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1. Abstract:

Brucellosis disease leads to a significant production loss in ruminants and febrile disease in human in several places around the world particularly Africa, Asia and the Middle East. In Jordan, Brucellosis is endemic but has been increasing in the past few years. However, the only focus of the control programs is primarily the vaccination of livestock. **The aim** of this project is to understand the dynamic drivers of brucellosis transmission to explore policy options that aid in controlling human brucellosis in Jordan. **Method:** System dynamics modelling approach was used to create a causal loop diagram and a stock and flow model that suggest the dynamics of brucellosis transmission in Jordan. The model includes the age-structured "Susceptible-Infected-Vaccinated" sheep population model and "Susceptible-Infected-Recovered" human population model. **Results:** the model suggests four different policies to control brucellosis in Jordan other than vaccination; Sheep trade market restrictions; testing and culling infected sheep; increase farmers' visits to the ministry of agriculture's veterinary clinics and increase awareness of farmers. **Conclusion:** Current data suggest that other policies should be considered to help authorities to control brucellosis transmission. Collaboration between stakeholders is essential to achieve better outcomes. More research is needed to assess the implications of the proposed policies.

Human Brucellosis cases and incidence rate in Jordan (2004-2017)



Figure 1: Figure: Human Brucellosis cases and incidence rate (per 100,000) in Jordan (2004-2017)

