

Critical Understanding of the Rural Actors' Behavior for Rural Transformation: A Systematic Literature Review

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Abstract

Besides the national rural physical planning, rural actors' behavior is crucial to materializing top-down policies for rural transformation. However, limited studies have clarified the meaning and conceptualized the scope of rural actors' behavior. Therefore, this study aims to understand rural actors' behavior toward empowering their roles in enhancing rural transformation. The systematic literature review methodology was applied. The findings reveal five themes—economy, environment, physiology, social, and technology—as the dimensions of rural actors' behavior that shed light on the typology of rural transformation. This study contributes to developing a comprehensive framework for conceptualizing actors' behavior in rural development initiatives.

Keywords: behavioral study; rural development; social cohesion; social network

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1.0 Introduction

Rural development, though less prioritized than urban areas, is vital for balanced social and environmental capital growth. Often, both developed and developing countries must undertake transformative efforts to bridge rural-urban gaps and achieve inclusive, sustainable rural prosperity (Mallawaarachchi & Rahut, 2023). In Malaysia, this transformation involves changes in agriculture, infrastructure, employment, social services, and governance to enhance rural residents' well-being and quality of life. Understanding how rural actors interpret government policies and collaborate with stakeholders is crucial for effective transformation. While research has explored factors influencing rural behaviors, it has largely focused on outcomes rather than the nature and scope of these behaviors. Despite these insights, the intrinsic behaviors of rural actors remain underexplored (Rashid et al., 2023). Additionally, definitions of "rural" and "rural actors" are often ambiguous, complicating understanding (Bennett et al., 2019). This study aims to elucidate rural actors' behaviors

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to better understand their roles in promoting rural transformation. Clarifying the meanings of "rural," "rural actors," and their behaviors is essential, as it can enhance community awareness and motivation, fostering progress and leadership in rural development. More importantly, it can offer a conceptualized framework for rural actors' behavior in bridging the implementation of the national rural transformation agendas.

1.0 Literature Review

1.1 Overview of rural population globally

Nowadays, there are more urban dwellers than rural ones in the world. Fifty-five percent of people on the planet lived in cities in 2018. In all, 3.4 billion people lived in rural areas and 4.2 billion in urban settlements. The process of rapid urbanization has been observed in the global population since 1950. At that time, most individuals worldwide resided in rural settlements, accounting for over two-thirds (70%) of the population. However, a significant shift occurred in 2007 when, for the first time in history, the urban population surpassed the rural population on a global scale (United Nations Development Programme, 2018). Since then, the number of individuals residing in cities has continued to grow at a faster rate than the rural population.

As we approach the conclusion of the Agenda for Sustainable Development in 2030, it is anticipated that approximately 60% of the world's population will reside in urban areas (United Nations Development Programme, 2018). Looking further ahead, projections suggest that by 2050, more than two-thirds (68%) of the global population will be living in urban settings, representing a reversal of the rural-urban population distribution observed in the mid-twentieth century. Africa and Asia are undergoing urbanization at a faster pace compared to other global regions. The rate of urbanization, determined by the average yearly change in the percentage of the population living in urban areas, is the rapidest in Asia and Africa. These two regions are experiencing a swifter urbanization process, marked by a yearly increase in their urban population share by 1.3% and 1.1%, respectively, between 2015 and 2020. In contrast, regions already having relatively high urbanization levels are undergoing this transformation more slowly, with an annual increase of less than 0.3% during the same period.

1.2 Behavior of rural actors: scenarios and implications

Understanding rural actors' behavior is crucial for effective rural development because their actions, attitudes, and decisions directly shape the outcomes of any transformation initiatives. Despite often being linked to poverty, rural areas hold significant potential that can only be unlocked if the unique behaviors of those living there are recognized and nurtured. The weak connections between rural and urban areas limit rural communities' ability to benefit from urban growth, affecting economic opportunities (United Nations Development Programme, 2018). This disconnect highlights the need to understand rural actors' behavior in responding to these challenges.

