



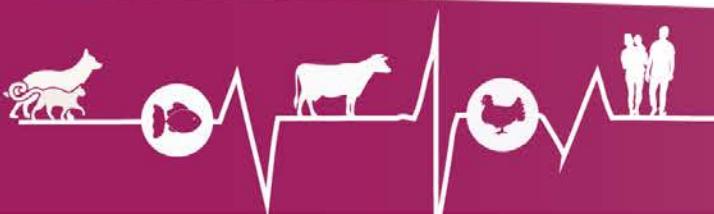
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Medicine and Life Sciences

香港城市大學
City University of Hong Kong
in collaboration with Cornell University

Using the COVID-19 Experience to improve Risk Governance

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QS

World University
Rankings 2021
Veterinary Science

No. 2

RVC
Royal
Veterinary
College
University of London

Outline

- Context
- COVID-19
- One Health Risk Governance
- Conclusions



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Context



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Foresight - Mega-Trends and Catalysts to 2030



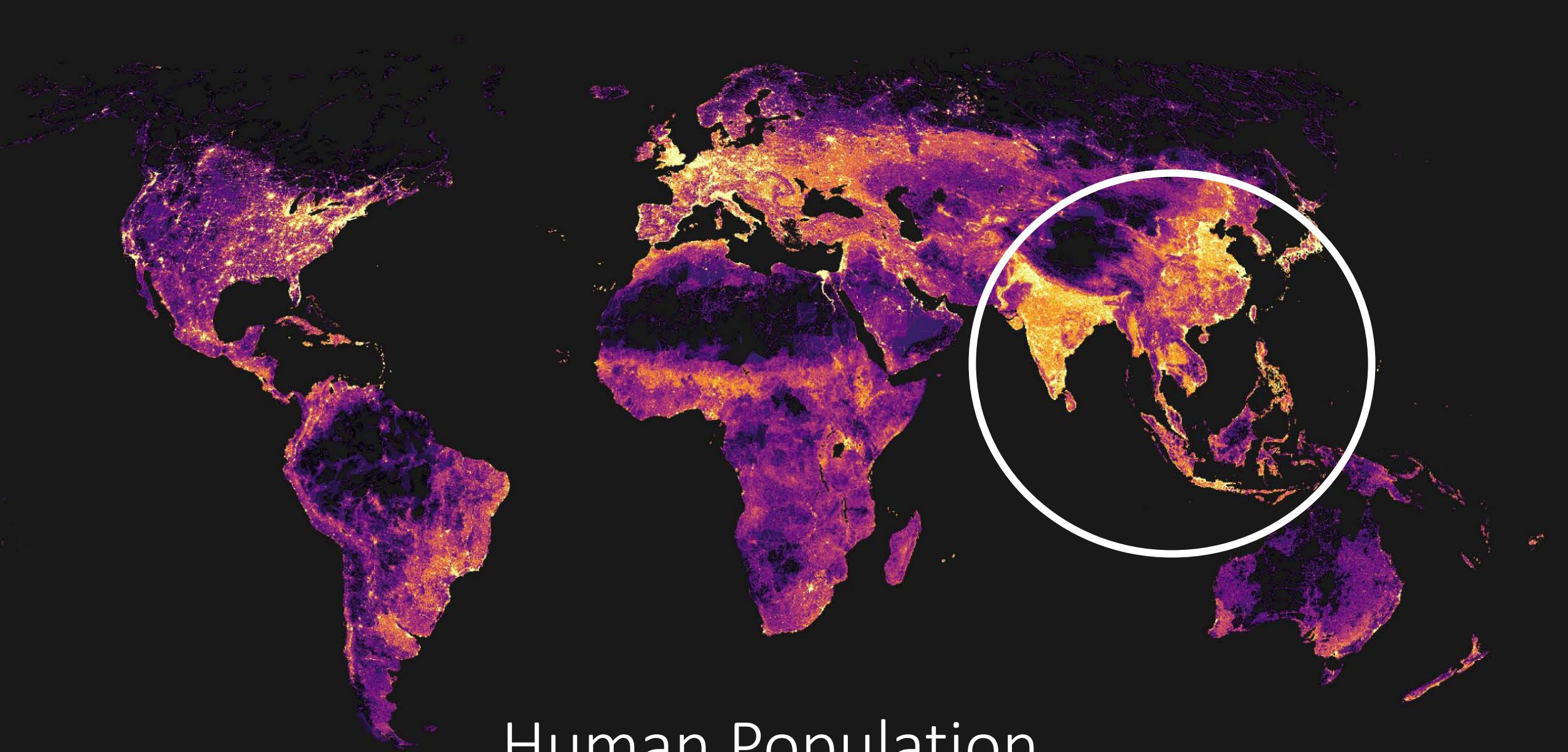
Mega Trends

- We will be highly connected
- There will be more, smaller states
- Globalization will continue
- Technologically we will need more
- We will be highly competitive
- We will be poly-nodal

Change is
happening ever
faster

Catalysts

- Trade will increase
- Food and water will be stretched
- Demographics will change
- Democracy will remain
- People will move
- Populists will try



