Improving Capacity to Assess the Socio-Economic Impacts of Transboundary Animal Diseases

with a focus on FMD and PPR

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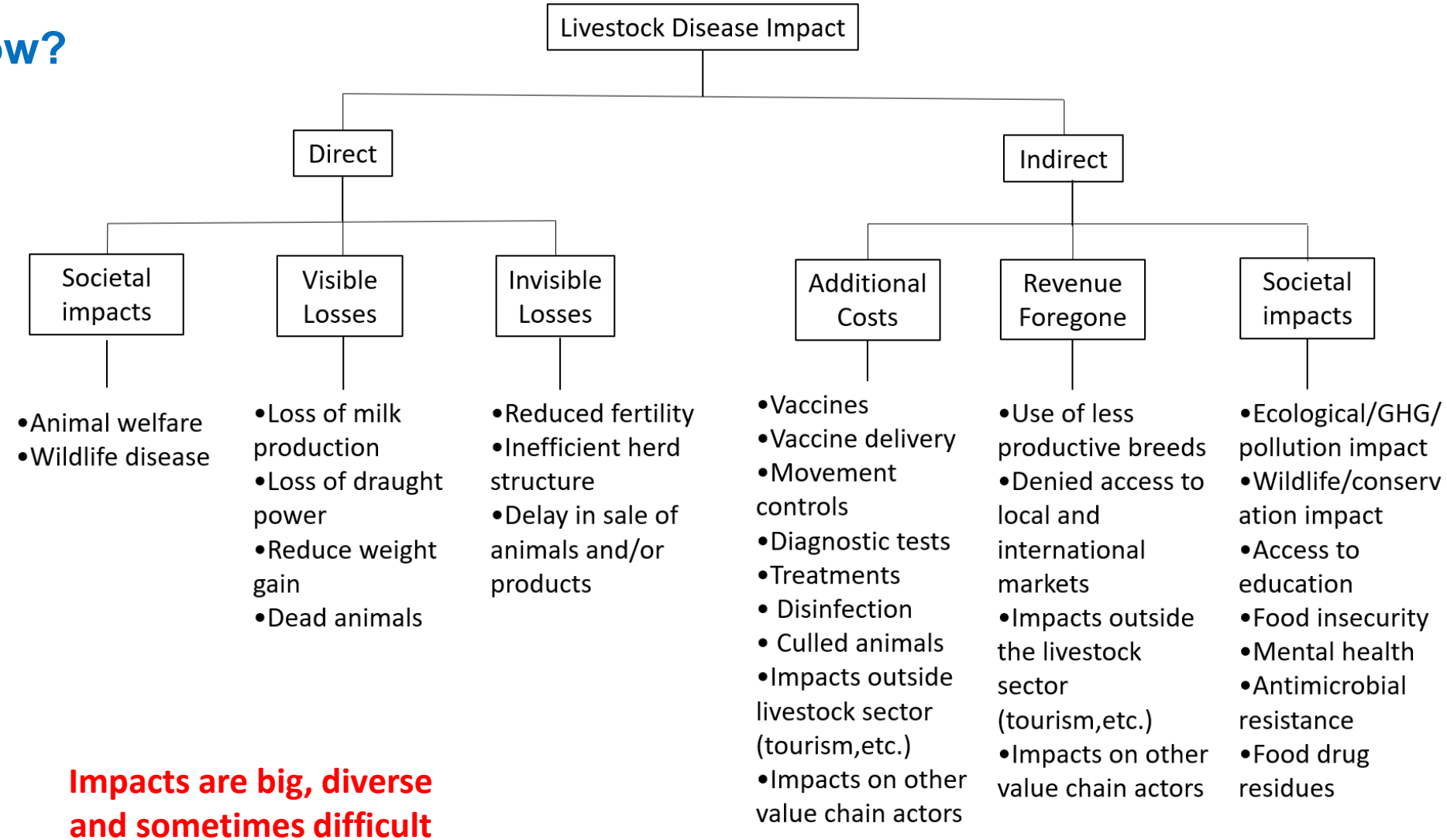
“If you cannot measure it, you cannot manage it”

- Long established concept – We consider its relevance for the control of animal diseases
- The burden of animal disease is large and affects many areas
  - Economies & livelihoods; human health, nutrition and food security; animal welfare; environment, climate & ecosystems
- But our knowledge is limited
  - “If you cannot measure it, you cannot manage it”
  - Limited measures of animal disease burden with frequent failures in animal disease control

Lord Kelvin

“If you cannot measure it, you cannot manage it”

