on single-use plastics entering into force at the national and worldwide



Global trends: Impact

Impact of national bans and levies on plastic bags



No to little impact

20%

Reduced consumption
or less pollution

30%

No data on impact

50%

Main issues of reported no or little impact seems to be:

- i) Lack of enforcement
- ii) Lack of affordable alternatives

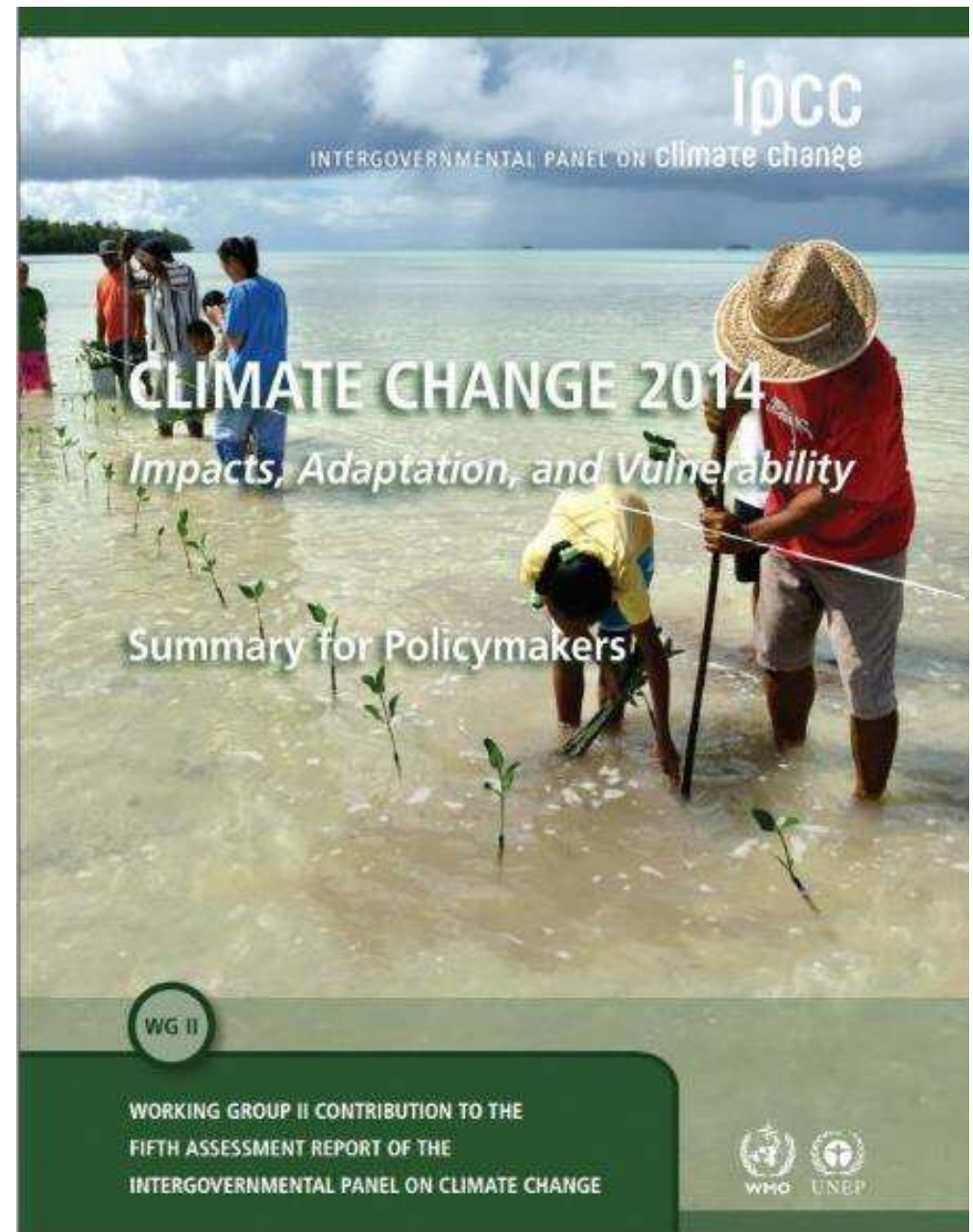
Some Definitions (IPCC AR5 WG2)

Vulnerability: The propensity...to be adversely affected ... including sensitivity or susceptibility ... and lack of capacity to ... adapt.