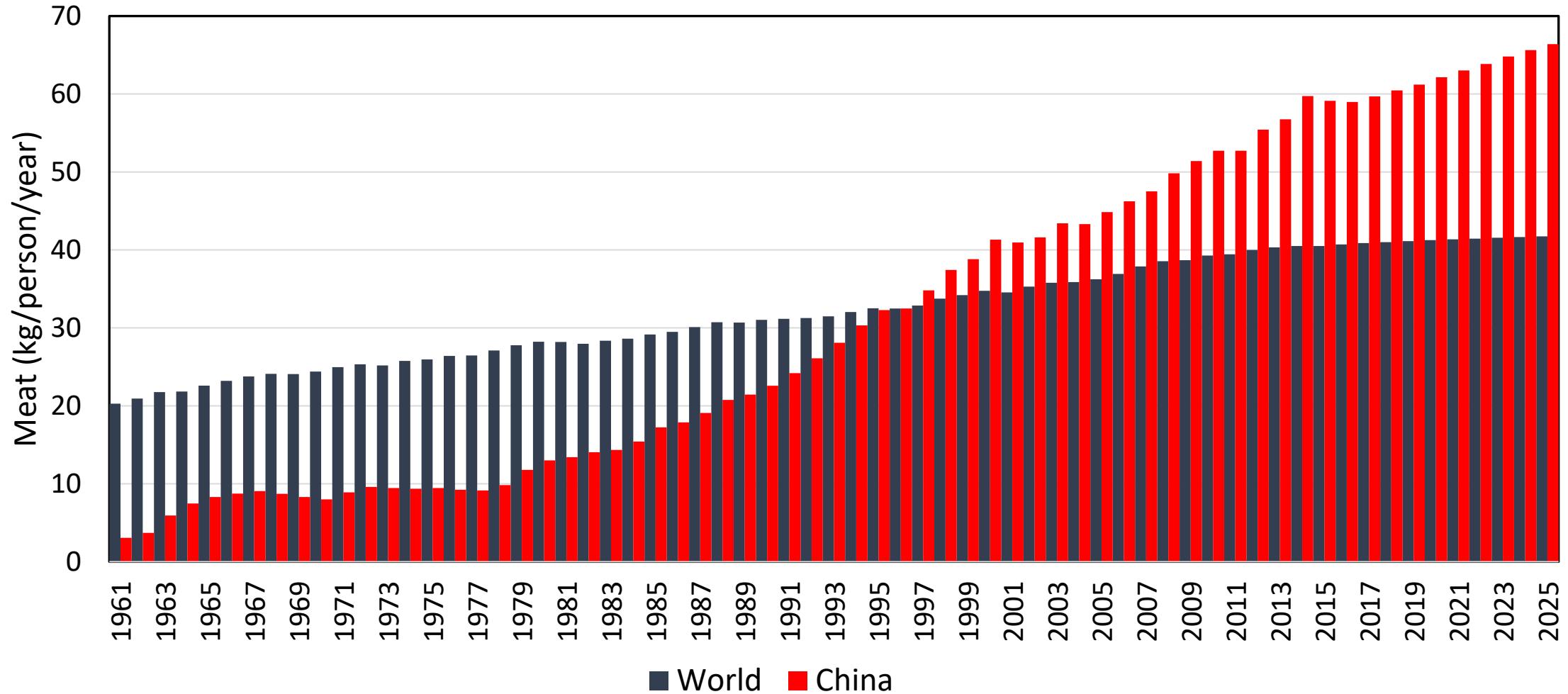
Human Population
Density

88 percent of the next billion entrants into the middle class will be in Asia

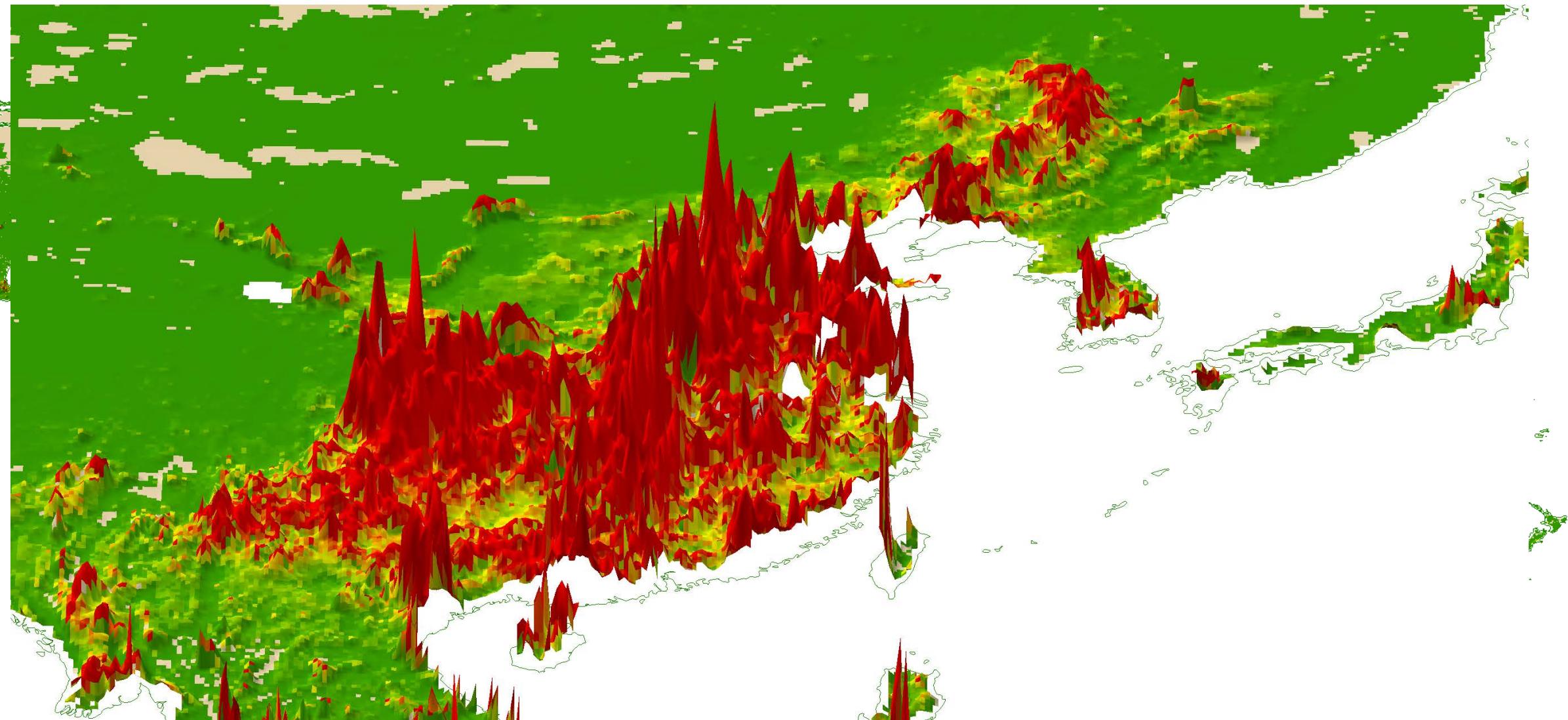
By 2030, Asia could represent 2/3
of the global middle class population.



