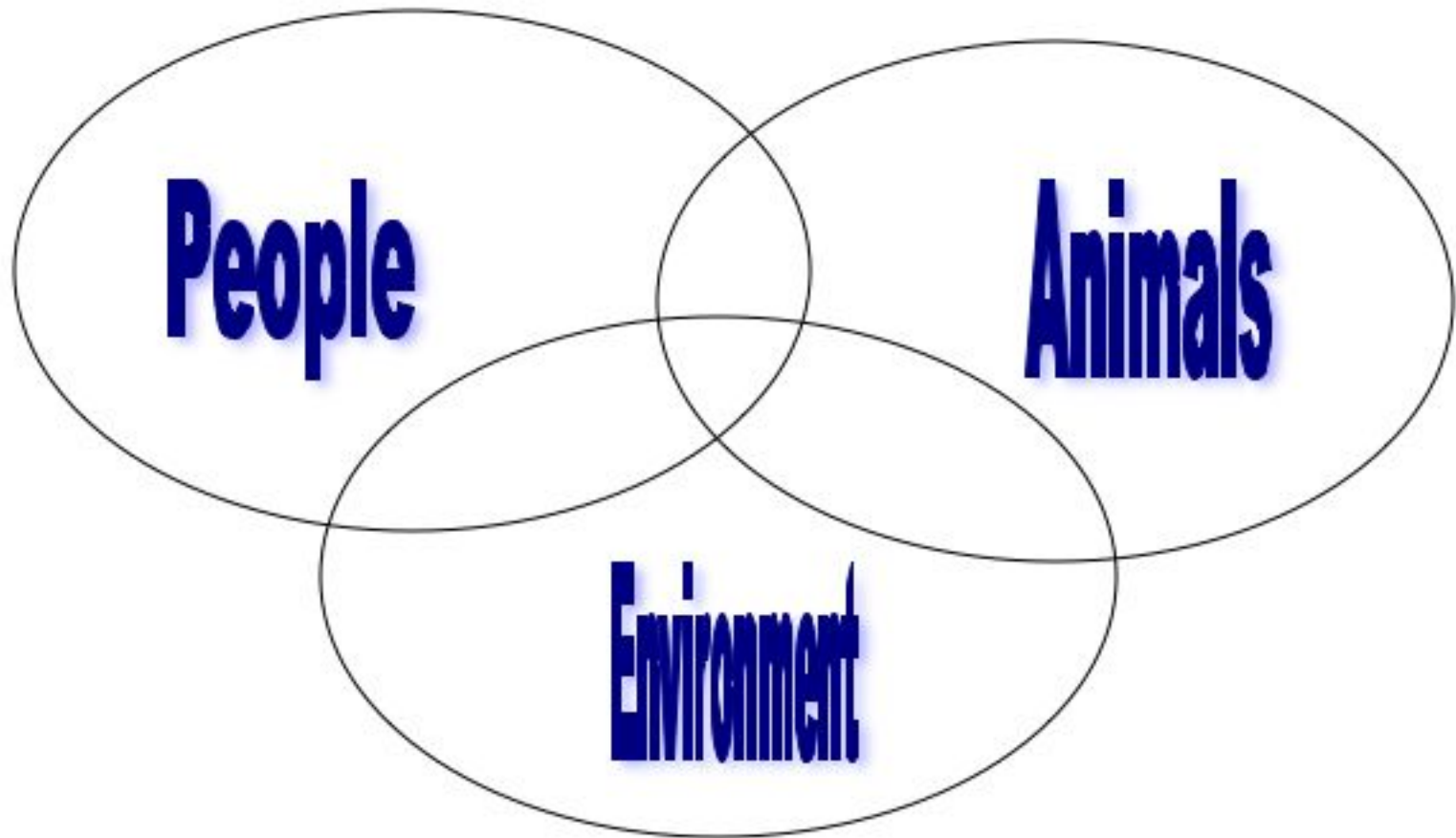


# What Roles Do Animals Play in Human Resilience?

Joann M. Lindenmayer, DVM, MPH  
Associate Professor, Dept. of Environmental and  
Population Health  
Cummings School of Veterinary Medicine  
Tufts University

