# Investing in agriculture to reduce human health externalities: a low- and middle-income country perspective

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*INTERNATIONAL LIVESTOCK RESEARCH INSTITUTE*

Workshop on "Increasing Investments for AMR R&D"

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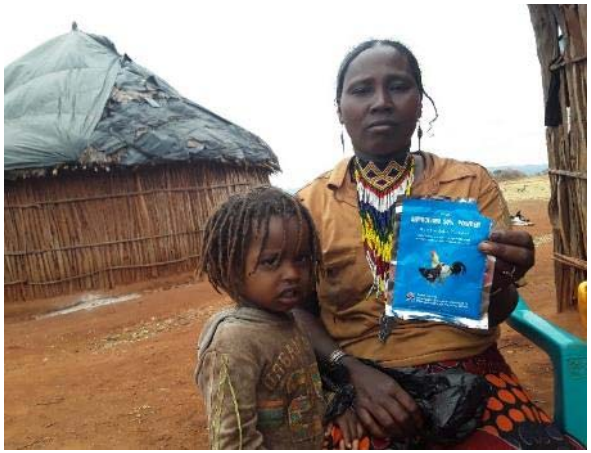

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CGIAR

# CGIAR on the ground:
# 15 research centres | more than 70 countries


**REDUCED POVERTY**

**IMPROVED FOOD AND NUTRITION SECURITY FOR HEALTH**

**IMPROVED NATURAL RESOURCE SYSTEMS AND ECOSYSTEM SERVICES**

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More than 73% of all antimicrobials sold in the world are used in animals
Van Boeckel et al 2017
Around 80% of farmers rely on untrained health providers
Grace, 2015


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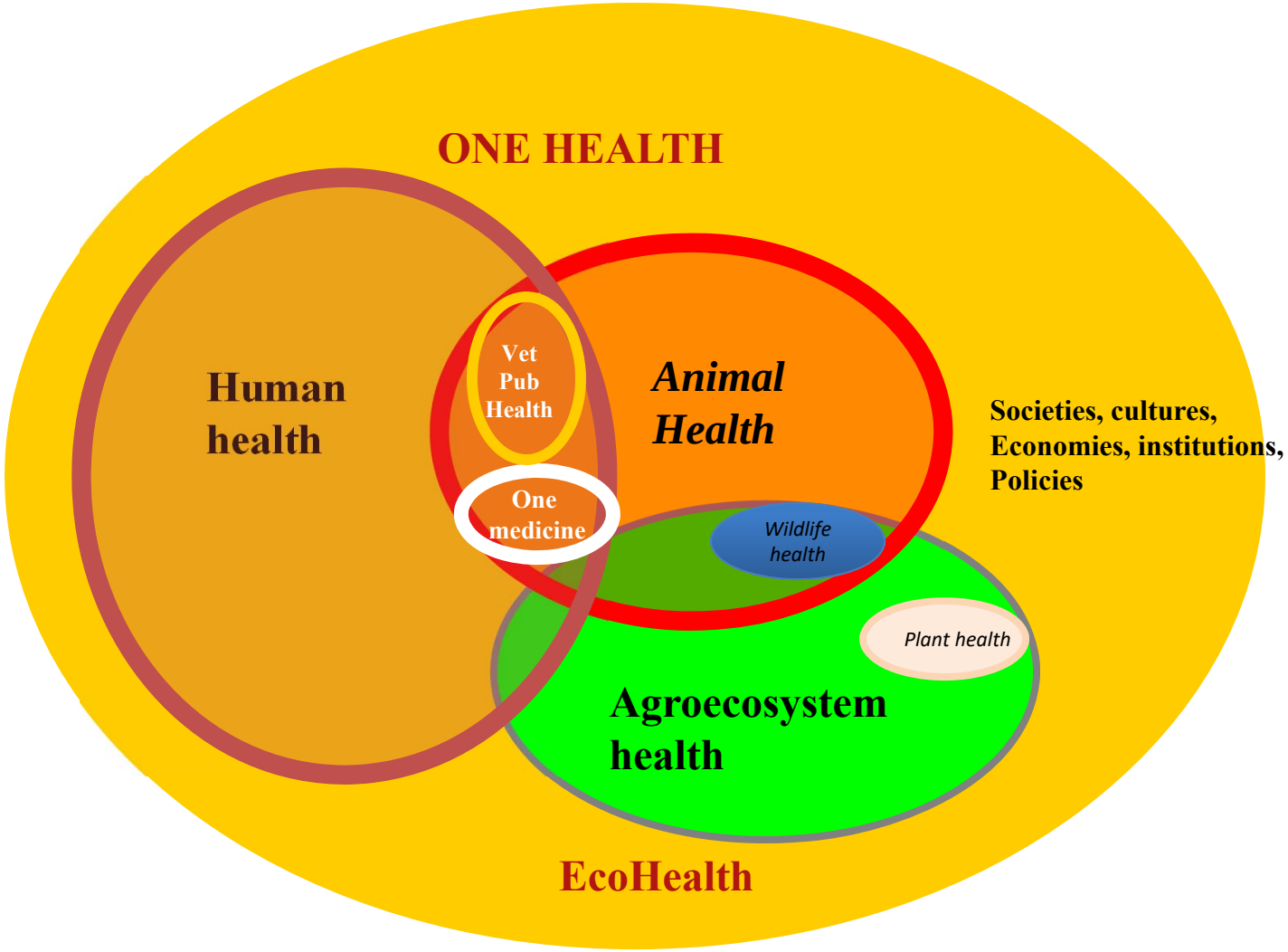
# The One Health Argument