- **What do we know?**



Impacts are big, diverse and sometimes difficult to measure

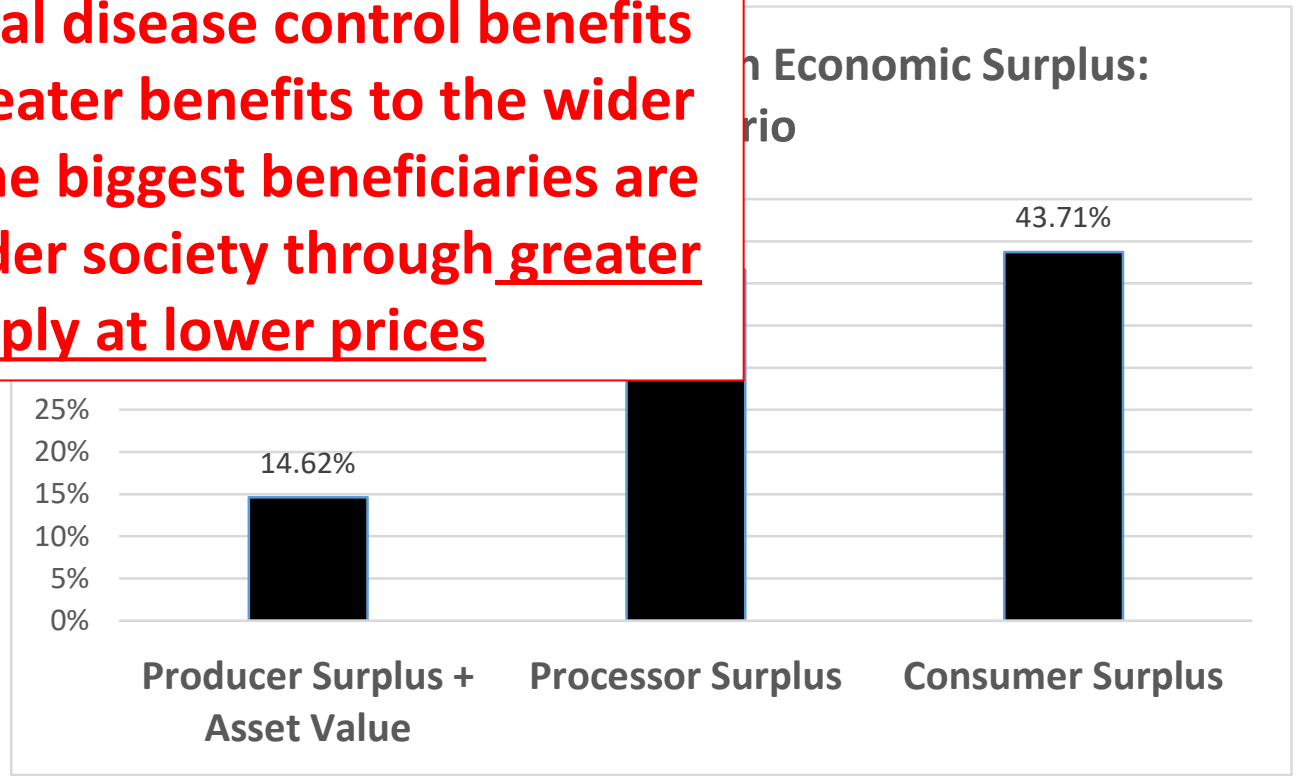
Animal disease burden – Headline figures

- But our measures of the economic burden of animal disease are largely limited to few studies of headline diseases
- FMD global impact >US$6.5-21Billion/yr - $100-500million/yr in Middle East (2013)
- PPR global impact US$1.5-2billion/yr - >$100million/yr in Middle East (2015)
- Global Burden of Animal Diseases (GBADs) – Ethiopia case study
  - Over half of livestock production lost to animal disease
    - Yet expenditure on animal health <2% of total burden

Animal health services impact consumers

- Animal health
  affect consume
  value chain act
  than producers
- A shift in animal health burdens will generate benefits across society and in particular urban consumers

Large scale animal disease control benefits farmers, with greater benefits to the wider economy - but the biggest beneficiaries are consumers & wider society through greater food supply at lower prices



Courtesy of Tom Marsh, Golam Shakil, Dustin Pendell

https://animalhealthmetrics.org

GBADs
Animal health metrics for sustainable food systems and livelihoods

Increased production, lower prices and greater consumption

- **Richest and poorest within the WOAH Middle East region compared to USA**
- **Compared to USA in the lowest income country consumers spend 35 times more (as % of their income) for a quarter the quantity of milk**

	Richest	Poorest	USA
Milk consumption per person/year	118KG	38KG	165KG
Cost of milk US$/KG	$2	$0.7	$0.9
Cost of 1KG milk as % of daily income	1%	64%	0.4%
Annual value of milk consumed as % of annual income	0.3%	7%	0.2%

https://worldpopulationreview.com/country-rankings/milk-consumption-by-country

Plus FAO - Approximate figures for illustration

“If you cannot measure it, you cannot manage it”