Risk: ...results from the interaction of vulnerability, exposure and hazard.

Adaptation: The process of adjustment to ...climate and its effects...adaptation seeks to moderate or avoid harm or exploit beneficial opportunities.

Resilience: The capacity of social, economic and environmental systems to cope with a hazardous event or trend ... maintain their essential function ...while also maintaining the capacity for adaptation...



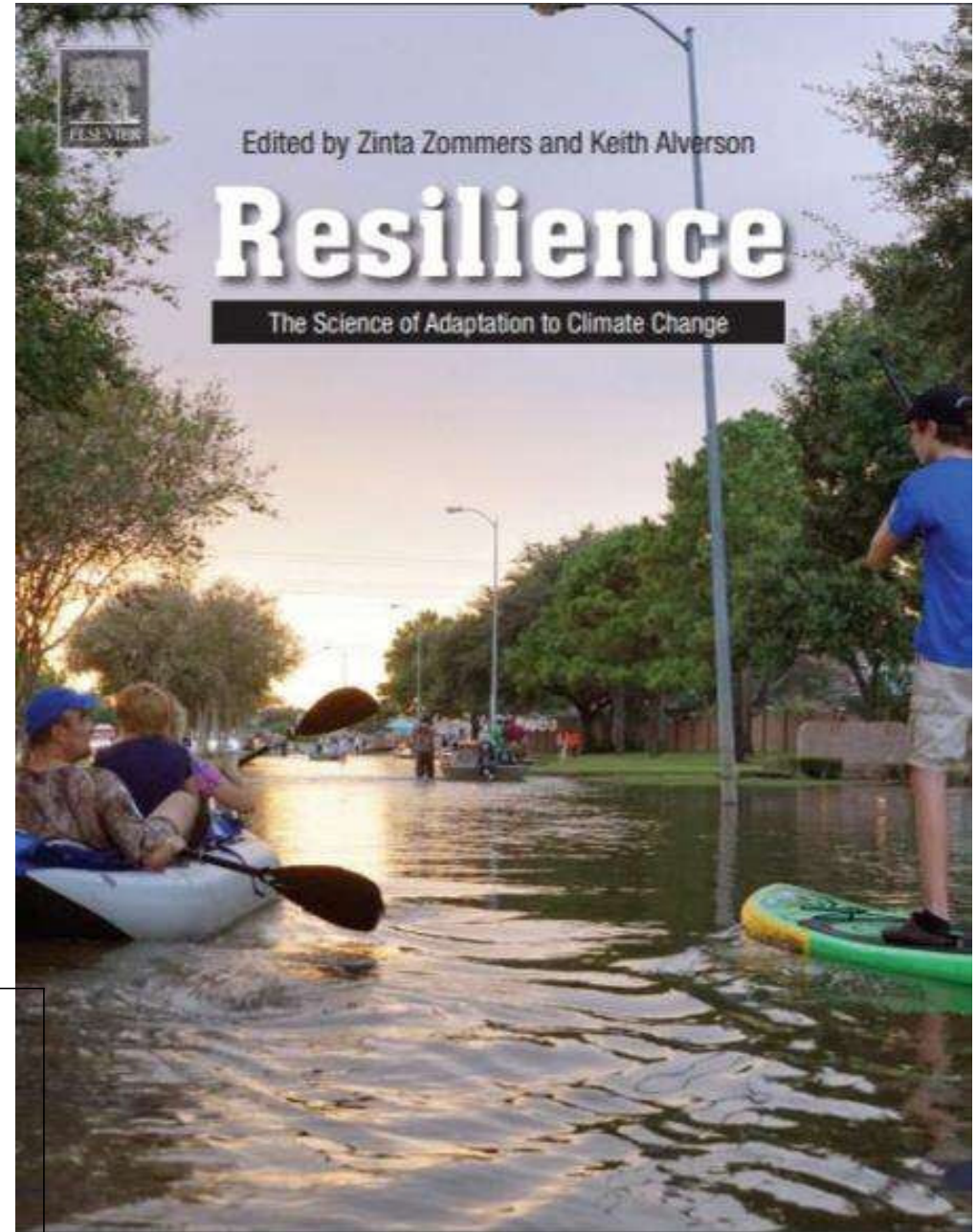
Zommers Z. and K. Alverson eds.
Elsevier, 2018
ISBN: 978-0-12-811891-7