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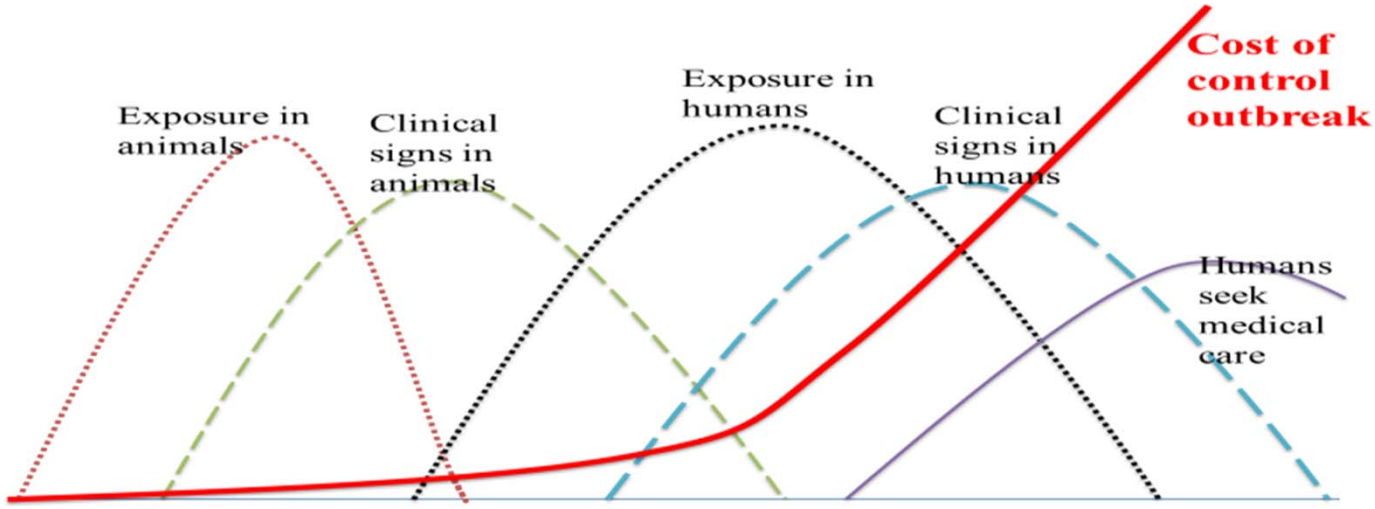
# Better to control disease in the animal host than human victim

Surveillance and response in animal hosts can reduce costs by 90% (Grace, 2015)




