Analysis of Regional Government Capacity Development: Mapping Research Topics

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Abstract

The study analyzes governments' adaptive capacity using a topic-mapping method based on 811 Scopus-indexed articles using CiteSpace. The analysis identified eight key research groups that highlight the importance of frameworks like local adaptive capacity. It emphasizes the need for better operationalization of these frameworks, improved stakeholder cooperation, and the development of effective adaptation and resilience strategies for climate change. This research significantly enhances our understanding of how research topics relate to government adaptability. By identifying strengths and weaknesses in government adaptation capabilities, the study provides valuable insights for stakeholders to design effective policies and strategies for social and environmental changes. In conclusion, the research deepens our understanding of government adaptation capabilities and encourages efforts to improve their adaptability in the face of social and environmental changes.

Keywords: *Capacity Development, Topic Mapping, Government Adaptability, Climate Change, Stakeholder Cooperation.*

INTRODUCTION

In the face of continual societal changes, government adaptability is critical (Chakwizira, 2022; Jozaei & Mitchell, 2018; Malakar et al., 2018; Rautakivi, 2016; Wilcox et al., 2019). Governments, as the entity in charge of governing public policy and providing public services, must have a strong adaptive ability to deal with ever-increasing difficulties and societal change (Burnside-Lawry & Carvalho, 2016). Researching governments' adaptive ability is a key step in determining how equipped governments are to handle these developments and how they can adjust to them (Tilbrook et al., 2019).

In the face of constant societal change, governments, as bearers of public authority, must have a thorough grasp of their capacities and preparedness to meet these challenges (Chan et al., 2020; Tait & Hanna, 2015). Research on governments' adaptive capacity may give useful insights into policy efficacy, public demand response, and the government's ability to undertake essential change (Helmke-Long et al., 2022). Understanding governments' adaptive ability allows us to identify current strengths and limitations as well as offer reform strategies to enhance governments' adaptation to societal change (Urpelainen, 2018).

Understanding the processes of societal change is greatly aided by research on governments' adaptive capabilities. The government's capacity to react to societal difficulties has significant consequences for the effective implementation of responsive public services and policies (Ferrari, 2020; Kim et al., 2022; Zou et al., 2019). This study will help us understand the aspects that influence governments' adaptive capabilities, such as organizational structures, human resources, and interinstitutional coordination mechanisms. This study may also assist in identifying best practices and successful experiences from a range of settings that other governments can use to improve their adaptation to societal change.

Furthermore, studies on governments' adaptive ability are vital to coping with complicated and unanticipated societal change. Governments must be able to adapt swiftly and efficiently in the face of changes such as climate change, technological advancements, and demographic shifts (Bauer & Steurer, 2014; Susskind &

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Kim, 2022; Temby et al., 2016). This study may help governments understand adaptation tactics that have been effective in the past as well as provide insight into best practices that can be used to meet future problems. Thus, research on governments' adaptability ability has a high significance in assisting decision-making focusing on adaptation in the context of societal change.

The study intends to discover the characteristics that influence governments' adaptive ability via the mapping of research themes based on quotations. Understanding these aspects allows for the identification of patterns and trends that reflect how governments deal with societal concerns. Social facts acquired by quote analysis may indicate the themes most concerned in the study of governments' adaptation ability, assisting in understanding the real events happening in the field.

This study may produce fresh insights into social truths about governments' adaptive capabilities through the examination of quotations. Understanding the most researched research issues and having a substantial influence may lead to more successful methods and ways for improving governments' adaptive capabilities. The quotation-based mapping may also give a more complete picture of the growth of knowledge in this subject by giving a clearer grasp of the interrelationships between research topics.

RESEARCH METHOD

This research explores the adaptive capacity of governments using Scopus-indexed literature reviews. The study employs two methods of analysis: evaluating the results of a Scopus database search and analysing them using the CiteSpace app (Moral-Munoz et al., 2019; Syahputra et al., 2022). The evaluation involves 881 documents from the Scopus database, with early searches focusing on papers with titles, abstracts, and keywords related to adaptive capacity and government. The study's findings are based on the API TITLE-ABS-KEY (adaptive AND capacity AND government) AND PUBYEAR > 2012 AND PUBYEAR < 2023 AND (LIMIT-TO (PUBSTAGE, "final")) AND (LIMIT-TO (LANGUAGE, "English")) AND (LIMIT-TO (SRCTYPE, "j")).