Income disparities between rural and urban discourage community engagement in rural development, leading many to migrate to cities for better opportunities (Department of Statistics Malaysia, 2023). This migration is partly driven by the perception of better prospects in urban areas and highlights the importance of understanding rural actors' motivations and decision-making processes (Trask, 2022). Without this understanding, efforts to retain talent and drive local development may fail, as rural actors may not see the value in participating in rural development initiatives.

Moreover, the aging rural population and declining youth presence, due to migration and lower birth rates, further complicate rural transformation efforts (Kavan, 2022). Understanding the aspirations and behaviors of these populations is essential to address the challenges they face, such as lower educational attainment and limited economic opportunities (Gladek et al., 2017).

Malaysian government policies, such as the *Dasar Pembangunan Luar Bandar 2030*, emphasize the need to understand and influence rural actors' behaviors to ensure effective rural transformation (Rashid et al., 2023). A comprehensive framework for understanding and leveraging these behaviors can lead to more sustainable and inclusive rural development, helping to bridge the gap between policy goals and the lived realities of rural communities. In essence, understanding rural actors' behavior is not just important—it is essential for unlocking the full potential of rural development efforts.

2.0 Methodology

A systematic literature review (SLR) is a popular method for exploring the big picture of new important topics (Moder et al., 2009). The authors used SLR following the Preferred Reported Items for Systematic Reviews and Meta-Analysis (PRISMA) guidelines.

2.1 Search Strategy

A search strategy was conducted across Google Scholar, Scopus, and Web of Science for scholarly articles, reports, and case studies. Google Scholar was used for its broad access, while Web of Science and Scopus offered detailed citation analysis and extensive journal coverage. Search terms related to rural perspectives and behaviors were used to find relevant studies, though some articles may have been missing.

2.1.1 Inclusion and exclusion criteria in the Stage of Identification

The studies needed to focus on examining rural actors' behaviors, particularly their knowledge and practices within the context of rural development. These behaviors could encompass economic, social, environmental, and other aspects. Additionally, selected studies had to be published between January 1, 2015, and September 30, 2023, in English or Malay languages. These criteria ensured that the studies provided valuable insights into the diverse behaviors of rural actors and their impact on rural development. Urban-focused studies and those without a direct link to rural settings were excluded. Only full-text studies were considered to ensure comprehensive

analysis. These exclusion criteria helped ensure that the selected studies remained closely aligned with the research objectives and upheld high standards of quality and relevance.

2.1.2 Data extraction

During the data extraction phase, studies identified through keyword searches were compiled into an Excel file. Duplicate entries were manually removed, especially from Google Scholar, which lacks advanced filters and may miss indexing reputable publications. Unlike Google Scholar, Web of Science and Scopus provide more precise tools, allowing efficient filtering and identification of high-quality, relevant studies through comprehensive indexing and citation analysis. Irrelevant materials were excluded. To address gaps where initial articles did not directly focus on rural actors' behavior, a backward-forward search strategy was used to find additional relevant articles, ensuring alignment with the focus on rural actors' behaviors.

2.1.3 Data analysis

The authors conducted a thematic analysis of the selected articles, using line-by-line coding to classify similar concepts under a common label. Google Scholar emerged as the most effective platform for finding references on rural actors' behavior, likely due to the scarcity of related scholarly articles in Web of Science and Scopus. As noted by Moher et al. (2009), the systematic reviewers did not guarantee the assessment or interpretation of the content's appropriateness. Thus, the authors transparently reported potential biases across the selected studies, relying on qualitative judgment to interpret content and extract relevant themes for the research. Thematic analysis was conducted on 32 selected papers, with the search process shown in Fig. 1.

