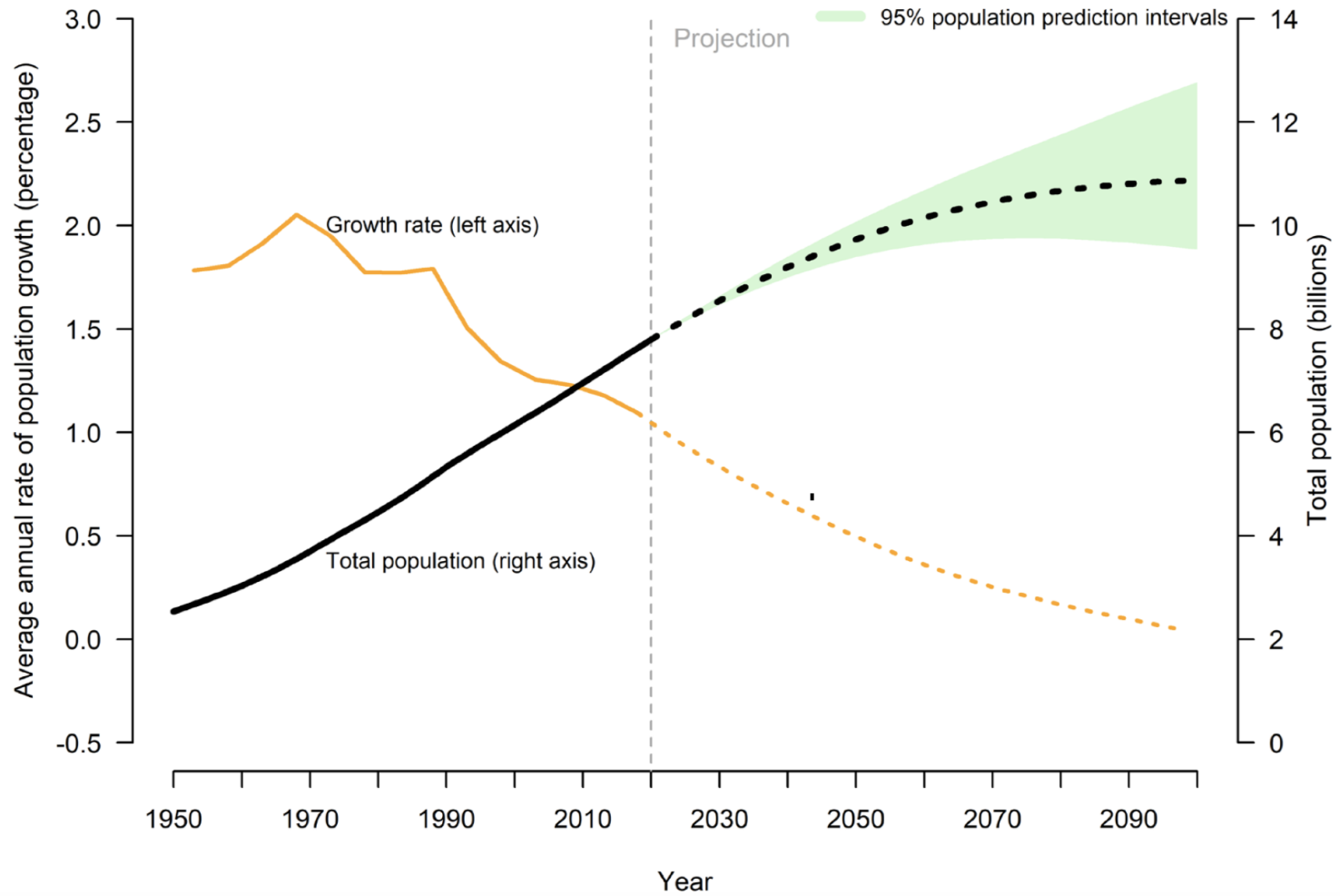



# Population Growth and Demands on Food

Ramanan Laxminarayan  
PACCARB Public Meeting

*Population growth continues at the global level, but the rate of increase is slowing, and the world's population could cease to grow around the end of the century*



Data source: United Nations, Department of Economic and Social Affairs, Population Division (2019). *World Population Prospects 2019*.



