Royal Veterinary College
University of London

Economic Benefits/Drivers of a "One Health" Approach:

Why should anyone invest?

Jonathan Rushton[1], Nicoline de Haan[2] and Ruth Rushton[3]

[1] Senior Lecturer in Animal Health Economics, RVC, UK

[2] Sociologist, FAO, Rome, Italy

[3] Forensic Psychologist, Independent Consultant, UK

Overview

- ***"Facilitating environments"***[1] (drivers) of health problems
- Logic of One Health approach based on:
  - Disease criteria
  - Resource use
- Summary and questions

Royal Veterinary College

[1] Liz Mumford, WHO

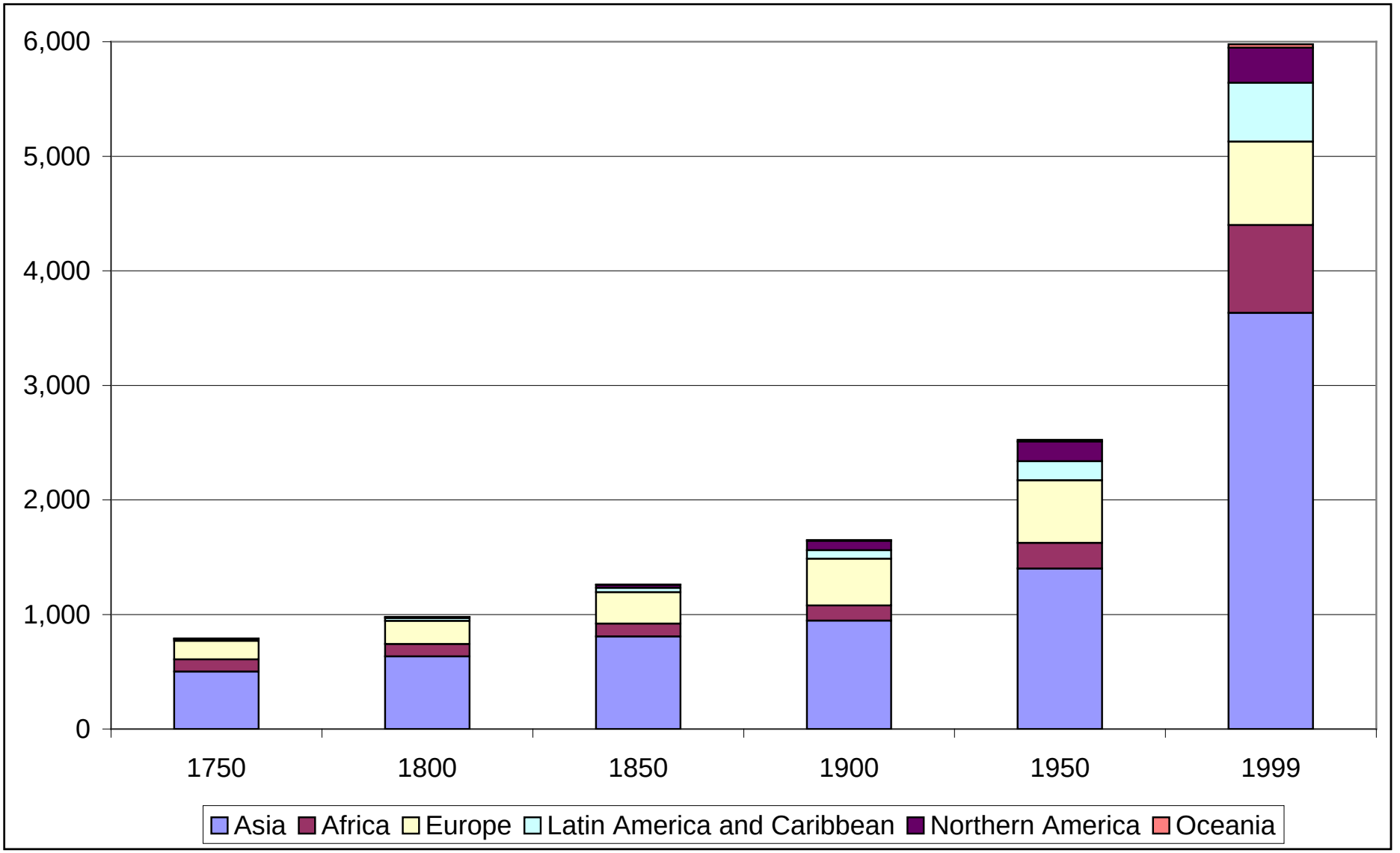
What are the facilitating environments of health problems?