*Adapted from IOM 2009*

# Caveat: a problem of access as well as excess

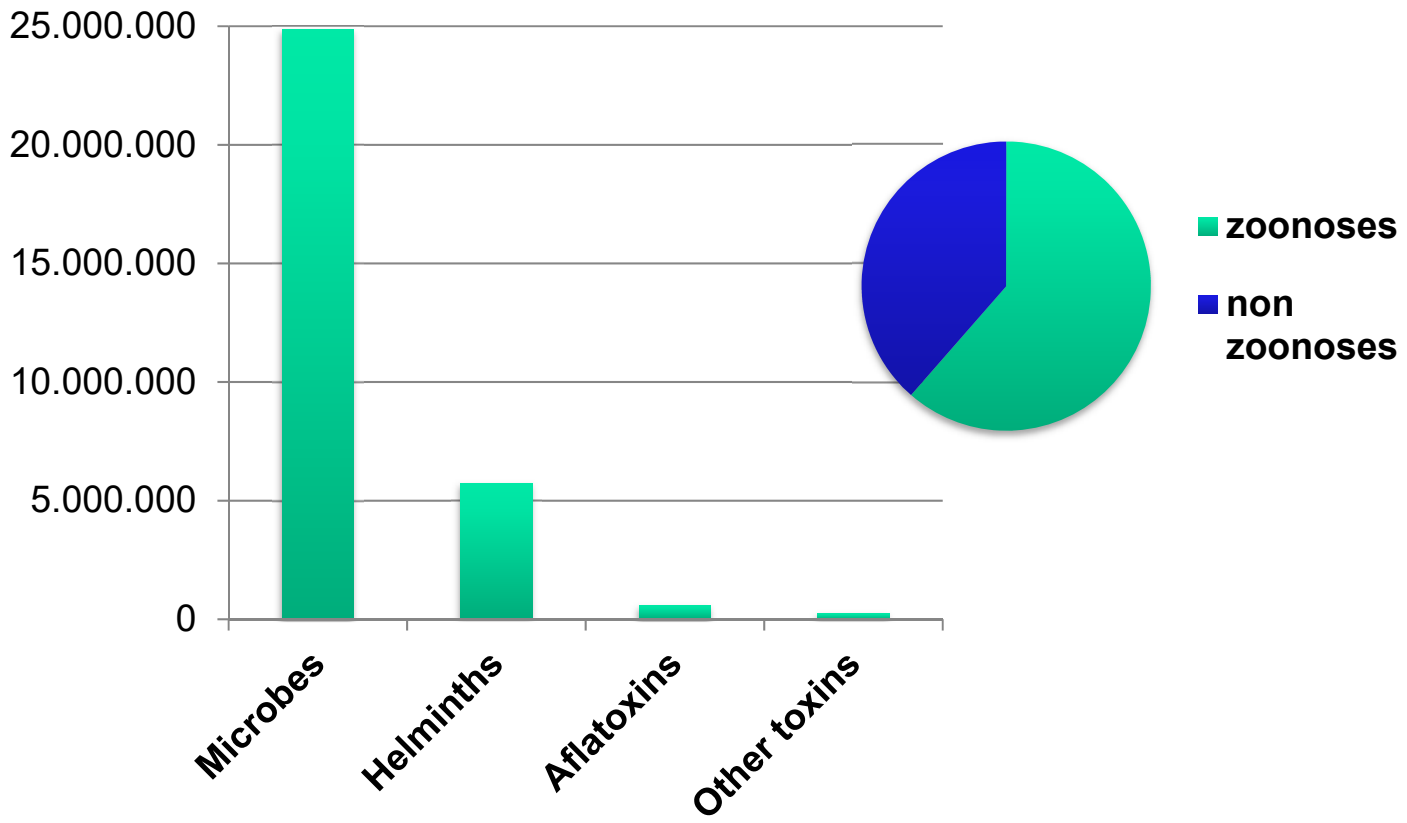
- Animal disease is a key constraint:
  Billions die each year from preventable & curable disease
- As livestock systems intensify in developing countries, diseases may increase

Annual mortality of African livestock
( Around half due to preventable or curable disease )

| | Young | Adult |
|---|---|---|
| Cattle | 22% | 6% |
| Shoat | 28% | 11% |
| Poultry | 70% | 30% |