Global population  
projected to grow  
almost 50% since 2000  
to 9.5 billion by 2050

---

Humans account for about 36 percent of the biomass of all mammals.

Domesticated livestock, mostly cows and pigs, account for 60 percent, and wild mammals for only 4 percent.

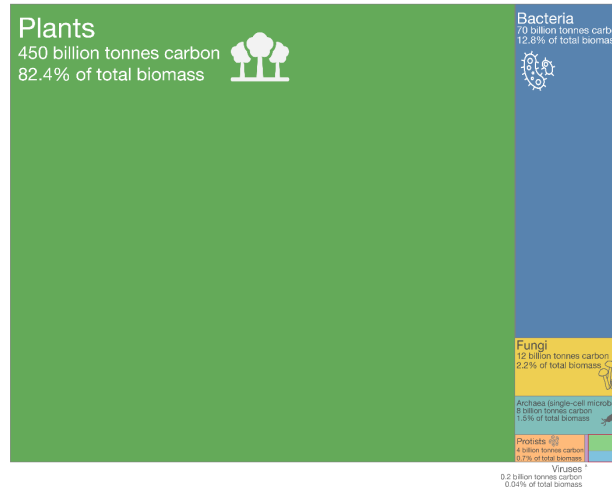
Biomass of poultry is about three times higher than that of wild birds.

## Life on Earth: the distribution of all global biomass

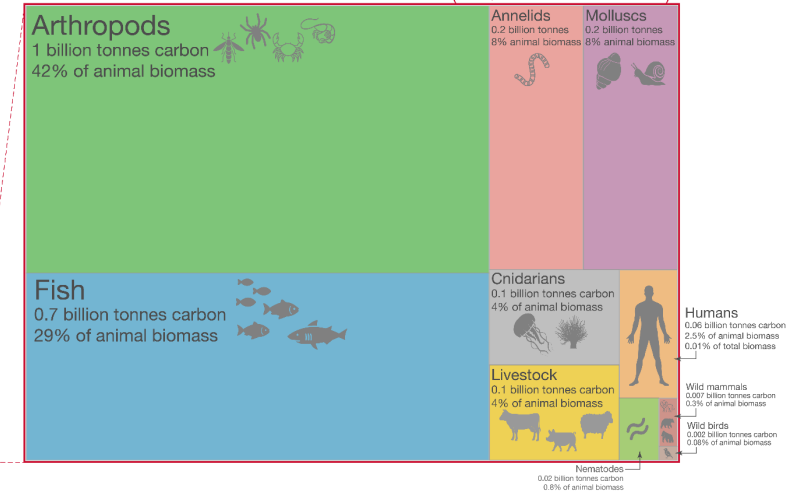
Biomass is measured in tonnes of carbon. The global distribution of Earth's biomass is shown by group of organism (taxa).