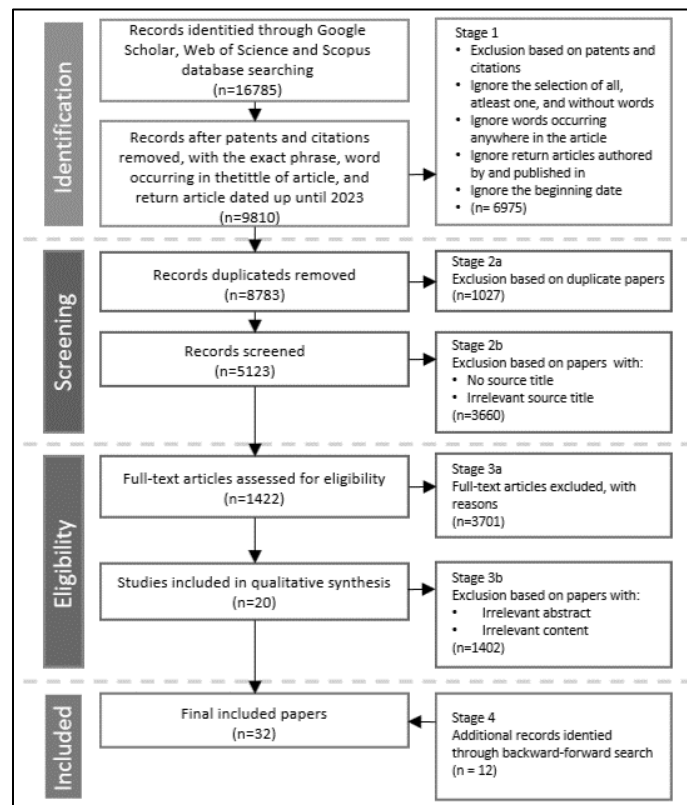


Fig. 1. The execution stages of the systematic literature review
(Source: adapted from Moher et al. (2009))

3.0 Findings

3.1 The perspective of rural definitions

Many of these definitions recognize the complexity of rural and urban classifications, which may encompass factors such as population density, geographic isolation, and socio-economic conditions (USDA's Economic Research Service, n.d.).

Low population density perspective

Rural areas are defined by low population density, with fewer residents and greater distances between households. In Malaysia, rural areas include villages with fewer than 10,000 residents. In Australia, towns with populations up to 50,000 face climate change and demographic issues (Sherval et al., 2014). The U.S. defines rural areas as those with fewer than 2,500 residents (USDA's Economic Research Service, n.d.). Definitions vary globally based on historical, geographical, economic, and social contexts, creating unique rural challenges.

Geographic isolation perspective

Rural areas are often geographically isolated, with households widely dispersed due to terrain or low population density, complicating service delivery and infrastructure development. In Nigeria, despite its agricultural output, rural communities lack dense population centers, causing scattered households and significant travel distances (National Bureau of Statistics, 2018). This dispersion creates challenges in healthcare, education, and transportation, and an increasing elderly population adds further complexity.

Underserved social-economic perspective

Rural areas frequently lack access to essential services compared to urban regions due to low population density, isolation, and limited economic resources, making infrastructure investments less viable (National Bureau of Statistics, 2018). As a result, residents struggle with limited healthcare, education, transportation, and fewer amenities such as banking, shopping, and cultural facilities.

3.2 The perspectives of rural actors' behavior

Rural actors' behavior encompasses individuals' actions in response to stimuli, ranging from simple reflexes to complex patterns shaped by various factors. This complexity stems from diverse cultural, environmental, and social influences, making the study of human behavior particularly challenging. Accurate data collection is difficult, leading to issues such as imbalanced data distribution, and while models for predicting behavior exist, they often fail to account for the dynamic and uncertain factors that influence human actions (Yu et al., 2019). The following are the five perspectives of rural actor's behavior identified from the articles analyzed.