2. The Methods

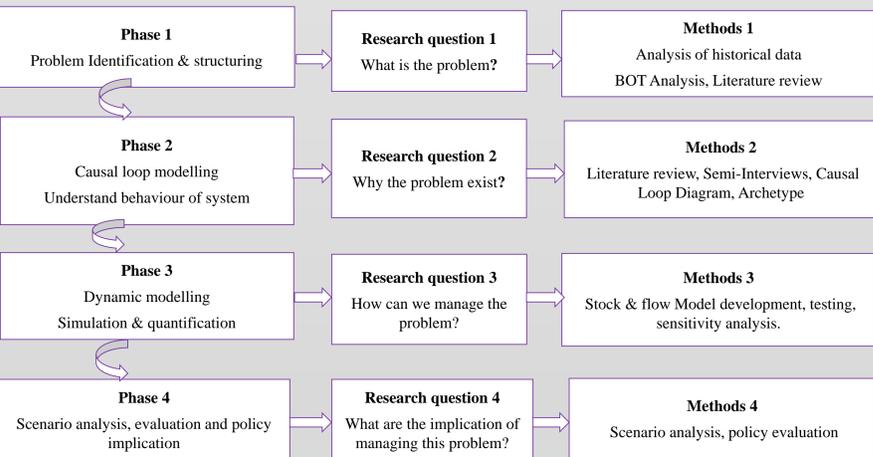


Figure 2: Brief description of the research method

3. The Results:

3.1 Stakeholder Analysis: The Map

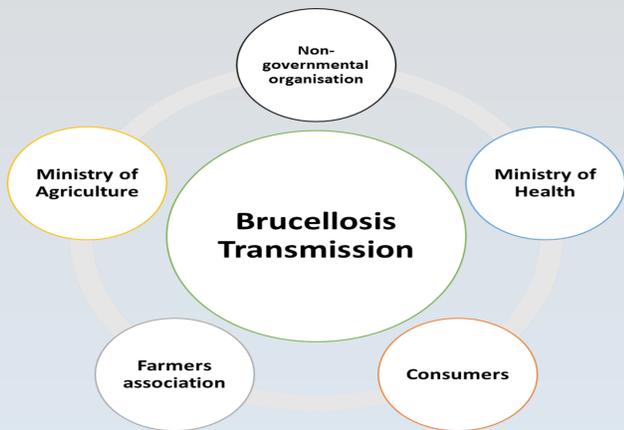


Figure 3: stakeholder's Map of brucellosis transmission in Jordan

3.2 Building the Causal Loop Diagram

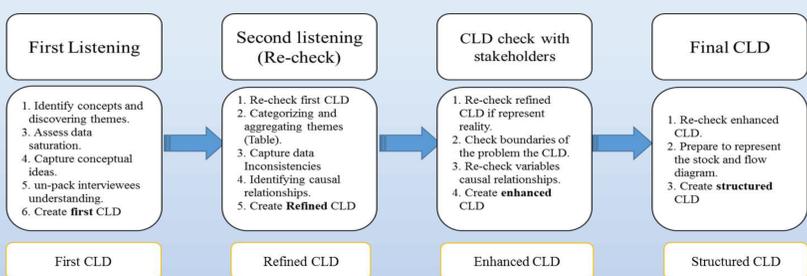


Figure 4: Presentation of overall qualitative data analysis process, participants map and Causal loop diagram building.

3.3 The Causal Loop Diagram

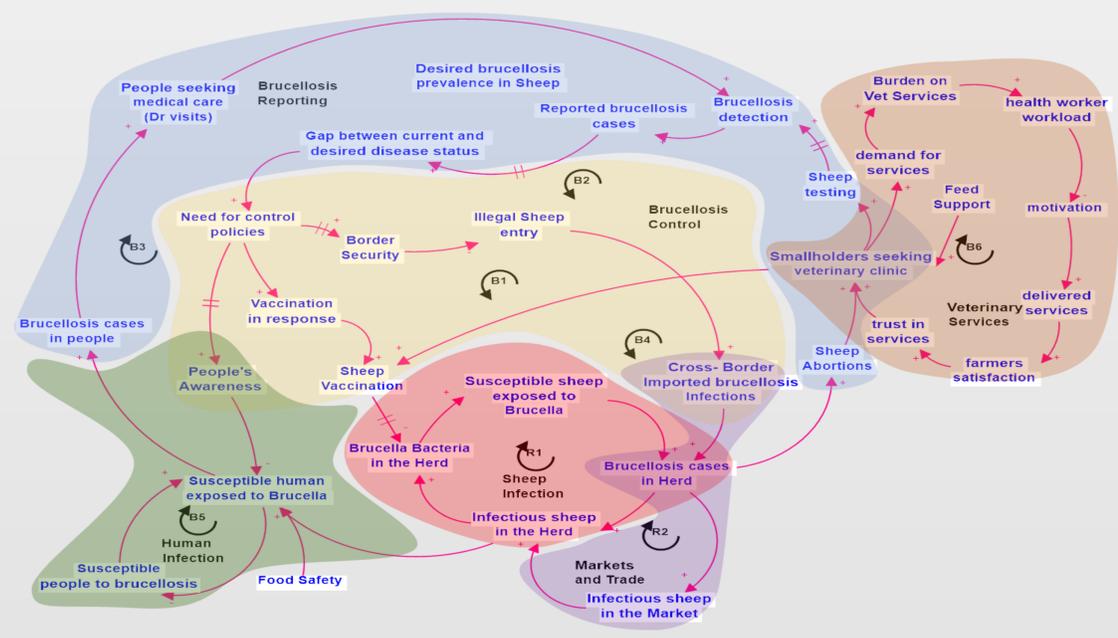


Figure 5: Combined causal loop diagram of brucellosis dynamics in Jordan.

