

# IPBES Scoping for the Nexus Assessment: Health & Linkages

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# The focus for this session

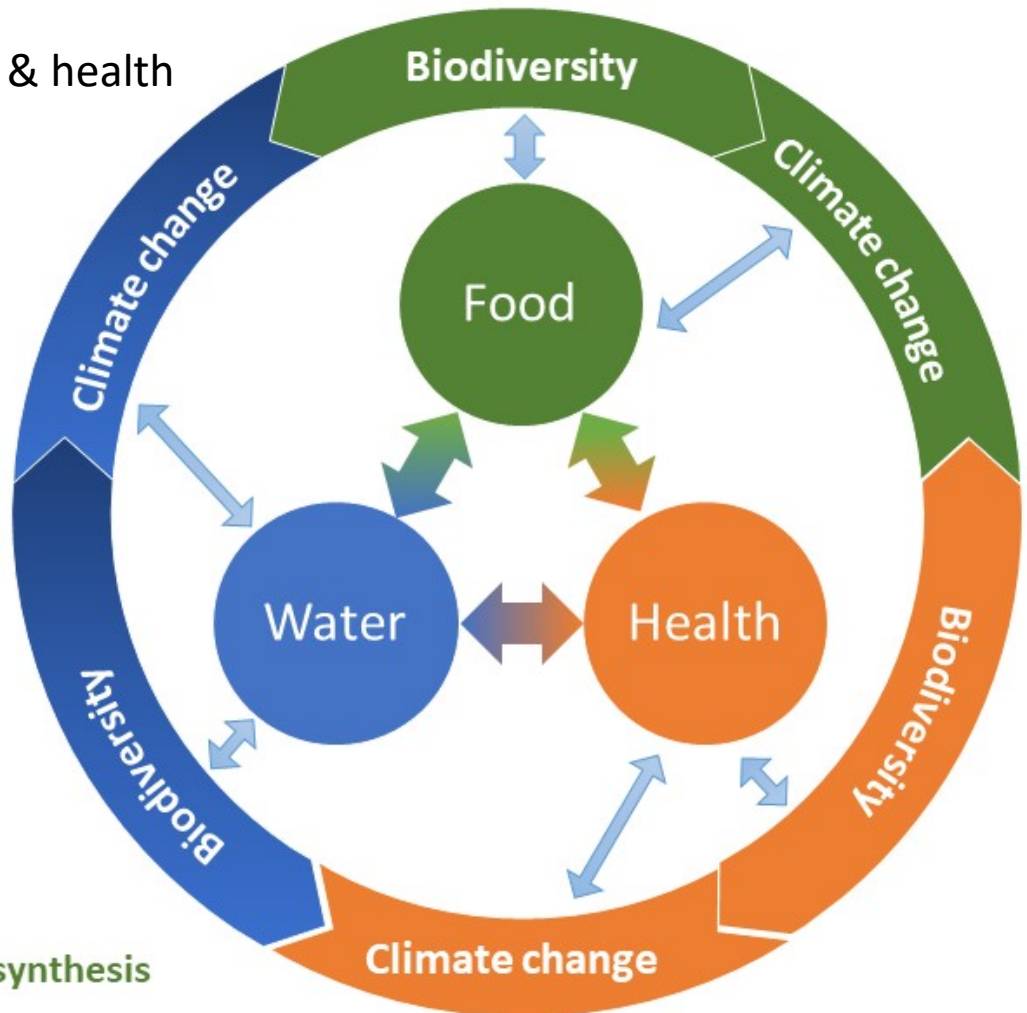
## Three thematic areas:

1. Biodiversity & health
2. Global environmental change & health
3. Food, water & health

## Your suggestions on:

- Scope of the assessment
- Questions to address

Day 1: **Water and linkages**  
Day 2: **Health and linkages**  
Day 3: **Food and linkages, and synthesis**