Growth of Meat Consumption 1961 to 2025 (beef, poultry, pig)

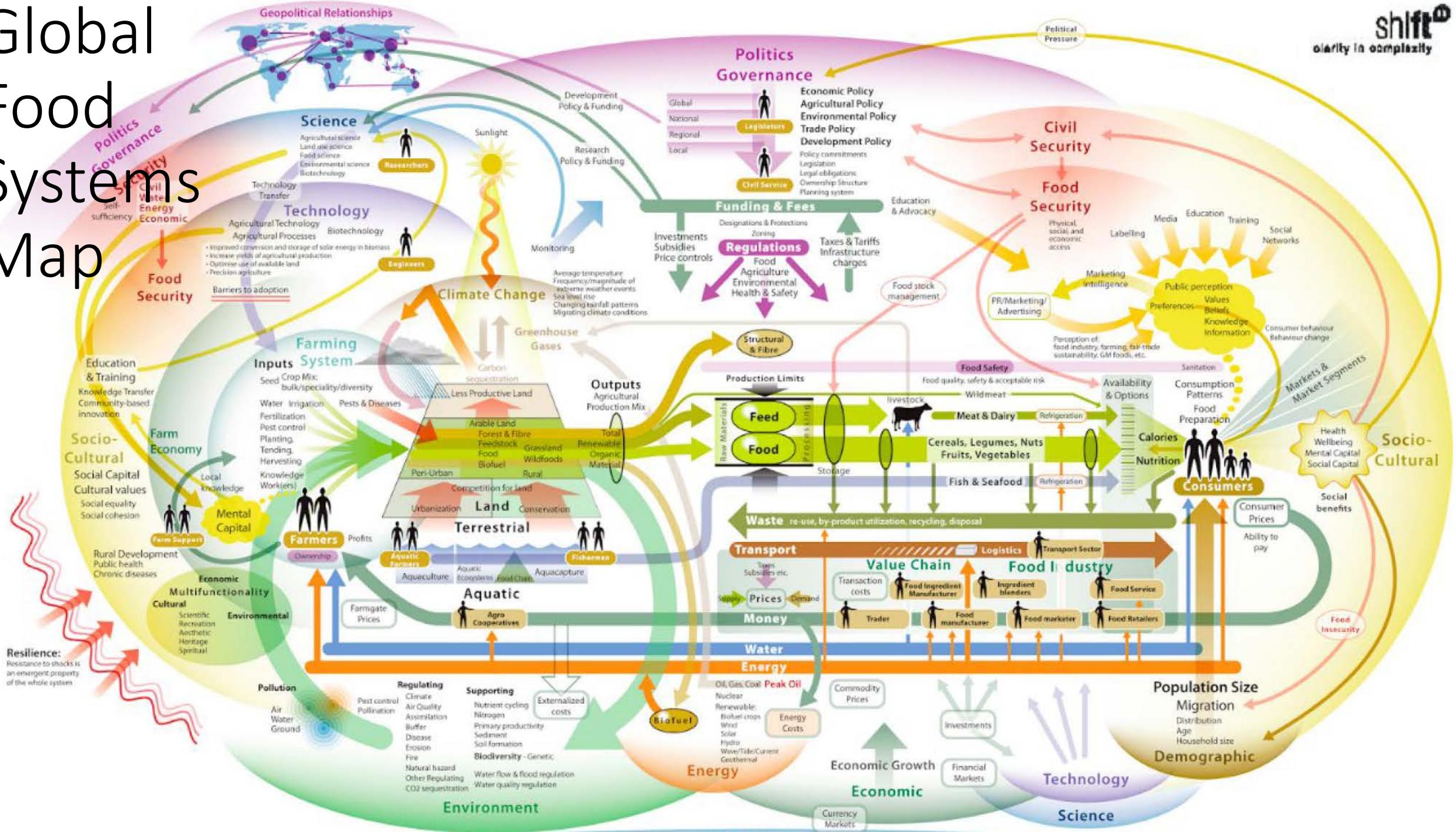


Pig Density in 2015

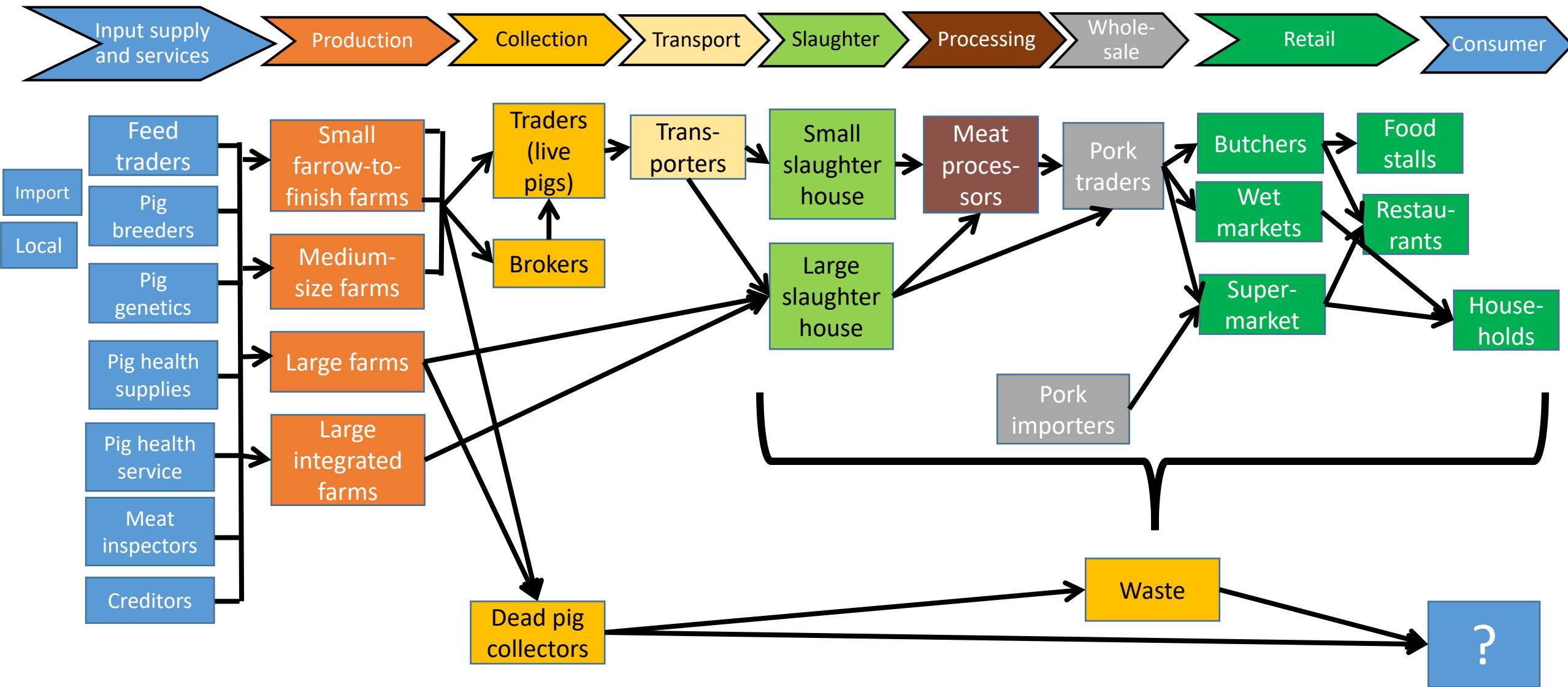


based on data from: Gilbert, Marius; Cinardi, Giuseppina; Zhao, Qingyou; Tago, Damian; Robinson, Timothy, 2019, "New global pig data in support of the African Swine Fever epidemics", <https://doi.org/10.7910/DVN/JEV3WA>, Harvard Dataverse, V1