# Relationship between People, Animals and the Environment



# Population Medicine (Public Health)

## PROBLEM

Population

## RECOGNITION

Report or routine surveillance

## EXPERT OPINION

Public Health System

## ANALYSIS, DIAGNOSIS

Epi Investigation



## RX

Intervention, Program or Policy

## TREATMENT

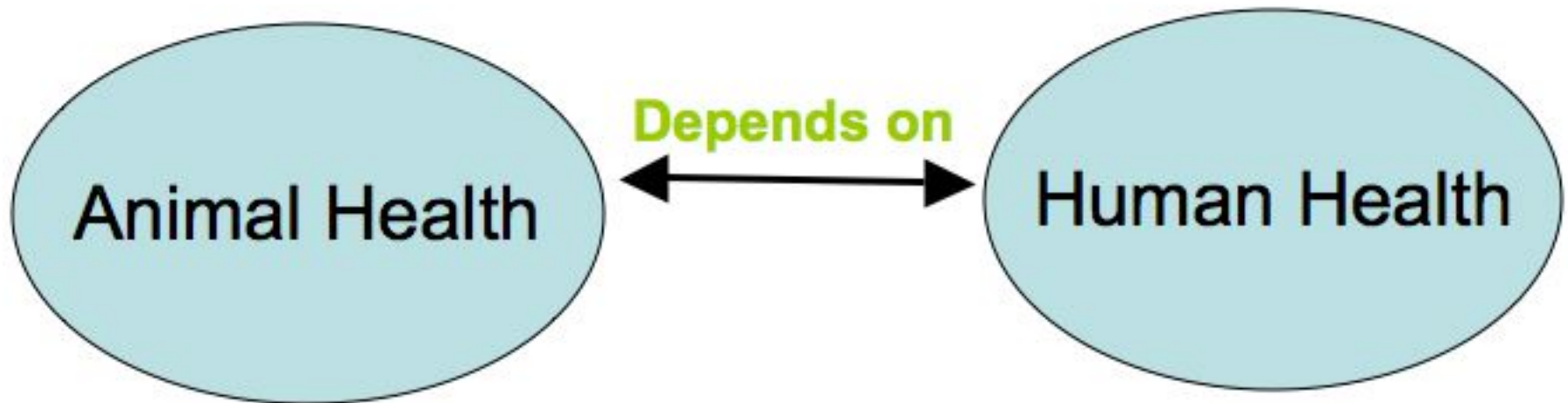
Politics

Population Health

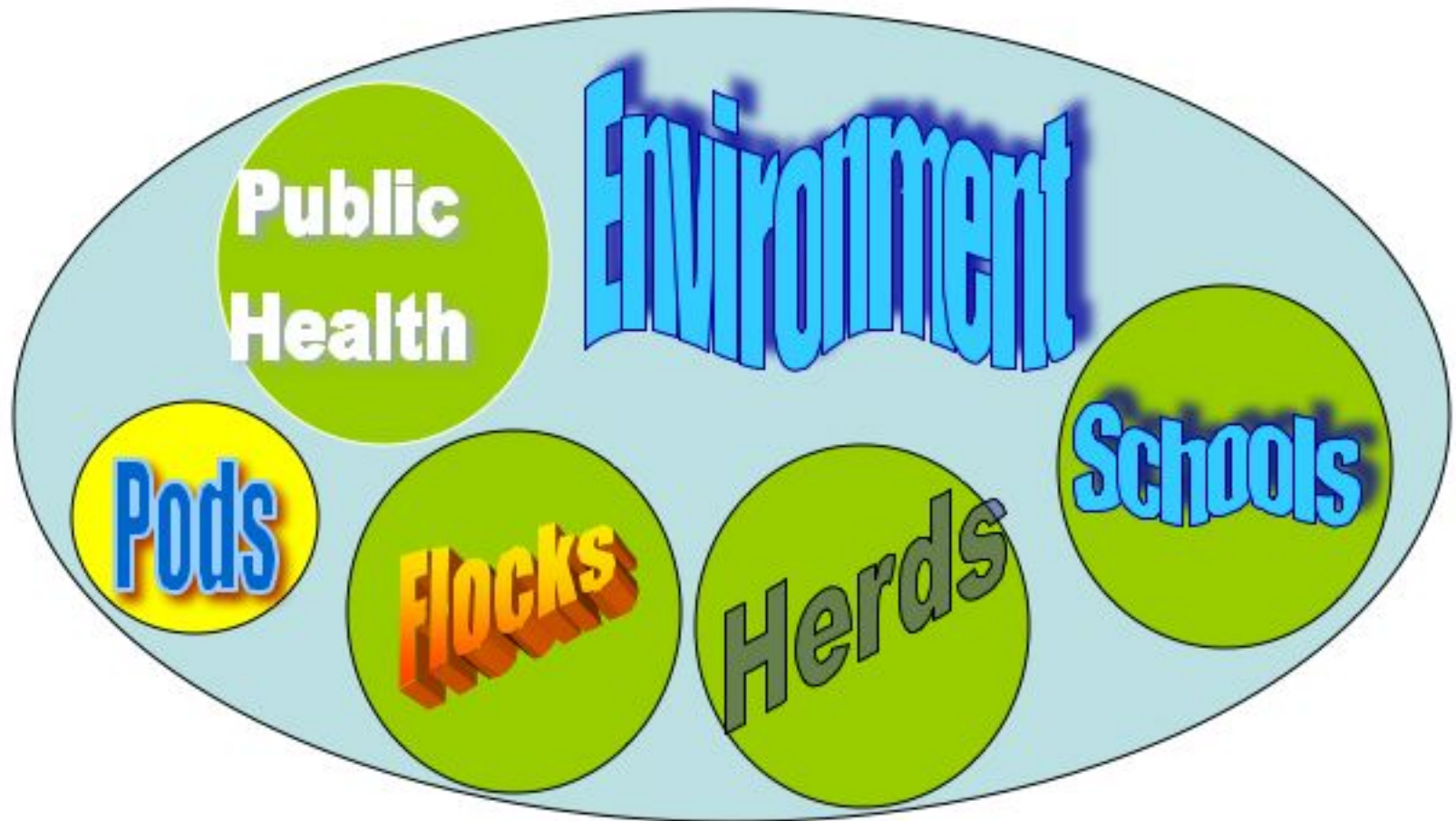