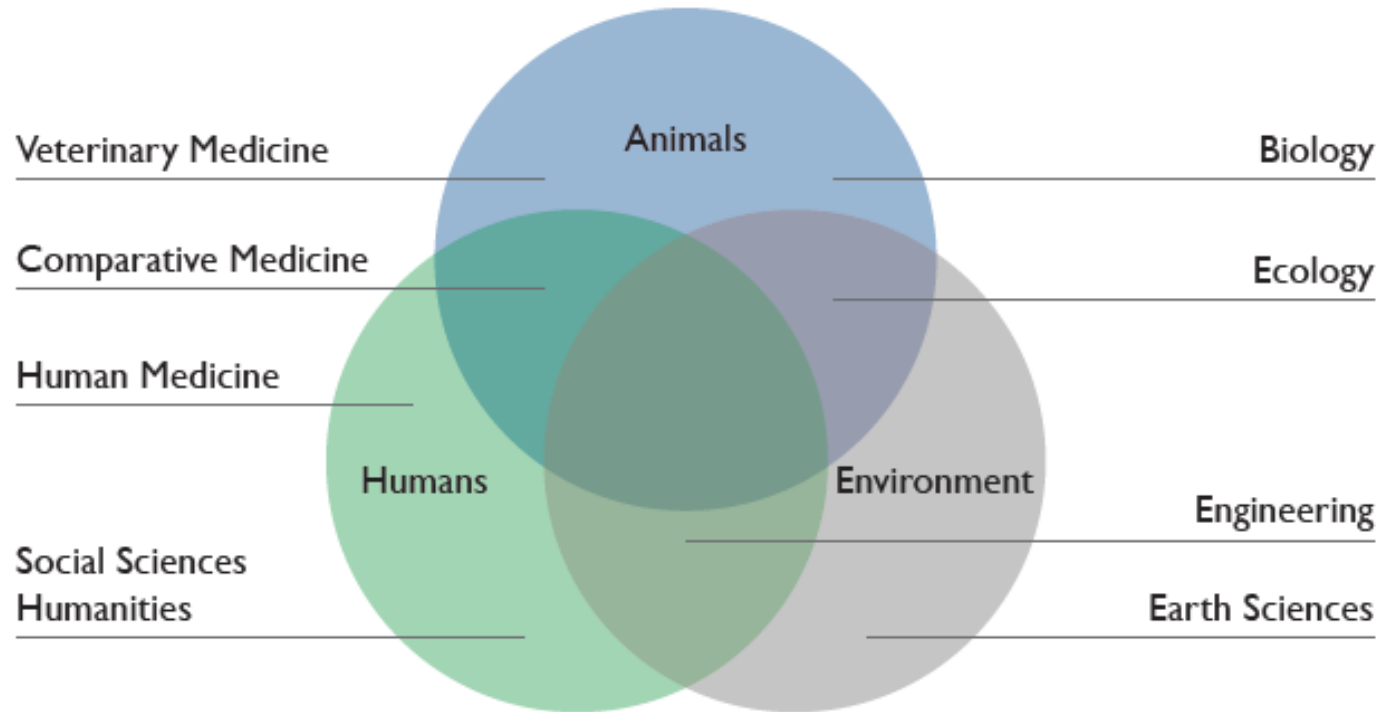
# Post-2020 Biodiversity Framework and Global Goals

- Aichi Biodiversity Targets, particularly:
  - Target 14. Biodiversity and Ecosystem Services
- Sustainable Development Goals, e.g.:
  - 3. Health;
  - 6. Clean Water and Sanitation;
  - 13. Climate Action;
  - 14. Aquatic Ecosystems;
  - 15. Terrestrial Ecosystems;
  - 17. Partnerships
- Global Health Security Agenda (Prevent, Detect, Respond)
- Sendai Framework for Disaster Risk Reduction 2015-2030
  - Bangkok Principles for implementation of health aspects



7 GLOBAL TARGETS	Reduce	Increase
	<b>Mortality/</b> global population 2020-2030 Average <= 2005-2015 Average	Countries with national & local DRR strategies 2020 Value >= 2015 Value
	<b>Affected people/</b> global population 2020-2030 Average <= 2005-2015 Average	International cooperation to developing countries 2030 Value >= 2015 Value
	<b>Economic loss/</b> global GDP 2030 Ratio <= 2015 Ratio	Availability and access to multi-hazard early warning systems & disaster risk information and assessments 2030 Values >= 2015 Values
	Damage to critical infrastructure & disruption of basic services 2030 Values <= 2015 Values	

# One Health approach



- Health of people, wildlife, livestock, environment
- Impact of human-mediated global environmental change on health across all sectors