Economic perspective

Behavior in economics involves the actions and decisions of individuals, firms, and other agents based on incentives, constraints, and market conditions. It includes how they allocate resources, interact, and make choices influenced by factors like utility maximization, cost-benefit analysis, and psychological biases. Economists use various models, such as consumer theory and game theory, to analyze and predict these behaviors and their impact on market outcomes and economic efficiency. In the organizational context, "Organizational Citizenship Behavior" (OCB) involves voluntary actions that benefit an organization, while "Compulsory Citizenship Behavior" (CCB) refers to similar actions performed under pressure. OCB enhances organizational effectiveness, but when forced, it becomes CCB, leading to potential negative impacts on employees (Organ, 1988; Vigoda-Gadot, 2006). Collective action, as highlighted in sustainable rural tourism, is essential for community-driven development. Communities engage in collective behaviors to address shared goals and maintain their identity, distinguishing these efforts from individual actions (Hwang et al., 2012). Behavior also encompasses decisions on what to attend to, how to form beliefs, and whether to stick with choices, with these decisions shaped by social influences and norms (Organisation for Economic Co-operation and Development, 2019). Moreover, system behaviors are emergent properties that arise from the collective actions within a system, revealing underlying rules and structures that guide system performance (Gladek et al., 2017).

Environmental perspective

Behavior refers to how individuals or groups act toward the environment, affecting ecosystems, resources, and environmental issues. It includes activities like recycling, conserving resources, and adopting sustainable practices. Motivations, attitudes, beliefs, and external factors like policies and education shape environmental behaviors. Pro-environmental behavior, as defined by (Grouzet, 2014), encompasses actions that positively impact ecological sustainability, promoting the long-term health of the environment. Encouraging such behaviors is crucial for addressing environmental challenges and achieving sustainability, which requires individuals and communities to support conservation and resource efficiency. Kaufman et al. (2021) highlight that behavior involves visible actions in specific contexts, shaped by the interplay of environmental, social, and economic factors. Sustainability acts as a guiding principle, balancing the preservation of natural resources and the protection of ecosystems with the needs of present and future generations. In essence, behavior can either harm or benefit the environment, while sustainability principles shape how individuals act. Promoting pro-environmental behavior and sustainable practices is essential for ensuring a balanced relationship between human actions and environmental well-being, crucial for both present and future generations.

Psychology perspective

From a psychological perspective, behaviors include observable actions, responses, and internal processes like thinking and feeling. It results from interactions between individuals and their environment, shaped by genetics, cognition, emotions, social interactions, and experiences. Studying behaviors helps understand their causes, patterns, and its link to psychological processes like perception, learning, and motivation. Pérez & Ciccía (2019) classify human behavior into two types: Type A behavior involves physiological responses and involuntary actions, often linked to stress, competitiveness, and urgency, while Type B behavior involves intentional, deliberate actions, reflecting a more relaxed and patient approach. Ajzen (1991) theory of planned behavior posits that intentions, shaped by attitudes, social norms, and perceived control, predict behavior. These intentions reflect an individual's motivation and determination to act. Tolman (1948) introduced purposive behaviorism, suggesting that behavior is driven by adaptable mental representations, laying the groundwork for the cognitive revolution, which emphasized understanding the mind and mental processes. Abbas et al. (2022) also mention this concept in the context of social behavior. Wood et al. (2021) describes habitual behaviors as automatic responses triggered by contextual cues, based on past actions. Habit memory acts as a conservative action system, preserving routines and ensuring stability in behavior despite temporary changes in goals. Burton (2004) argues for integrating socio-psychological factors into agricultural studies, highlighting that farmer behavior is shaped not only by economic factors but also by social norms, beliefs, and attitudes. This approach provides a deeper understanding of why farmers make certain choices and how they can be influenced to adopt sustainable practices.