This study explores research topic mapping using social network analysis and trend analysis (Lawelai et al., 2022), using software developed for scientific mapping (Lawelai et al., 2023; Nurmandi et al., 2021, 2023). It evaluates Scopus database search results and analysis them using CiteSpace, a popular Java-based software (Chen, 2017; Chen & Song, 2019). The study analysis mutually quoted research documents on research topic mapping based on citations government adaptive capacity indexed by Scopus. Mutual quotation analysis reveals important keywords and cross-research fields, while keyword-based explosion detection analysis identifies research limits among current publications.

Equations and Mathematics

The study analysis the adaptive capacity of governments using CiteSpace, an analytical tool that identifies research clusters based on quotation analysis. Eight clusters (Fig. 1) represent key topics in government adaptation capacity, providing insights into the challenges and opportunities faced by governments in response to change. Rapid and efficient adaptation is crucial for government success in providing responsive public services and implementing effective policies. Understanding key topics in government adaptation capacity research helps formulate improvement strategies and policy recommendations for improving government adaptability. By increasing adaptive capacity, governments can better address society's changes and respond to public needs.
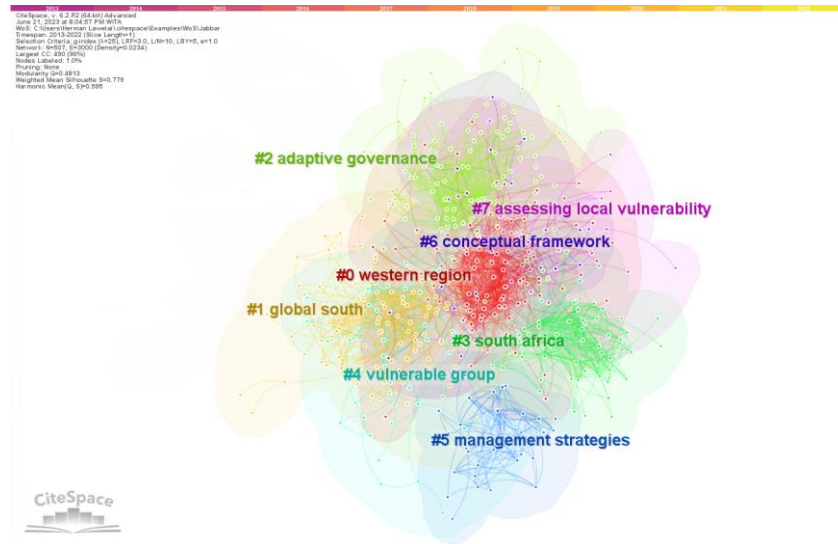
Fig. 1. The results of our cluster analysis are based on literature co-citations.

Fig. 1 shows that the largest cluster (#0) has 107 members and a silhouette value of 0.73. It is labeled as **western region** by LLR, adaptive capacity by LSI, and central rift valley (1.68) by MI. The major citing article of the cluster is: Jones, L (2019). The study examines lessons from the African Climate Change Resilience Alliance (ACCRA) program, which uses the Local Adaptation Capacity (LAC) Framework to understand the impact of development interventions on community and household adaptability. ACCRA research emphasizes the usefulness of LAC as a unifying framework, but emphasizes the need to consider gender, power, and politics. Better guidance is needed for operationalizing LAC and increasing stakeholder collaboration. These findings are expected to help develop LAC applications and other adaptation and resilience frameworks in future research and development practices (Jones et al., 2019). These results contribute significantly to our knowledge of adaptation capability in the context of climate change, emphasize the advantages of LAC as a comprehensive framework, and suggest difficulties and possibilities for future adaptation research and practice.