# One Medicine/One Health

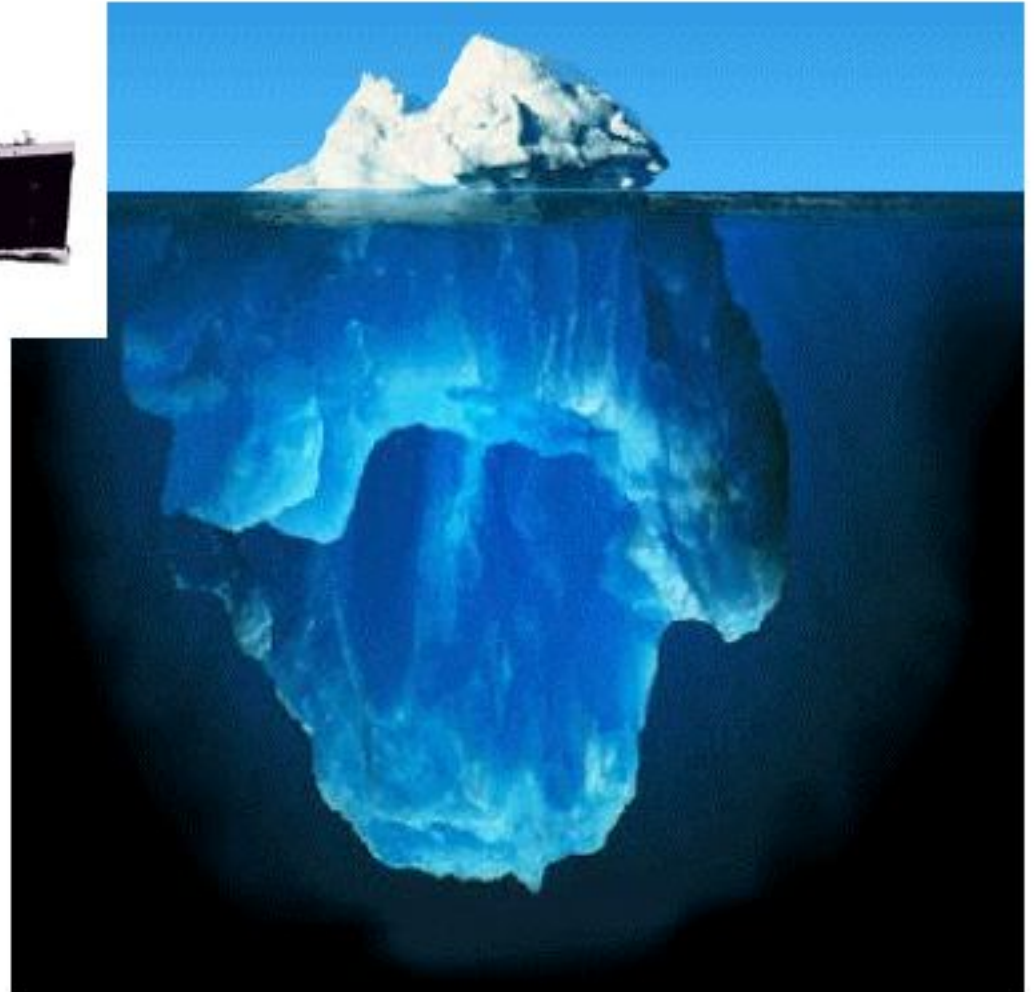
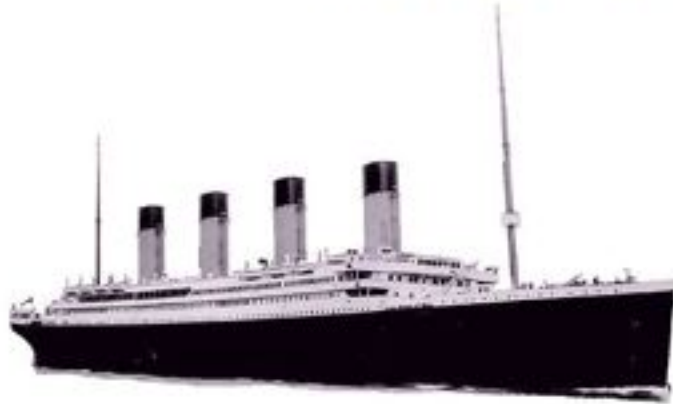
- “There is no good public health without good animal health.” James Harlan Steele, DVM, MPH