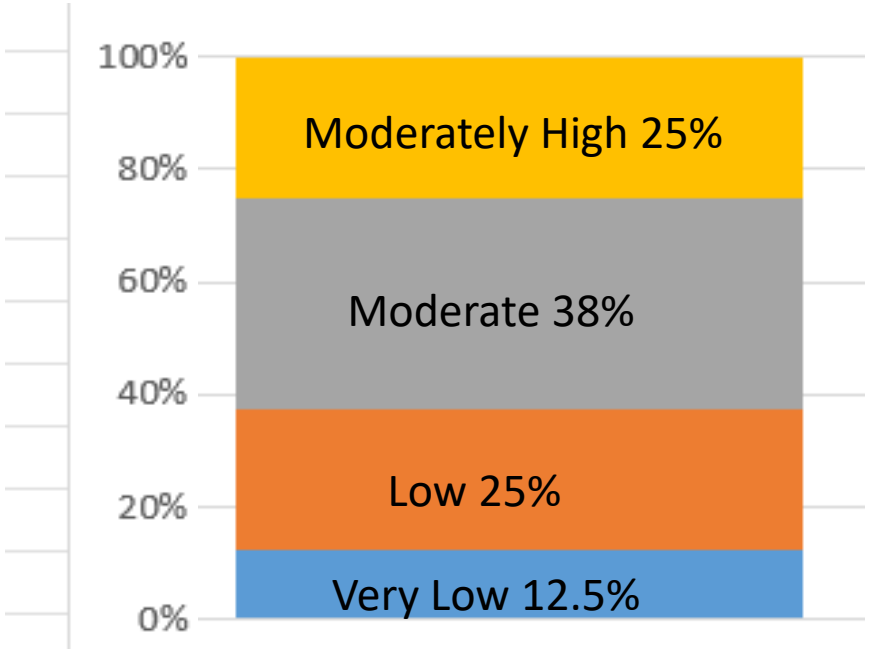
- For informed disease control policy we need more than one off studies
- Livestock are primarily an economic commodity
- To manage livestock at national level we need a detailed understanding of livestock production systems…like any business
- Including an economic understanding of animal disease: arguably the biggest cause of livestock production losses
- We need animal health economics to:
  - Show the size of disease losses… to advocate for investment in disease control
  - Predict, measure and compare the profitability of different disease control strategies

WOAH Technical Item

- Recognising this need – WOAH Regional Commission for Middle East adopted this Technical item:
- “Improving Capacity to Assess the Socio-Economic Impacts of Transboundary Animal Diseases (TADs) (Focus on FMD and PPR)”
- Includes assessing gaps with recommendations to support Members
- Methods: Survey sent to WOAH Middle East Delegates Aug 2025 – 16/20 Members responded – Questions assessed:
  - SVS capacity to collect animal health economics data
  - Current Animal Health Economics (AHE) analysis done
  - National needs for capacity building

Findings - Capacity

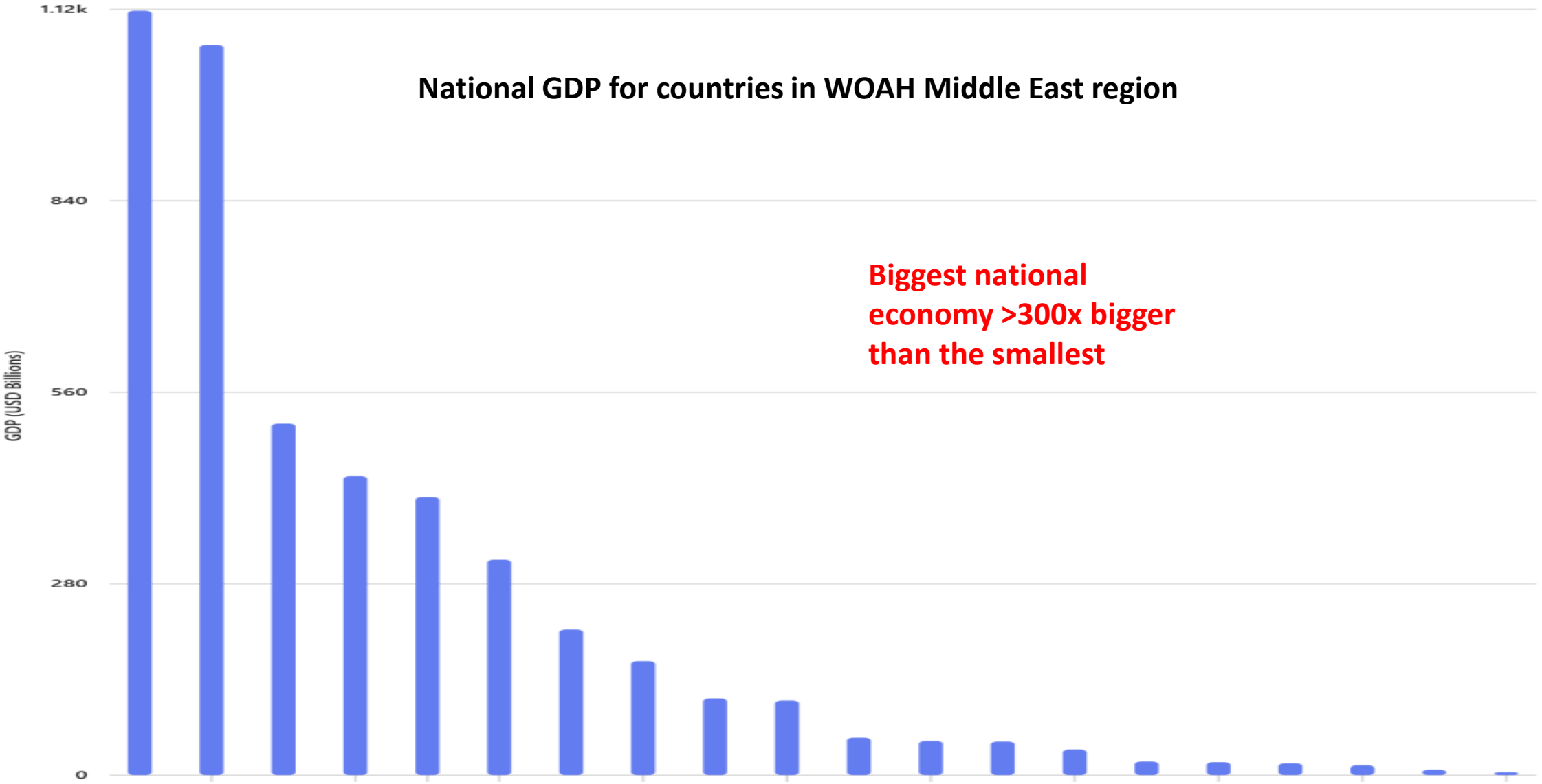
- **Three-quarters of surveyed Members have moderate to very low capacity to perform economic assessments of animal diseases**
  - **But two-thirds can get support from other partner organisations**