*Otte & Chilonda, IAEA*

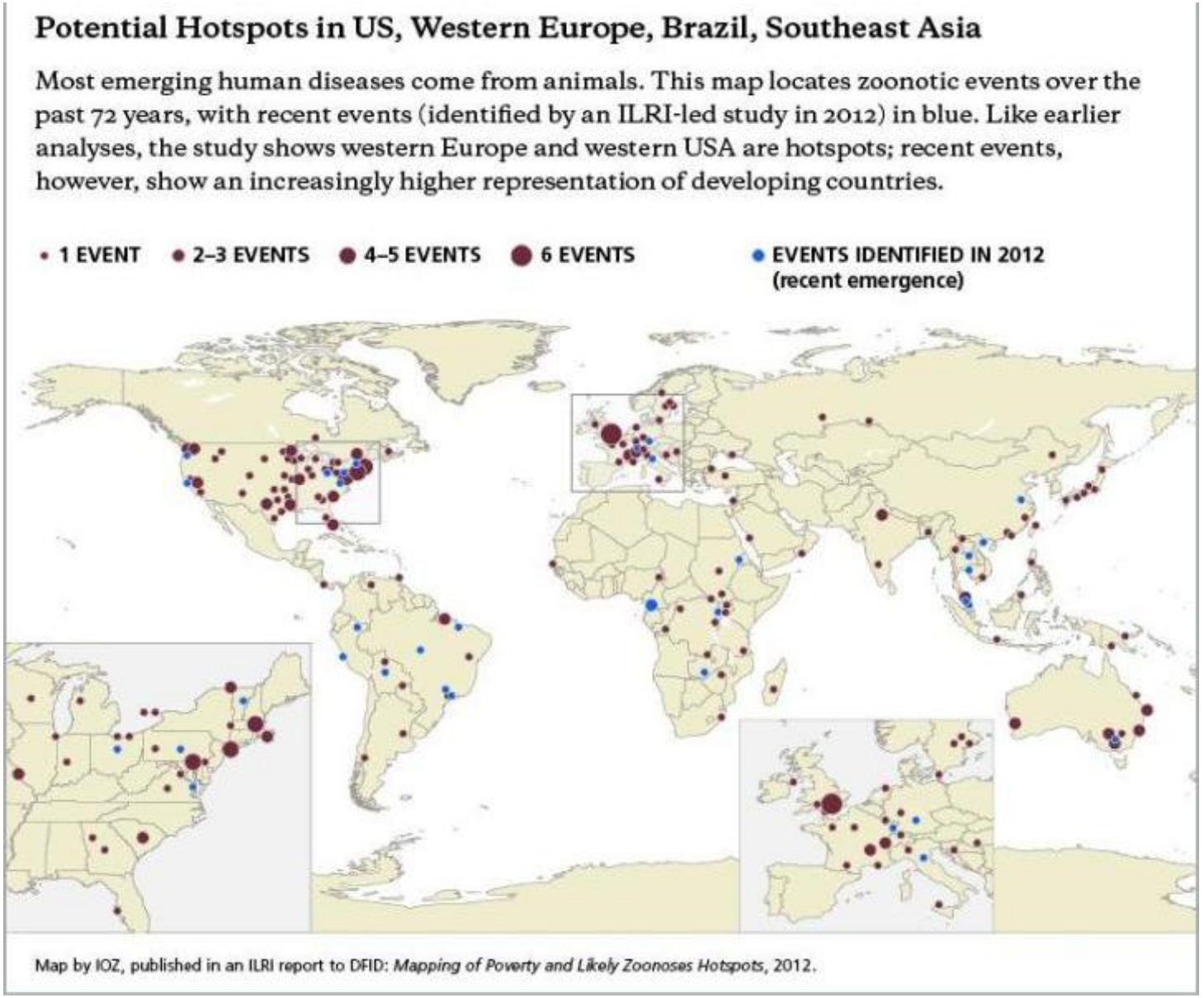
# Caveat: what human health externalities?




Health burden of foodborne disease in developing countries is comparable to that of HIV AIDS, TB or malaria

Havelaar et al., 2015

# Emerging zoonotic disease events, 1940–2012




Grace et al., 2012

# Investment case

- How much human AMR comes from agriculture?
- What interventions could reduce use in agriculture?
- What are the costs and benefits of these interventions?
  What are the un-intended consequences?
  Are interventions feasible?
- What effect does the intervention have on human AMR?
- What effect does the intervention have on human and animal well-being?