# Relationship between Population Health and Public Health

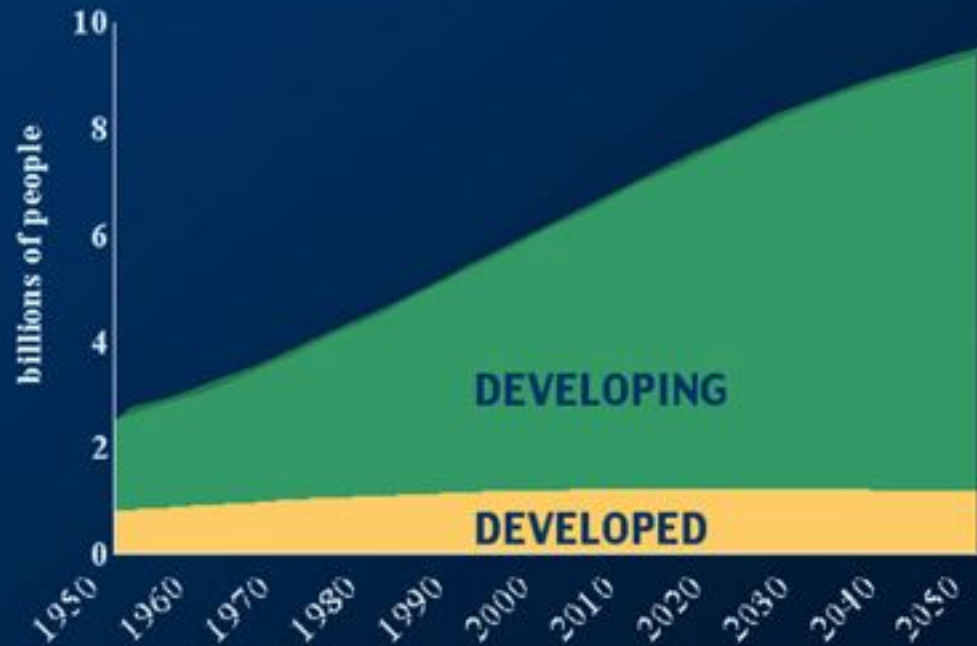


# The Lifeboat Test



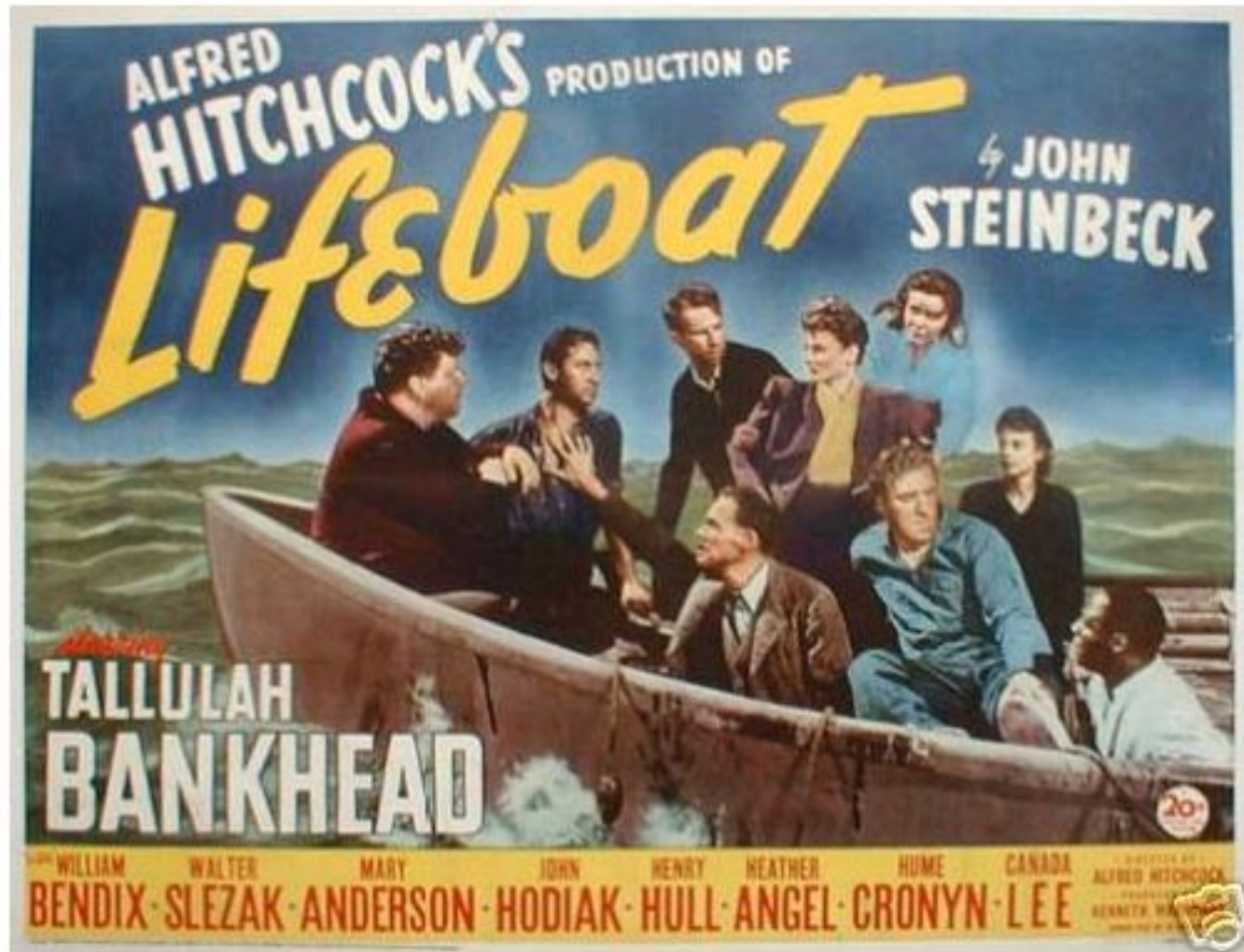
# The Iceberg

## Projected world population growth



World Resources Institute

# The Lifeboat Test





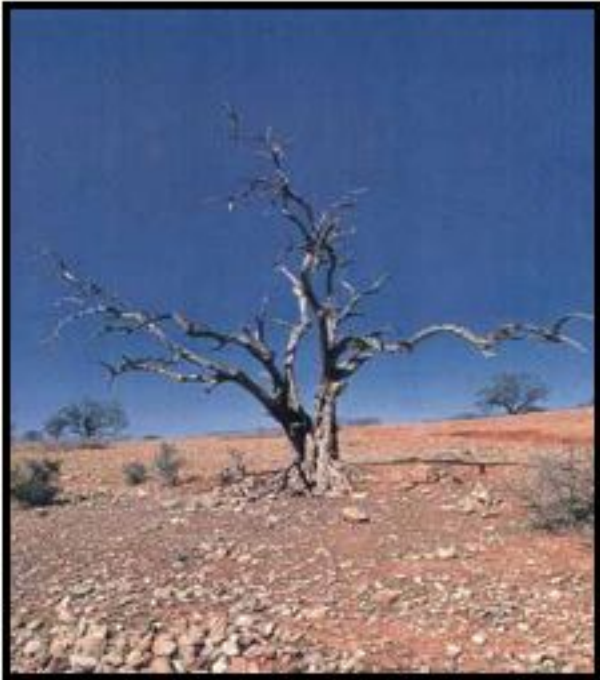
# Hurricane Katrina



# Foot and Mouth Disease, UK 2000



# Pastoralist Societies



# Biophilia



# Increasing Awareness of a Role for Veterinarians in Public Health



# The Glass Fence



# Essential Public Health Service #7: Link People to Health Services

- Schelling E et al. Synergy between public health and veterinary services to deliver human and animal health interventions in rural low income settings. *BMJ* 2005; 331:1264-1267.
  - Livestock contribute to livelihood of at least 70% of world's rural poor
    - Marginalized from development processes and vulnerable to exclusion from health services
  - Weak infrastructure and poor quality of services for animals and humans are linked to resource constraints
    - especially lack of qualified field staff

# Joint Delivery of Public and Veterinary Health Services: Vaccination

- Swiss Tropical Institute has established interdisciplinary research and action program to identify, test and evaluate health interventions in nomadic pastoralist settings in Chad, Mali and Mauritania





# Joint Delivery of Vaccination

- History
  - No children fully immunized against measles, pertussis
  - 75% of cattle vaccinated against Rinderpest
- Planned jointly by Ministries of Health, Agriculture
- From 2002-2004, 10 campaigns to vaccinate women and children among Fulani, Arab and Dazagada groups during the dry season
  - Each campaign had 3 rounds
  - Used mobile vet infrastructure in 1/3 rounds
  - Used local health and veterinary staff

