



One Health
In Epidemiology
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Strengthening Epidemiology Capacity Using a One Health Framework in South Asia

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EDUCATING FOR GLOBAL ISSUES

Chinese Graduates of Massey's World Bank-Funded "One Health" Program



Recent Programs



- One Health Regional Training in Animal and Human Health Epidemiology—South Asia
 - 69 Doctors and veterinarians from Afghanistan, Pakistan, India, Nepal, Bhutan, Bangladesh, Sri Lanka
 - Funded by EU AHIF Trust Fund via the World Bank
4½ years, 2010–2014
- One Health Education in Epidemiology & Biosecurity—China and Mongolia
 - 19 Government-sector doctors and veterinarians
 - Funded by World Bank
2 years, 2013–2014

Current Programs



- Integrating Education and Action for One Health — Afghanistan, Bangladesh, Bhutan and Nepal
 - One Health Epidemiology Fellowship Program
 - Funded by EU One Health Program in Asia 3 years, 2014–2017
- Veterinary Education Twinning Program
 - Massey University & University of Peradeniya, Sri Lanka
 - Funded by NZAid, 5 years, 2014–2019
 - Using OIE framework, improving health and reducing poverty through strengthened veterinary education

Key Components



- Joint education of human, animal and wildlife health professionals to Master's degree level
 - MVM / MPH (Biosecurity), MSc (One Health)
 - Flexible, cohort-based, can be completed in-service
- Collaborating with national institutions in-country
 - Institutional capacity building
 - Extend operational training to wider stakeholder groups
- Applied focus on priority zoonotic diseases
 - Situation assessment & applied epidemiology research
 - Economics and disease control policy evaluation

Key Components



- Collaborative Investigation Projects (CIPs)
 - focused on needs and priority zoonoses
 - Structured methodologies, mentoring and reporting
- Generate **outputs to inform disease control policy evaluation** and economic analyses for endemic zoonotic diseases
- Projects form the **focus for further expert assistance** and operational training
- **Broaden engagement** through national and regional workshops and symposia

Key Components

Cohort approach

- Develops highly skilled cohorts, nationally and regionally
- Builds cross-sectoral knowledge, relationships & understanding
- Function effectively when return to service
- Cohorts provide a key resource for future collaborative activities and specialised training
- ‘Educate the educators’ – graduates trained to develop and deliver training materials for national use





Integrating Education and Action for One Health

Afghanistan | Bangladesh | Bhutan | Nepal

Development Objective

To develop a collaborative approach to investigation and control of zoonotic diseases among the human, animal, and wildlife health sectors through education and joint action



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One of Four INNOVATE Projects funded through the EuropeAid One Health Program in Asia

Coordinating with three other projects:

- **Fighting Zoonoses in Afghanistan, Bangladesh & Nepal**
– Relief International (based in Nepal)
- **LACANET—Development of One Health Surveillance and Laboratory Network—Lao PDR-Cambodia**
– Institute Pasteur Cambodge (based in Cambodia)
- **ComAcross—Companion Approach for cross-sectorial collaboration in health risk management Southeast Asia**
– CIRAD (based in Thailand)



Approach

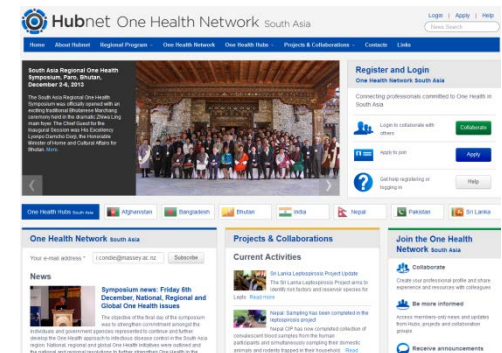
Human health, animal health and wildlife sector professionals

- **Studying together** in a Master's degree program in epidemiology and biosecurity
- **Strengthening cross-sectoral communication and collaboration** frameworks
- **Collaborative investigation projects** including field research and **evaluation of zoonotic disease control policies and economics**
- **Stakeholder engagement** nationally and regionally through workshops and symposia
- **'Educate the educators'**



