Global Burden of Animal Diseases

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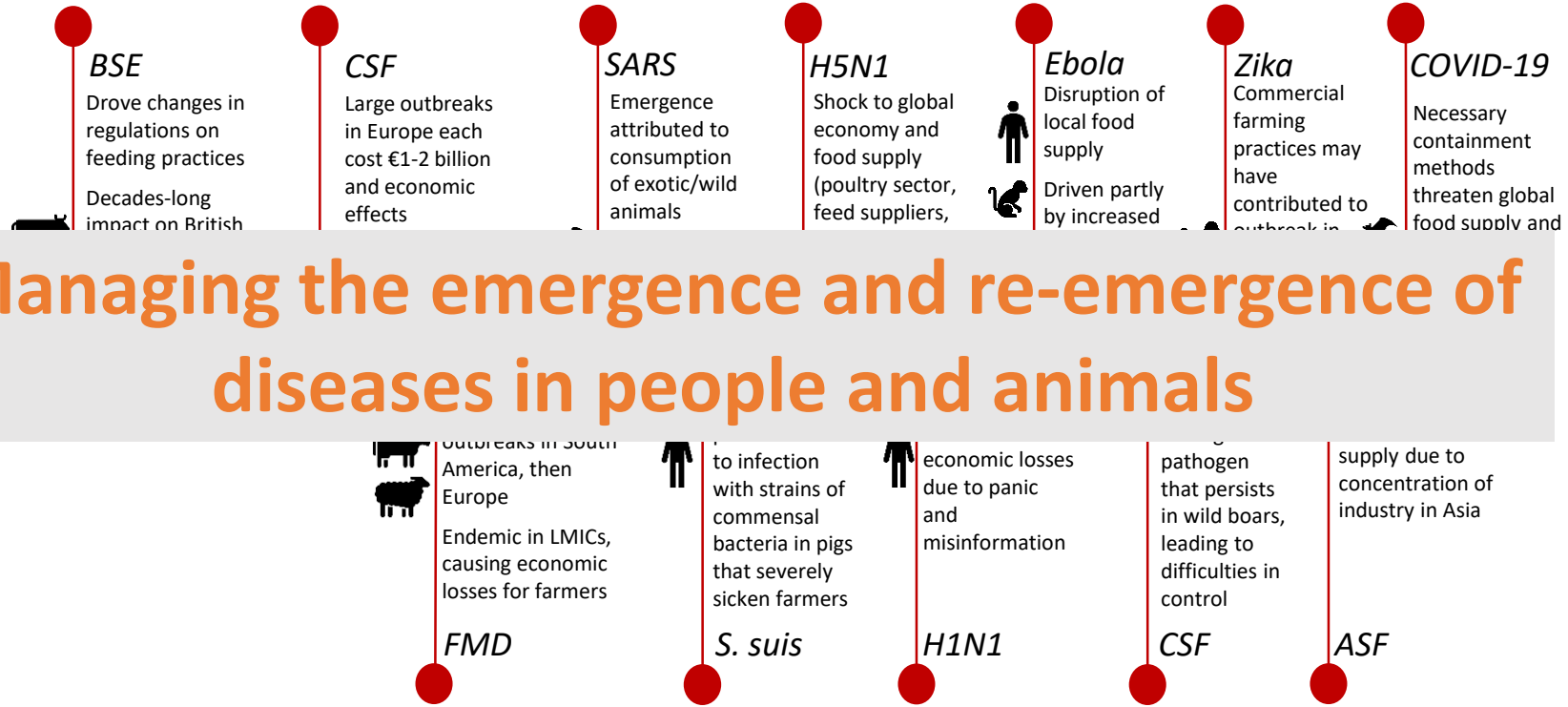
The challenges we face in animal health

- Greater demand for food
- Increasing pressure on use of land, water and air
- Increased connectivity and movement across our livestock sectors
- Greater awareness of impacts of livestock on the environment and public health
- Limited awareness of the importance and value of animals in society
- Pressures on budgets to the veterinary services

Producers who have incomplete information and insufficient access to animal health services and technologies

Consumers who demand safe food grown to high welfare standards

Managing the emergence and re-emergence of diseases in people and animals



Adapted from G T Patterson et al 2020

Improving the management of the environment

Addressing the challenges

- **Clear messaging** on the role of animals and the importance of managing animal health and welfare
- Demonstrating how **core veterinary services activity achieve economic, social, food security and environment goals**
  - Sustainable Development Goals and need for One Health approaches
- This can be achieved through the agile use of data to generate **credible information** on the social, economic and environmental burdens of animal diseases

What motivates the GBADs programme?