# Biodiversity's Health Services

## **Pharmaceuticals**

- Penicillin (fungus); Digitalis (foxglove plant); Quinine and quinidine (Peruvian Cinchona tree); Morphine and codeine (poppies); Taxol (Pacific Yew tree)

## **Welfare**

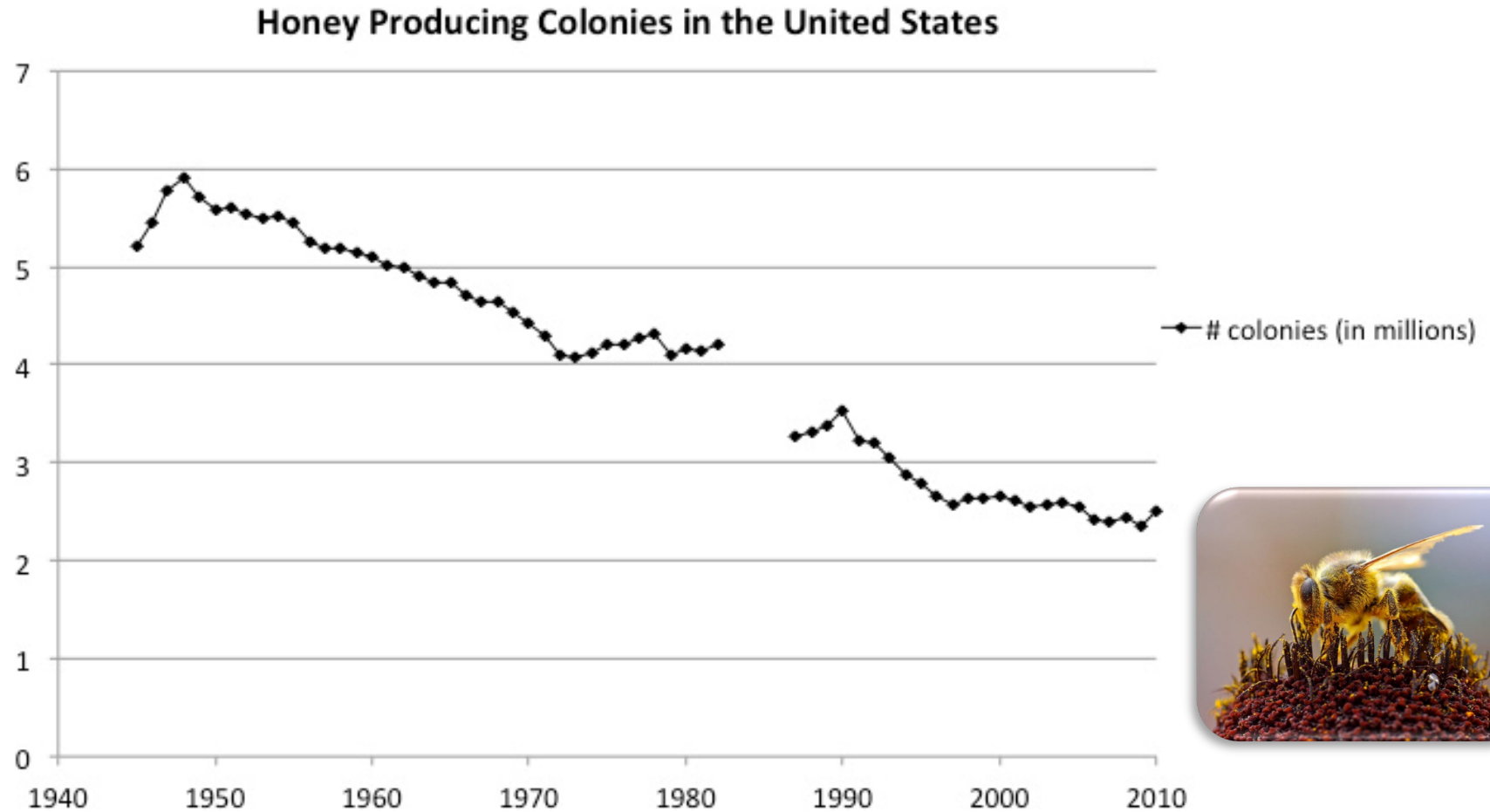
- Link between good mental health and open spaces, biodiversity, forests/parks
- Outdoor activity linked to overall fitness and lack of disease
- Dietary diversity and nutritional health

