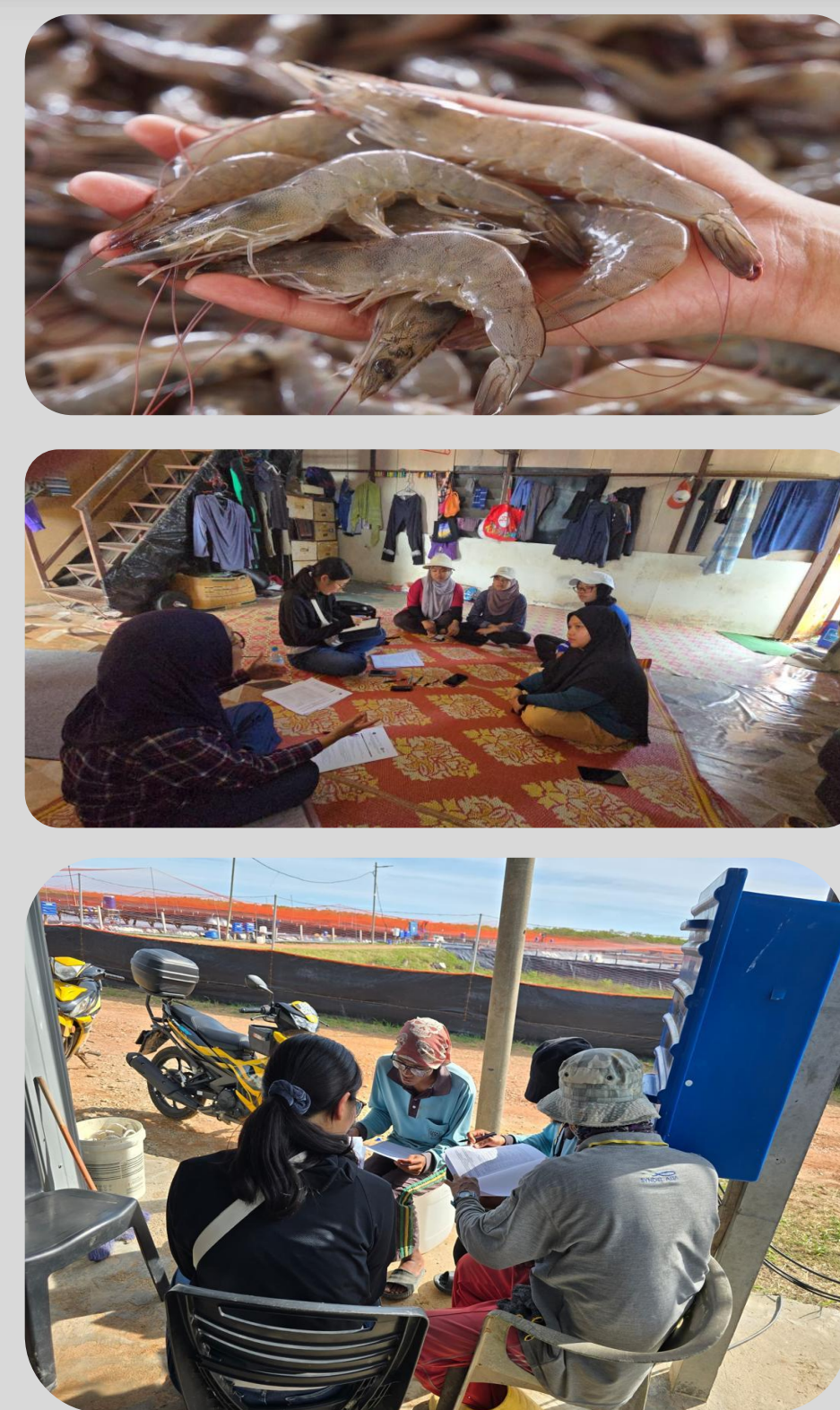