Our World  
in Data

Global biomass: 546 billion tonnes of carbon

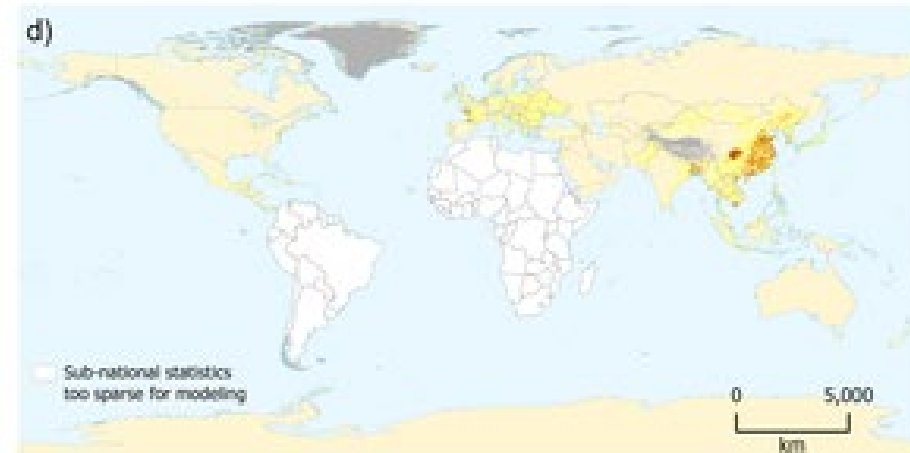
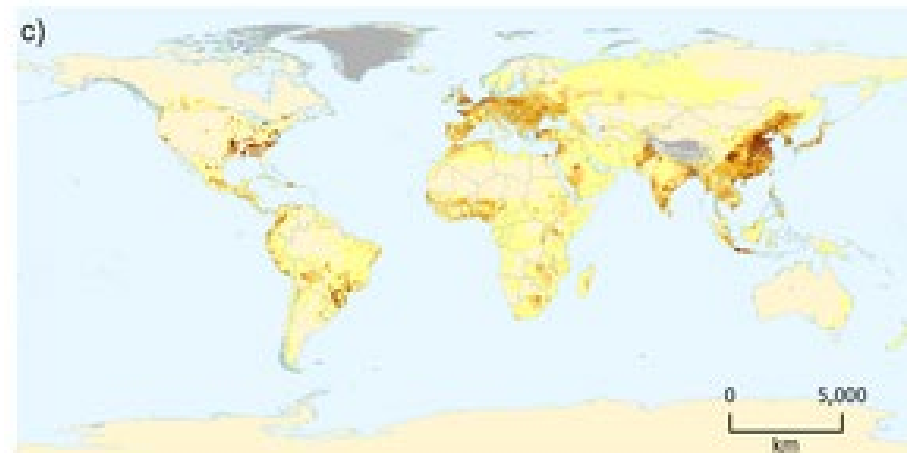
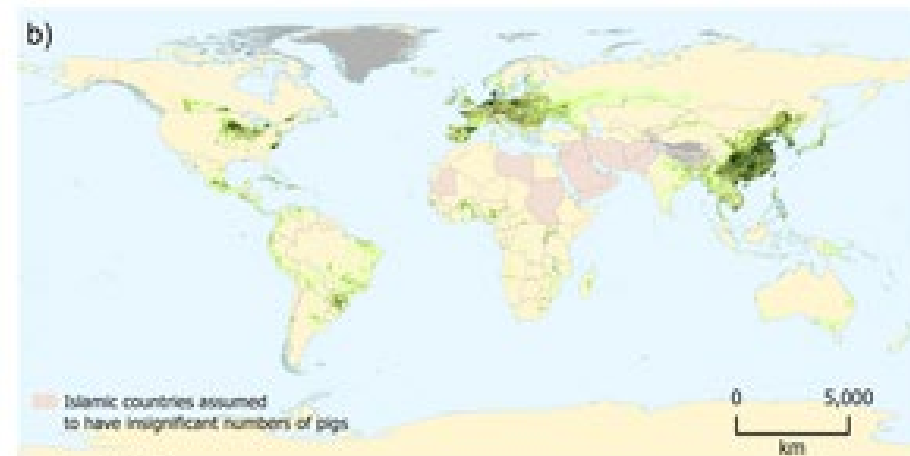
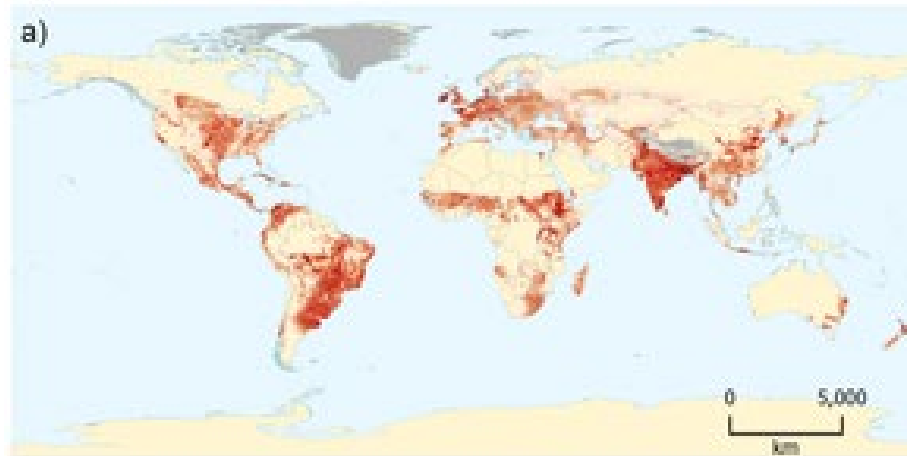