KEY FEATURES

- Provides a summary of tools and methods used in adaptation including recent innovations
- Includes chapters from a diverse range of authors from academic institutions, humanitarian organizations, and the United Nations
- Evaluates adaptation options, highlighting gaps in knowledge where further research or new tools are needed

AUDIENCE

Scientists working in Climate Change adaptation, sustainable development, ecosystem management; environmental scientists, environmental managers, urban planners



Urban Resilience

Greenwalt, Raasakka and Alverson (Ch.12)

Traditional geographic 'vulnerability impact analysis' makes little sense.

Most Vulnerable and least vulnerable

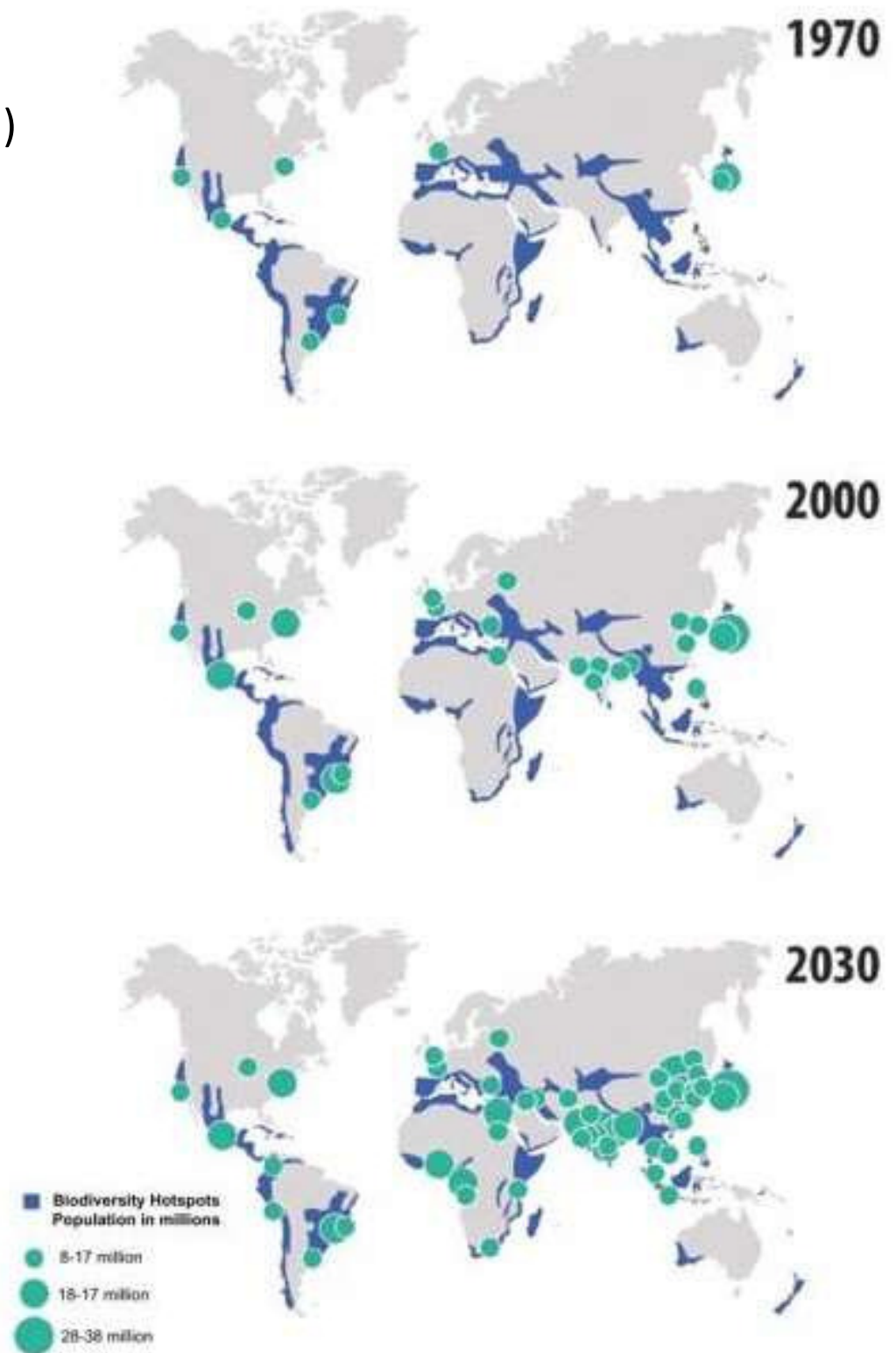
Populations may live in the same