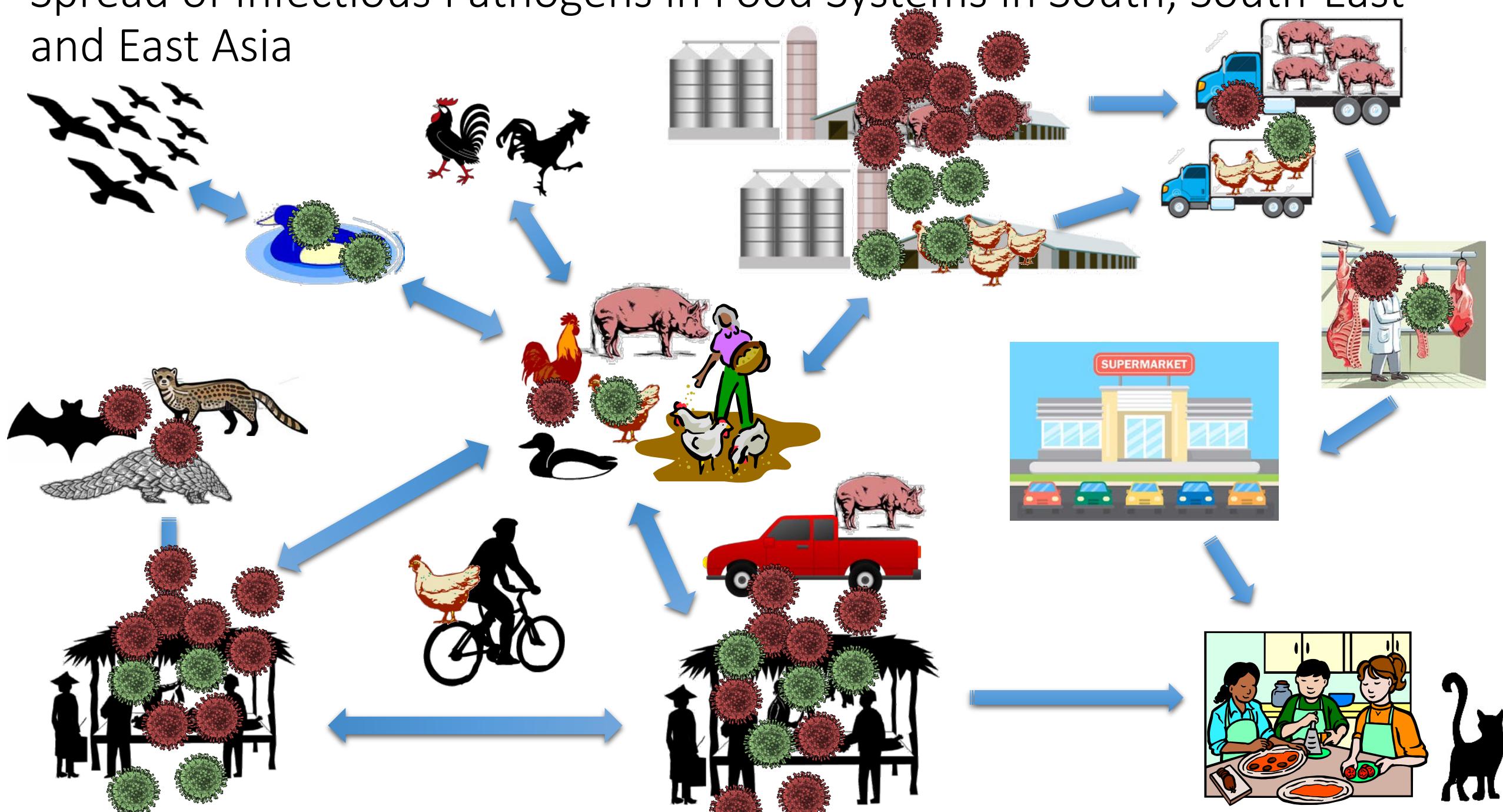
Global Food Systems Map



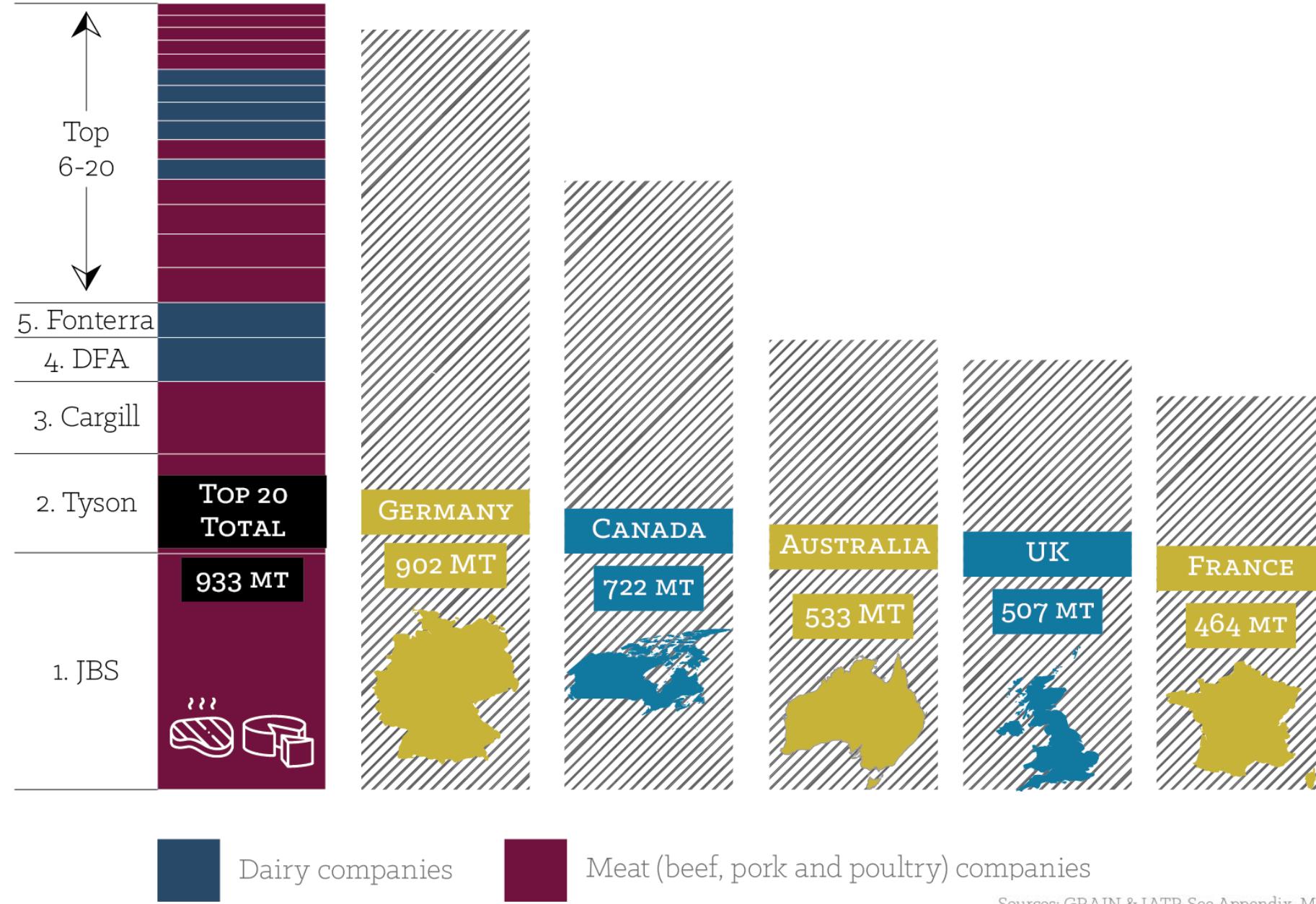
Value Chain for Pork Food System in South-East and East Asia



Spread of Infectious Pathogens in Food Systems in South, South-East and East Asia



Greenhouse Emissions of Top 20 Meat and Dairy Companies compared with Selected Countries



Sources: GRAIN & IATP. See Appendix, Methodology Note, Section B.
"Greenhouse gas emissions," OECD. Accessed 17 June 2018. https://stats.oecd.org/Index.aspx?DataSetCode=AIR_GHG.



IMPLICATIONS FOR BIODIVERSITY OF GLOBAL WARMING: 1.5°C

One ice-free
Arctic summer per

**100
YEARS**

Limiting warming to
1.5°C rather than 2°C
would prevent the
thawing over centuries
of **1.5 – 2.5 million km²**
of permafrost

70-90%
decline of
CORAL REEFS

Ranges of
**MARINE
SPECIES**
shifted to higher
altitudes



ALPINE SPECIES
migrate upwards on
mountain slopes due
to warming

6% insects **4% vertebrates** **8% plants**

Over half of their
climate-determined geographic
range, species adapt more slowly,
new ecosystems may appear

Shifts in insect
pollinator ranges with
unknown implications
for biodiversity and
ecosystem functioning

COVID-19 and its Control



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COVID-19 Control and Containment Methods

- who, where and when
 - geographically
 - local, regional or national
 - risk-based
 - focus on high risk strata of population in terms of spread or consequence
- what
 - limit direct and indirect contact with infected humans
 - social distancing
 - closure of kindergartens, schools and universities, museums etc
 - closure of restaurants
 - restricted group size
 - face masks
 - isolation of infected, and potentially also of suspected infected
 - border closure
 - case finding
 - targeted or risk-based
 - contact tracing
 - large scale testing

- lockdown movement restrictions
 - “mother of all human infectious disease control measures”
 - no movement of people other than essential services
 - spatio-temporal
 - local or regional or national
 - days, weeks or months
 - if implemented quickly after detection of outbreak, movement restrictions may prevent disease spread
 - use to reduce risk of geographic spread of epidemic, particularly when contacts can be made over long distances
 - may also prevent disease from accessing regions which have yet to experience infection

COVID-19 - Control Policy Impact Considerations

COVID 19 sickness
or fatality

Ethical dilemma

Economic
impact
(national,
inequality)