# Joint Delivery of Vaccination: Outcomes

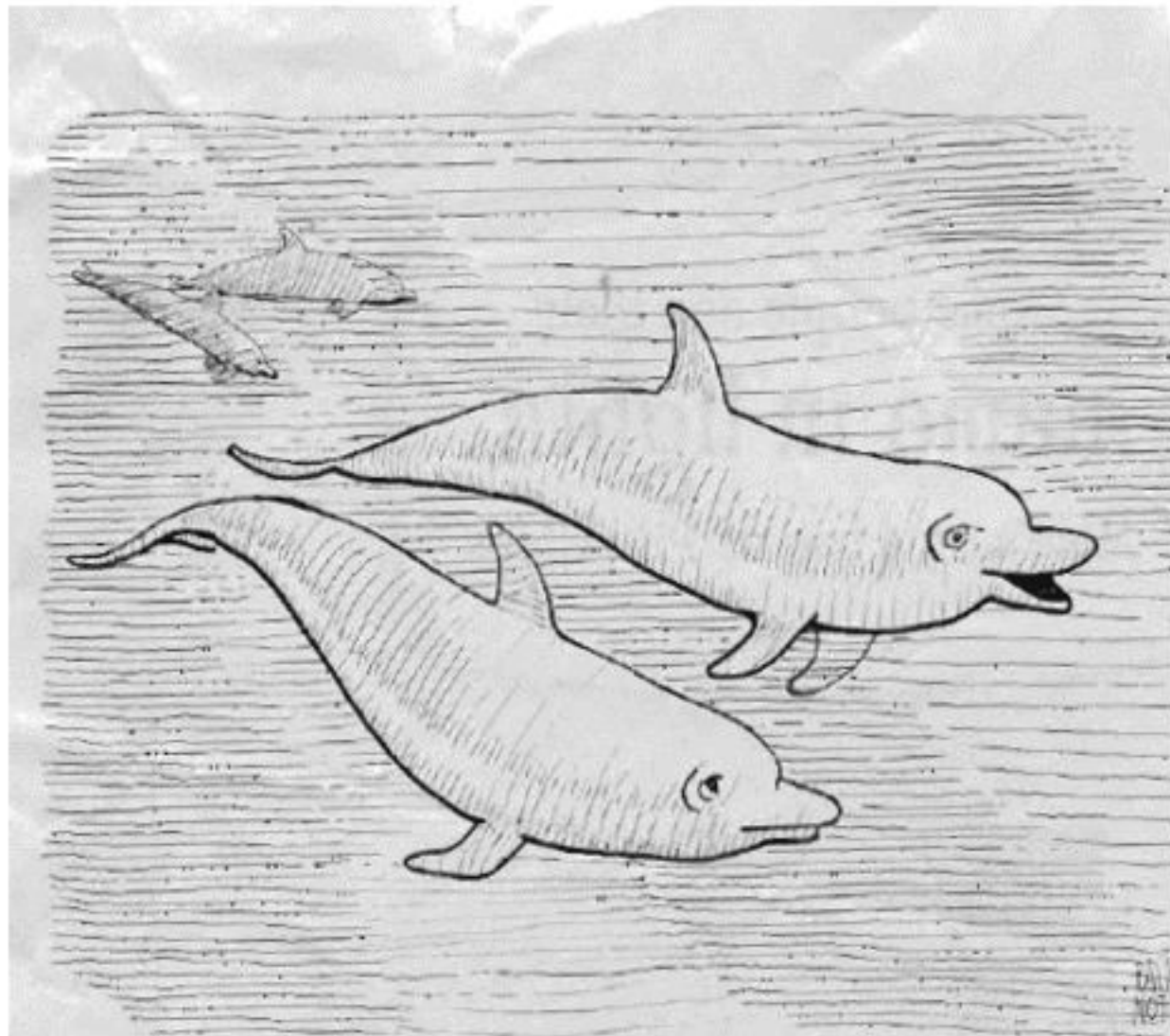
- 103,521 animals vaccinated, 4022 children under 5 were fully immunized and 6284 women received 2 doses of tetanus
- Problems – 68% of children lost to follow up by the third round
  - Big effect on costs/fully immunized child because adds to total costs, not counted in denominator
- Public health and veterinary sectors shared costs of transportation equally, and 40% and 37% of costs of vaccines and consumables, respectively