Royal Veterinary College

Facilitating environments

- The environments generating health problems are **DYNAMIC**
- The **human population** continues to **grow**
- **Movement patterns** are constantly **changing**
- Our **livestock systems** and associated value chains are **evolving** in relation to:
  - growing **demands** for **food**
  - **resource costs** in producing, transporting and processing food
- Our **responses** to existing and emerging **challenges** are **changing**

World Population 1750 to 1999



Source: United Nations cited on http://www.statistics.gov.uk/StatBase/

In general the livestock sector responses to change have been:

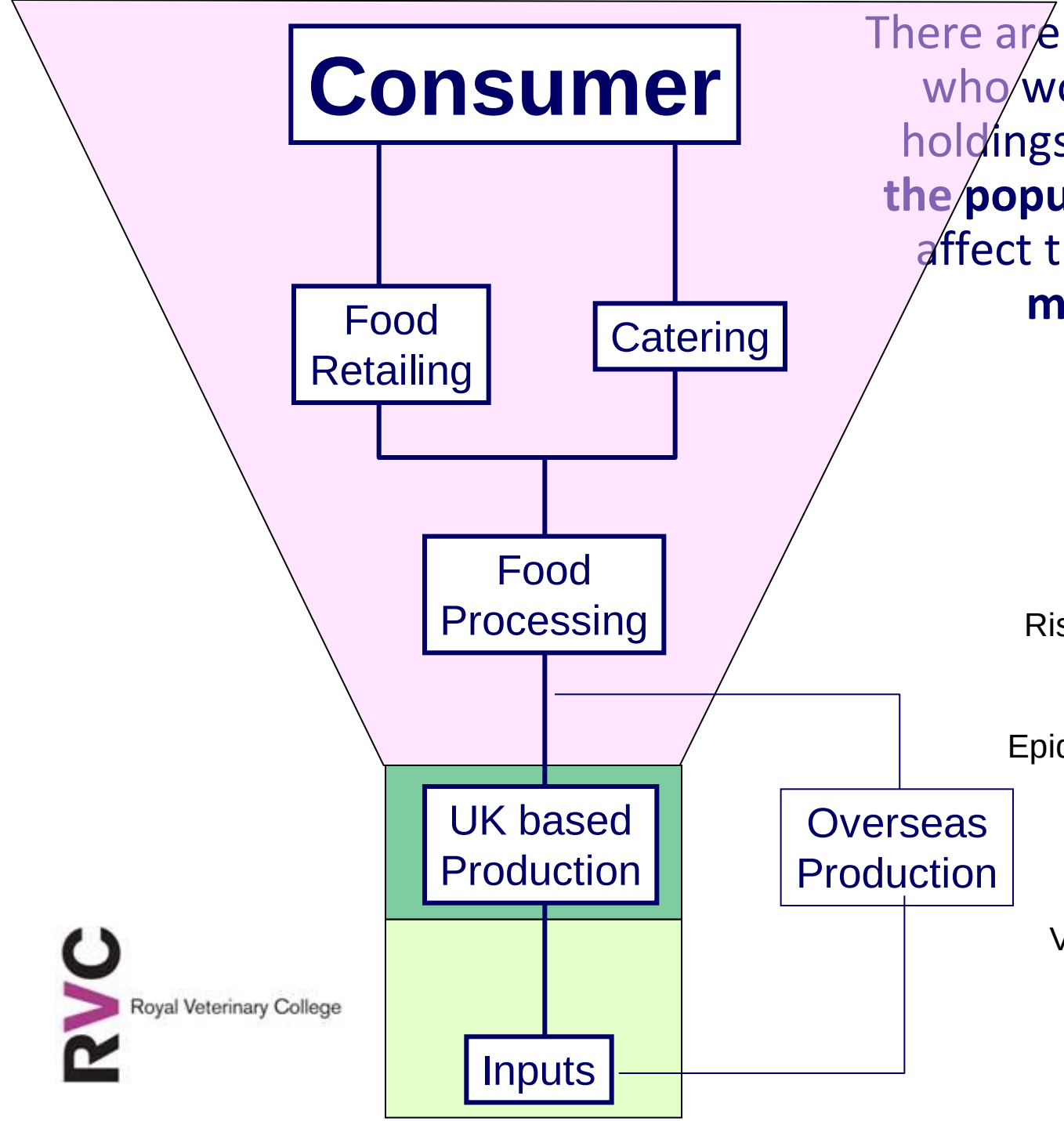
- **Specialisation** and **intensification** of livestock systems
- **Increased output** per **animal** and per unit of **labour**
- Massive **expansion** of **livestock populations** particularly monogastrics
- **Concentration** and **clustering** of livestock populations
- Increasing **sophistication** and **globalisation** of livestock product **value chains**