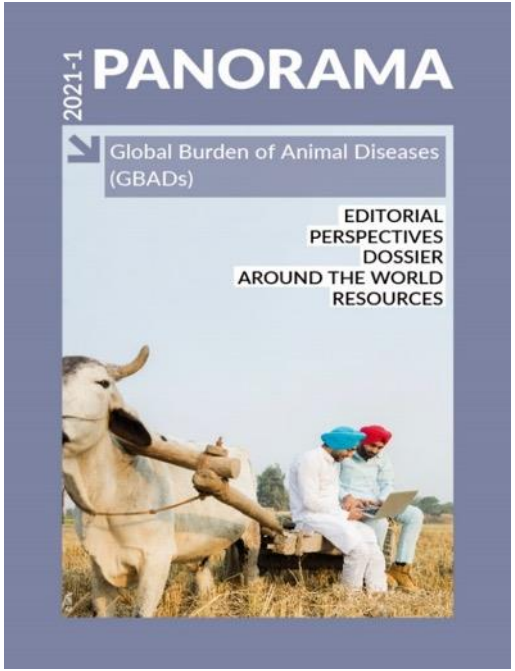
Our livestock keepers, consumers and the environment need:

- **Investment plans** which ensure there are adequate animal health systems
- **Allocation of resources** to problems that most affect their health and wellbeing
- **Evaluation** of animal health investments to ensure they are delivering on societal outcomes

For your information

The OIE Panorama on GBADs has been published.

- https://oiebulletin.com/?page_id=150
- https://oiebulletin.com/?page_id=373&lang=fr
- https://oiebulletin.com/?page_id=381&lang=es



Thanks to Ben Huntington for editing this document

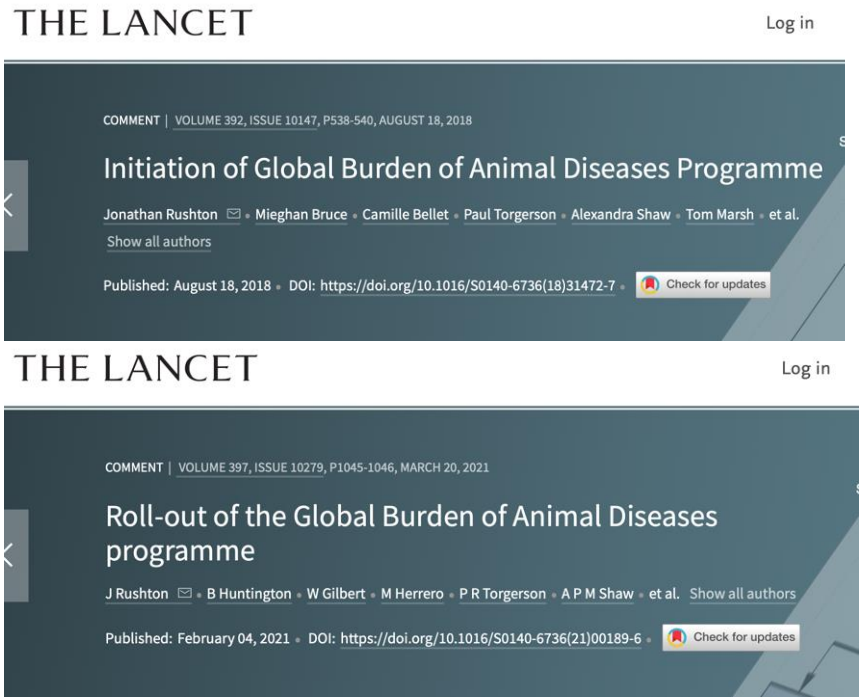
For your information

Rev. Sci. Tech. Off. Int. Epiz., 2021, **40** (2), 567-584

Global Burden of Animal Diseases: a novel approach to understanding and managing disease in livestock and aquaculture