Social perspective

From a social perspective, behaviors involve how individuals or groups act and interact within a social setting. This includes both verbal and non-verbal actions influenced by social norms and cultural values. Social sciences study behaviors to understand how people respond to social stimuli and interact with each other, examining the effects of social structures and institutions. Key factors include social norms, peer pressure, social roles, and individual traits like personality and beliefs. Social cognition also helps in understanding how people perceive and react to social information. Intergroup behavior, as described by Tajfel and Turner and consistent with Sherif (1966), involves actions driven by group identity rather than personal traits, where individuals act based on their membership in distinct social categories. This behavior fosters group solidarity, influencing actions like favoring one's group over others, and is shaped by intergroup dynamics. Prosocial behavior, defined by Schwartz and Bilsky (1990), refers to actions intended to benefit others, such as kindness, cooperation, and empathy. These selfless behaviors are motivated by empathy and concern for others' well-being, playing a key role in building trust, fostering social cohesion, and contributing to a compassionate society.

Technology perspective

Behavior in technology involves how individuals or systems use and interact with digital tools. It includes actions on digital platforms, device usage, and emerging patterns in digital activities. Technological behaviors cover observable actions and the cognitive processes behind technology-related decisions. It also includes navigating digital interfaces, consuming information, and online communication. Influencing factors include personal traits, motivations, cultural influences, and technology design. Yu et al. (2019) highlights the practical applications of understanding human behavior in areas like personalized recommendations, smart homes, urban planning, and more. Chen et al. (2012) describes human behavior as encompassing daily actions and statuses, including physical movements, activities, and social interactions. Studying technology-related behavior offers insights into user preferences, engagement, and satisfaction, helping to refine technology systems to better meet user needs and enhance user experiences. In essence, behavior in technology involves the actions and decisions of individuals within digital environments, and understanding it is key to designing and improving technological solutions.

5.0 Discussions

The findings emphasize the importance of understanding the varied definitions of rural areas, as well as the diverse behavioral patterns of rural actors, which are crucial for the success of rural development initiatives. One of the significant points highlighted is the challenge of defining 'rural.' The review reveals that definitions of rural areas vary widely across countries, influenced by factors such as population density, geographic isolation, and socio-economic conditions. This variability creates challenges for implementing rural transformation programs, as a definition suitable for one context may not apply to another. Consequently, this complexity necessitates a more nuanced approach to rural development policies, where local contexts and specific characteristics of rural areas are carefully considered to avoid ineffective one-size-fits-all solutions. The National Rural Physical Planning Policy 2030 already divides rural areas into ten village categories; however, based on this finding, further exploration is needed to enhance effective solutions (PLANMalaysia, 2017).

The findings delve into the behavioral aspects of rural actors through various perspectives, including economic, environmental, psychological, social, and technological lenses. Economic behaviors, for instance, are often influenced by resource constraints, market conditions, and the specific challenges of resource allocation within rural settings. Environmental behaviors are particularly crucial, as rural communities often play a central role in managing natural resources, making the promotion of pro-environmental actions vital for sustainable development. Moreover, the study of psychological and social behaviors reveals the impact of social norms, cultural values, and psychological processes on community cohesion. These factors can either foster unity or create divisions that hinder transformation efforts. Technological behaviors, especially those related to the adoption and adaptation of new technologies, highlight both the challenges and opportunities in bridging the digital divide in rural areas.

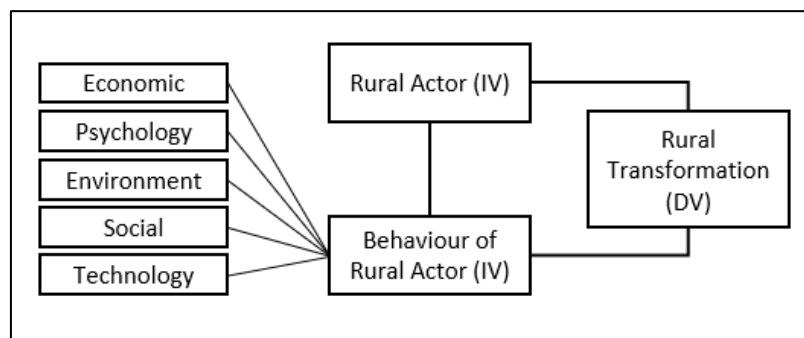


Fig. 2. Preliminary conceptual framework for rural actors' behavior
(Source: authors)

