

# Environmental Health in Agriculture and Livestock

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# Indonesia negara dengan kasus flu burung terbanyak di dunia

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AP

Fighting Avian Flu in Indonesia's  
Poultry with IVM Online (Food and  
Agriculture Organization of the United  
Nations)

<https://www.youtube.com/watch?v=mQleb4yU1GM>

Let's find out more  
about Avian Flu in  
Indonesia!



# Definition of Livestock: Republic Indonesia Law 18/2009

Livestock is all matters relating to physical resources, seeds, seeds and / or feeder, feed, equipment and machinery for animal husbandry, animal husbandry, harvest, post-harvest, processing, marketing, and business.



# Impacts of Poultry Production

## Environment

- Waste Management
- Waste water
- Air emission
- Hazardous materials



## Transmission:

- Direct contact
- Indirect contact
- Disease vectors

# Impacts of Poultry Production

## Occupational Health and Safety



Vehicle operation



Inadequately ventilated buildings



Manure pits

# Impacts of Poultry Production

## Community Health and Safety

### Impacts:

- Antibiotic resistance
- Health problems, such as aplastic anemia



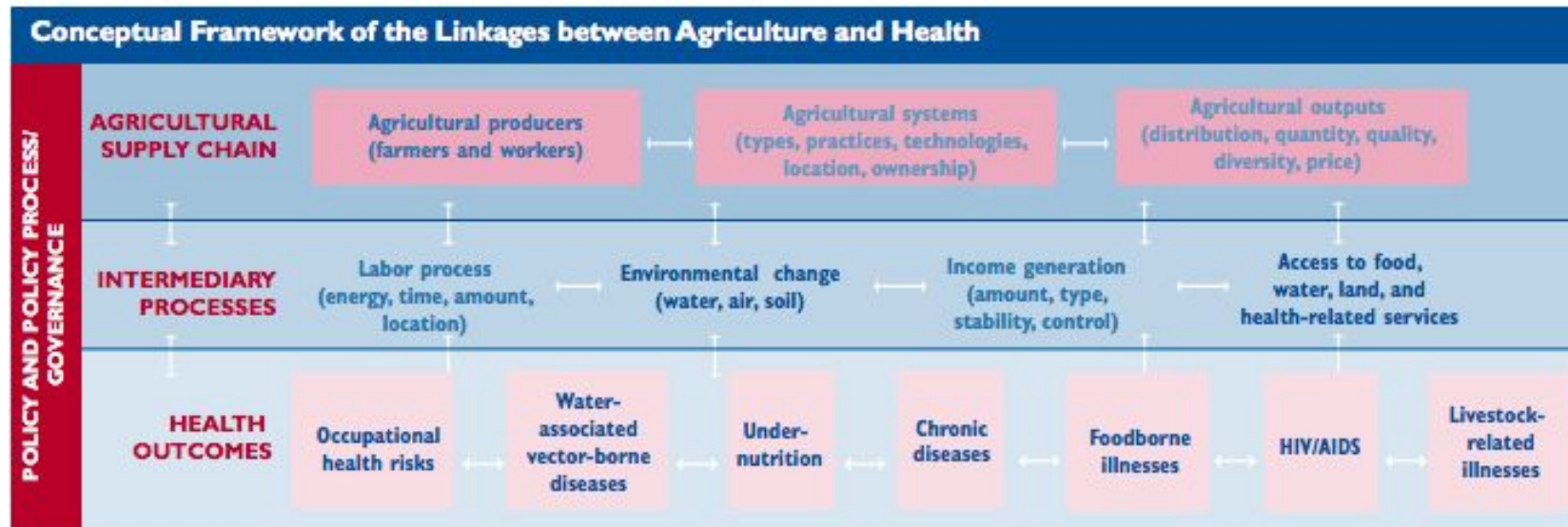


# Definition of Agriculture: Republic Indonesia Law 19/ 2013

Agriculture is an activity of **managing biological natural resources** with the help of technology, capital, labor, and management **to produce Agricultural Commodities** that include food crops, horticulture, plantations, and / or livestock in an agroecosystem