B. Huntington [1, 2], T.M. Bernardo [3], M. Bondad-Reantaso [4], M. Bruce [5], B. Devleesschauwer [6, 7], W. Gilbert [1], D. Grace [8, 9], A. Havelaar [10], M. Herrero [11], T.L. Marsh [12], S. Mesenhowski [13], D. Pendell [14], D. Pigott [15], A.P. Shaw [1, 16], D. Stacey [17], M. Stone [18], P. Torgerson [19], K. Watkins [20], B. Wieland [21] & J. Rushton [1]*

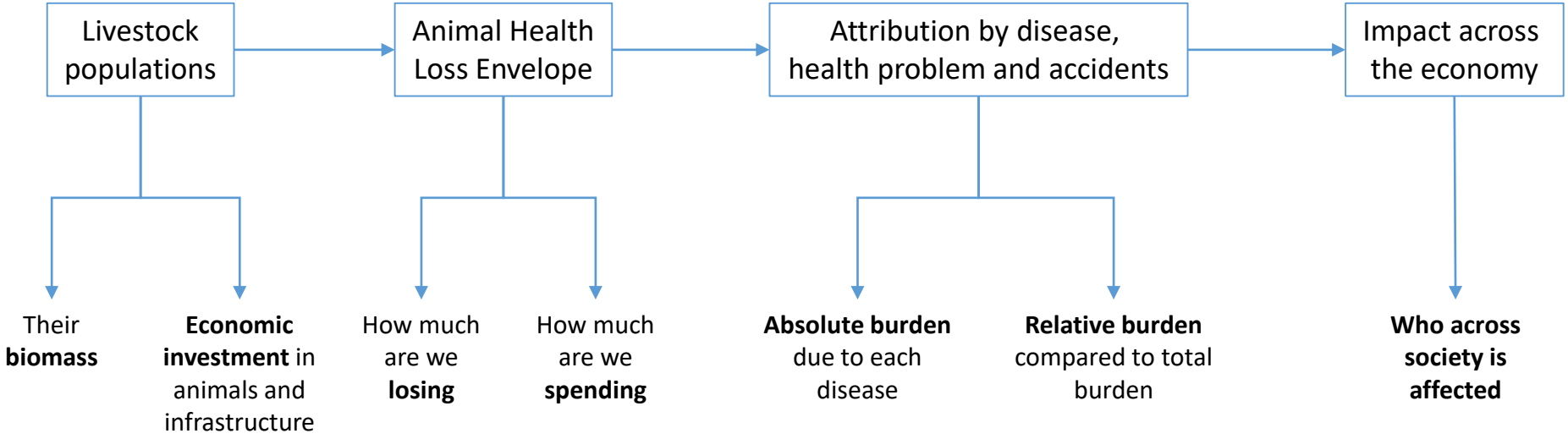
https://www.oie.int/app/uploads/2021/05/402-18-huntington-rushton.pdf