# Joint Delivery of Vaccination: Outcomes (continued)

- Increased awareness of pastoralist communities about vaccines and their role in it
- When services were delivered jointly, more people were vaccinated than when veterinarians were absent
- Many people had their first contact with health services (half of pastoralists no prior first contact)
- Chadian veterinary service looking to public health sector for \$ to improve and sustain vet services
- Ministries now planning more joint campaigns for pastoralist communities

# Joint Delivery of Services: Potential

- Use to identify prevention and control strategies for zoonoses
  - Use for settled pastoralists, mixed livestock crop farmers
- Expand to link human and animal resources for disease surveillance in low income countries
- Solutions based on ecosystem, rather than conventional health sector interventions (“silos”)



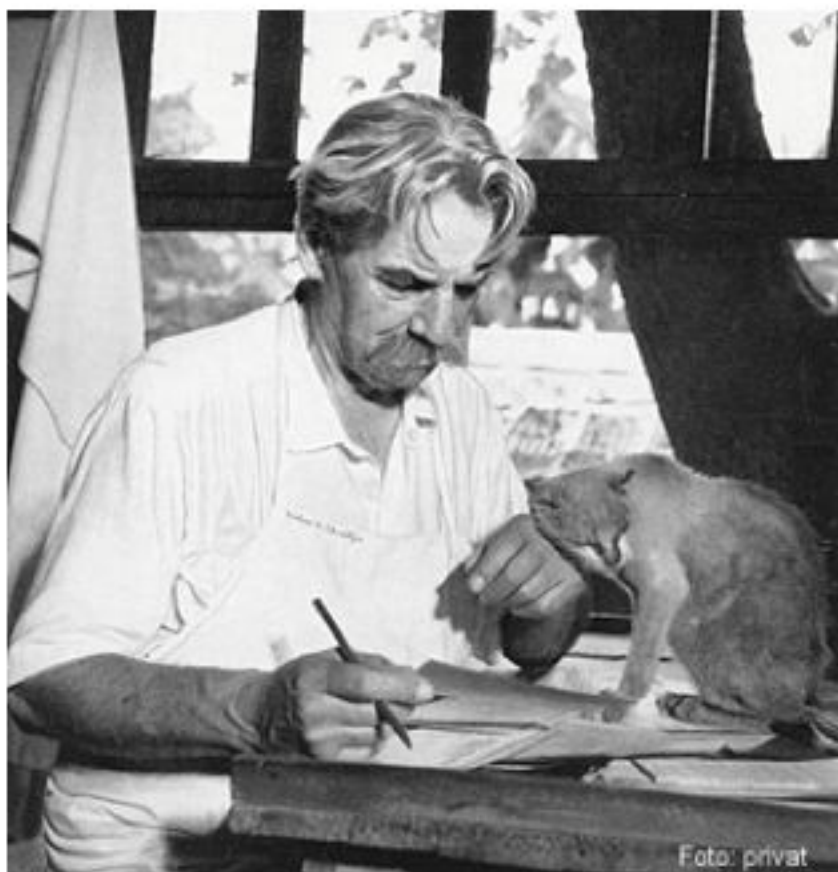
*"If I could do only one thing before I died, it would be to swim  
with a middle-aged couple from Connecticut."*

# Questions

- How do animals sustain human populations in absence of emergencies?
  - Has this changed in the course of humankind and if so, how has it changed?
- Do nonhuman animals play a part in the development and maintenance of human resilience?
  - If so, what roles do they play?
  - Under what circumstances do they play a role?
  - Is the role they play related to the species of animal? To specific populations of people, e.g., according to cultural or religious customs? To the nature of the relationship?

# More Questions

- What can we learn about the development and maintenance of human resilience from situations where the relationship between human and animal has been broken by disease, natural disaster and/or emergencies?
- Do the concepts of family and community include nonhuman animals?



**Reverence for Life**

[www.european-vegetarian.org](http://www.european-vegetarian.org)