SVS Capacity to perform AHE assessments

- **44% had done no AHE assessments in last 5yrs**
- **19% did one economics assessment a year**
- **Ave= 1 AHE assessment every ten years**
- ***WOAH Middle East region is diverse including both high and low income countries***

National GDP for countries in WOAH Middle East region



Biggest national economy >300x bigger than the smallest

Disease Priorities

- **No 1 Priority disease for countries in WOAH Middle East region – Any guesses?**
- **No 1 = FMD (80% of countries) – PPR (13%)**
- **PPR included in top 5 in 80% of countries**
- **Others top 5 priorities included Brucellosis (80% of countries), LSD (40%), SGP (33%), RVF (27%), bTB (20%), AI (20%)**

Member Status of control and AHE assessment for FMD and PPR

	FMD	PPR
Member has a control program	88%	94%
Have disease impact estimate*	40%	40%
Know vaccination costs	81%	56%
Know economic benefits of control program*	31%	31%

*Mostly preliminary or in progess

Few considering importance

Elsewhere most countries with significant livestock economies perform AHE studies for priority diseases

Funding for FMD and PPR control

- **69% of national FMD programmes reported as underfunded – Same for PPR**
  - **For FMD more funding needed for vaccination, surveillance and movement controls**
  - **For PPR surveillance was the area most in need of more funding, then vaccination and outbreak control/investigation**
- **Reasons for underfunding included:**
- Limited capacity…including for effective planning and budgeting
- Lack of public funding…including due to the state of the national economy (including due to conflict)
- Insufficient funding from international organisations
- Lack of private sector funding mechanisms
- Limited awareness of the economic value of disease control/eradication
- Lack of scientific evidence of the socio-economic impact of livestock diseases

AHE evidence & understanding needed to increase access to Public funding, International funding & Private funding

Low effectiveness of control programmes also a reason for lack of funding

Current capacity for animal health economics analysis

- **A third of Members collect data during outbreaks that could be used for economic analysis**
- **81% see economic analysis as something to be done within the veterinary services – the alternative being other partner government agencies or research institutes**
- **Challenges for economic analysis included:**

Capturing long-term effects of disease on household income, food security, and rural economies

Limited technical and analytical capacity, including in AHE and impact modelling

Difficulties measuring indirect impacts such as reduced market access, trade restrictions, and disruption of livelihoods

Inadequate collaboration between Veterinary Services, agricultural departments, economists, and social scientists leading to fragmented information and partial analyses