## **Protection against disease**

- Lower risk emerging diseases from undisturbed intact forest



# Honey Bee Declines in U.S.A.

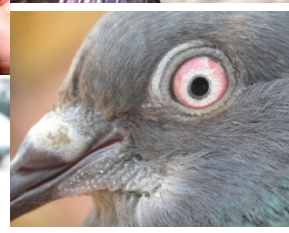
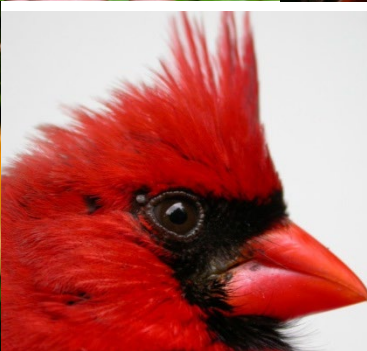
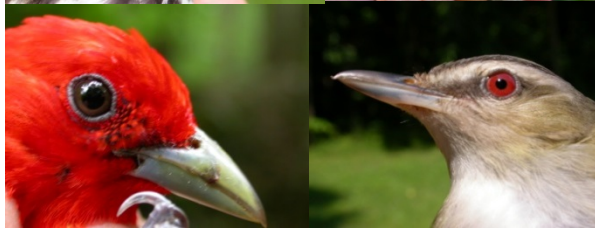


# Biodiversity loss & health

Intact Forest

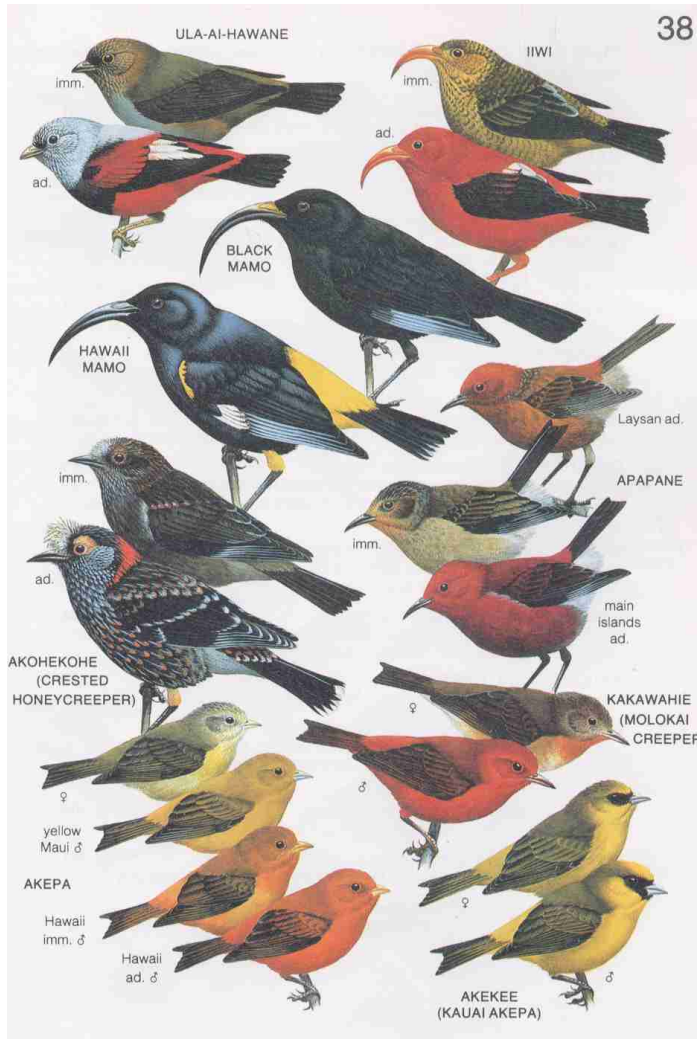
Residential

Urban



*Culex* mosquitoes prefer organically rich water

# Disease-mediated extinction events



- Hawaiian birds & avian malaria
- White nose syndrome in bats
- Amphibian chytridiomycosis

