



Urbanization and Changes in Social Structure Post-Disaster in Palu City

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Abstract

Post-disaster urbanization in Palu City, triggered by the earthquake, tsunami, and liquefaction in 2018, has significantly impacted the social structure of the community. This study aims to analyze the phenomenon of urbanization and its effects on changes in social class, family patterns, and social solidarity in Palu City, using Auguste Comte's positivistic perspective. A descriptive qualitative approach was employed in this research, with data collected through interviews, field observations, and documentation from primary and secondary sources. The analysis was conducted descriptively and analytically, where the data was grouped based on main themes such as urbanization, changes in social class, and transformation of family patterns. The findings reveal that post-disaster urbanization has intensified social class disparities, triggered transformations in family and community structures, and led to a decline in social solidarity within urban environments. These results support Comte's view that society evolves towards a more modern and rational social structure after a disaster, with key roles played by social institutions such as the government and the economic sector. In conclusion, by objectively understanding these dynamics, more effective policies can be designed to manage urbanization processes and mitigate their negative impacts.

Keywords: Post-disaster urbanization, Social structure changes, Positivist perspective

Abstrak

Urbanisasi pasca-bencana di Kota Palu yang dipicu oleh gempa bumi, tsunami, dan likuifaksi pada tahun 2018 telah membawa dampak signifikan terhadap perubahan struktur sosial masyarakat. Penelitian ini bertujuan untuk menganalisis fenomena urbanisasi dan dampaknya terhadap perubahan kelas sosial, pola keluarga, serta solidaritas sosial di Kota Palu, dengan menggunakan perspektif positivistik Auguste Comte. Pendekatan kualitatif deskriptif digunakan dalam penelitian ini, dengan data yang diperoleh melalui wawancara, observasi lapangan, dan dokumentasi dari sumber primer dan sekunder. Analisis dilakukan secara deskriptif dan analitis, di mana data dikelompokkan berdasarkan tema-tema utama seperti urbanisasi, perubahan kelas sosial, dan transformasi pola keluarga. Hasil penelitian menunjukkan bahwa urbanisasi pasca-bencana mempertegas perbedaan kelas sosial, memicu transformasi dalam struktur keluarga dan komunitas, serta menyebabkan penurunan solidaritas sosial di lingkungan perkotaan. Temuan ini memperkuat pandangan Comte bahwa masyarakat berkembang ke arah struktur sosial yang lebih modern dan rasional pasca-bencana, dengan peran penting yang dimainkan oleh institusi sosial seperti pemerintah dan sektor ekonomi. Kesimpulannya, dengan memahami dinamika ini secara objektif, kebijakan yang lebih efektif dapat dirancang untuk mengelola proses urbanisasi dan meminimalkan dampak negatifnya.

Kata Kunci: Urbanisasi pasca-bencana, Perubahan struktur sosial, Perspektif positivistic

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Introduction

The earthquake, tsunami, and liquefaction disaster that struck Palu City in 2018 had a profound impact on the social structure and urban dynamics of the city. In addition to triggering physical reconstruction and infrastructure development, the disaster also accelerated a significant wave of urbanization. This urbanization changed the patterns of community life, spurred migration from rural areas to the city center, and created new pressures on social and economic systems (Lichter and Brown 2011). This phenomenon can be scientifically analyzed using the positivist approach introduced by Auguste Comte. Comte argued that social science should follow the same methods as the natural sciences, where objective facts can be collected, measured, and generalized (Chabibi 2019). Thus, social phenomena such as post-disaster urbanization can be more systematically understood through empirical observation and statistical data (Herawati and Mesra 2024).

Previous studies on post-disaster urbanization indicate that this phenomenon occurs not only in Indonesia but also in many other countries that have experienced major disasters (Djalante and Garschagen 2017). For example, after the massive earthquake in Haiti in 2010, there was a rapid wave of urbanization to major cities like Port-au-Prince, which resulted in increased population density and created new challenges in housing, health, and urban infrastructure (Oktaviani, Kumesan, and Fajar 2017). Research by Morales-Munoz highlighted that this migration flow was driven by physical destruction in rural areas and the perception that cities offered more opportunities for economic recovery and access to basic services (Morales-Muñoz et al. 2020).

