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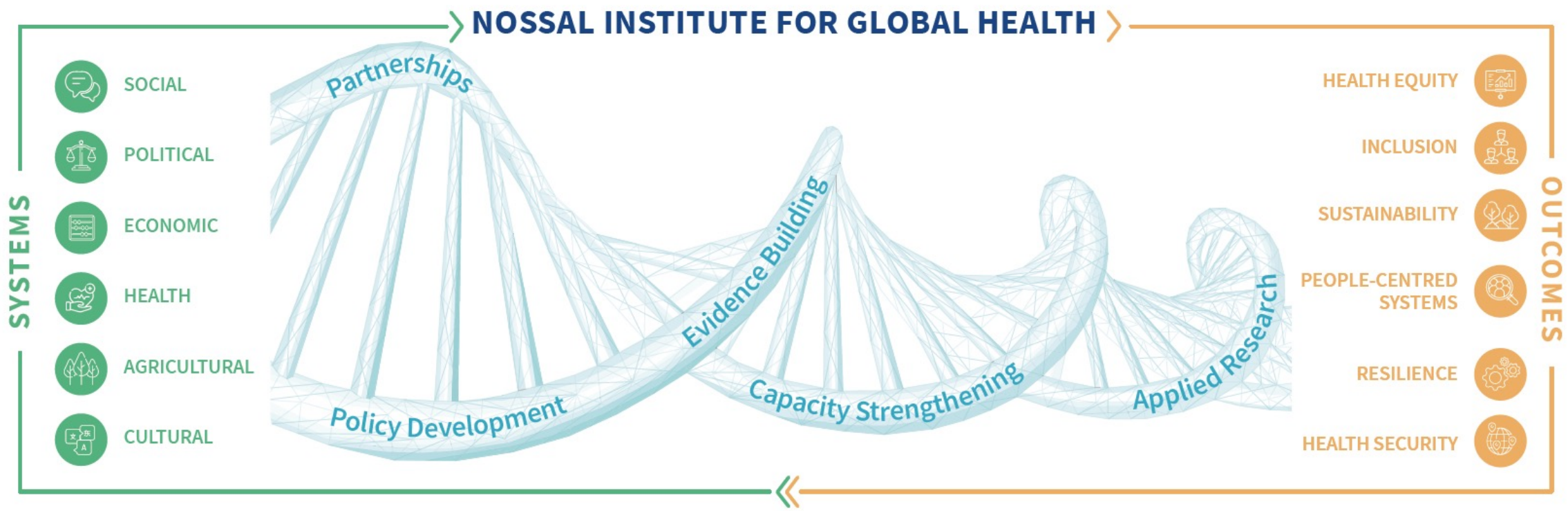
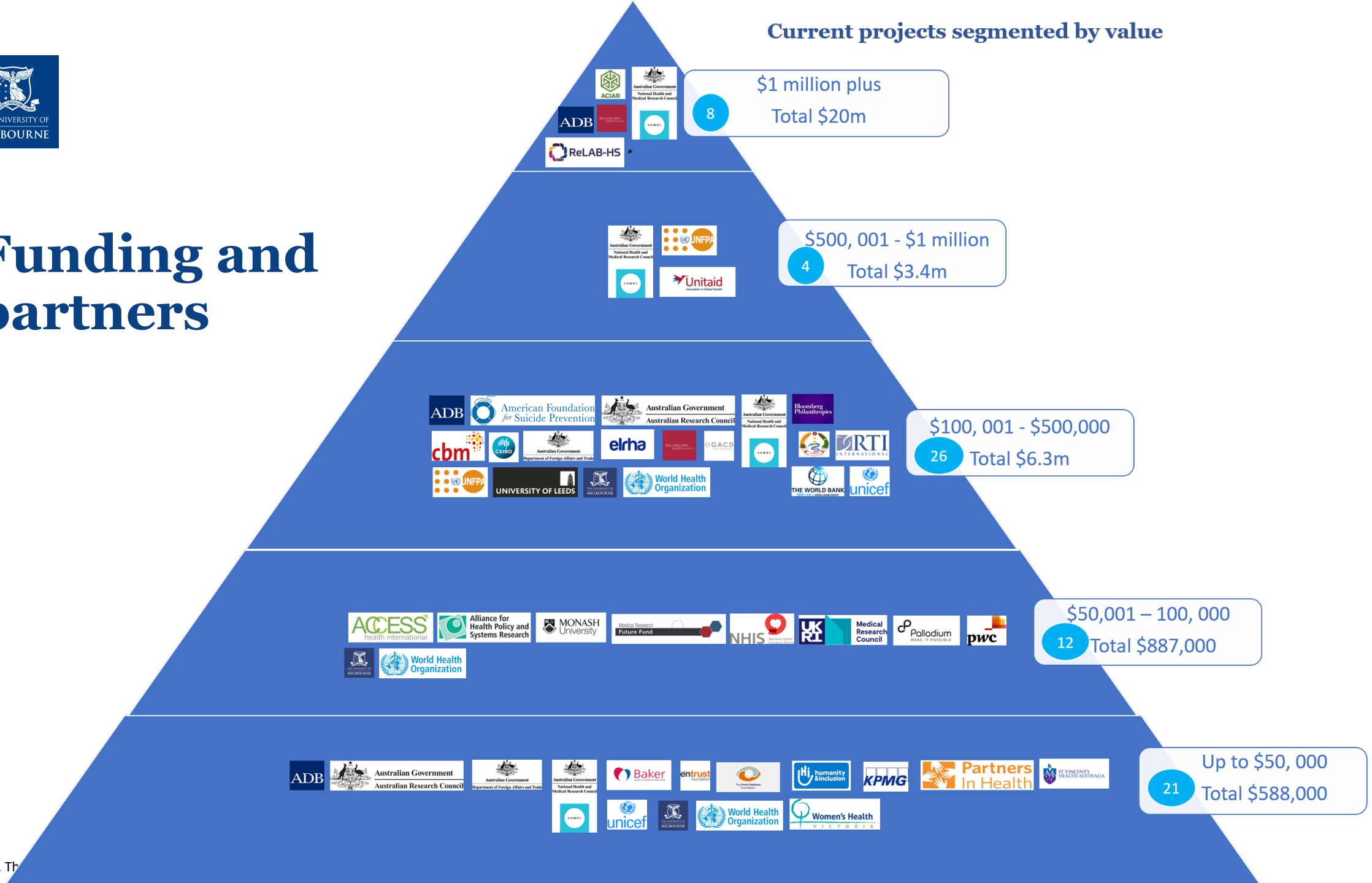
Developing a ‘Qualitative Business Case’ For One Health Investments