building! **Vulnerability is not mappable.**

Development Paradox. Least Developed countries are considered the 'most vulnerable'. Are developed **cities** the least vulnerable (compared to, say rural areas in developing countries)? What about Resilience. Just in USA can compare New Orleans after Hurricane Katrina to New York after Sandy to Puerto Rico after Maria – very different resilience challenges and successes.

Interlinkages with non-climate concerns.

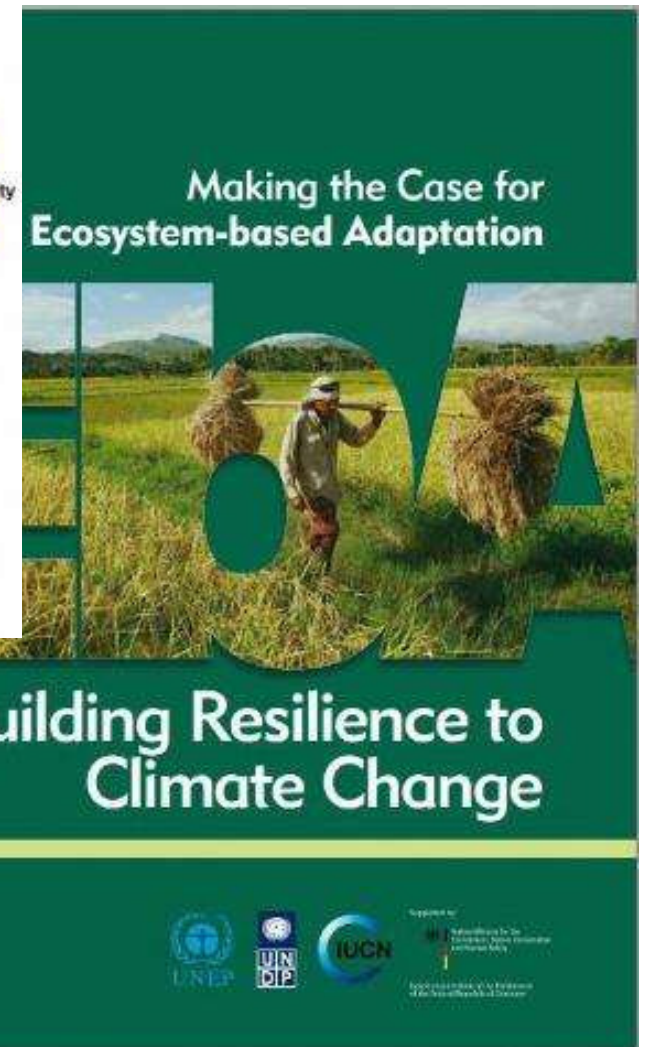
Example: Disaster Waste. Not separable! (GEF 'Additionality' and GCF "Climate Rationale" are dubious concepts)



Ecosystem Based Adaptation



Figure 1: Ecosystem-based Adaptation conceptualized in the Driving Forces-Pressures-State-Impacts-Responses (DPSIR) framework.