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# What we know

| | HIC | LMIC |
|---|---|---|
| How much AMR from agriculture? | Certainly a little, maybe more | Don't know |
| Interventions shown to reduce AMU at scale | Yes | No |
| Interventions are affordable | Yes | Don't know |
| Interventions are feasible | Yes | Maybe not |
| Un-intended negative consequences | Likely small | May be large |
| Interventions appreciably reduce AMR in people | Don't know | Don't know |
| Effect on human and animal overall well-being | Don't know | Don't know |

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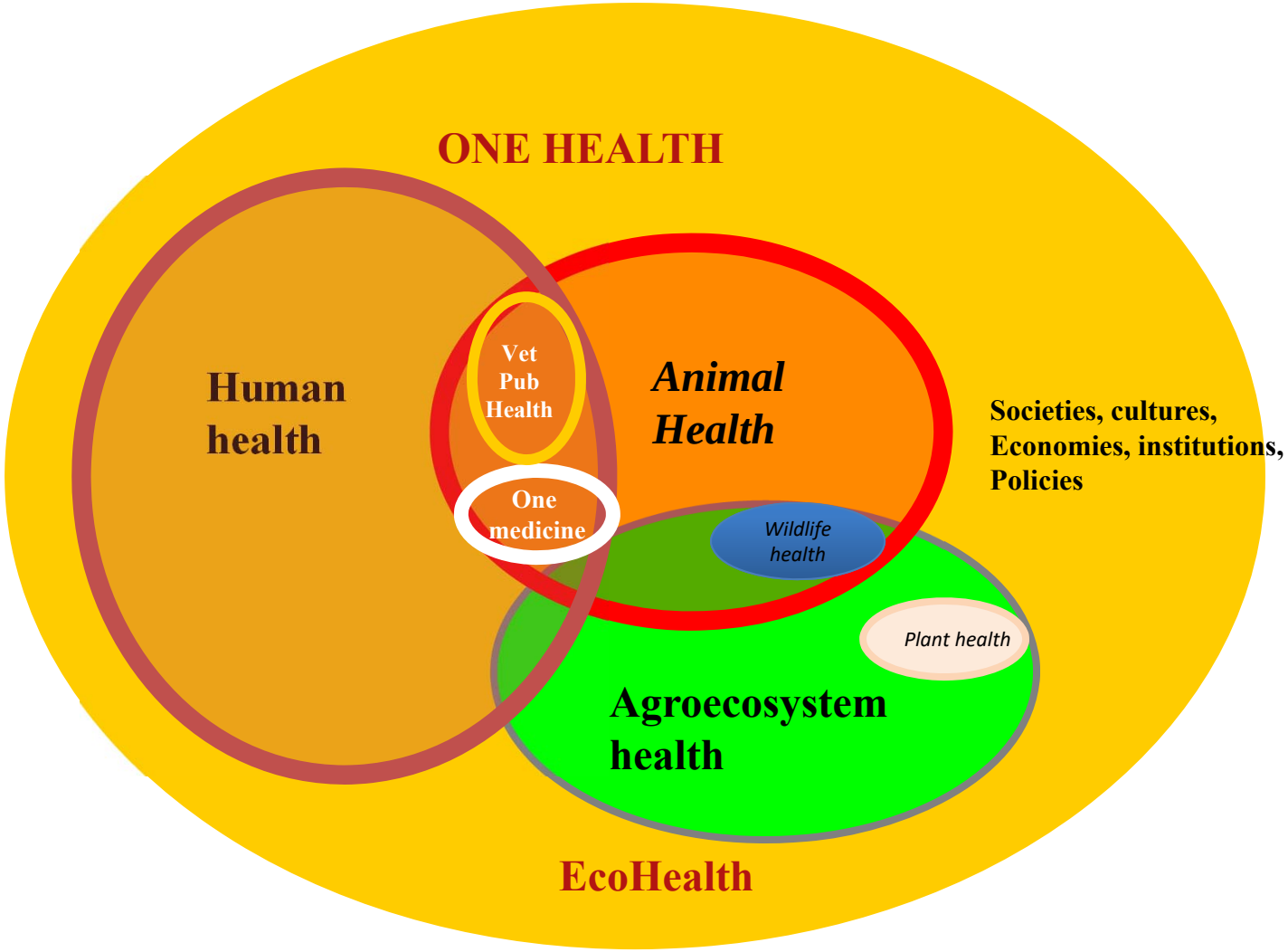
# AMR is a One World challenge