Nossal Institute for Global Health

An Introduction to the Nossal Institute



Funding and partners



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The Qualitative Business Case

Taken together, the available literature suggests that emerging infectious disease events are highly unpredictable. For instance, reasonable estimates, confidence intervals and probabilities associated with the following are not readily available:

- The source of risks
- The reproduction rate, case fatality rate and range of vulnerable species for a novel zoonosis (that has not yet emerged)
- The reproduction rate and case fatality rate of a new antimicrobial resistant infection, the existence and efficacy of second- and third-line antimicrobials
- The characteristics of eco-system damage and its implications for animal and human health associated with a catastrophic environmental event.

These and other targets of One Health prevention investments are not quantifiable risks, in the sense that we can undertake formal cost-benefit analyses to justify the volume of One Health investment.

- Alternative strategy to formal cost-benefit : ‘qualitative’ business case for One Health.
- Construct plausible and/or expert-predicted scenarios
- Identify a range of One Health interventions that have the objective of reducing the risks of those scenarios
- Establish the evidence base risk reduction; project
- Demonstrate that under plausible estimates One Health investments are likely to yield very high rates of return.

Relevant economic principles

Inefficiencies in resource allocation
Public goods and externalities
Economies of scope and joint production
Distributional considerations
Incentive compatibility

Economic principle
Public goods and externalities

Title: COVID vaccination

Location/Year: Global, 2021

Summary: *There are different vaccination strategies globally – most countries are trying to provide vaccines free because if an individual doesn't want to pay, the effects are experienced across the (global) community in more disease transmission and more mutation.*

Avoiding mutation that makes the disease more virulent is a global public good.

Incentives for regional and global solidarity in vaccine distribution

Economic principle
Economies of scope and joint production

Title: Human and animal vaccination delivery to remote nomadic communities

Location/Year: Chad, 2005

Summary: *A joint human-livestock campaign delivered vaccination for anthrax, blackleg, contagious bovine pleuropneumonia and pasteurellosis for animals, and pertussis, tetanus, diphtheria and polio for humans in a single campaign. An evaluation of costs indicated a 15 % reduction in operational costs compared with separate vaccination campaigns PLUS benefit from increased vaccination of humans (savings for human healthcare system).*

Economic principle
Public goods and externalities

Title: Upstream watershed condition predicts rural children's health across 35 countries

Location/Year: Global, 2017

Summary: *Research conducted in 35 countries found that a higher level of upstream tree cover was associated with a lower probability of downstream diarrheal disease for children under five.*

Economic principle
Distributional considerations

Culling of animals (without compensation) concentrates costs among the owners of culled animals but distributes benefits across all animal owners and society as a whole.