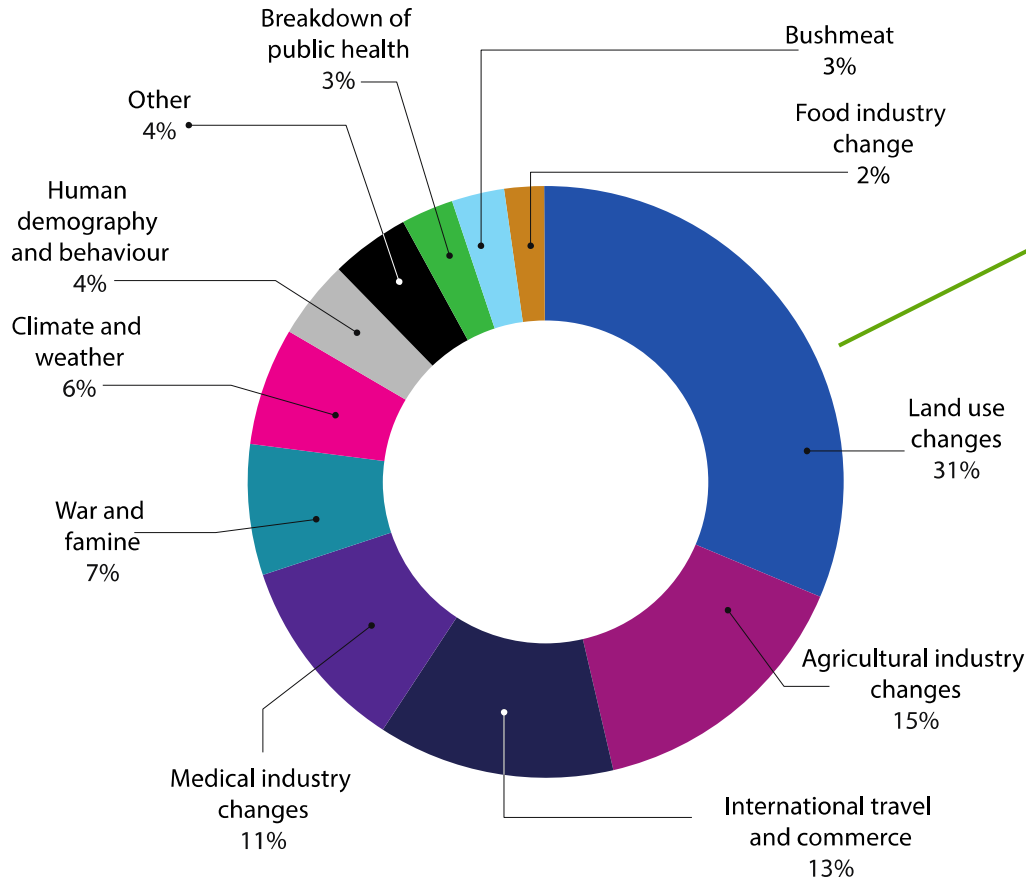


# Environmental Change & Health: Land use change

- Haze events lead to respiratory illness and death
- Increased malaria cases in palm oil plantations
- Increased bushmeat hunting leads to zoonotic diseases
- But agricultural development **raises income and increases health and wellbeing**



# Land Use Change Drives Disease Emergence



Deforestation  
Agricultural intensification  
Habitat degradation  
Habitat fragmentation

- Ebola
- Marburg
- Zoonotic malaria
- Leptospirosis
- SARS
- Rabies
- Hendra, Nipah virus