Animal biomass: 2 billion tonnes of carbon (0.4% of total biomass)



Source: Based on data from Bar-On, Y. M., Phillips, R., & Milo, R. (2018). The biomass distribution on Earth. *Proceedings of the National Academy of Sciences*. Icon graphics sourced from Noun Project (2018). This is a visualization from OurWorldinData.org, where you find data and research on how the world is changing. Licensed under CC-BY by the authors Hannah Ritchie and Max Roser (2019).

# Global distributions of a) cattle; b) pigs; c) chickens; and d) ducks



Robinson TP, Wint GRW, Conchedda G, Van Boeckel TP, Ercoli V, et al. (2014) Mapping the Global Distribution of Livestock. PLOS ONE 9(5):

e96084. <https://doi.org/10.1371/journal.pone.0096084>

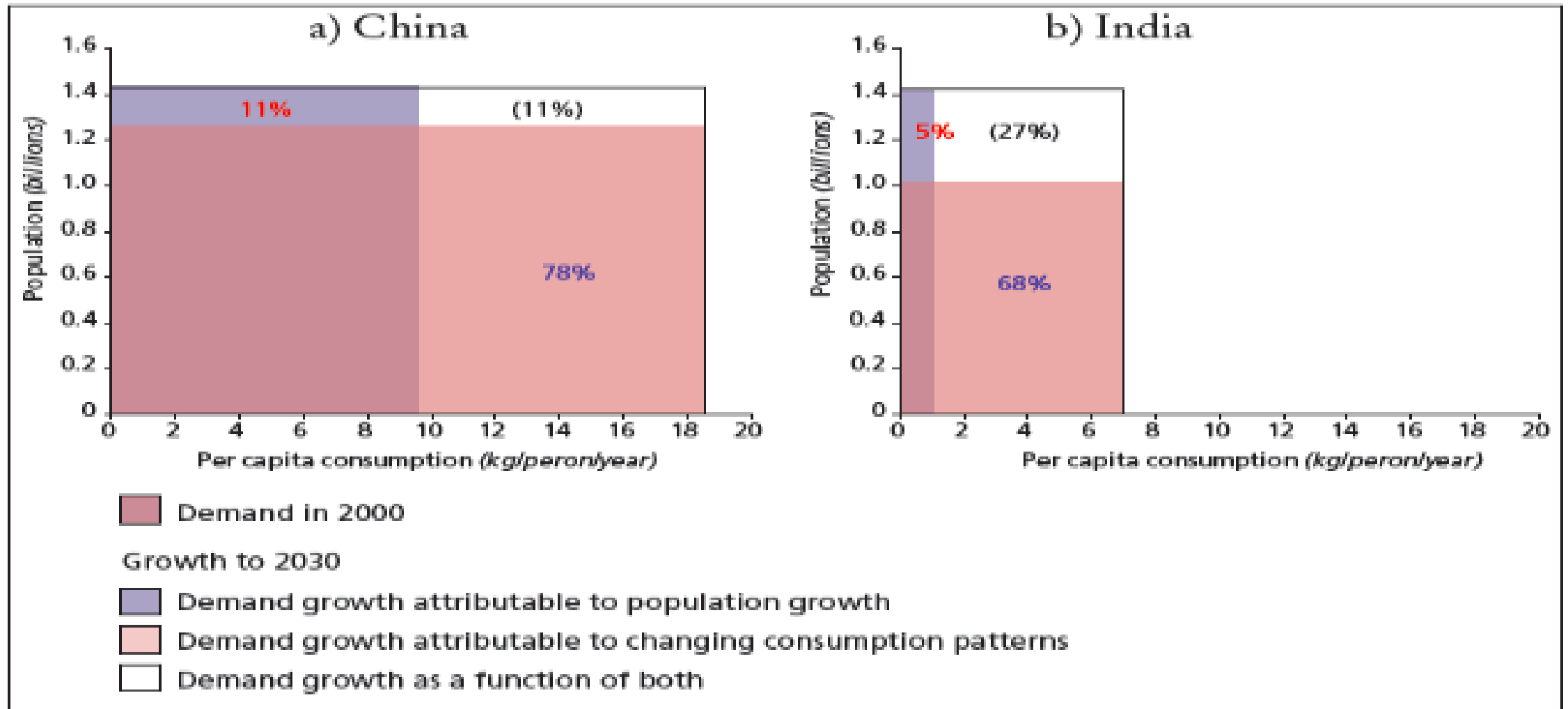
<https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0096084>