Absence of an integrated database across sectors

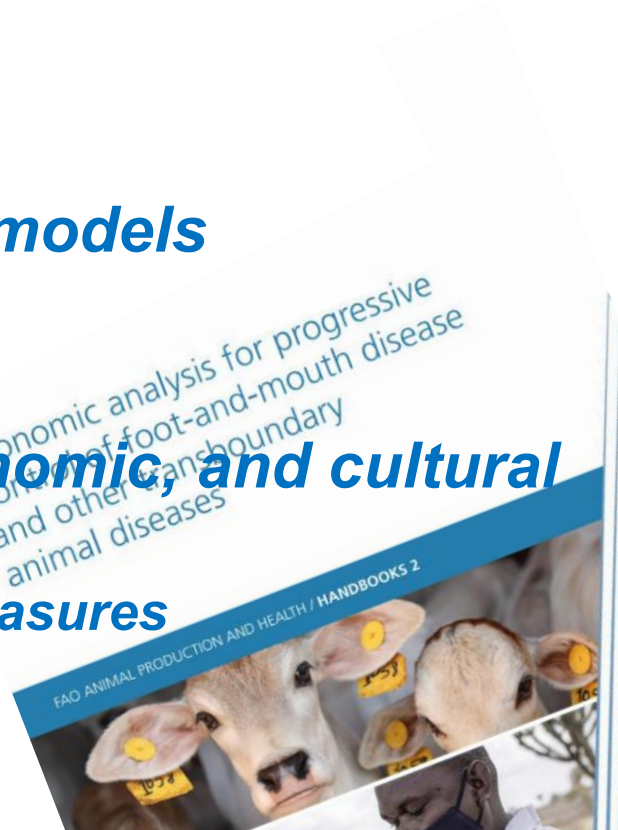
The absence of standardised methodologies or frameworks tailored to local contexts

Limited involvement of affected communities restricts understanding of the real socio-economic burden

Insufficient surveillance data (collection, storage and analysis)

Training Needs

- **Only 19% had access to training or guidance materials on socio-economic impact assessment – but half have links with institutions that could provide training**
  - ***Note – WOAH/FAO/EuFMD offer training including on animal health economics***
- ***Nine Members (56%) reported an urgent need for capacity building in the areas of AHE, including:***
  - ***data collection/management***
  - ***analytical tools, including software and disease spread models***
  - ***expertise in quantitative and qualitative methods***
    - ***cost-benefit, cost-effectiveness, and impact evaluations***
  - ***multi-disciplinary approaches incorporating social, economic, and cultural factors***
    - ***key for understanding behaviour during outbreaks and control measures***



McLaws, M., Knight-Jones, T., Compston, P., Bartels, C., Limon, G., Arshed, M. J., & Dhingra, M. (2025). Economic analysis for progressive control of foot-and-mouth disease and other transboundary animal diseases. FAO Animal Production and Health Handbooks, No. 2. Rome, FAO. https://doi.org/10.4060/cd5268en Date of Access: 29 Oct 2025. https://doi.org/10.4060/CD5268EN

Existing capacities and gaps

- **What AHE capacities are there?**

Average importance rating similar for all elements

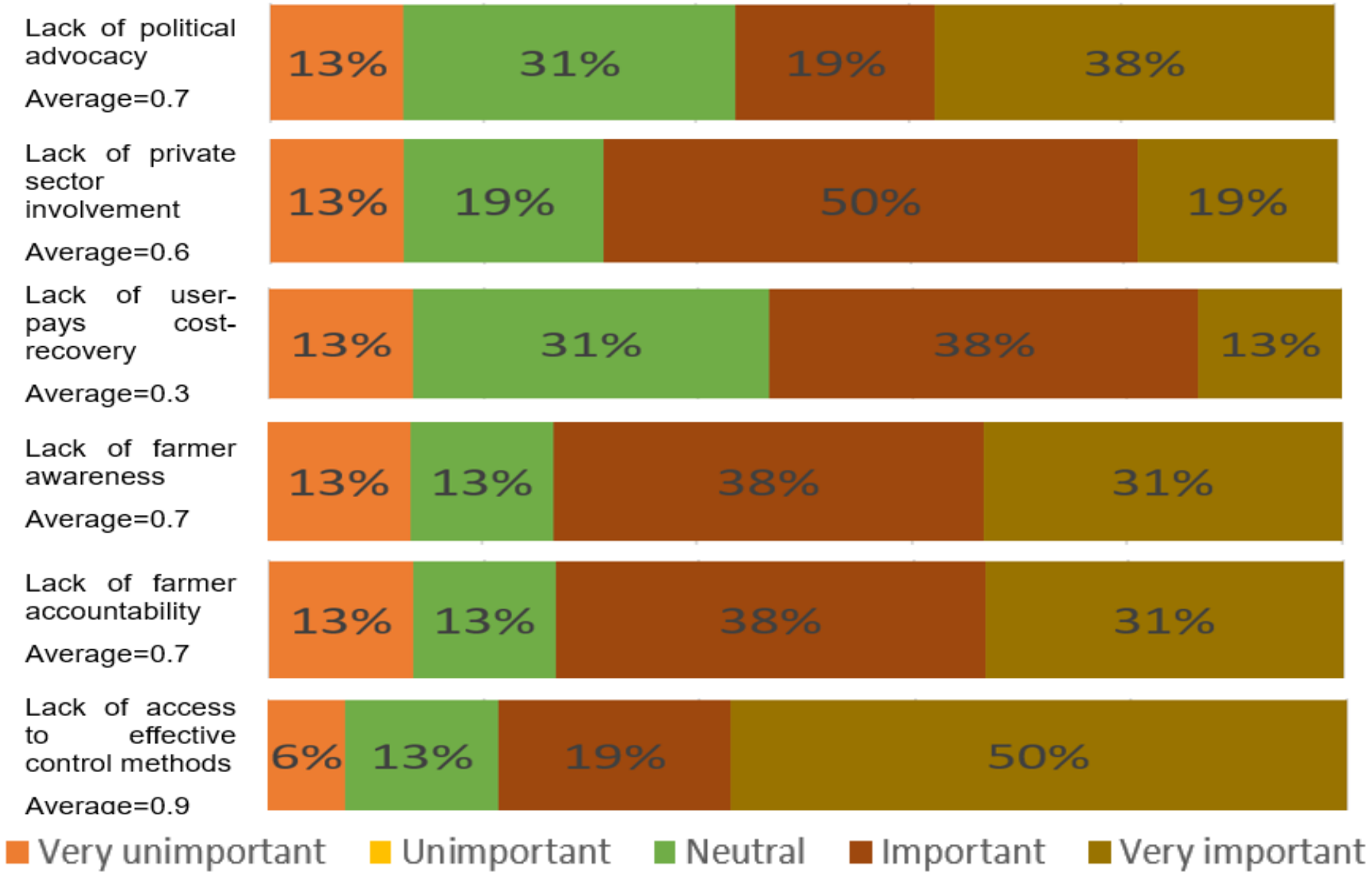
Do SVS have:

	Veterinary Services	Via national partners
Staff with the skills to do livestock disease impact assessments	Yes=10 (63%)	Yes=6 (38%)
Data to do livestock disease impact assessments	Yes=13 (81%)	Yes=3 (19%)
Skills to do livestock disease control investment appraisals – e.g. benefit cost analysis	Yes=8 (50%)	Yes=8 (50%)
Data to do livestock disease control investment appraisals	Yes=7 (54%)	Yes=9 (56%)
Do you have equipment to do economic analysis (computers, etc…)	Yes=5 (31%)	Yes=11 (69%)

Existing capacities and gaps

- **Other capacity gaps needed to get greater investment?**

Evidence alone is not enough

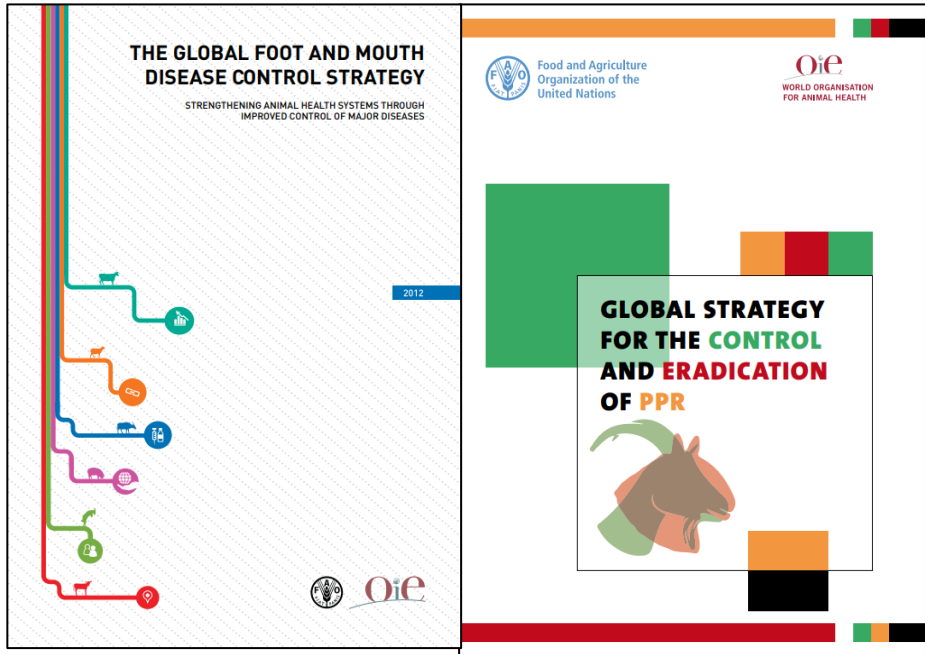


Key Survey Findings

- **FMD is the regional priority livestock disease, PPR is also a priority**
- **But there is variation in the region**
- **Two-thirds of Members state that FMD and PPR control programmes are underfunded**
- Better resource mobilisation and greater awareness of the economic benefits of animal health control are needed, as well as improved budget management
- **Capacity to do animal health economics analysis is low but varied, with half of Members having low or very low capacity – and half performing no such analyses in the last 5 years**
- **Only 20% of Members have access to AHE training**