Mental health



Social impact
“Family pressure
cooker”
Discrimination

Legal or human
rights, incl.
Civil liberties

Cultural impact

Animal health and
welfare

Environmental
health

Country	January	February	March (early to mid)	March (late)
Democratic Republic of the Congo	Monitoring and surveillance	Monitoring and surveillance	Flatten the curve	Flatten the curve
Ivory Coast	Monitoring and surveillance	Monitoring and surveillance	Monitoring and surveillance	Flatten the curve
Ghana	Monitoring and surveillance	Monitoring and surveillance	Flatten the curve	Flatten the curve
Seychelles	Monitoring and surveillance	Monitoring and surveillance	Suppression / Staying below damage threshold	Suppression / Staying below damage threshold
South Africa	Monitoring and surveillance	Monitoring and surveillance	Flatten the curve	Flatten the curve
New Zealand	Monitoring and surveillance	Monitoring and surveillance	Flatten the curve	Elimination
Fiji	Monitoring and surveillance	Suppression / Staying below damage threshold	Suppression / Staying below damage threshold	Elimination
Iraq	Monitoring and surveillance	Suppression / Staying below damage threshold	Flatten the curve	Flatten the curve
Japan	Monitoring and surveillance	Flatten the curve	Flatten the curve	Flatten the curve



Tracking global evidence-to-policy pathways in the coronavirus crisis:

A preliminary report

Kristiann Allen, Tatjana Buklijas, Andrew Chen,
Naomi Simon-Kumar, Lara Cowen, James Wilsdon
and Peter Gluckman