# Agriculture and Health





# Occupational Health Hazards in Agriculture

## Occupational Health Hazards of Agricultural Work in Developing Countries

EXPOSURE	HEALTH EFFECT	SPECIFICITY TO AGRICULTURE
<b>Weather, climate</b>	Dehydration, heat cramps, heat exhaustion, heat stroke, skin cancer	Most agricultural operations are performed outdoors
<b>Snakes, insects</b>	Fatal or injurious bites and stings	Close proximity results in high incidence
<b>Sharp tools, farm equipment</b>	Injuries ranging from cuts to fatalities; hearing impairment from loud machinery	Most farm situations require a wide variety of skill levels for which workers have little formal training, and there are few hazard controls on tools and equipment
<b>Physical labor, carrying loads</b>	Numerous types of (largely unreported) musculoskeletal disorders, particularly soft-tissue disorders, e.g., back pain	Agricultural work involves awkward and uncomfortable conditions and sustained carrying of excessive loads
<b>Pesticides</b>	Acute poisonings, chronic effects such as neurotoxicity, reproductive effects, and cancer	More hazardous products are used in developing countries with minimal personal protective equipment (PPE)
<b>Dusts, fumes, gases, particulates</b>	Irritation of the eyes and respiratory tract, allergic reactions, respiratory diseases such as asthma, chronic obstructive pulmonary disease, and hypersensitivity pneumonitis	Agricultural workers are exposed to a wide range of dusts and gases from decomposition of organic materials in environments with few exposure controls and limited use of PPE use in hot climates.
<b>Biological agents and vectors of disease</b>	<ul style="list-style-type: none"> <li>• Skin diseases such as fungal infections, allergic reactions, and dermatoses</li> <li>• Parasitic diseases such as schistosomiasis, malaria, sleeping sickness, leishmaniasis, ascariasis, and hookworm</li> <li>• Animal-related diseases or zoonoses such as anthrax, bovine tuberculosis, and rabies (at least 40 of the 250 zoonoses are occupational diseases in agriculture)</li> <li>• Cancers, such as bladder cancer caused by urinary bilharzia contracted through working in flooded areas in North and Sub-Saharan Africa</li> </ul>	<ul style="list-style-type: none"> <li>• Workers are in direct contact with environmental pathogens, fungi, infected animals, and allergenic plants</li> <li>• Workers have intimate contact with parasites in soil, wastewater/sewage, dirty tools, and rudimentary housing</li> <li>• Workers have ongoing, close contact with animals through raising, sheltering, and slaughtering</li> <li>• Agricultural workers are exposed to a mix of biological agents, pesticides, and diesel fumes, all linked with cancer</li> </ul>

# Diseases in Agriculture

## Major Water-Related, Vector-Borne Diseases and Their Links to Agricultural Development

### DISEASE/PREVALENCE

#### Malaria

World's most important parasitic infectious disease; over 2 billion people at risk; between 300 and 500 million episodes and over 1 million deaths annually; over 90% of malaria burden in Sub-Saharan Africa; also a major problem in Brazil, Colombia, India, Solomon Islands, Sri Lanka, and Viet Nam.

#### Schistosomiasis

Second most important water-related parasitic infection for public health and economic impact; at least 779 million people are at risk; 207 million are infected; between 50,00 and 100,000 deaths annually; 80% of the infected people live in Sub-Saharan Africa.

#### Japanese encephalitis

Viral disease; 1.9 billion people are at risk and 50,000 clinically infected; case fatality as high as 60%, but deaths vary significantly between years (15,000 deaths in 2001); occurs mainly in Asia and the islands of Western Pacific.

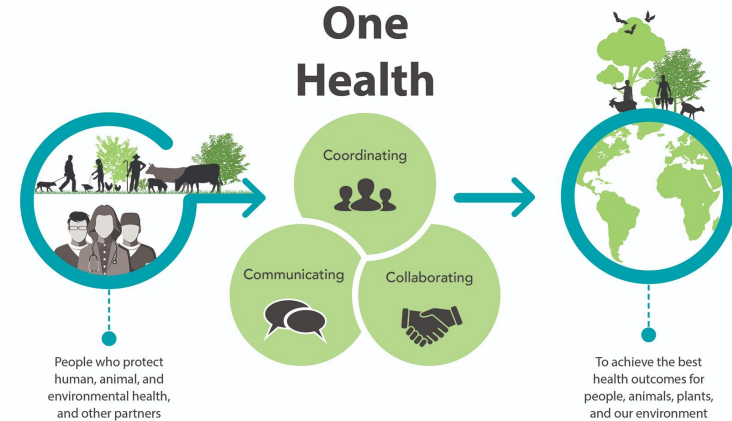
### LINK WITH AGRICULTURAL WATER RESOURCES

Transmitted by Anopheles mosquitoes that breed in fresh or occasionally brackish water; transmission intensity and disease distribution are exacerbated by water resources development; agricultural control measures include filling and draining small water bodies to reduce mosquito breeding sites.

Transmitted by free-swimming larvae of Schistosoma (flatworm); disease transmission and outbreaks significantly increased by water resources development; agricultural control measures include environmental modifications (e.g., lining of canals) that prevent snail vectors and limit human-water contact.

Transmitted to humans and animals by Culex mosquitoes, which often breed in flooded rice fields; the disease circulates in birds, and pigs are amplifying hosts; disease distribution significantly linked to irrigated rice production combined with pig rearing; agricultural water management measures include alternate wetting and drying of rice fields to reduce vector populations.

# One Health



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Centers for Disease  
Control and Prevention  
National Center for Emerging and  
Zoonotic Infectious Diseases