RVC Royal Veterinary College

Impact of these changes on health challenges

- **People** are in **increased contact** with **animals** (domestic and wild) as they populate new environments
- **People** are placing **domestic livestock** in **greater contact** with **wild animals**
- **Food chains** that are developing are generating **greater levels of moral hazard** (asymmetry of information)

RVC Royal Veterinary College



There are only 339,000 people who work on agricultural holdings in the UK (**0.6% of the population**) yet they can affect the wellbeing of **60 million people**

Health contributions to the food chain

Meat inspection,
Risk analysis HACCP systems

Clinical treatments
Epidemiology & Disease Control
Diagnostics Immunology

Vaccines

Genetic Resistance

Royal Veterinary College

Facilitating environments

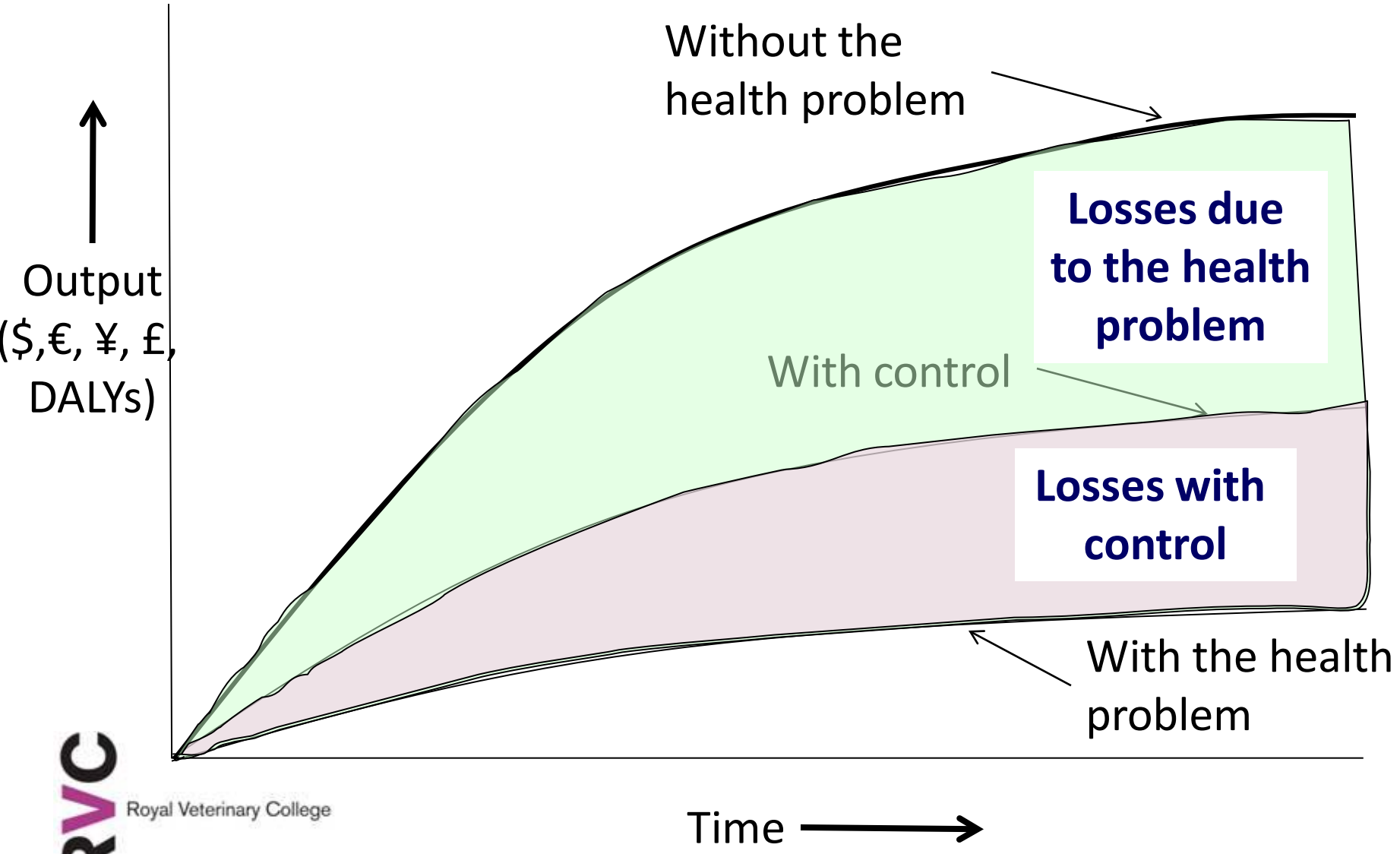
- Facilitating environments are:
  - **modifying** at different speeds
  - **monitored** with different intensities
  - **risk managed** in different ways
- They **appear** to be **unequal** in terms of **risks** giving the impression resources for monitoring and management can be targeted
- Yet our predictions of the emergence and re-emergence of disease problems have not been strong – BSE, H5N1, H1N1, brucellosis?, trypanosomiasis?