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One Health Risk Governance

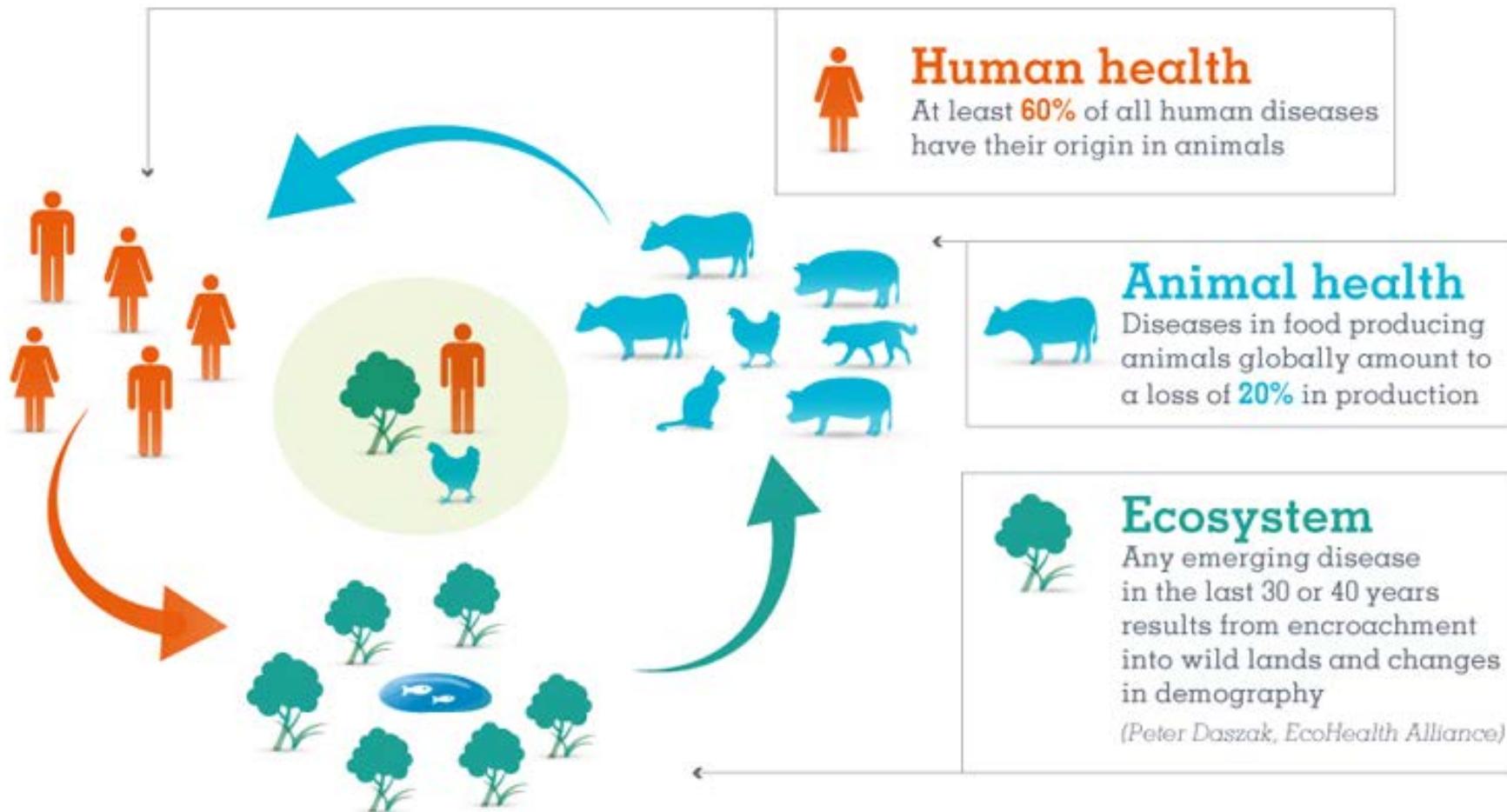


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