# Conclusions: 1

- Animal agriculture uses more AM than human health does and is rapidly trending up
- Most use and most growth in use is in LMIC
- Dual challenge: access as well as excess
- AMR is not the only externality of disease in LMIC and trade-offs need to be examined
- Evidence should under-pin a business case but is mostly lacking for LMIC
- Yet there is a strong rationale for One Health as the best approach for solving cross-sectoral challenges

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Launched during partner event, 21/22 February in Nairobi

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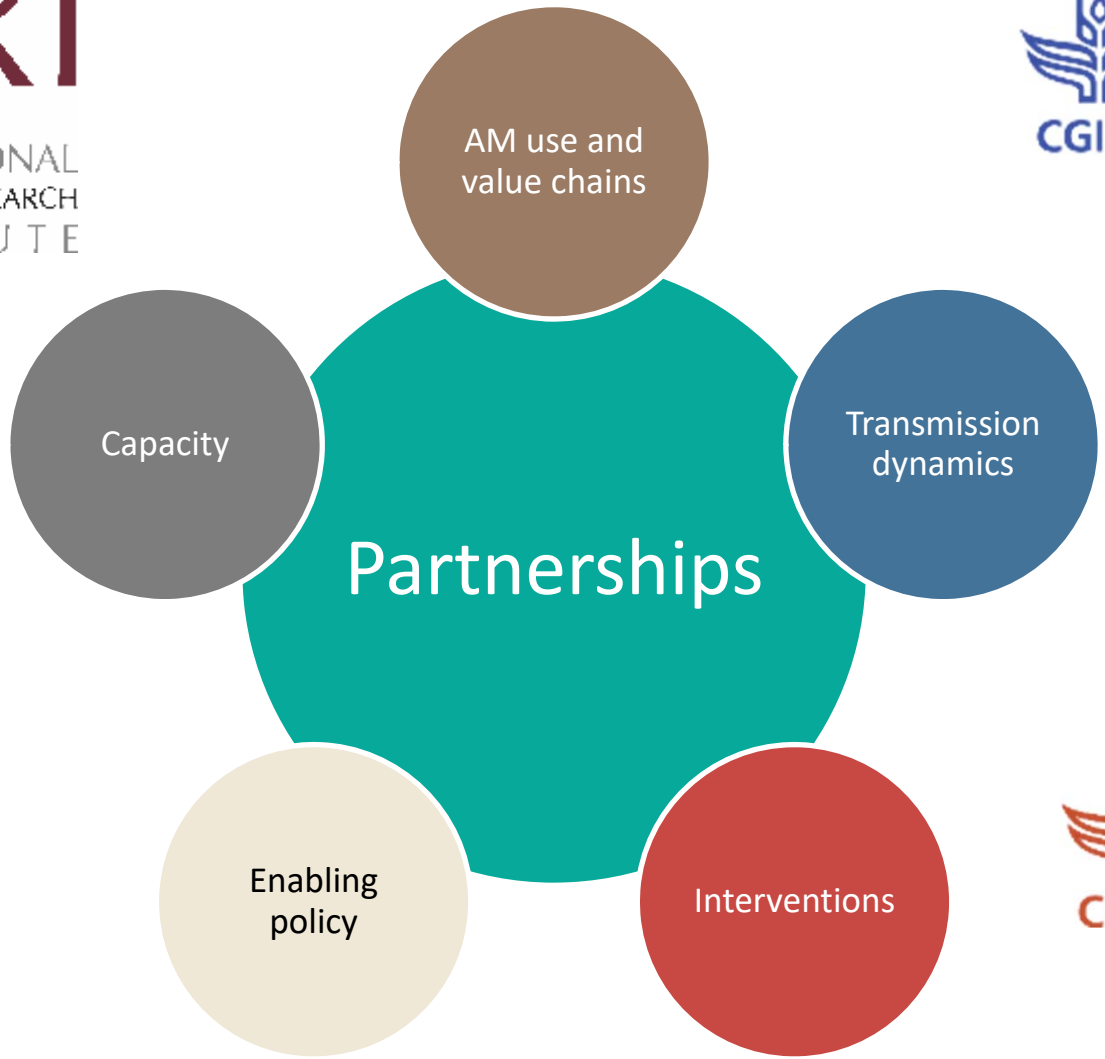
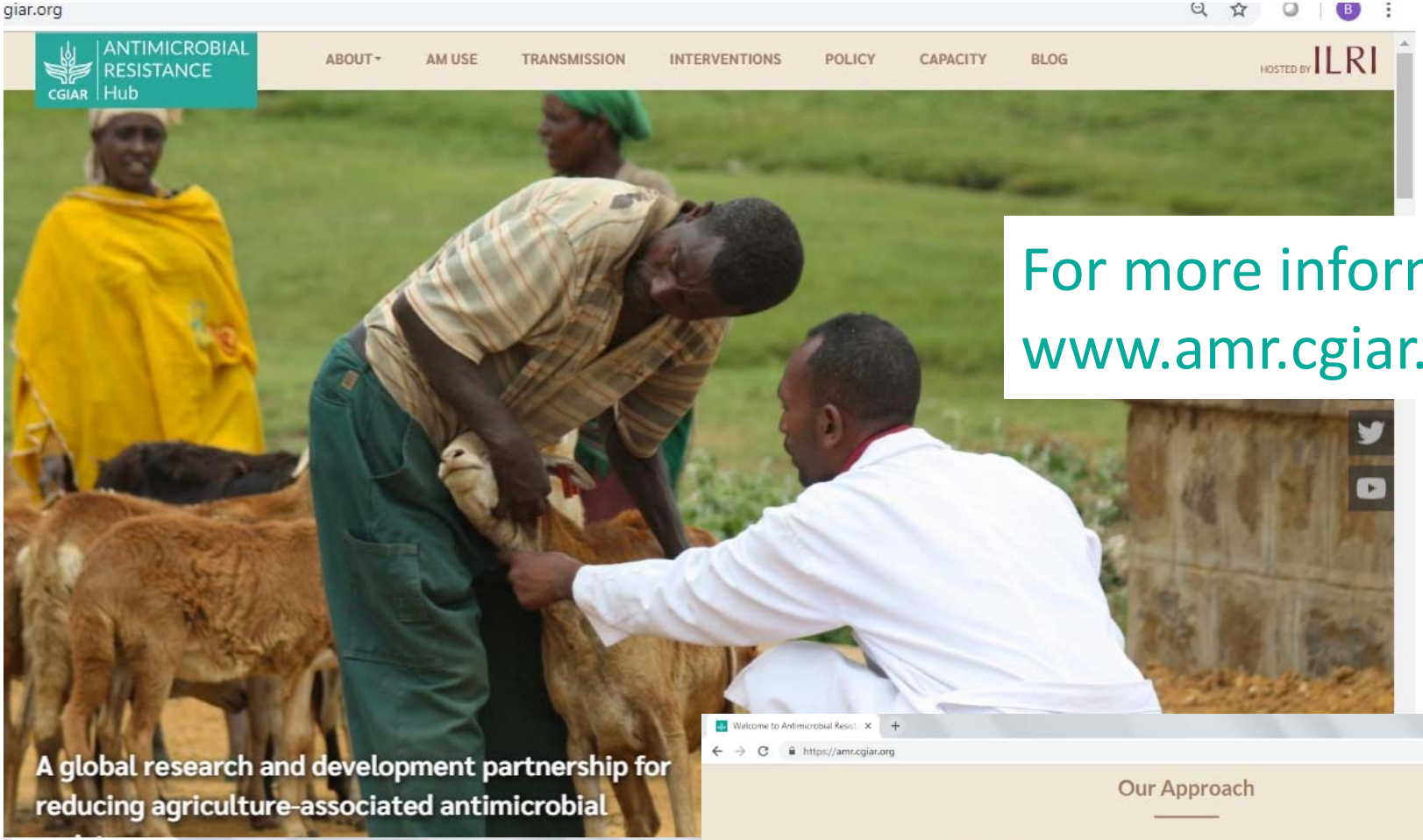
# AMR in the CGIAR: Activity focus






For more information:
www.amr.cgiar.org