RVC Royal Veterinary College

Economic logic for investment in One Health

Royal Veterinary College

Impact of a health problem



Royal Veterinary College

Economic logic for investment

- Economic logic:

Where **Avoidable Losses**

are greater than

Costs of a Change in Disease Status

the investment is **worthwhile**

Royal Veterinary College

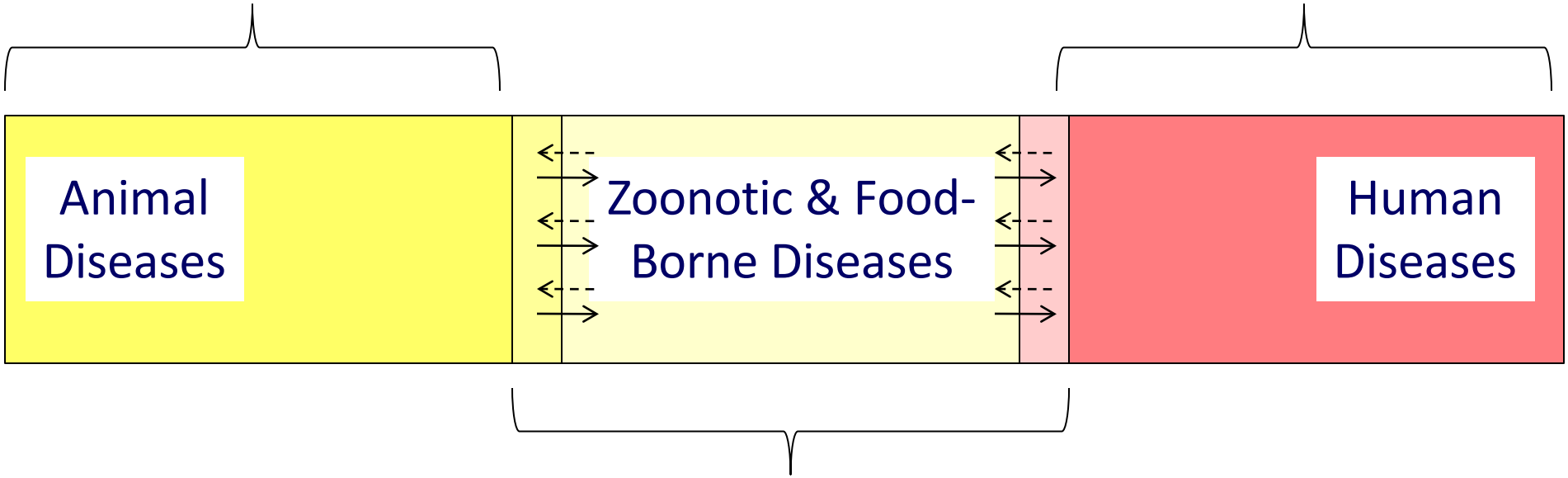
Where would this economic logic translate into success for One Health?