Building on these findings, authors have developed a preliminary conceptual framework that integrates economic, environmental, psychological, social, and technological perspectives to better understand the behavior of rural actors. This framework is designed to guide the development of national rural policies and interventions, emphasizing the interconnectedness of these various factors in

shaping the actions and decisions of individuals and groups in rural communities. By offering a comprehensive approach to rural transformation, it seeks to ensure that policies and programs are adaptable to the specific economic, environmental, psychological, social, and technological factors prevalent in rural areas. For example, promoting collective action within rural communities can strengthen social capital, a critical element for sustainable development. Likewise, encouraging pro-environmental behaviors and sustainable agricultural practices can enhance the resilience of rural communities in the face of environmental challenges.

5.0 Conclusion

This paper highlights the complexity and diversity of rural settings and their communities (actors). Multiple definitions and perspectives show that rural communities consist of various entities with differing motivations and needs. A single framework cannot capture these nuances; a multidimensional approach is needed. This approach helps researchers and policymakers understand rural transformation better and create targeted interventions for sustainable-resilient development, including digital integration, economic growth, environmental sustainability, social progress, and good mindset. Emphasizing diverse perspectives supports inclusive decision-making and acknowledges the complexity of rural contexts, promoting effective and sustainable rural change. A further step is to explore the identified rural actors' behavior perspectives based on an empirical approach, which could involve gathering qualitative and quantitative data through surveys, interviews, and participatory observations to understand their motivations, decision-making processes, and the socio-economic factors that influence their actions.

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Paper Contribution to Related Field of Study

This paper contributes to the field of rural development by offering a nuanced understanding of the behaviors of rural actors and their impact on the success of rural transformation initiatives.

References

- Abbas, A., Ekowati, D., & Suhariadi, F. (2022). Social perspective: Leadership in changing society. In *Social morphology, human welfare, and sustainability* (pp. 89–107). Springer International Publishing. <https://doi.org/10.1007/978-3-030-96760-4>
- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179–211. [https://doi.org/10.1016/0749-5978\(91\)90020-T](https://doi.org/10.1016/0749-5978(91)90020-T)
- Bennett, K. J., Borders, T. F., Holmes, G. M., Kozhimannil, K. B., & Ziller, E. (2019). What Is Rural? Challenges And Implications Of Definitions That Inadequately Encompass Rural People And Places. *Health Affairs*, 38(12), 1985–1992. <https://doi.org/10.1377/hlthaff.2019.00910>
- Burton, R. J. F. (2004). Reconceptualizing the “Behavioral approach” in agricultural studies: A socio-psychological perspective. *Journal of Rural Studies*, 20(3), 359–371. <https://doi.org/10.1016/j.jrurstud.2003.12.001>
- Chen, L., Hoey, J., Nugent, C. D., Cook, D. J., & Yu, Z. (2012). Sensor-based activity recognition. *IEEE Transactions on Systems, Man, and Cybernetics, Part C* 42(6), 790–808.
- Department of Statistics Malaysia. (2023). Household Income Survey Report.
- Frederick M. E. Grouzet. (2014). Pro-environmental Behavior. In *Encyclopedia of quality of life and well-being research* (pp. 5081–5084). Springer Science+Business Media.
- Gladek, E., Fraser, M., Roemers, G., Sabag Muñoz, O., Kennedy, E., & Hirsch, P. (2017). The global food system: An analysis. *Metabolic*.
- Hwang, D., Stewart, W. P., & Ko, D. wan. (2012). Community behavior and sustainable rural tourism development. *Journal of Travel Research*, 51(3), 328–341. <https://doi.org/10.1177/0047287511410350>
- Kaufman, S., Saeri, A., Raven, R., Malekpour, S., & Smith, L. (2021). Behavior in sustainability transitions: A mixed methods literature review. *Environmental Innovation and Societal Transitions*, 40, 586–608. <https://doi.org/10.1016/j.eist.2021.10.010>
- Kavan, P. (2022). Rural-urban migration: Why do they migrate? www.pngnri.org
- Mallawaarachchi, T., & Rahut, D. B. (2023). Realizing rural economic transformation: Pathways to inclusive and sustainable prosperity in post-COVID-19 Asia. *Economic Analysis and Policy*, 77, 1076–1082. <https://doi.org/10.1016/j.eap.2023.01.009>
- Moher, D., Liberati, A., Tetzlaff, J., & Altman, D. G. (2009). Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. *PLoS Medicine*, 6(7), e1000097. <https://doi.org/10.1371/journal.pmed.1000097>
- National Bureau of Statistics. (2018). Social sciences in Nigeria. The NBS publications.