One Health Epidemiology Fellowship Program

- ❑ Implemented in collaboration with local Host and Collaborating institutions in each country
- ❑ Active role in co-creating and coordinating program
- ❑ Fellowship students are co-located at the Host institutions
- ❑ Study and work in-country and through regional workshops
- ❑ Communication and collaboration across organisational and geographic boundaries facilitated using Hubnet, an online collaboration platform



Integrating Education and Action for One Health
Afghanistan | Bangladesh | Bhutan | Nepal

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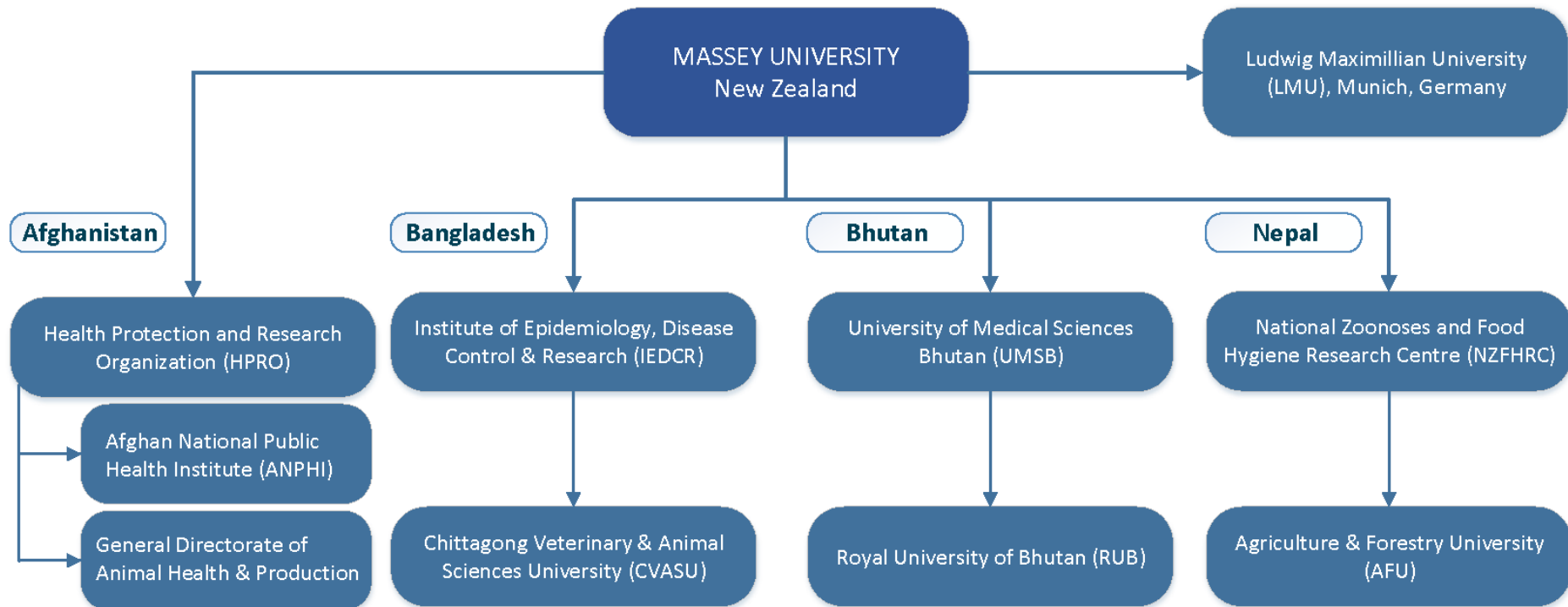


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Organisational Arrangements



One Health Epidemiology Fellowship Program

Students and Host Organisation Representatives



Integrating Education and Action for One Health
Afghanistan | Bangladesh | Bhutan | Nepal

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One Health Epidemiology Fellowship Program

- Disease situation assessment and collaborative investigation projects, including field research focussed on priority zoonoses
- Data is compiled and used to conduct disease control policy evaluations including economic analyses and design of appropriate One Health strategies
- Outputs include scientific papers, conference presentations and draft policy recommendations
- Local curriculum development & outbreak simulation exercises