https://animalhealthmetrics.org

GBADs

GBADs - Analytical structure



Rushton et al 2021

GBADs

Login

Data Source

FAOSTAT

Parameters for Dataframe

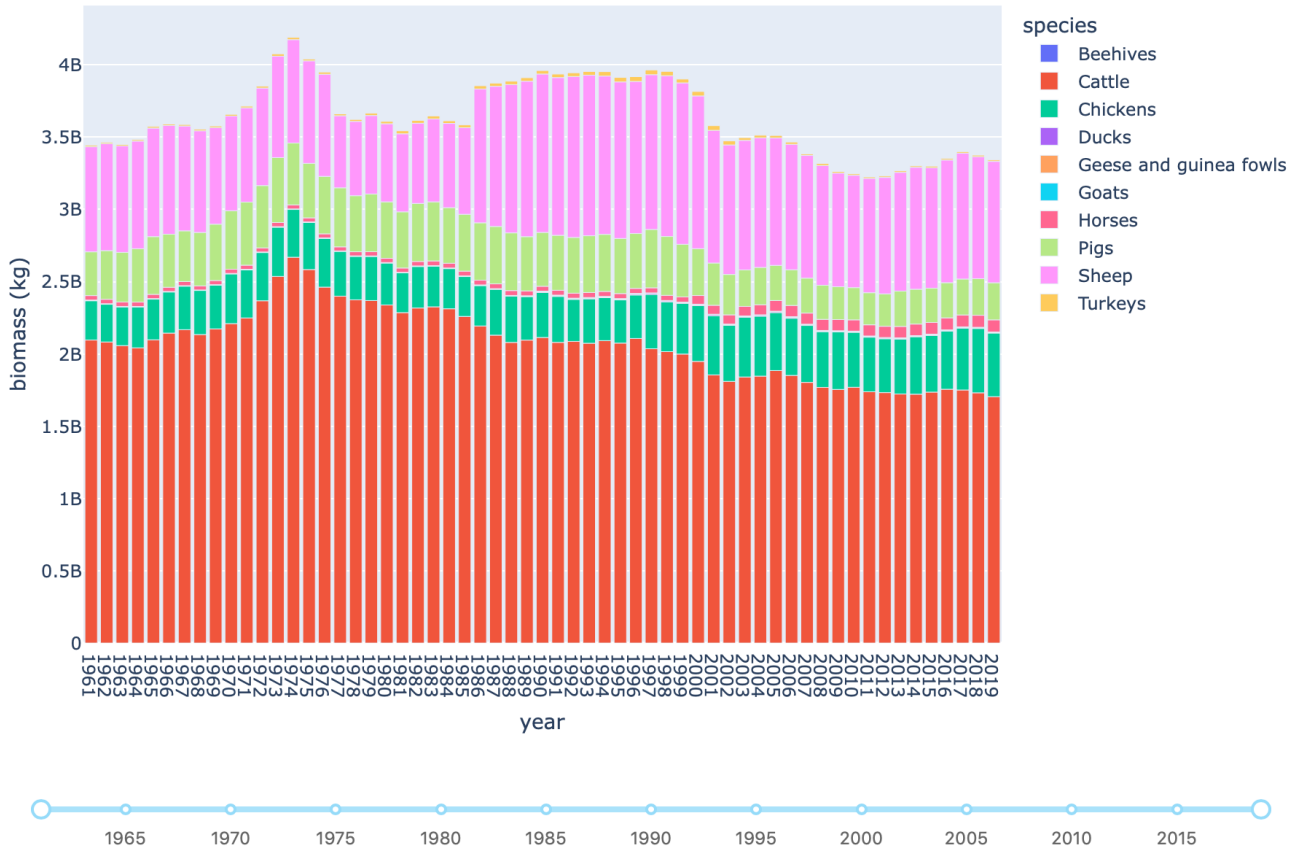
Select country:

United Kingdom of Great Britain and Northern Ireland

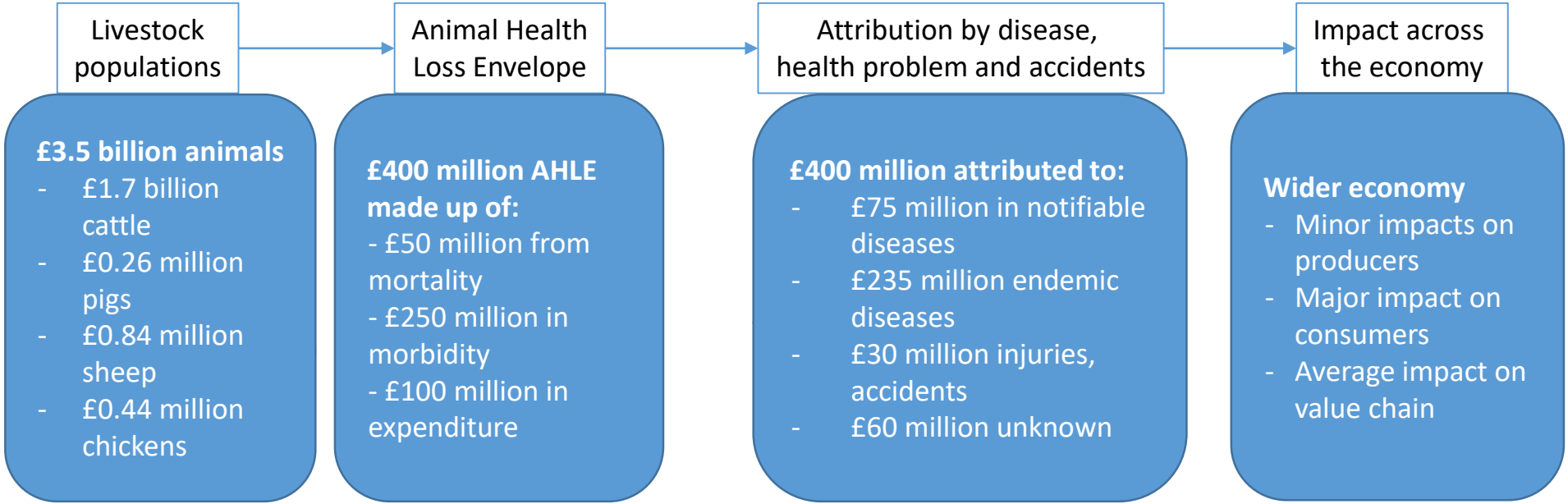
Select species:

Asses, Beehives, Buffaloes, Camelids, other, Camels, Cattle, Chickens, Ducks, Geese and guinea fowls, Goats, Horses, Mules

Playground | Map | Metadata

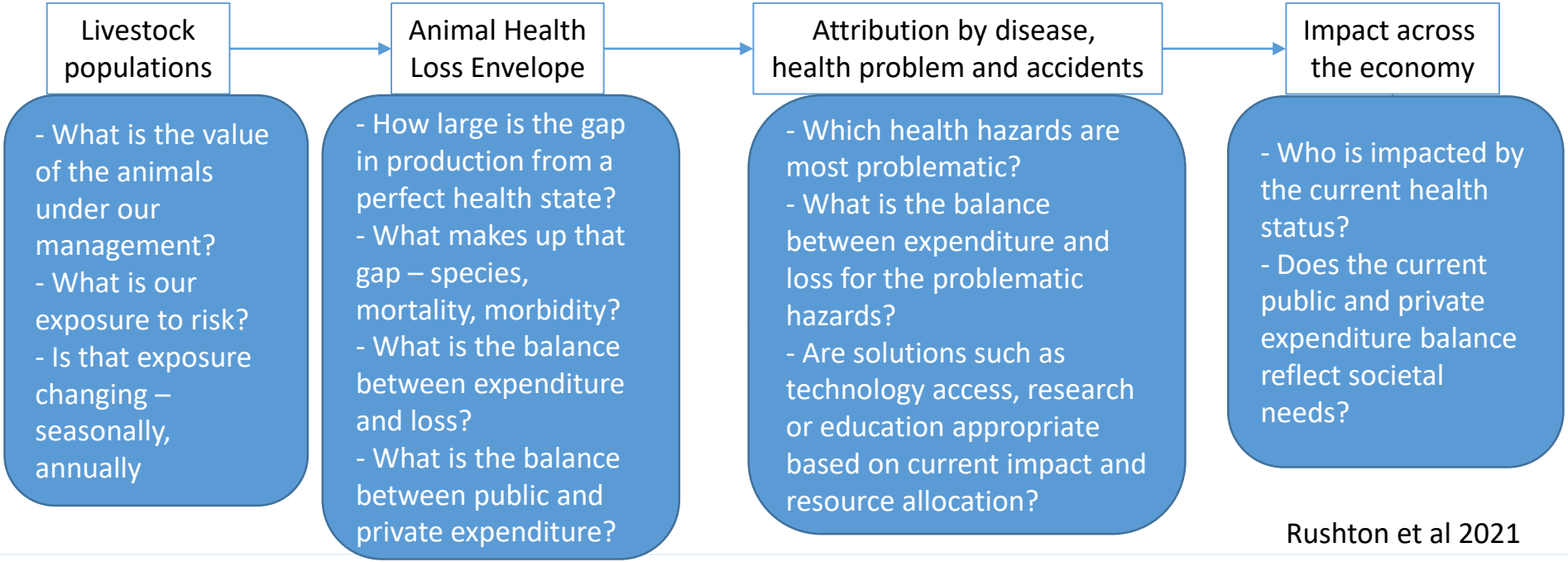


GBADs - Analytical structure – *illustrative figures*

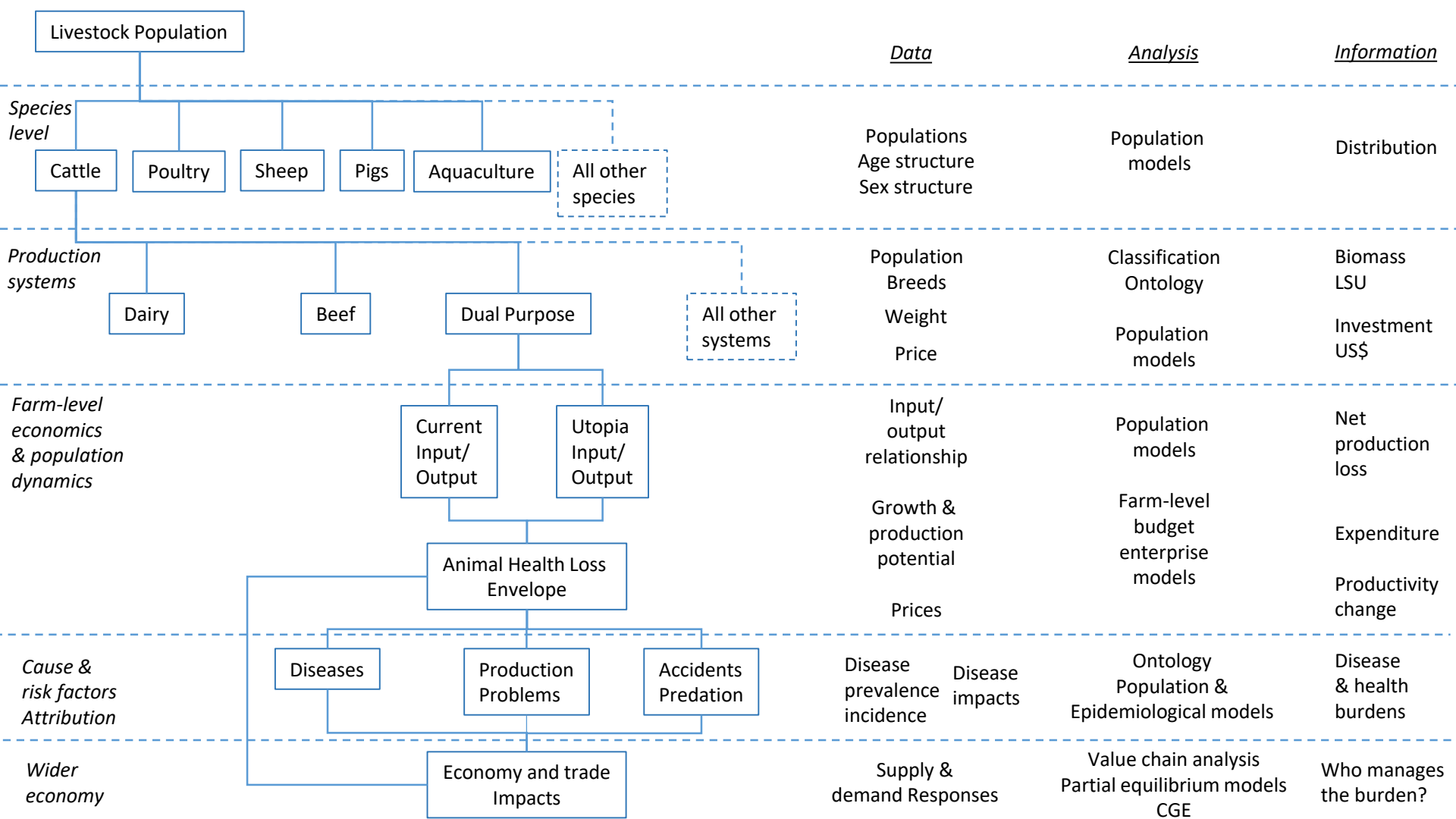


Rushton et al 2021

GBADs - Analytical structure



Rushton et al 2021


Livestock Population
Data
Analysis
Information
Species level
Cattle
Poultry
Sheep
Pigs
Aquaculture
All other species
Populations
Age structure
Sex structure
Population models