3.4 The Model (Stock and Flow Diagrams)

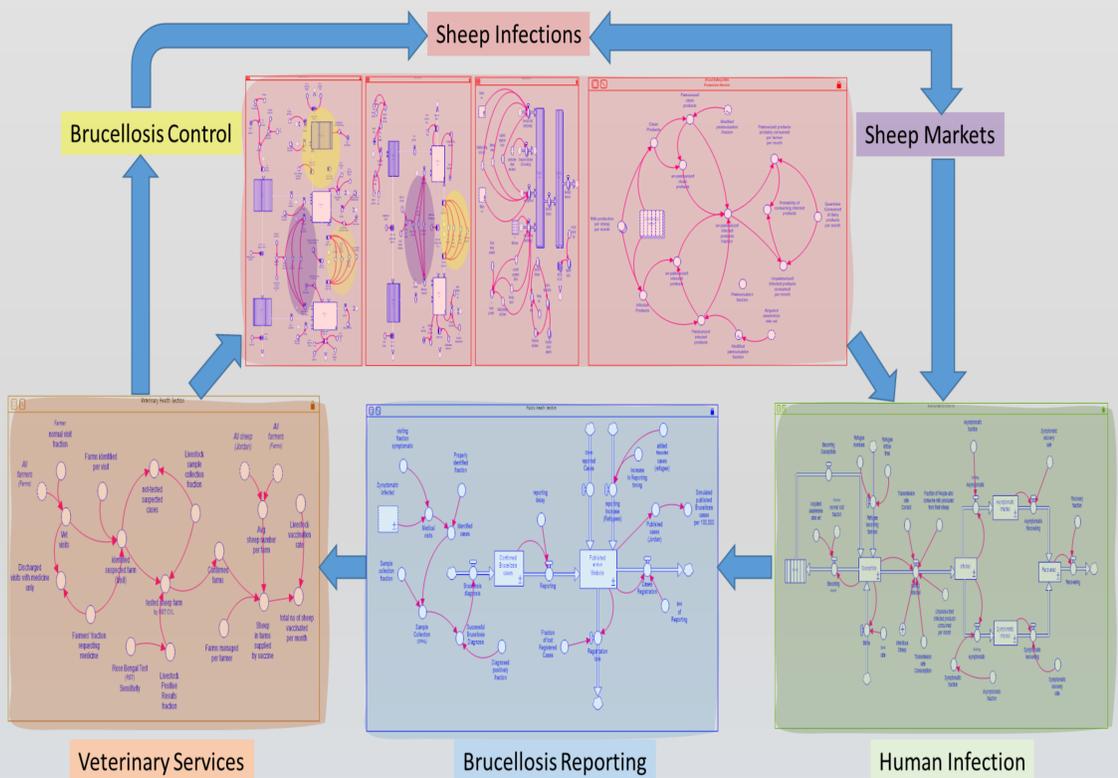


Figure 6: Combined Stock and flow diagrams (The Model) of brucellosis dynamics in Jordan.

3.5 Behaviour over time graph of reported brucellosis cases by the proposed policies

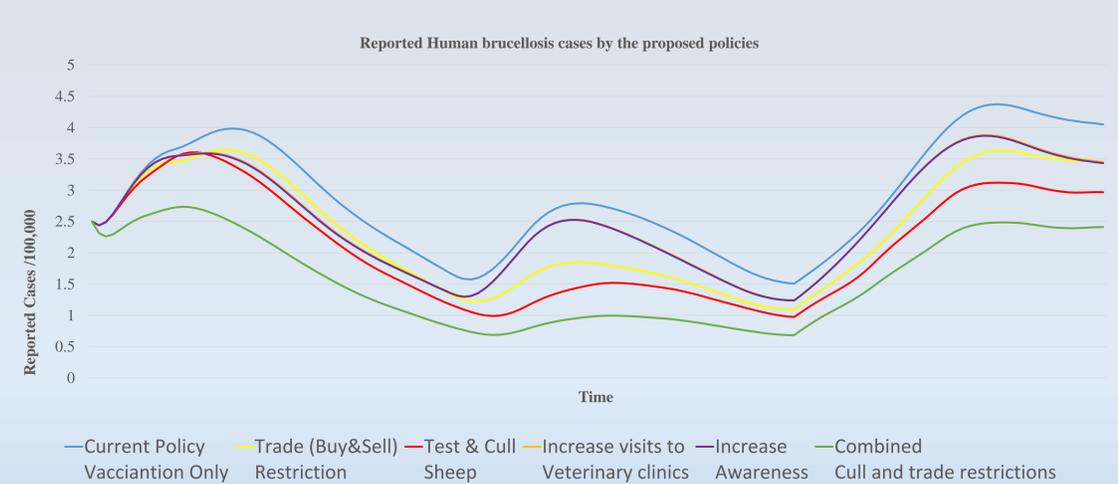


Figure 7: Proposed policies for Brucellosis control and overall reported human cases per 100,000.

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