The second largest cluster (#1) has 98 members and a silhouette value of 0.694. It is labelled as **global south** by both LLR and LSI, and as central rift valley (0.84) by MI. The major citing article of the cluster is: Araos, M (2016). The survey indicated that only 10% of metropolitan regions with over 1 million inhabitants had public health adaption measures. Most of these projects concentrate on controlling severe weather risks and making direct changes in management without creating capacity, conducting research, or making infrastructure expenditures. The results highlight shortcomings in urban health adaptation, including a lack of institutional reporting, information-based efforts, minimal attention to infectious disease risk, and an absence of monitoring, reporting, and evaluation (Araos et al., 2015). The study's results stress the necessity of developing public health adaptable capacity in cities, with an emphasis on cooperation among local governments, academics, and other stakeholders to identify and close gaps in urban health adaptation initiatives.

The third largest cluster (#2) has 95 members and a silhouette value of 0.756. It is labeled as **adaptive governance** by both LLR and LSI, and as central rift valley (5.16) by MI. The major citing article of the cluster is: Cosens, BA (2018). The study investigates the relationship between law, ecosystem dynamics, and governance in managing six river stream regions in the US, focusing on the legal dimension. The research aims to understand the role of law and governance in adapting and transforming these areas to rapid environmental change, including climate change. The study introduces a linking framework between U.S. law and ecological sustainability for future articles (Cosens et al., n.d.). Governments must consider legal and administrative features to adapt to environmental change. Understanding the interplay of legislation,

ecosystem dynamics, and governance can help address challenges faced by river flow areas in response to rapid environmental change.

The 4th largest cluster (#3) has 54 members and a silhouette value of 0.844. It is labeled as **south africa** by both LLR and LSI, and as central rift valley (0.23) by MI. The major citing article of the cluster is: Mwinkom, FXK (2021). Gender, age, household size, farmers' organization membership, agricultural income, schooling years, geographical location, farmland size, and climate change knowledge were shown to have a substantial influence on farm families' adaptation to climate change in Black Volta, Ghana. It highlights the need of increasing farmers' adaptive ability via climate-resilient initiatives and government assistance for climate change adaptation tactics such as modifying planting timings, farming practices, and employing drought-resistant and quick ripening cultivars (Mwinkom et al., 2021). The government must play a crucial role in enhancing climate change adaptation capacity in the Black Volta DAS. By understanding factors affecting farm household adaptation, effective measures can be taken to enhance government adaptation capacity.

The 5th largest cluster (#4) has 44 members and a silhouette value of 0.821. It is labeled as **vulnerable group** by LLR, systematic review by LSI, and upstream brantas watershed indonesia (0.16) by MI. The major citing article of the cluster is: Zeng, X (2022). The study reveals that resilience and urban sustainability are interrelated concepts, emphasizing a system's ability to progress towards development goals. Key indicators for resilience include adaptive capacity, absorption capacity, and transformative capacity, while sustainability indicators cover social, economic, and environmental dimensions. These findings aid in understanding urban vulnerability dynamics and developing strategies for measuring and managing them through developed indicators (Zeng et al., 2022). Governments play a crucial role in promoting urban resilience and sustainability by adopting relevant indicators and involving stakeholders to build resilient and sustainable cities.

The 6th largest cluster (#5) has 31 members and a silhouette value of 0.88. It is labeled as **management strategies** by LLR, case study by LSI, and high mountain (0.07) by MI. The major citing article of the cluster is: Sharma, A (2022). The study emphasizes the importance of strengthening social security schemes' reach and access in drought-affected areas, emphasizing individuals' self-resilience. This applies to governments, policymakers, and individuals in similar socio-economic areas (Sharma & Sen, 2022). Government support and intervention are crucial for increasing adaptive capacity to drought and ensuring readiness and resilience among individuals.

The 7th largest cluster (#6) has 25 members and a silhouette value of 0.851. It is labeled as **conceptual framework** by LLR, case study by LSI, and wildlife researcher (0.14) by MI. The major citing article of the cluster is: Austin, SE (2015). The study reveals that adaptation efforts in Canada vary across government levels, with cities adapting independently (Austin et al., 2015). It calls for a comprehensive strategy to address health risks and engage multiple stakeholders to ensure Canadians' resilience and well-being in the face of climate change.

The 8th largest cluster (#7) has 22 members and a silhouette value of 0.892. It is labeled as **assessing local vulnerability** by both LLR and LSI, and as participatory community case study (0.13) by MI. The major citing article of the cluster is: Fernandez, MA (2015). According to the report, Ecuador's big cities are the least endangered, whereas the bulk of the population lives in very vulnerable regions. This emphasizes the need of government intervention in addressing local climate change vulnerability (Fernandez et al., 2015). Governments can safeguard people's well-being and livelihoods from the effects of climate change by adopting proactive measures and creating resilience.