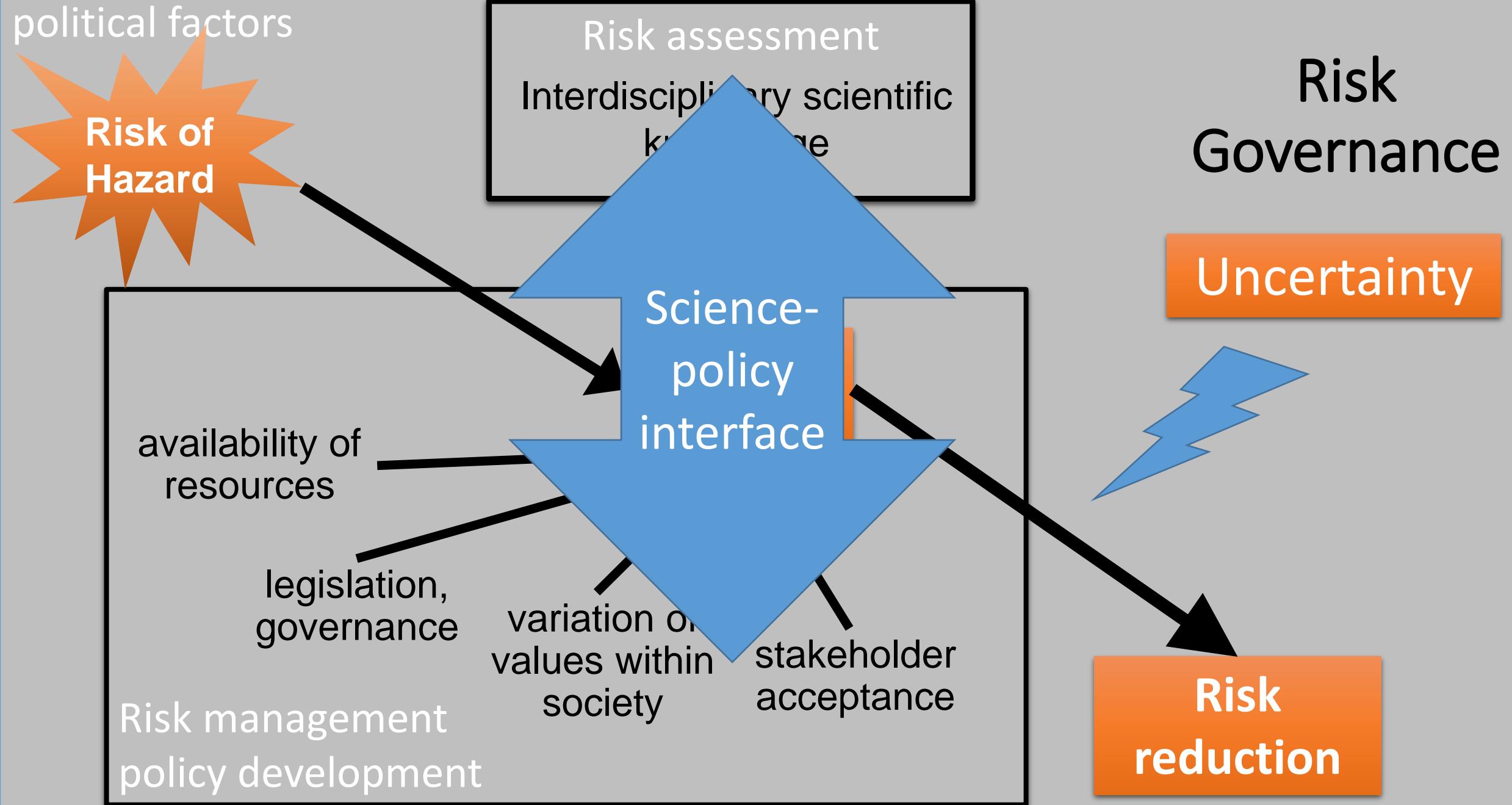


One Health

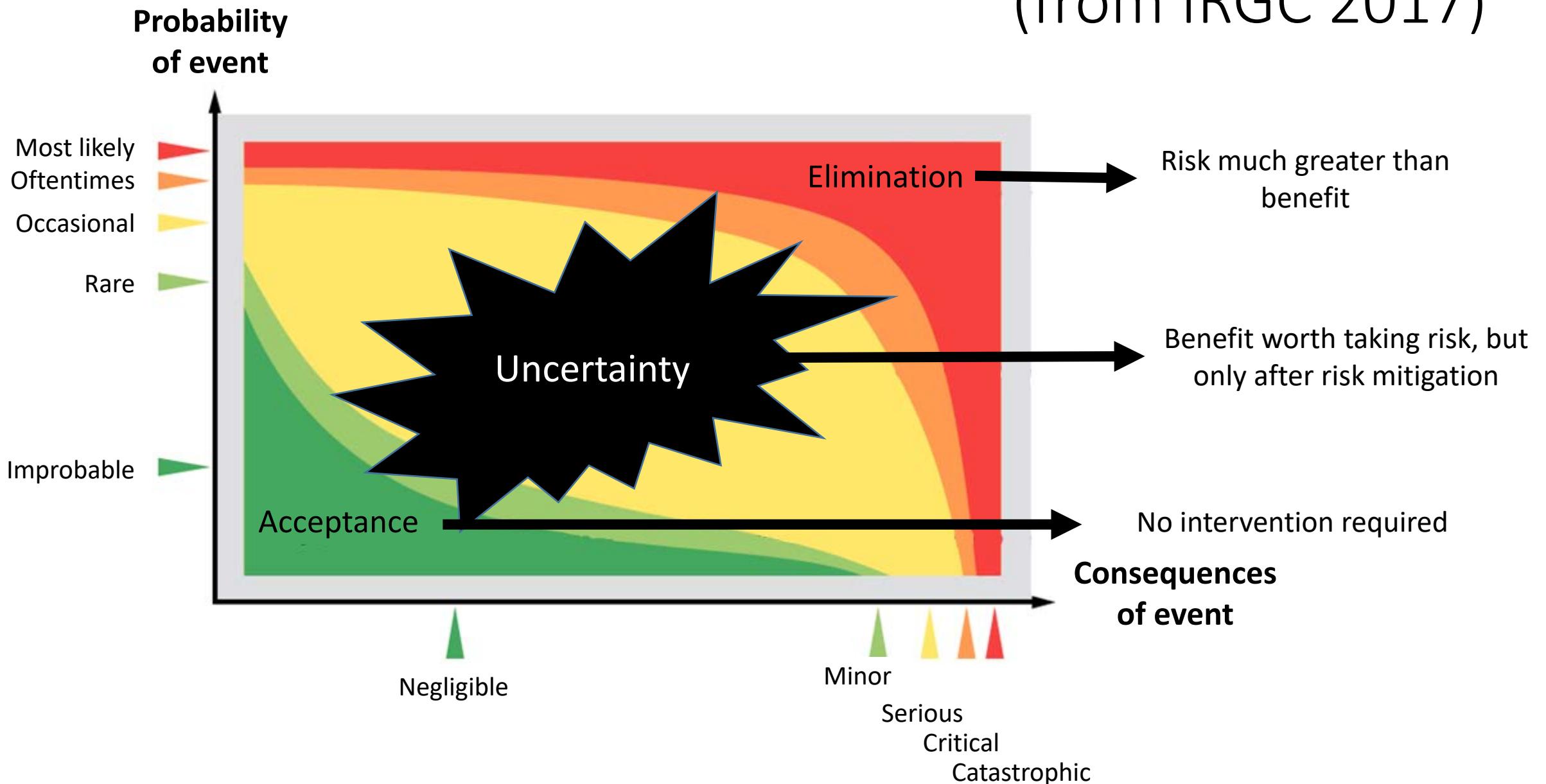
Human health, animal health and ecosystems
are **inextricably linked**