Owners of sick animals are likely to try to evade the cullers.

Needs design of incentive compatible solutions.

Economic principle:
Incentive Compatibility of Policies

Title: Sikkim Anti-Rabies and Animal Health program

Location/Year: India, 2017

Summary: *Gaining the trust of local communities was critical for the success of the Rabies program as dog catching is a major cost (and risk) for Rabies programs. Good engagement with local communities led to them assisting the project with presenting dogs and dog catching. Dog population management helped to control rabies but also addressed community concerns about dog fighting and nuisance, and unwanted puppies. Before program began (2005), human rabies incidence in Sikkim was 0.74 deaths per 100,000 persons, resulting in 4 human deaths. After the program began in 2006, there were no reported cases of human rabies until 2016.*

Conceptual approach

INCENTIVE COMPATIBILITY

DISTRIBUTIONAL CONSIDERATIONS

EFFICIENCIES FROM 'JOINED UP WORKING' INTRA- AND INTER-SECTORALLY
Efficiencies in resource allocation
Economies of scope and joint production

INTERVENTION

PRIMARY INTENDED IMPACT
(Public and private goods)

ADDITIONAL DIRECT AND INDIRECT IMPACTS (INTRA- AND INTER-SECTORAL)
(Externalities)

EXAMPLE

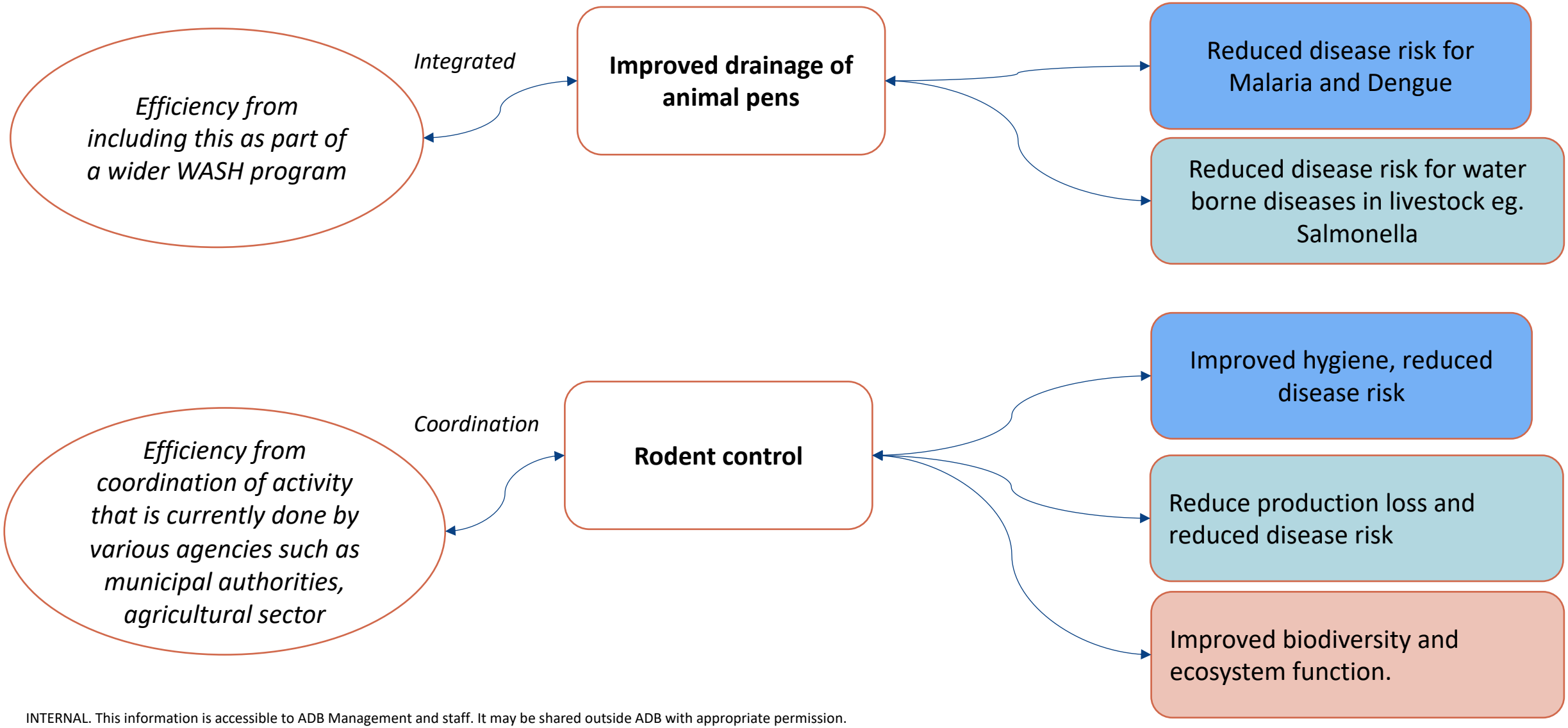
Integrate into agricultural extension program