Current protein demand for the 7.3 billion inhabitants of the world is approximately 202 million tonnes globally.

Since 2000, meat production has plateaued in high-income countries but has grown by 68%, 64%, and 40% in Asia, Africa, and South America, respectively.

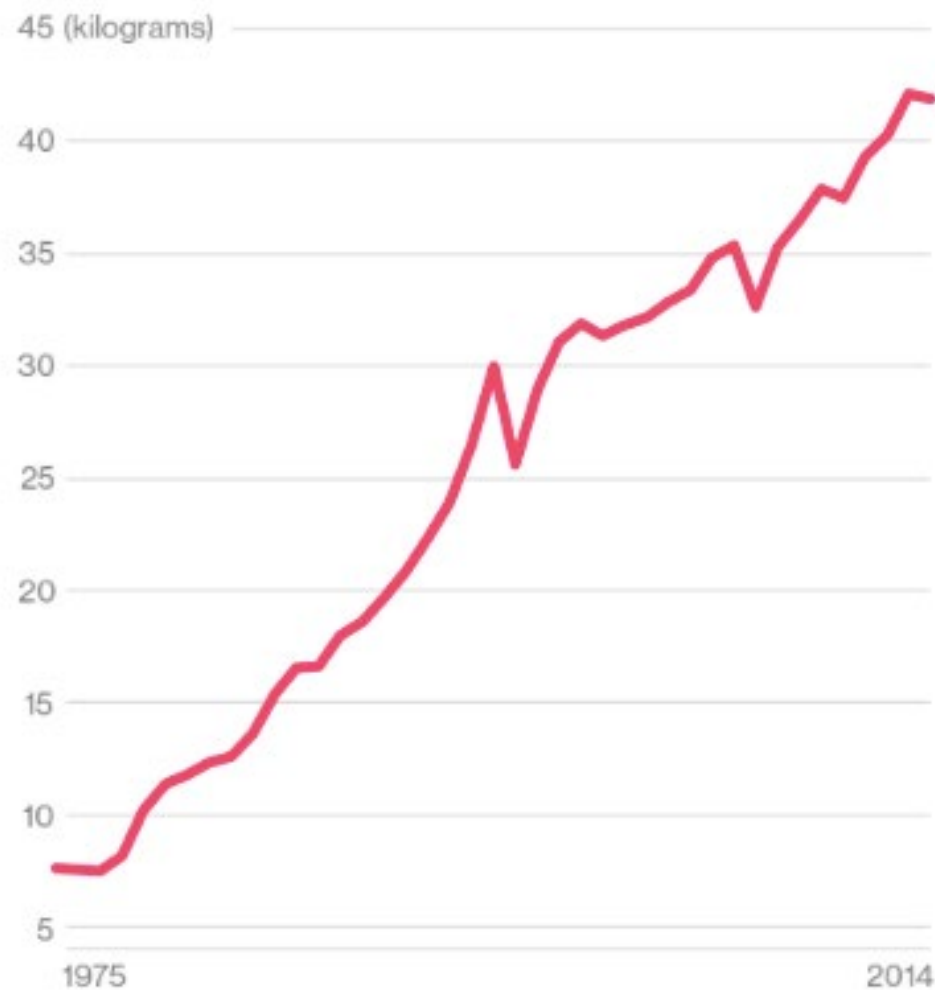
Demand for poultry in India and China is set to increase two to seven fold between 2000 and 2030