- Organ, D. W. (1988). *Organizational Citizenship Behavior: The good soldier syndrome*. Lexington Books/ D. C. Heath and Company.
- Organisation for Economic Co-operation and Development. (2019). *The basic toolkit: Tools and ethics for applied Behavioral Insights*. <https://doi.org/https://dx.doi.org/10.1787/9ea76a8f-en>.
- Pérez, D. I., & Ciccio, L. G. (2019). Natural kinds, normative kinds and human behavior. *Filosofia Unisinos*, 20(3), 256–267. <https://doi.org/10.4013/FSU.2019.203.04>
- PLANMalaysia. (2017). *Dasar Perancangan Fizikal Desa Negara 2030*.
- Rashid, M. F. A., Boon Lim, S., Kamar A. A. K, Azman, M. A. A., & Rejab, H. S. M. (2023). Malaysia Assessment Measure for Modern Rural Development (MAMRD): Appraisal Index and Intervention. *Planning Malaysia*, 21(4), 349–363. <https://doi.org/10.21837/pm.v21i28.1338>
- Schwartz, S. H., & Bilsky, W. (1990). Toward a theory of the universal content and structure of values: Extensions and cross-cultural replications. *Journal of Personality and Social Psychology*, 58(5), 878–891.
- Sherif, M. (1966). *In common predicament: Social psychology of intergroup conflict and cooperation*. Houghton-Mifflin.
- Sherval, M., Askew, L. E., & McGuirk, P. M. (2014). Human Cost of Drought. In *Encyclopedia of quality of life and well-being research* (pp. 3005–3010). Springer Science+Business Media.
- Tolman, E. C. (1948). Cognitive maps in rats and men. *Psychological Review*, 55(4), 189–208. <https://doi.org/10.1037/h0061626>
- Trask, B. S. (2022). *Migration, Urbanization, and the Family Dimension*.
- United Nations Development Programme. (2018). *World Urbanization Prospects 2018 Highlights*.
- USDA's Economic Research Service. (n.d.). What is rural? Retrieved May 26, 2023, from <https://www.ers.usda.gov/topics/rural-economy-population/rural-classifications/what-is-rural/>
- Vigoda-Gadot, E. (2006). Compulsory citizenship behavior: Theorizing some dark sides of the good soldier syndrome in organizations. *J. Theory Soc. Behav*, 36, 77–93. <https://doi.org/10.1111/j.1468-5914.2006.00297.x>
- Wood, W., Mazar, A., & Neal, D. T. (2021). Habits and goals in human behavior: Separate but interacting systems. *Perspectives on Psychological Science*, 17(2), 590–605. <https://doi.org/10.1177/1745691621994226>
- Yu, Z., Du, H., Yi, F., Wang, Z., & Guo, B. (2019). Ten scientific problems in human behavior understanding. *CCF Transactions on Pervasive Computing and Interaction*, 1(1), 3–9. <https://doi.org/10.1007/s42486-018-00003-w>

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