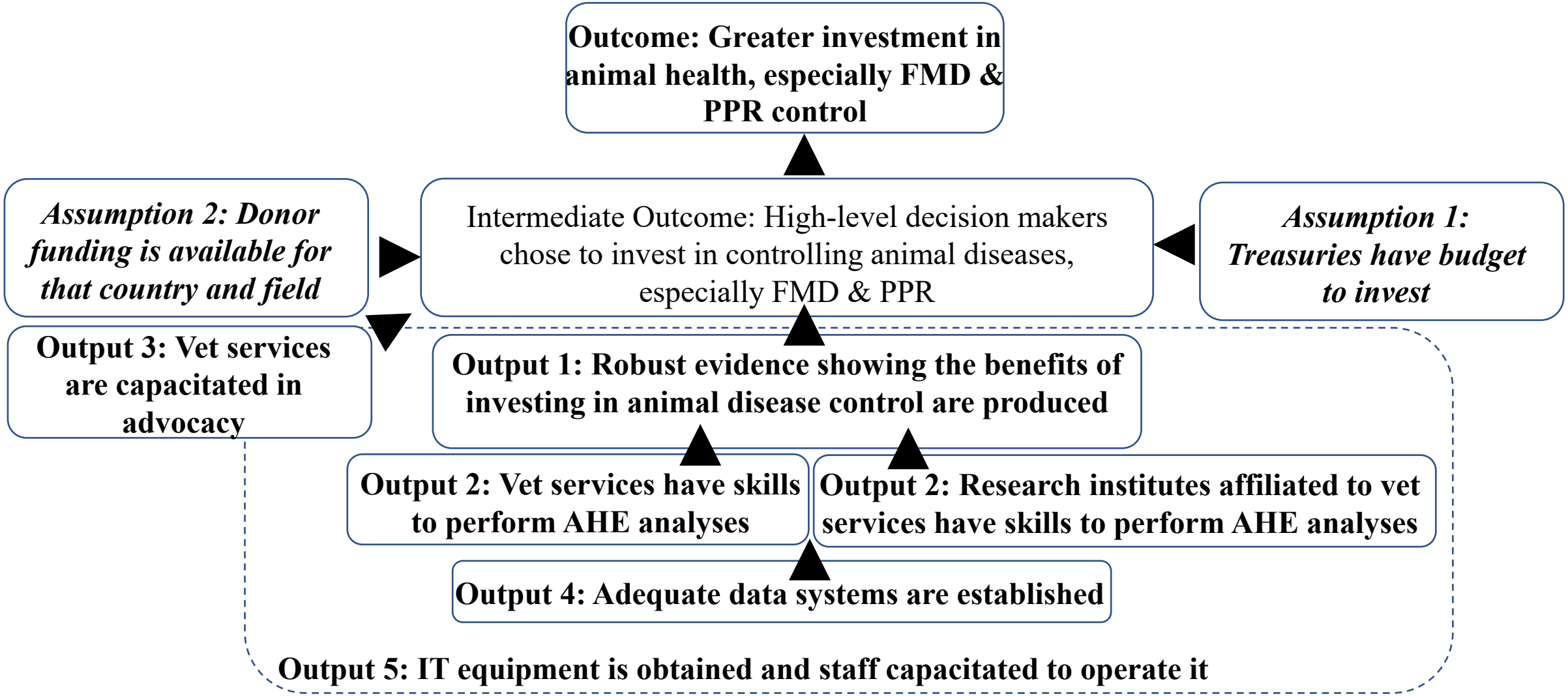
Needs

- **There is a need to improve skills, data and equipment required for AHE analysis**
- Focus should be on building the capacity of the Veterinary Services in collaboration with partner research institutes
- **Capacity building should cover simple to complex AHE approaches**
- **This will help FMD and PPR control, but also build SVS capacity and help control other diseases**



Vision – Theory of Change

- Theory of Change – Logical process explaining how an intervention will bring about the desired change
- Rationale: More resources could be obtained if stronger evidence were available to show the benefits of investment in livestock disease control
- For resource mobilisation from national treasuries, & donors
  - And better understanding of the economics of animal disease would guide opportunities for private sector investment
- In addition to AHE evidence, advocacy and communication skills would be required


Outcome: Greater investment in animal health, especially FMD & PPR control
Assumption 2: Donor funding is available for that country and field
Intermediate Outcome: High-level decision makers chose to invest in controlling animal diseases, especially FMD & PPR
Assumption 1: Treasuries have budget to invest
Output 3: Vet services are capacitated in advocacy
Output 1: Robust evidence showing the benefits of investing in animal disease control are produced
Output 2: Vet services have skills to perform AHE analyses
Output 2: Research institutes affiliated to vet services have skills to perform AHE analyses
Output 4: Adequate data systems are established
Output 5: IT equipment is obtained and staff capacitated to operate it