# Pig Run

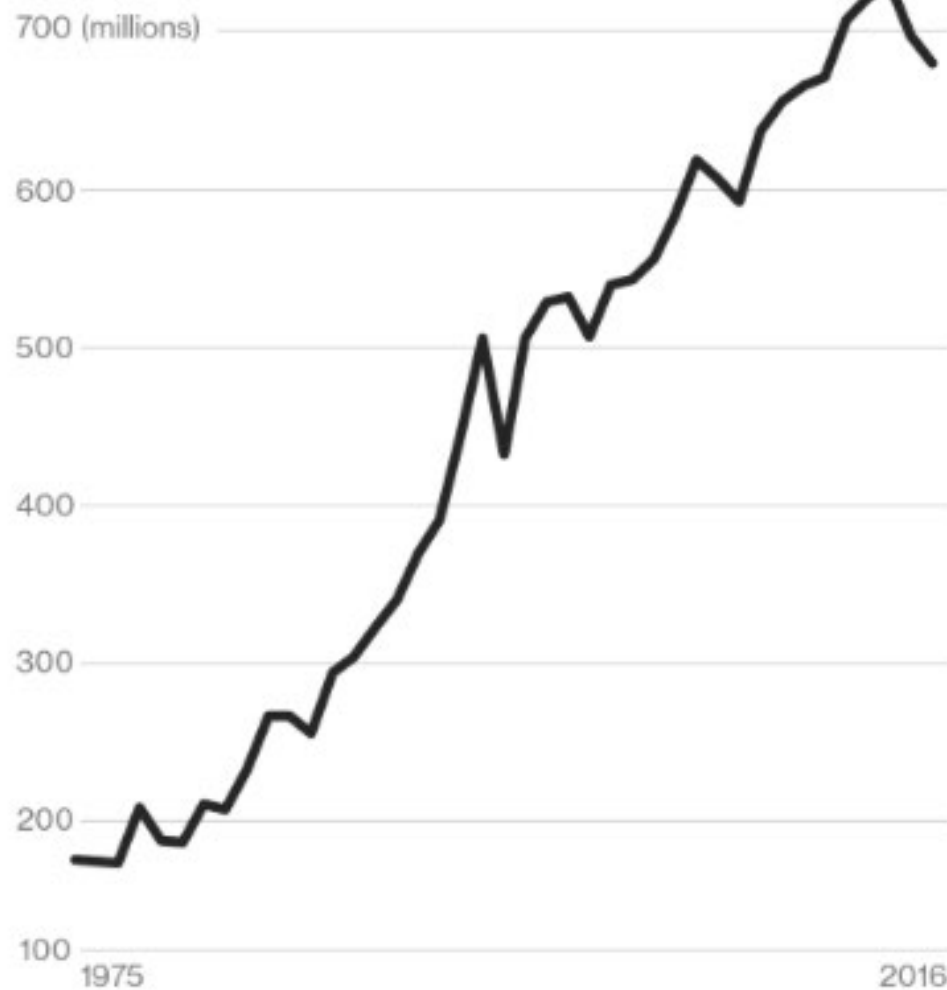
Swine output has surged to feed pork-hungry China