Epidemiological, social, anthropological, economic, environmental, ethical and political factors



Acceptable, Tolerable and Intolerable Risk (from IRGC 2017)





Building resilience to the Covid-19 pandemic: the role of centres of government

Raises key questions around 3 types of government initiatives during COVID-19 crisis where **centres of government** have played major role at frontline

- Institutional arrangements for management and co-ordination of government operations during crisis, including appointing co-ordinators and creating new (or repurposing existing) administrative structures
- Setting up specific institutional mechanisms for evidence uptake, including use or creation of networks to co-ordinate and share scientific advice to feed into decision-making process
- Development of measures to ensure effective and coherent communication to public

Maintaining trusted connection between decision makers and scientific suppliers of evidence essential for effective decision making

Limited number of countries have made use of pre-existing institutional structures to gather scientific advice such as UK's Scientific Advisory Group for Emergencies (SAGE)

- responsible for ensuring that timely and co-ordinated scientific advice is made available to decision makers to support cross-government decisions in the Cabinet Office Briefing Room (COBRA)

Role of strategic foresight to inform debate and decision-making in longer term



Building resilience to the Covid-19 pandemic: the role of centres of government

Challenges in ensuring governance of evidence based on credible and transparent advice

First challenge = multidisciplinary nature of required expertise

- many advisory committees are composed mostly of epidemiology, virology, public health, and medical experts
- Swiss National COVID-19 Science Task Force consists includes expert in clinical care, data and modelling, diagnostics and testing, digital epidemiology, economy, ethics, legal, social, exchange platform, groups immunology, infection prevention and control, and public health

2 September 2020

Second challenge = ensure access for policy makers to high quality scientific evidence

- minority of countries have formal process to ensure quality, authority and legitimacy of a scientific advice, such as peer reviews, professional standing of an advisor, or a mix of both

Third challenge = timing between supply and use of evidence

- generating evidence usually requires more time than policymakers have to make a decision
- need
 - collaborative research and sharing of preliminary research findings and data
 - open science policies
 - interoperable standards and data-sharing agreements involving public sector, private sector and civil society

Sendai Framework for Disaster Risk Reduction 2015-2030

- adopted by UN Member States on 18 March 2015 at Third UN World Conference on Disaster Risk Reduction in Sendai City, Miyagi Prefecture, Japan
- first major agreement of post-2015 development agenda, with seven targets and four priorities for action



ARTICLE

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DOI: 10.1057/palcomms.2016.16

OPEN

Ensuring science is useful, usable and used in global disaster risk reduction and sustainable development: a view through the Sendai framework lens

Science used for Disaster Risk Reduction (UNISDR Science and Technical Advisory Group report 2015)

- recommendations
 - share knowledge for action
 - use a multidisciplinary approach to research
 - build systems resilience through local, national, regional and international partnerships
- report offers guiding principles and illustrations through case studies to promote sharing of information, and thus promote knowledge transfer to policy-makers and other disaster risk reduction partners



Conclusions



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Conclusions – Global Risk Environment

- increasing complexity and interconnectedness of global eco-social systems, including food systems
- change occurs rapidly
 - rapidly increasing urbanisation
 - increasing global middle class
 - increasing demand for food, including meat
- increasing risk of emergence of infectious diseases



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Conclusions - One Health Risk Governance

- One Health – human-animal-environment
 - engage with all relevant stakeholders
- research needs to be interdisciplinary
- policy development needs to be holistic and inclusive
 - human and animal health, mental health, epidemiology, economics, anthropology, law, ethics plus, plus plus
 - aim for sustainable consumption - can we afford to eat more meat????
 - political economy, role of institutions and their interrelationships
 - optimise processes in policy development space
 - need to conduct outbreak simulations
 - consider immediate, medium term to long-term impact, local/national/regional/global
 - integrate knowledge and prioritisation of interventions
 - independent interdisciplinary scientific advice to government as honest brokers of policy alternatives
 - effective science-policy interface is of paramount importance



SUSTAINABLE DEVELOPMENT GOALS

1 NO POVERTY



2 ZERO HUNGER



3 GOOD HEALTH AND WELL-BEING



4 QUALITY EDUCATION



5 GENDER EQUALITY



6 CLEAN WATER AND SANITATION



7 AFFORDABLE AND CLEAN ENERGY



8 DECENT WORK AND ECONOMIC GROWTH



9 INDUSTRY, INNOVATION AND INFRASTRUCTURE



10 REDUCED INEQUALITIES



11 SUSTAINABLE CITIES AND COMMUNITIES



12 RESPONSIBLE CONSUMPTION AND PRODUCTION



13 CLIMATE ACTION



14 LIFE BELOW WATER



15 LIFE ON LAND



16 PEACE, JUSTICE AND STRONG INSTITUTIONS



17 PARTNERSHIPS FOR THE GOALS



 **SUSTAINABLE DEVELOPMENT GOALS**

Thank you very much