VACCINATION OF POULTRY AGAINST AVIAN FLU

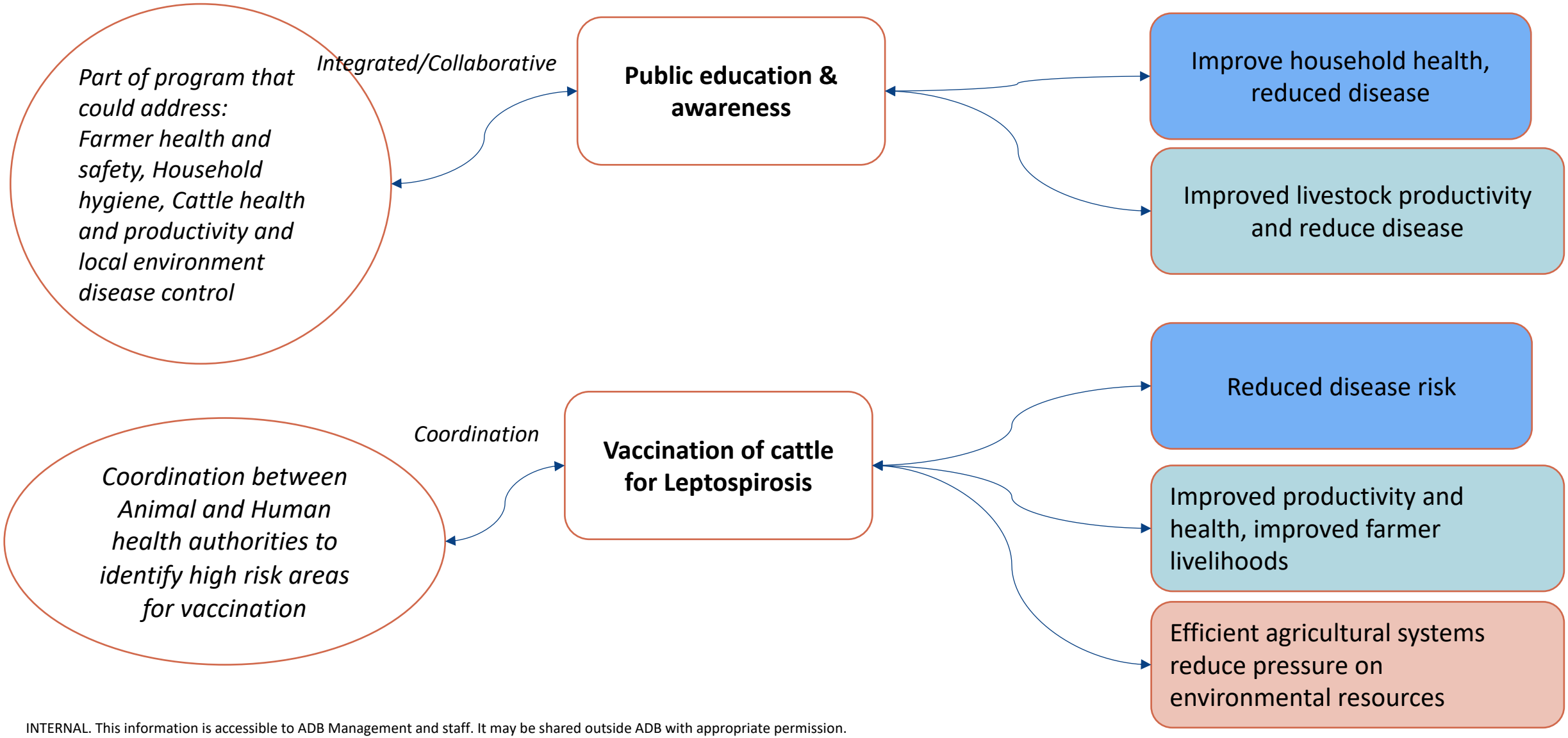
Reduced risk of avian flu pandemic in human population
(Global public good)

Reduce deaths among poultry
Improve agricultural productivity
Improve food security
Environmental benefits of more efficient land use

Case study: Leptospirosis



Case study: Leptospirosis



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Thank you

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