**Per-capita Pork Consumption**



Source: Bloomberg data

**Number of Pigs Produced**



Bloomberg 



# Drug Binge

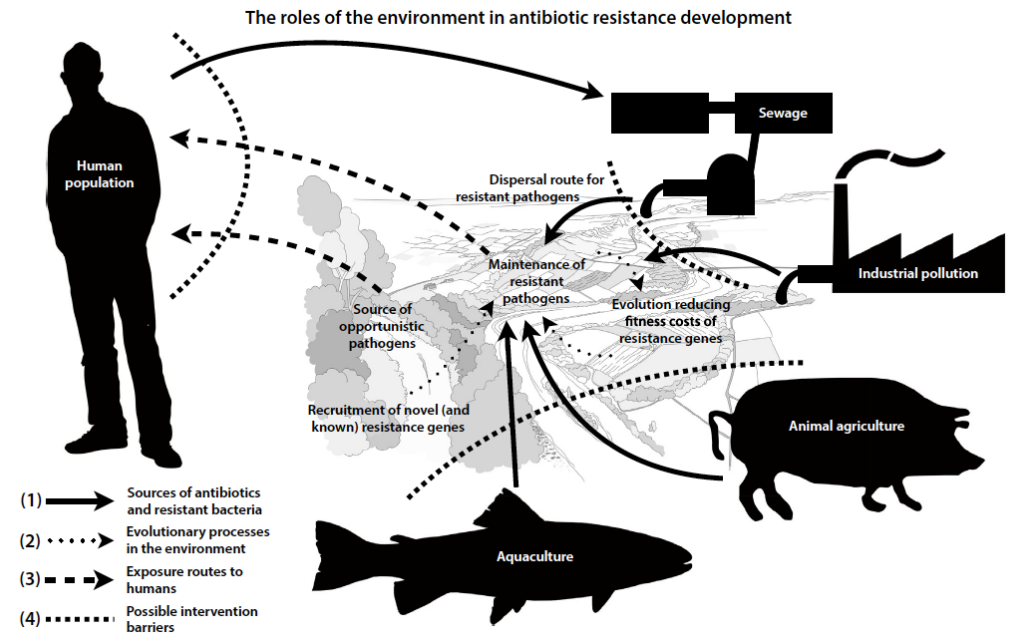
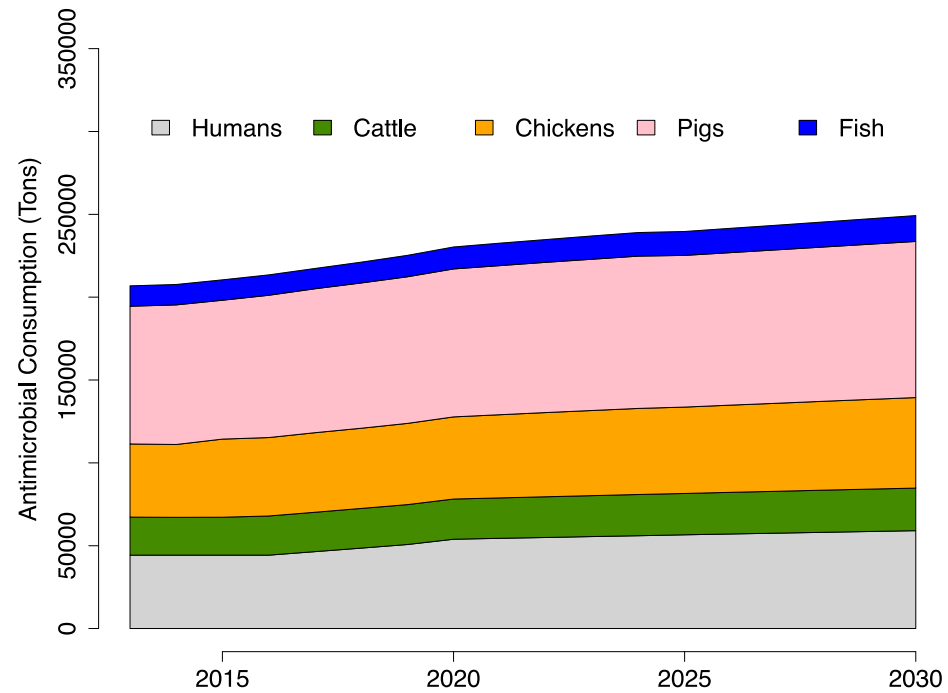
China consumes half the world's antibiotics, with the majority administered to animals



Antibiotics consumed (metric tons) in 2013

Source: Ying Guang-Guo et al in Environmental Science & Technology, May 2015

**Bloomberg** 





In 2013, the global consumption of all antimicrobials in food animals was estimated at 131,109 tons

Projected to reach 200,235 tons by 2030

50,000 Tons

10,000 Tons

2,000 Tons

500 Tons

2030

2013

Thank you