Quantifying Adaptation Success and the importance of co-benefits Ecosystem Based Adaptation

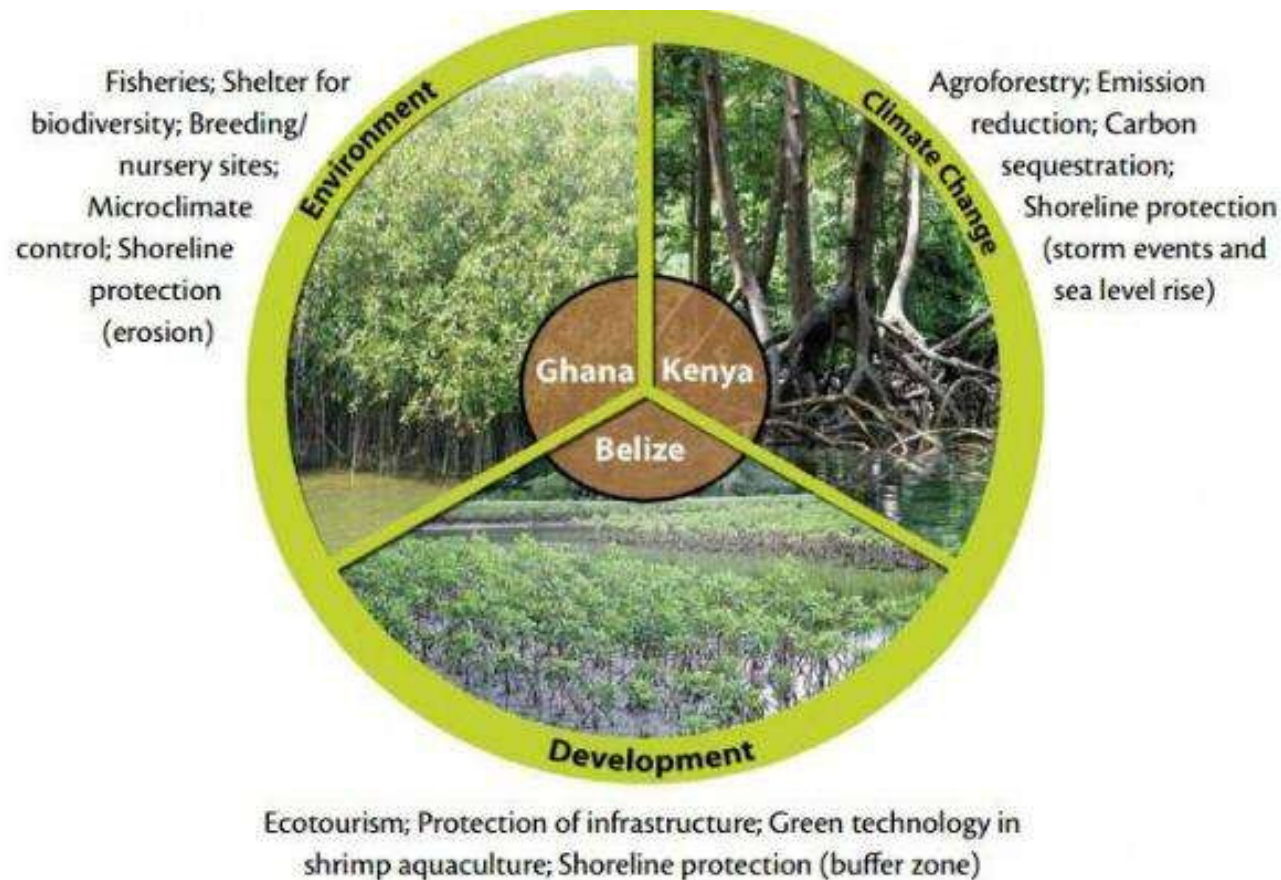


Figure 3. Mangroves occur in a wide variety of coastal habitats, protect against sea level rise, capture carbon, and provide a broad range of multiple benefits to local communities. This diagram was prepared based on activities undertaken as part of a Climate and Development Knowledge Network funded project called "Achieving triple wins: Identifying climate smart investment strategies for the coastal zone." Through case study work in coastal Ghana, Kenya, Belize, and Vietnam, the project aims to present the co-benefits (and damages) from actions that deliver climate change adaptation and mitigation. Source: Adelina Mensah, University of Ghana



Contents lists available at ScienceDirect

Ecological Economics

journal homepage: www.elsevier.com/locate/ecolecon



Analysis