One Health Epidemiology Fellowship Program

Diseases for investigation, by country

Country	Disease 1	Disease 2	Disease 3	Disease 4
Afghanistan	Brucellosis	Q fever	Rabies	Toxoplasmosis
Bangladesh	AI	Nipah virus	Anthrax	??
Bhutan	Rabies	Scrub typhus	Hydatidosis	Bovine TB
Nepal	Brucellosis	Japanese encephalitis	Porcine cysticercosis	Zoonotic visceral leishmaniasis



Collaborative Investigation Projects - Afghanistan

1. Knowledge, attitude and practices (**KAP**) of health-care providers in Afghanistan with respect to diagnosing and treating zoonoses
2. Descriptive analysis of animal-related **brucellosis** data collected through passive and active surveillance systems in Afghanistan to inform brucellosis control policies
3. Risk factors and clinical patterns of **Q fever** amongst patients with fevers of unknown origin in Helmund Province



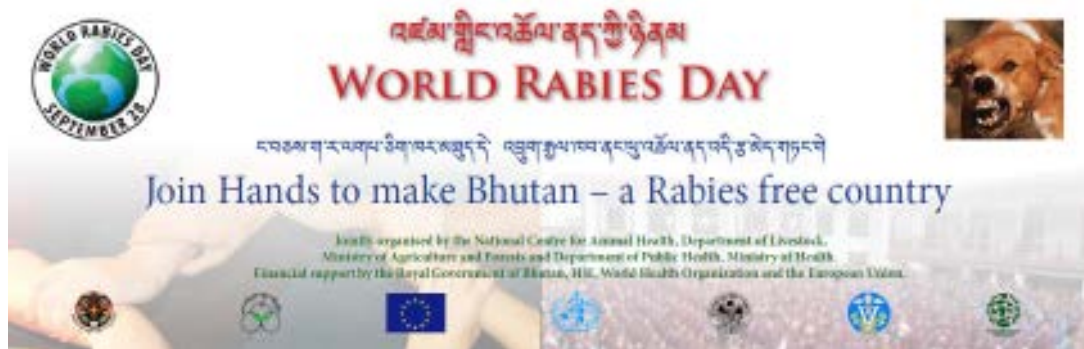
Collaborative Investigation Projects - Bangladesh

4. Characterisation of the movement and contact patterns of poultry potentially associated with transmission of newly-introduced subtypes of **avian influenza virus** in two districts of Bangladesh, using social network analysis
5. Association of date-palm sap collection, consumption and marketing practices with risk of **Nipah virus** infection in people in Bangladesh



Collaborative Investigation Projects - Bhutan

6. Descriptive epidemiology and identification of risk factors of clinical **scrub typhus** in people in Bhutan
7. Assessment of knowledge, attitude and practices of clinicians in administration of post-exposure prophylaxis (PEP) for **rabies** exposure in Bhutan



Collaborative Investigation Projects - Nepal

8. Assessment of biosecurity practices and network analysis of cattle and buffalo movements to understand the risk of spread of **brucellosis** in Nepal
9. Risk mapping for **Japanese Encephalitis** (JE) using network analysis of swine movement and environmental factors including patterns of land-use in Nepal



Learning our way forward: what's new

- Integrated key components into a 2-year full-time **One Health Epidemiology Fellowship Program**
- Implemented in collaboration with local **Host and Collaborating institutions** in each country who **play an active role in co-creating and coordinating program**
- Fellowship students are co-located and work full-time at the Host institutions
- **Regional coordinator** based in Bhutan supporting activities in the four countries – **local mentoring and support**
- **Extended the wildlife component** of the Master's degree



Learning our way forward: what's new

- ❑ Collaborative investigation projects run parallel with the Master's program, rather than following it
- ❑ Strong focus on disease control policy evaluation through integrated education, situation assessment and policy analysis
- ❑ Development and incorporation of web-based modelling and economic analysis tools to support zoonotic disease control policy evaluation
- ❑ National language training materials will be developed by Fellows to support wider national training
- ❑ Integrated program attracting national interest and favourable reviews and feedback in the target countries



Acknowledgements

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