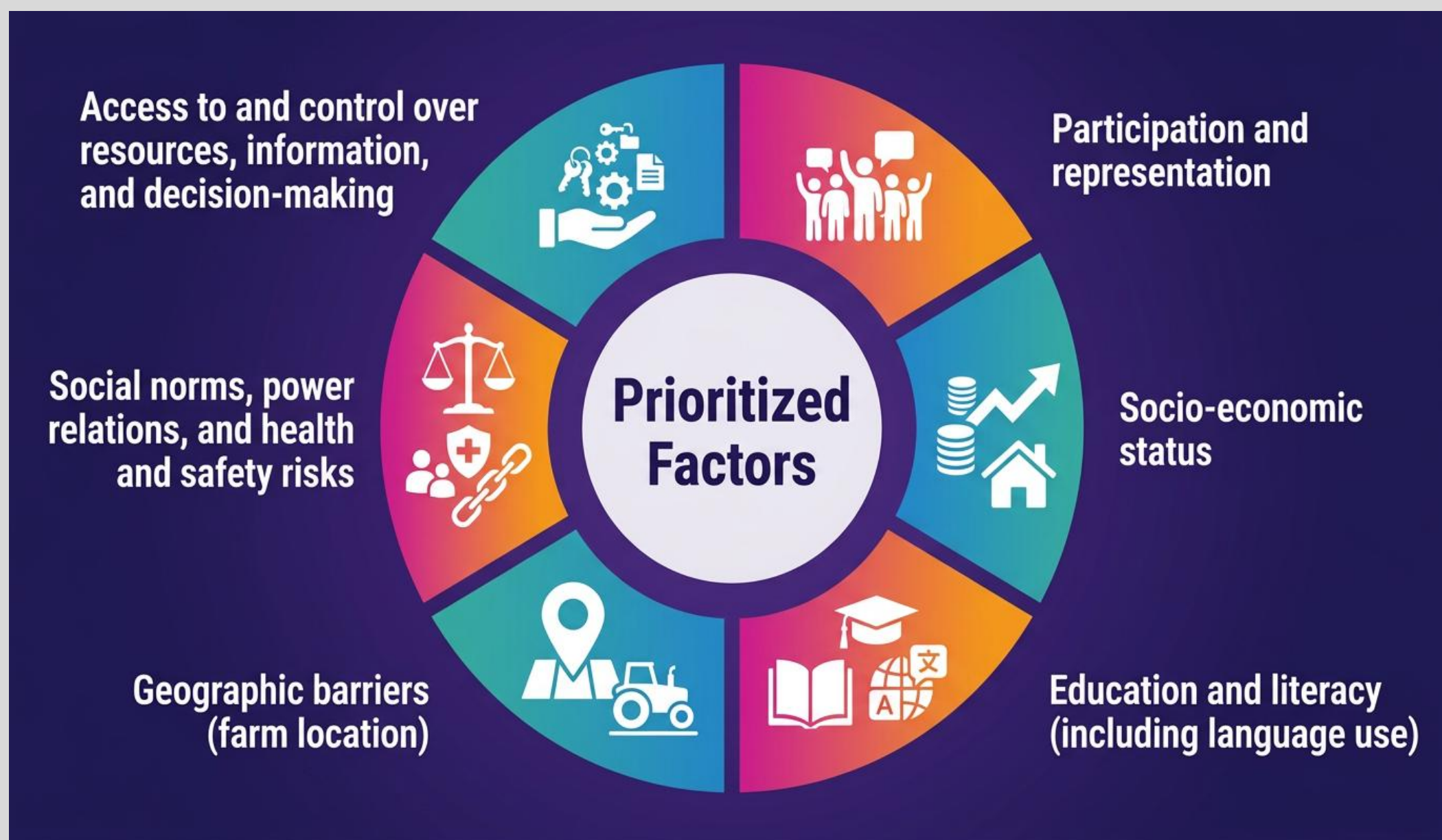