# nature

## CLIMATE CHANGE

Regional health impacts  
from North America to Africa

PLASMON OPTICS  
Towards the perfect lens

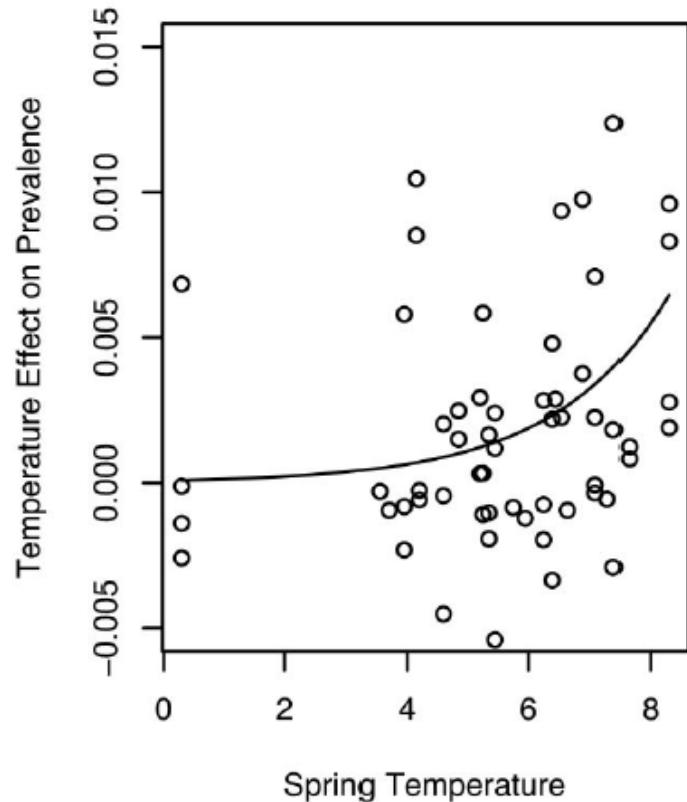
EMERGING DISEASES  
The Typhoid Mary factor

STAR FORMATION  
Boost for a collapsing theory

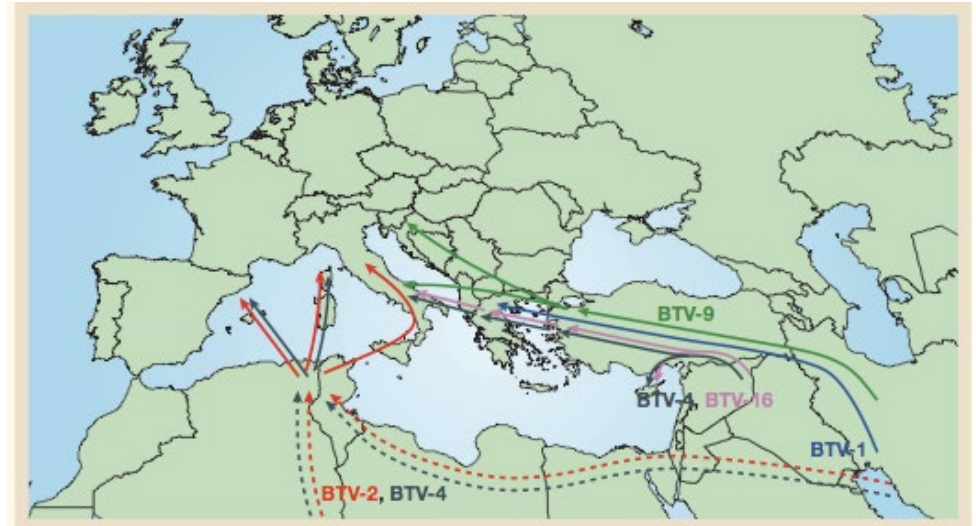
- “The severity and duration of summertime regional air pollution episodes are projected to increase in the Northeast and Midwest US by 2045-2052 due to climate-change-induced decreases in the frequency of surface cyclones.” (IPCC, 2007)
- By 2050, warming alone may increase by 68% the number of Red Ozone Alert days across the Eastern US. (IPCC, 2007 -Bell et al, 2006)

# Climate change has already increased infectious disease burden

## Plague in Central Asia



## Bluetongue in Europe





# Food & Health

- Nutritional diversity and health
- Agricultural intensification, industrial food production, health
- Health of globalized livestock production linked to people