- Specific diseases
- Where resources are scarce
- Where resources are underutilised

Royal Veterinary College

Specific diseases

Strong argument for specific, specialised approaches



Arguments for systems approaches and more generalisation

Royal Veterinary College

Specific diseases

- We could also argue that what we do in the food chain in terms of **processing** and **refining** food has important implications on **nutritional health**
- These aspects are rarely treated as One Health issues and are invariably observed and worried about rather than thinking of the underlying causes
- These would require a more general rather than disease specific approach

Royal Veterinary College

Extensively managed sheep in Bolivia

Where resources are scarce

- Many people live in **geographical isolation**
- A large proportion of these people are reliant on livestock
- Making **resources** available for either human or animal health is difficult due to the **limited availability** of trained resources and the **lack of demand** for such services
- The need for One Health approaches would make sense in terms of **matching** overall **demand** for animal and human health services and the potential to **supply** adequate services
- **Strong arguments for generalised services**

Extensively managed pigs in Bolivia

Where resources are underutilised

- Many **facilities** are built that have **low throughput**
- Human resources are trained in **data collection, storage** and **analysis skills** but:
  - in too fewer numbers and/or
  - with a **low demand** of their skills in their specific health field

Royal Veterinary College

Where resources are underutilised

- Low throughput and low demand often leads to **poor calibration** of **standards** and **variable output of results**
- Small numbers of trained people **limit interchange** and **advancement** in **knowledge**
- There are **strong arguments** that certain aspects of human and veterinary diagnostics, data collection and analysis need to be **combined** to create **synergies** which will **improve resource use**

RVC Royal Veterinary College

Summary

- The **facilitating environments** for emerging and re-emerging health problems are **dynamic**, constantly changing
- Our **responses** have been to **strengthen disease surveillance**
  - Internationally through WHO, OIE, FAO
  - Nationally through multi and bi lateral programmes plus regional agreements

RVC Royal Veterinary College

Summary

- Benefits from One Health can be (are?):
  - **Improved understanding** of health problem emergence and re-emergence in order to **respond** in a **proportionate** and **timely manner**
  - **Generalised systems** of **health delivery** where **resources** are **scarce** – very specific situations
  - **Combined** use of **infrastructure** and **skillsets** to **improve** the **use** of **underutilised resources** and **create synergies**

RVC Royal Veterinary College

Summary

- The **benefits** are **not constant** as the facilitating environment is constantly changing
- These **changing benefits** have **changing costs** that can only be **estimated** with better **monitoring systems** of:
  - **livestock systems**,
  - value **chains**
  - **people** working within and using these chains
- Yet we have **weak systems** to **monitor** the working and behaviour of **livestock systems** and their associated **chains**

RVC Royal Veterinary College

Questions

- How do we **improve** the **monitoring** of **facilitating environment** so we can in real time:
  - **Estimate health problem impact** with more accuracy
  - **Estimate** the **costs** of **monitoring** and **control**
    - Direct costs
    - Institutional costs
  - Search for **proportionate** and **rational responses** that involve individuals, communities, NGOs, private and public sectors
- No one mechanism will suit all situations – **it requires a systems approach**

Acknowledgements

- Madelon Meijer, Oxfam, The Netherlands
- Malla Hovi, Animal Health, UK
- Wantanee Kalpravidh, David Castellan – FAO, Bangkok
- Nick Taylor - University of Reading, UK
- Liz Redmond – FSA, UK
- Katharina Stärk, Dirk Pfeiffer – RVC, UK
- Jeff Waage – Leverhulme Centre for Integrative Research on Agriculture and Health, LIDC, UK

RVC Royal Veterinary College



Protecting livestock to protect people

Through a **people centered** approach with **strong technical leadership**