

Role of animal farming in the emergence of zoonoses

Thijs Kuiken

Professor of Comparative Pathology

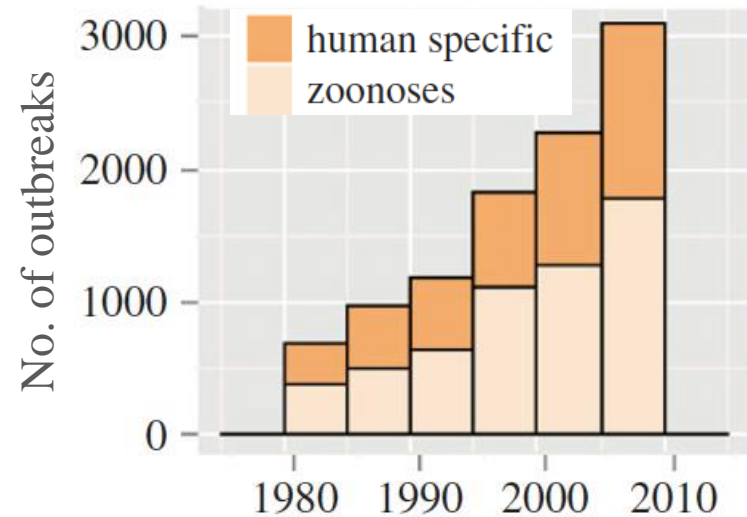
Erasmus University Medical Centre

Rotterdam, The Netherlands

E-mail: t.kuiken@erasmusmc.nl

Likely factors for emergence of zoonoses

- Increased number of farmed animals
- Increased trade and transport of wild and domestic animals
- Increased human movement into uninhabited regions



Zoonoses often emerge where farmed animal numbers are high and/or increasing

Disease	Country	Year	Donor species	Number milked	Number slaughtered	Increase in 10 yr
H5N1 flu	China	1996	Goose		344,343,000	340%
SARS	China	2002	Palm civet		*	
H7N7 flu	Netherlands	2003	Chicken		522,248,000	4%
Q fever	Netherlands	2009	Goat	374,184		340%
H1N1 flu	Mexico	2009	Pig		15,185,230	30%
*10,000 civets from 36 farms in Guangdong province killed to eradicate SARS.						
MERS	Saudi Arabia	2012	Dromedary	216,000	200,000	20%
**20,000 wildlife farms across China shut to eradicate COVID-19. 90,000 people involved in breeding/processing wild mammals for food; value 340,000,000 US\$.						
COVID-19	China	2019	Unknown		**	

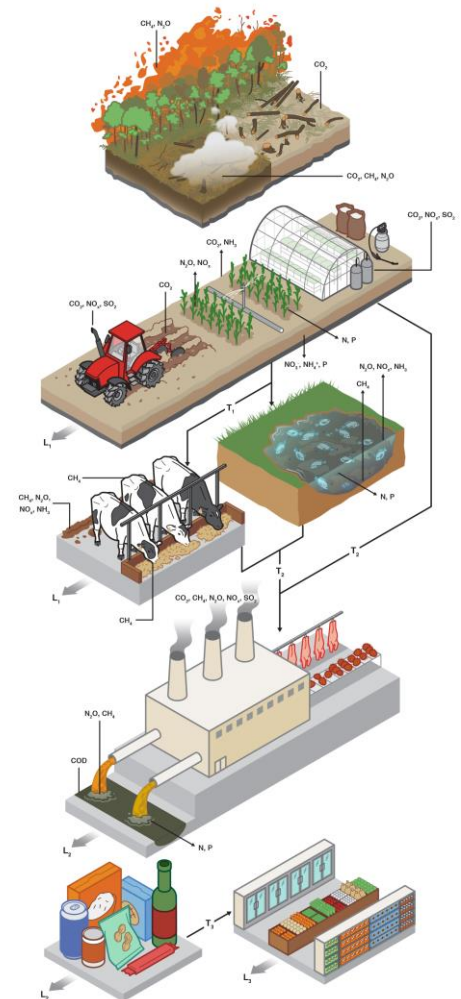
Preventing future risks of zoonoses

- Standard health measures reduce impact of current outbreaks
 - Better surveillance and diagnostics
 - Vaccines and antivirals
- Reducing risk of future outbreaks requires tackling underlying causes
 - Reduce number of animals farmed for food
 - Reduce trade and transport of animals and animal products
 - Reduce demand for meat/dairy/eggs
- Reduction of underlying causes requires a changed attitude
 - Less anthropocentric
 - More ecocentric



Climate concern also requires changed attitude to animals and nature

- Environmental impact of global food supply chain
 - 26% of anthropogenic GHG emission
 - 32% of terrestrial acidification
 - 78% of eutrophication
 - 40% of ice- and desert-free land
- Replacing animal by plant protein: reduction up to
 - 49% of GHG emission
 - 50% of acidification
 - 49% of eutrofication
 - 76% of land use



EU agrees transformative changes to achieve sustainability are needed

- In May 2019, the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) published global synthesis of the state of nature, ecosystems and nature's contributions to people
- Summary was approved by 132 member governments, including most EU member states (except Cyprus, Malta, Poland, & Slovenia)
- Key conclusion: “Goals for conserving and sustainably using nature and achieving sustainability cannot be met by current trajectories, and goals for 2030 and beyond may only be achieved through transformative changes: a fundamental, system-wide reorganization across technological, economic and social factors, including paradigms, goals and values”

Requests to European Parliament members

- Recognize multiple benefits from reduced number of farmed animals as part of transformative changes for sustainability:
 - Lower risk of zoonoses
 - Less harm to climate
 - Improved biodiversity
 - Cleaner land, water and air
- Support measures for above changes
- Remove perverse incentives that maintain status quo