# Global influenza pandemics

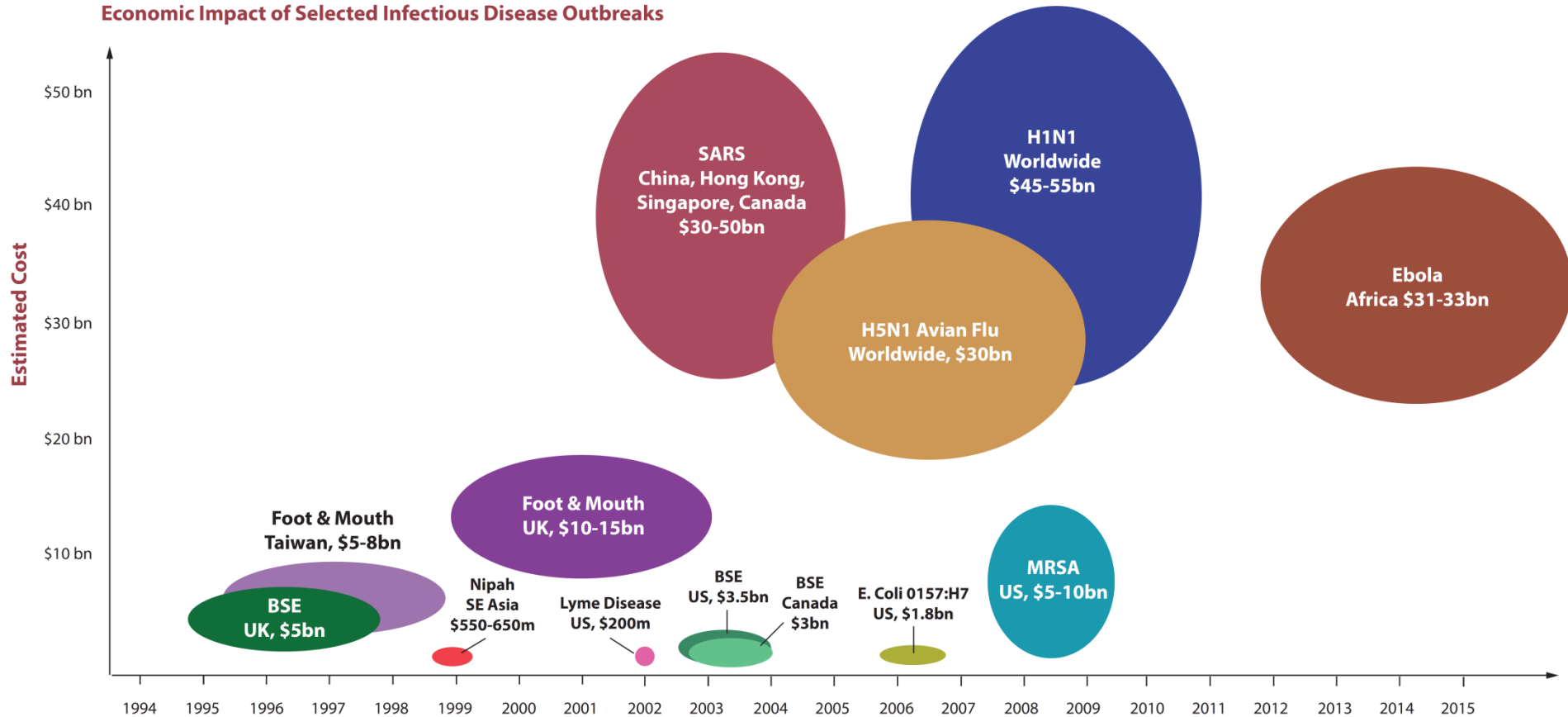
- Viral genes circulate among wild birds, poultry and pigs
- Evolution of strains able to infect people
- Driven by intensification of livestock production, trade, travel



# Outbreaks cause economic shocks

Estimated US\$ 2-3 Trillion over next 30 years

Economic Impact of Selected Infectious Disease Outbreaks



Figures are estimates and are presented as relative size. Based upon bio-era and other data.



# Water & Health

- Pollution, drinking water and health
- Ocean life, microplastics, pollution, climate change and health
- Water-borne, vector-borne diseases and climate change





# Some Policy-relevant Questions

## **Benefits of biodiversity to health**

- How severe will projected biodiversity losses affect potential pharmaceutical benefits?
- How are health benefits of biodiversity linked to global conservation strategies and IP?

## **GEC & Health**

- How will climate change mitigation strategies affect health of people, livestock, environment – can this be built into scenarios?
- How can national policies on land use better mediate their private sector benefits (agricultural profits) and public sector health impacts (air pollution, disease)?
- Do global frameworks for pandemic prevention link to IGOs involved in their underlying environmental drivers – e.g. the Global Health Security Agenda, WHO R&D framework

## **Water, Food & Health**

- Do policies adequately include health ecosystem services in freshwater and marine environments?
- What is the role of the private vs. public sector in protecting against the negative health impacts of intensified livestock production and global food trade?