Gender and Equity as Social Determinants of Antimicrobial Resistance (AMR) in Malaysian Shrimp Aquaculture: A One Health Study

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Study Context



Aim & Objective

The project seeks to explore the influence of gender and equity factors, including socioeconomic status, age, class, culture, religion, language, geographical location, ethnicity, and education level, on practices concerning antimicrobial use (AMU) and antimicrobial resistance (AMR) in shrimp farming.

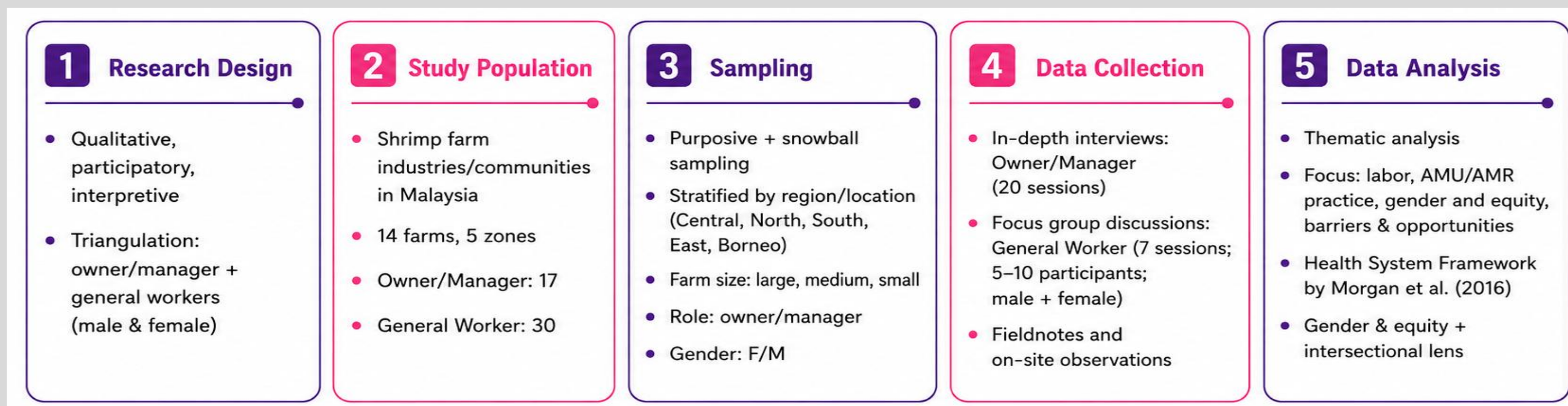
The objective of the research is to identify the gender- and equity-related barriers and facilitators that influence access to knowledge, resources, and decision-making in addressing AMU and AMR in shrimp farming.

“Most farm workers do not have higher education. They only need to be able to read, understand simple instructions, and perform basic calculations.”
(B-MNG-M-CHI-17)

“My voice usually only reaches the manager level.”
(N-WKR-F-MAL-16)