Recommendations summary

- Within the region, greater capacity in AHE analyses is needed in the Veterinary Services, as well as affiliated government research institutes
- This is needed to provide evidence to obtain greater investment in disease control and guide control policy
- The exact training required would be determined by the types of output that are needed, e.g. impact assessments, wider economic impacts assessments, benefit-cost analyses, etc.
- a. Training could be delivered through applied on the job training and experience
- b. Building capacity in economic modelling would require PhD level training and should be initiated within a research institute or university
  - i. include expert, and possibly short term international mentoring where needed
  - ii. For sustainability, a plan should be developed that maps out the institutions to be involved in maintaining AHE expertise and training in country…institutionalise these capacities and avoid long-term dependency on external experts
  - Iii. Bring together veterinarians, economists, social scientists, and policy experts
  - iv. If funding permits, improve disease transmission modelling capacity in parallel (another related gap)
- Develop data collection and management systems and ensure adequate IT capacity
- Build advocacy skills to initiate policy changes

Needs planning and funding!

Final thought…

What can be achieved with improved health and production?

US Broiler industry 1920 - 2000

Year	Liveweight		Feed Conversion	Mortality (%)	Age to finish (weeks)
	lb	kg			
1920	2.20	1.00	4.7	18	16
1930	2.70	1.23	4.4	14	14
1940	3.00	1.36	4.0	10	12
1950	3.20	1.45	3.0	7	10
1960	3.40	1.55	2.4	6	9
1970	3.60	1.64	2.1	5	8
1980	4.00	1.82	2.0	5	8
1990	4.50	2.05	1.9	5	7
2000	5.00	2.27	1.9	5	7

Source: Aho in Bell & Weaver, 2002

With the right economic policies & resources transformative change in livestock systems is possible

Acknowledgements

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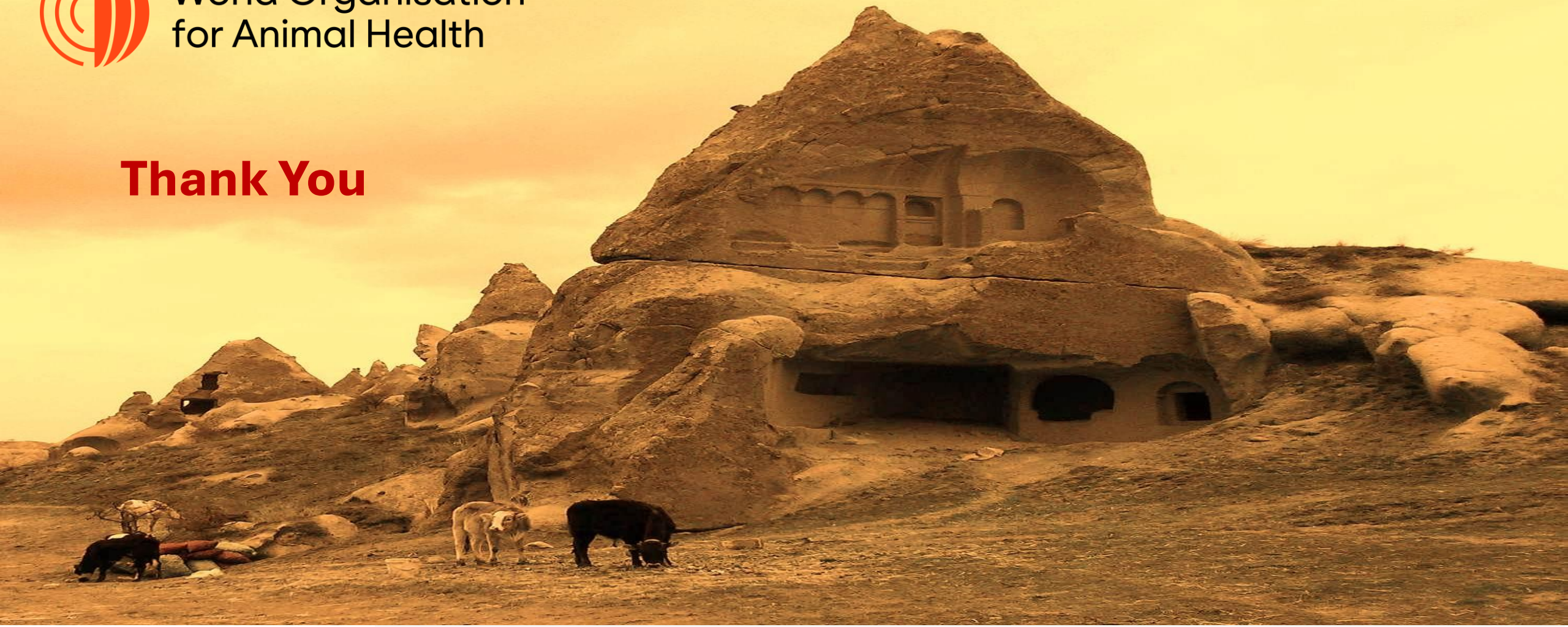
World Organisation for Animal Health

Thank You



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