Distribution
Production systems
Dairy
Beef
Dual Purpose
All other systems
Population
Breeds
Weight
Price
Classification
Ontology
Population models
Biomass
LSU
Investment
US$
Farm-level economics & population dynamics
Current Input/ Output
Utopia Input/ Output
Animal Health Loss Envelope
Input/ output relationship
Growth & production potential
Prices
Population models
Farm-level budget enterprise models
Net production loss
Expenditure
Productivity change
Cause & risk factors Attribution
Diseases
Production Problems
Accidents Predation
Disease prevalence incidence
Disease impacts
Ontology
Population & Epidemiological models
Disease & health burdens
Wider economy
Economy and trade Impacts
Supply & demand Responses
Value chain analysis
Partial equilibrium models
CGE
Who manages the burden?

GBADs Legacy

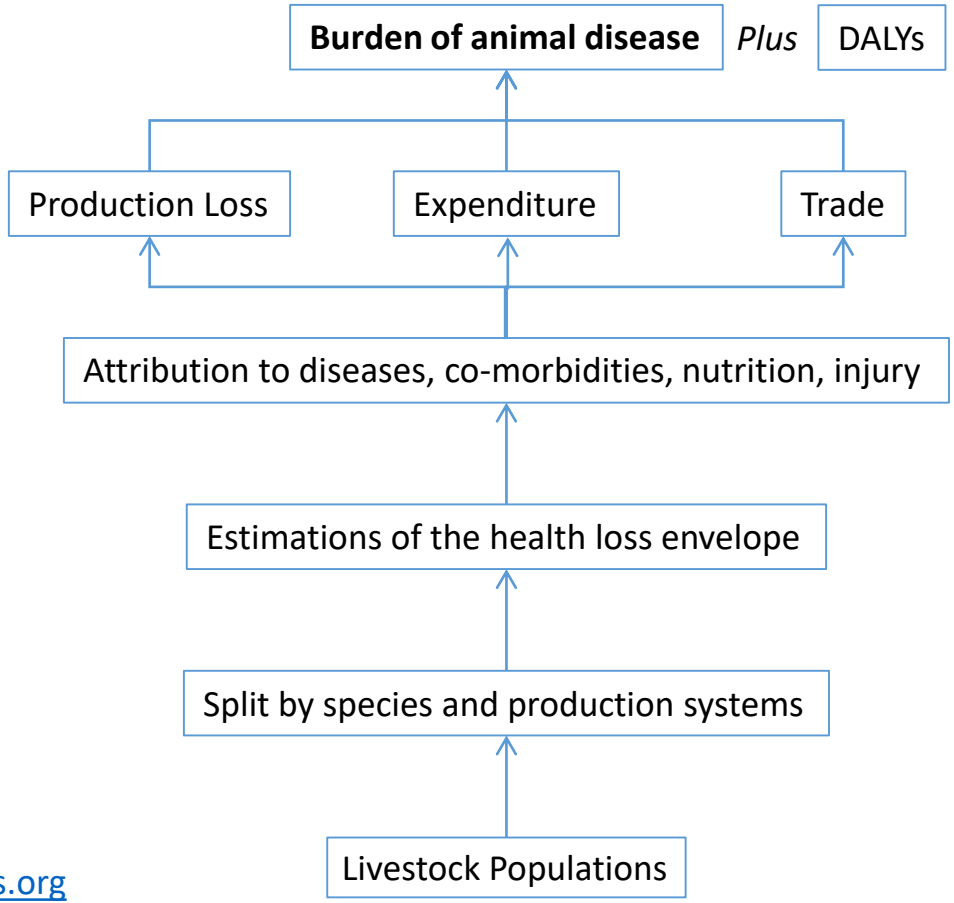
https://animalhealthmetrics.org

GBADs

GBADs – the legacy of estimating burdens

Methods & Capacity

- Institutionalisation of GBADs methods
- Tools for prioritisation
- Educational materials
- Codes of best Practice