Managing Climate Change Risks in Africa - A Global Perspective



Ademola A. Adenle ^{a,b,c,*}, James D. Ford ^d, John Morton ^e, Stephen Twomlow ^f, Keith Alverson ^g,
Andrea Cattaneo ^h, Raffaello Cervigni ⁱ, Pradeep Kurukulasuriya ^j, Saleemul Huq ^k,
Ariella Helfgott ^l, Jane O. Ebinger ^m

Conclusions:

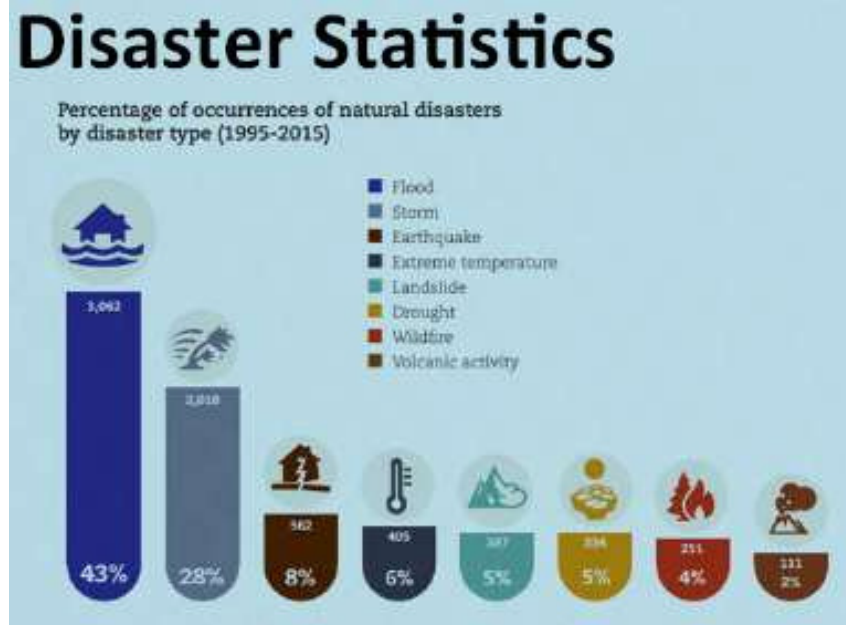
- 1) Climate data, scenarios and impact models are insufficient for supporting adaptation, particularly as they relate to food systems ...
- 2) The adaptation response to date has been limited, fragmented, divorced from national planning processes and with limited engagement with local expertise.
- 3) Adaptation policies and programs are too narrowly focused on explicit responses to climate change rather than responses to climate variability or broader development issues.
- 4) Adaptation finance is insufficient and procedures for accessing it present challenges for governments ...