DISCUSSION

Using a topic-mapping approach, the study on regional government capacity development offers critical insights into the adaptive capacities of governments facing climate change and other societal challenges (Ricart et al., 2023). Analyzing 811 Scopus-indexed articles with CiteSpace, the research identified eight significant clusters of topics that elucidate the key aspects of government adaptability.

The largest cluster emphasizes the Local Adaptive Capacity (LAC) framework, which is pivotal in understanding community and household adaptability in response to climate change. This framework is

lauded for its comprehensive approach but highlights the necessity for improved operationalization and stakeholder cooperation (Olsen, 2020). Notably, the ACCRA program's findings underscore the importance of gender, power dynamics, and politics in adaptation strategies (Ngcamu, 2023). These insights are crucial for developing robust LAC applications and other resilience frameworks that can be effectively applied in future research and development practices.

Another significant cluster, labeled 'global south,' reveals critical gaps in urban health adaptation measures. The findings indicate that only a tiny fraction of metropolitan regions have implemented public health adaptation projects, primarily focusing on immediate weather-related risks without substantial investments in capacity building, research, or infrastructure (Sheehan et al., 2022). This indicates a pressing need for more comprehensive public health strategies incorporating institutional reporting, infectious disease risk management, and thorough monitoring and evaluation mechanisms.

The third cluster explores adaptive governance, particularly the interplay between legal frameworks, ecosystem dynamics, and governance structures. Research in this area, such as studying the U.S. river stream regions, demonstrates the necessity of integrating legal and ecological considerations to enhance government responses to environmental changes (Singh et al., 2021). This highlights the need for legal and administrative adaptability to address rapid environmental changes effectively.

Subsequent clusters delve into specific regional contexts and demographic factors influencing adaptive capacity. For instance, the research on Black Volta in Ghana identifies gender, education, and geographic location as significant determinants of farmers' adaptation to climate change (Mwinkom et al., 2021). These findings advocate for targeted government support and climate-resilient initiatives to bolster local adaptive capacities.

Furthermore, the discussion on urban resilience and sustainability underscores the interconnectedness of adaptive and transformative capacities with social, economic, and environmental sustainability indicators. This holistic approach is essential for developing resilient and sustainable urban environments, with governments playing a crucial role in promoting these indicators and fostering stakeholder collaboration (Nop et al., 2023).

The comprehensive analysis provided by this study serves as a valuable resource for policymakers and researchers. By mapping the existing research landscape, it identifies both strengths and gaps in current government adaptation strategies. The findings emphasize the importance of frameworks like LAC, the need for comprehensive public health adaptation measures, and the role of legal and administrative structures in fostering adaptive governance. These insights are instrumental in guiding future research, policy development, and practical applications to enhance government adaptability in the face of climate change and societal transformations.

CONCLUSION

Based on CiteSpace analysts, the study comprehensively analyzes regional government capacity development using a topic-mapping method based on citations from 811 Scopus-indexed articles. Using CiteSpace software, the study identifies eight key clusters that elucidate the central themes in government adaptability research. The largest cluster emphasizes the Local Adaptive Capacity (LAC) framework, highlighting the significance of stakeholder cooperation and the need for improved operationalization to enhance resilience against climate change. Additionally, the research uncovers critical gaps in urban health adaptation, revealing deficiencies in institutional reporting and attention to infectious disease risks. The study also explores adaptive governance, demonstrating the importance of integrating legal frameworks and ecosystem dynamics to address environmental changes effectively. Specific regional contexts, such as the Black Volta Basin in Ghana, highlight demographic factors influencing adaptive capacity, advocating for targeted government support and climate-resilient initiatives. The findings underscore the interconnectedness of resilience and sustainability indicators, emphasizing the role of governments in fostering stakeholder collaboration to build resilient and sustainable urban environments. This research is a valuable resource for policymakers and researchers, providing insights into the strengths and gaps in current government adaptation strategies and

guiding future efforts to enhance government adaptability in the face of climate change and societal transformations.

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