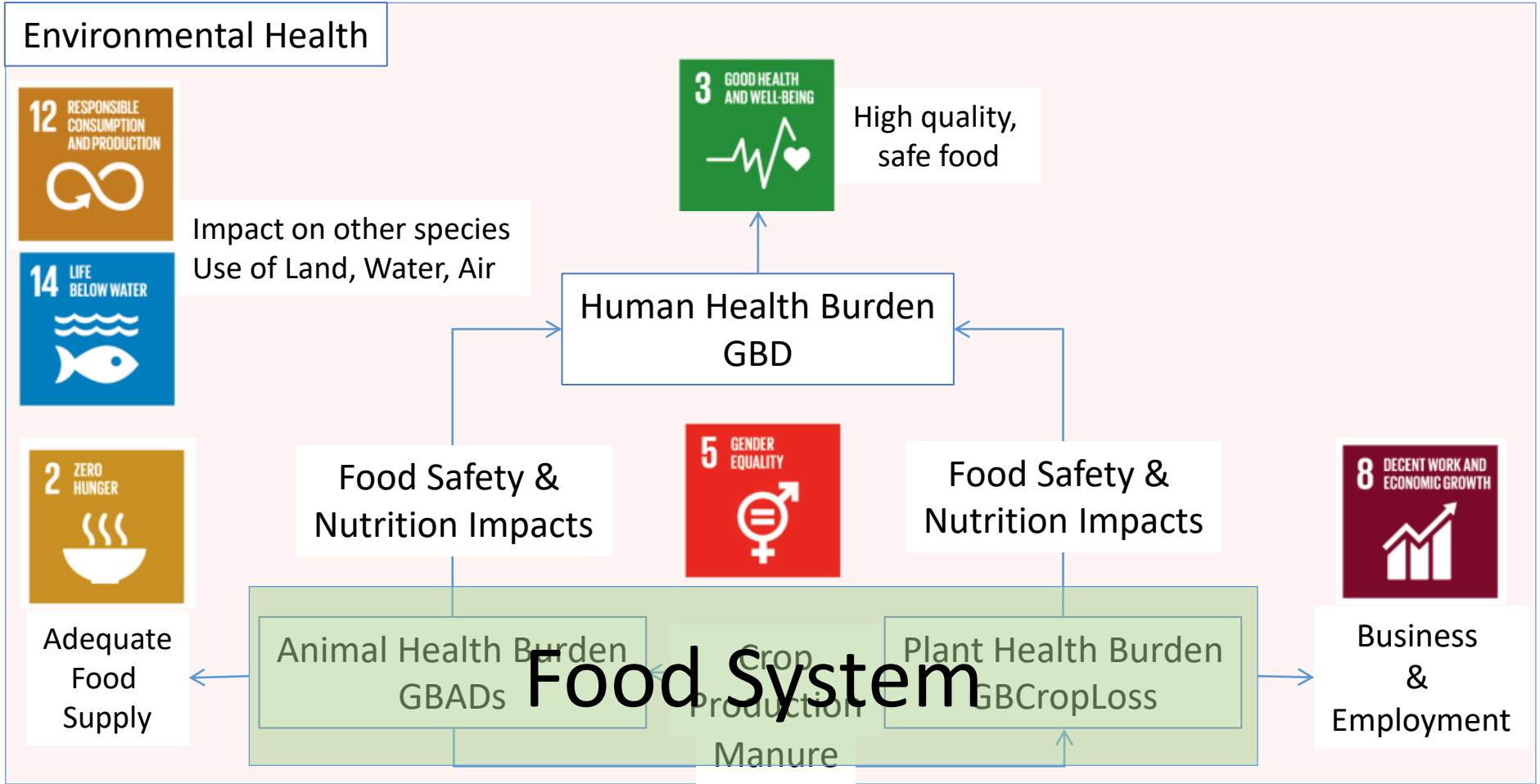


Information

- Impacts that can be compared between countries and food systems
- Health losses by disease and by people affected
- Distribution of livestock losses by species, systems, geographies
- Distribution of livestock by biomass, capital value

https://animalhealthmetrics.org

GBADs and One Health



Global Burden of Animal Diseases programme will:

- Provide information for **evidence based investment plans** animal health systems - supporting PVS and Gap Analysis
- **Allow allocation of resources** to key social, economic and environmental problems - strengthening PVS outcomes
- **Support high quality evaluation** of existing animal health investments demonstrating the value of animal health systems

GBADs funders, partners, collaborators

https://animalhealthmetrics.org

GBADs