



# Antibiotic Residues in Pork Meat

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# Presenting Issues

- Antibiotic resistance
- Human health
- Animal health
- Environmental health
- Economy (trade, ban, tourism, etc.)



# ■ Antibiotic resistance

- health threat for human and animal health,
- environmental health



- Human health
  - allergy, brown teeth (tetracycline),
  - gene mutation,
  - antibiotic resistance bacteria





# ■ Animal health

- antibiotic resistance bacteria,
- antibiotic residues in piglets (through mother)



# ■ Environmental health

- Antibiotic resistance spread from one bacteria to other bacteria (Gram negatives)
- Hazard for other animals



- Economy (trade, ban, tourisms)
  - Treatment options – higher dosage of antibiotics (human and veterinary medicine)
  - Ban of animal products containing antibiotic residues
  - Lack of consumer trust in food
  - Higher budget for food safety control





# History

The use of antibiotic for:

- **prophylaxis or treatment** in pigs
- **growth promoter** in feed



## stakeholders

- Farmers
- Consumers
- Authority in Food and Agriculture, Public Health, Animal Health
- Government (regulation, policy makers)
- People in pork chain
- Tourists
- Scientist, public health practitioner, vets
- Lab technicians

## issues

- Antibiotic resistance
- Human health
- Animal health
- Environmental health
- Economy (trade, ban, tourism, etc.)

## governance

- Policy and regulations
- Control of antibiotic trade and use
- Public awareness
- Intervention (education of farmers, vendors)
- Research on antibiotic resistance, development of new herb based antimicrobial
- Development of rapid method in antibiotic residues detection

# People and their stories

## Risk communication

- Building self and social awareness
- Involving the community and stakeholders to overcome the issues



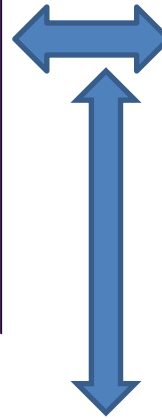
# Understanding social-ecological systems

## Understanding nature

- Bacteria in the environment can accept the antibiotic resistance (plasmid) from other antibiotic-resistance-bacteria, then it can spread also to other bacteria or microflora in animals

## Understanding culture

- Farmers want their animal healthy and productive
- Some consumers do not have awareness on antibiotic residues in pork meat



## What are the options: constraints and opportunities

- Education of farmers and stakeholders, incl. consumers
  - Development of regulations
- Strengthen the control of antibiotic trade and use, antibiotic residues in meat
  - research

# Collaborative learning and action

## Monitoring and evaluation?

- Establish the technical indicators, e.g., regulation has been issued, how many people were involved in education
  - Regular monitoring of progress
- KAP study (compare with the base line study)



## Implementation?

- Education of farmers (development of modules, funds?)
  - Campaign of food safety to stakeholders
- Strengthening the implementation of regulation



## Design of an adaptive approach?

Eco-health (system thinking, transdisciplinary, participation, knowledge to action)



## Trade-offs and solutions. Where do people want to go?

- Control in farms: proper use antibiotic in farms





**Thank you for your attention**  
**Terima kasih atas perhatiannya**