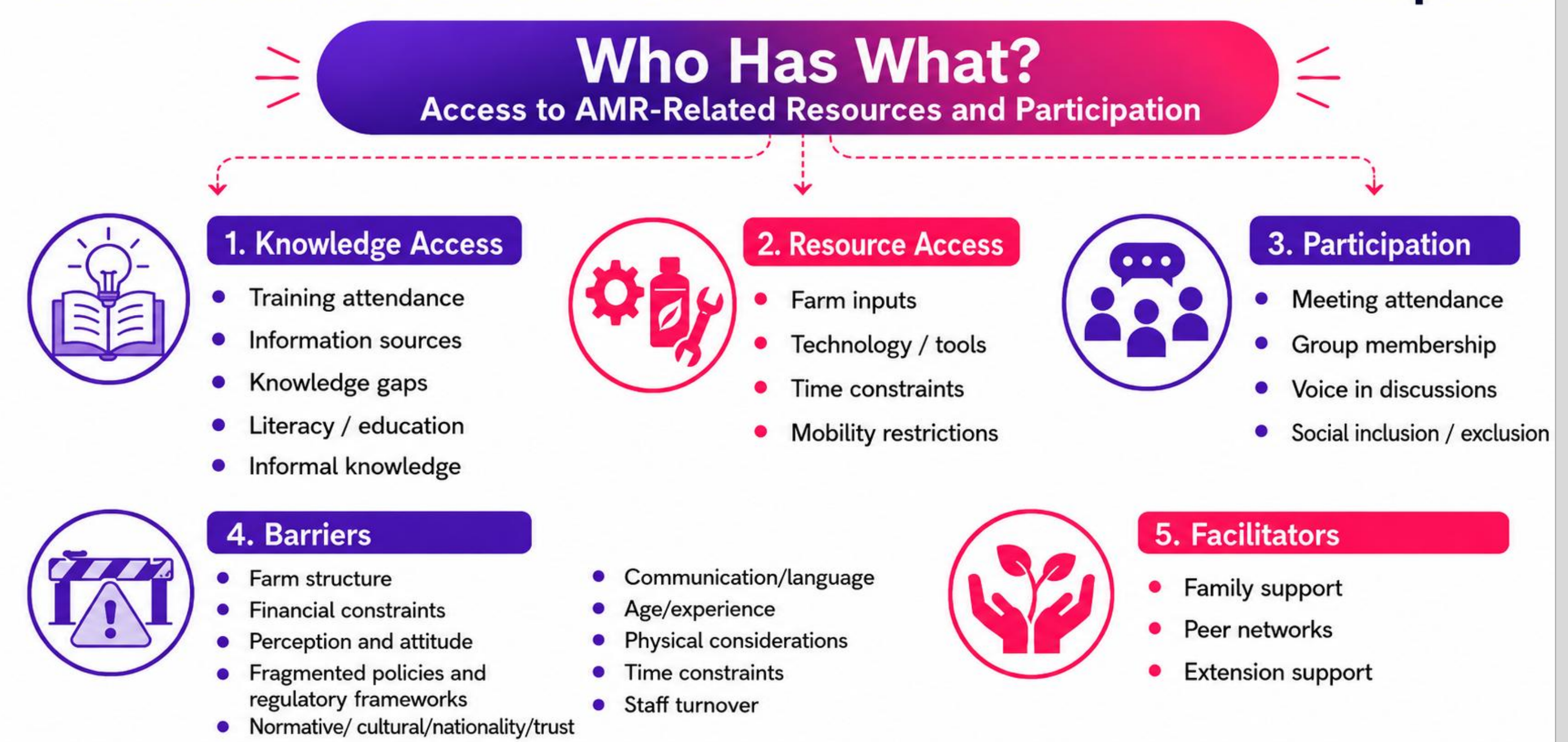
Method



Key Findings

- Despite that non prescribed AMU is banned in Malaysian shrimp farming, data suggested that AMU persists and is shaped by gender and social roles, access to resources, and farm power structures.
- Men, especially farm managers and owners, usually make decisions on pond management, disease treatment, and antimicrobial purchase because they control finances and market interactions.
- Women play important roles in laboratory work, daily farm labor, shrimp health monitoring, and post-harvest activities but are often excluded from decision making.
- Women generally have less access to technical training, veterinary advice, and extension services, leading to unequal knowledge about AMU and AMR.
- Women, younger workers, and migrant workers are often excluded from decision-making and depend on senior male workers for training and instructions.
- Small-scale and non-Malaysian Good Agriculture Practices (MyGAP) farms rely more on informal advice from peers and input suppliers, which may encourage inappropriate antimicrobial practices.
- Larger and MyGAP-certified farms have better access to formal support from the Department of Fisheries (DOF) Malaysia and show higher awareness of AMR risks.
- Awareness of AMR does not always reduce AMU because farmers fear disease outbreaks and economic losses.
- Geographic location affects AMR risk:
 - Farms located close together in Central and Northern Peninsular Malaysia may face higher AMR spread through cross-contamination.
 - More isolated farms in the Eastern region may experience lower disease and AMR risks.

Framework of Access to AMR-Related Resources and Participation



Division of Labor and Farm Responsibility



Conclusion

This study highlights that AMU and AMR in Malaysian shrimp farming are strongly influenced by gender, social inequalities, and farm power structures. Men largely control decision-making on antimicrobial practices, while women, migrant workers, and younger workers often have limited access to training, resources, and decision-making opportunities despite their important contributions to shrimp health management. Small-scale and non-GAP-certified farms rely more on informal advice networks, increasing the risk of inappropriate antimicrobial use. Although awareness of AMR exists, economic pressures and fear of disease outbreaks continue to drive antimicrobial dependence. The findings emphasize the need for gender-responsive, inclusive, and socially equitable approaches to strengthen responsible AMU and AMR management in shrimp aquaculture.

Policy Implications

- Strengthen gender-responsive and inclusive AMR/AMU policies in shrimp aquaculture.
- Expand access to training, veterinary advice, and extension services for women, migrant workers, youth, and small-scale farmers.
- Improve outreach to non-GAP-certified farms to reduce reliance on informal and potentially inappropriate antimicrobial advice.
- Engage and regulate input suppliers as key actors in antimicrobial stewardship.
- Recognize and integrate women's practical knowledge and younger workers' scientific expertise into farm decision-making.
- Promote participatory and community-based approaches to AMR awareness and disease management.
- Strengthen biosecurity and regional disease surveillance, particularly in densely clustered farming areas.
- Adopt a socially inclusive "One Health" approach linking human, animal, environmental, and economic health in AMR governance.

Affiliations

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