Recent Disasters in Caribbean



Building Resilience - Disaster Waste Management

- Integrating disaster contingency planning in national and city level waste management strategies
- Mainstreaming waste management issues within broader disaster preparedness and response plans
- Projects in Nepal, Philippines, Dominica



Disaster Waste Management Training for the Caribbean

Montego Bay, Jamaica, 9-10 October 2018



in conjunction with the 2nd High Level Forum for Caribbean Ministers Responsible for Waste Management. Over 25 representatives from 11 counties participated in the 2-day training programme.

2018 Asian Ministerial Conference on Disaster Risk Reduction (AMCDRR)

Ulaanbaatar, Mongolia, 3-6 July 2018

Special parallel session on Enhancing Resilience through Disaster Waste Management and Building Back Better



IETC's Tools/guidelines

Guidelines on Disaster Waste Management for flooding
for Local Administrations



United Nations Environment Programme
UNEP
EPA
EDP

United Nations Environment Programme
United Nations Office for Disaster Risk Reduction

Disaster Waste Management Guidelines

DISASTER WASTE MANAGEMENT MECHANISM

A Practical Guide for Construction and Demolition Wastes in Indonesia

FINAL REPORT

DISASTER WASTE MANAGEMENT POLICY, STRATEGY & ACTION PLAN

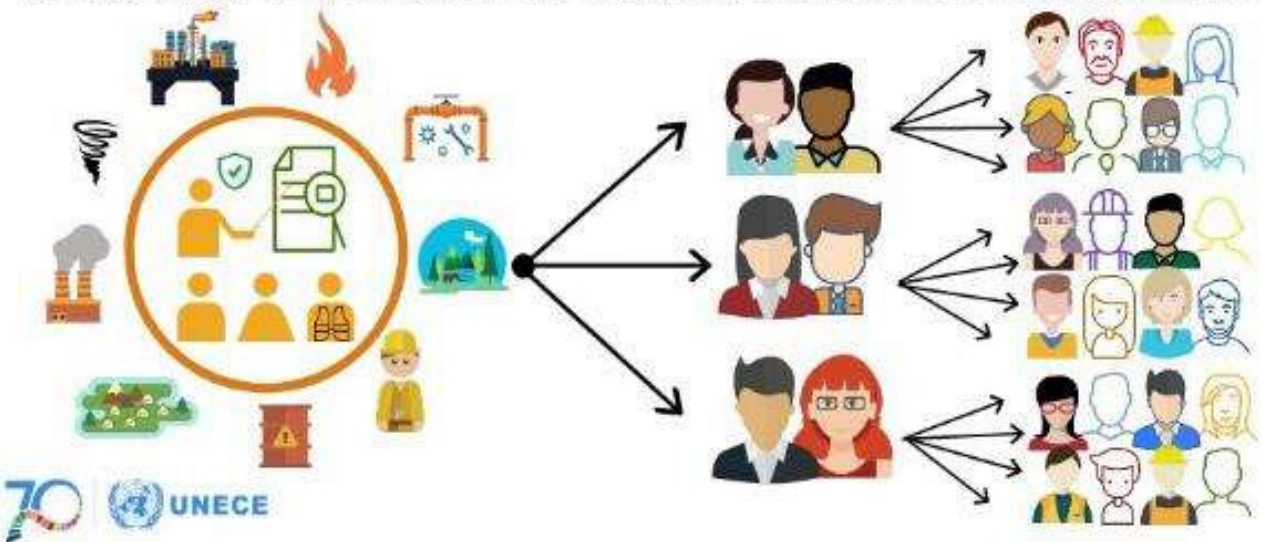
UNEP
UNEP
UNEP

Managing post-disaster debris: the Japan experience



United Nations Environment Programme

Training of trainers on environmental emergencies and hazardous industrial activities



70
UNEP
UNEP

Disaster Waste Management Guideline in Asia and the Pacific



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Ministry of the Environment
Government of Japan
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Thanks!

to our funders:

**Japan, Germany, Sweden, Norway
European Commission, GEF ...**

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and our partners:

Osaka City, ISWA, GEC, IGES-CCET ...



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