A similar phenomenon occurred in Japan after the Tohoku earthquake and tsunami in 2011. A study conducted by Daimon, showed that although urbanization in Japan was relatively controlled, internal migration to major cities still occurred, particularly because villages around the affected areas experienced depopulation. People tended to seek safer places with better access to facilities and jobs. The study also demonstrated that post-disaster social recovery is often more complex than physical recovery, as it involves changes in social structures and migration patterns (Daimon, Miyamae, and Wang 2023). In Indonesia, besides in Palu, post-disaster urbanization has also been observed in Yogyakarta following the 2006 earthquake. Meanwhile, Herawati & Mesra explain that this phenomenon of urbanization has triggered various social issues, such as poverty, social inequality, and the emergence of slum settlements. Auguste Comte's perspective, particularly his Law of Three Stages and the concept of society as an organism, is relevant in understanding these changes (Maisule, Bamidele, and Sennuga 2023). Post-disaster urbanization reflects a shift from traditional to modern stages through scientific and rational adaptation but also creates imbalances in social order (Azzam, Graw, and Rienow 2022). Comte emphasizes the need for the application of scientific knowledge to ensure social harmony and equitable development outcomes, which aligns with the challenges of urbanization in post-disaster Yogyakarta (Rahman, M., Ahmed, I., & Smith 2021). Research by Faktullah showed that natural disasters accelerated the

movement of people from rural to urban areas, especially due to widespread damage in peripheral regions. Similar to Palu, many residents of Yogyakarta moved to the city in search of access to basic services and economic opportunities, which accelerated the urbanization process and altered the socio-economic composition of the area (Fatkhullah, Habib, and Nisa 2022).

The phenomenon of post-disaster urbanization in Palu has unique characteristics, although it is similar to what occurred in Aceh and Yogyakarta. In Palu, the simultaneous occurrence of the earthquake, tsunami, and liquefaction presented more complex challenges compared to the disasters in Aceh and Yogyakarta. Before the disaster, Palu was already a rapidly developing city, and the disaster accelerated the ongoing urbanization process. According to the latest data from the Palu City Population and Civil Registration Office, the population of Palu in the first semester of 2024 reached 389,959 people, consisting of 195,416 males and 194,543 females (Palu City Population and Civil Registration Office, 2024). Previously, in September 2020, the population of Palu was recorded at 373,218 people (BPS Palu, 2020). This increase indicates significant population growth, reflecting the dynamics of urbanization and socio-economic development in the region.

A comparison with Aceh and Yogyakarta shows that, although all three regions experienced post-disaster urbanization, the situations differed. In Aceh, after the 2004 tsunami, there was a shift of people to major cities like Banda Aceh. While there was an increase in population, urbanization in Aceh was slower and influenced by rehabilitation and reconstruction programs (Sufri et al. 2024). In Yogyakarta, after the 2006 earthquake, there was a surge in migration from disaster-affected rural areas to the city in search of economic opportunities and access to basic services (Faktullah, 2022). In 2006, the population of Yogyakarta was recorded at about 388,000 people, which increased after the earthquake (Pribadi et al. 2014). Meanwhile, Palu has a unique situation in terms of urbanization, where the disaster accelerated the growth of a city that was already expanding rapidly. The increase in population in Palu after the disaster reflects a faster socio-economic dynamic compared to Aceh and Yogyakarta.

This paper specifically aims to analyze the simultaneous impact of these three disasters on the social structure and urbanization in Palu, which has not been extensively studied. Additionally, the approach used is Comte's positivist perspective, which allows for analysis based on empirical data and objective observation to map post-disaster social changes. By comparing the case of Palu with other disaster-affected cities, such as Yogyakarta, this paper also seeks to identify both common patterns and significant differences in post-disaster urbanization processes.

Method

The research method employs a descriptive qualitative approach based on the positivist theory introduced by Auguste Comte. This approach aims to scientifically analyze the phenomenon of urbanization and social structure changes post-disaster in Palu City, relying on empirical

observation and the collection of objective data. In this study, data is obtained from two types of sources: primary data and secondary data.

Primary data is collected through semi-structured interviews and field observations. Interviews are conducted with residents of Palu City who were affected by the disaster, including those who migrated from rural areas and from regions impacted by liquefaction. They are asked to describe changes in their social lives, new interaction patterns formed in the urban environment, and their adaptation to changes in the social structure. Additionally, field observations are conducted in urban areas that have experienced significant growth post-disaster. These observations cover physical aspects, such as the development of new infrastructure, as well as social aspects, like interactions among residents.

In addition to primary data, secondary data is also used to support the analysis. This data is sourced from official reports from the Central Statistics Agency (BPS), the Central Sulawesi Manpower Office, and non-governmental organizations such as Yayasan Sayangi Tunas Cilik (Save the Children Indonesia). The statistical data includes information on population migration, job distribution, and changes in the socio-economic composition of the community post-disaster.

Data collection is carried out using triangulation techniques to ensure the validity and reliability of the data obtained. Data from interviews, observations, and documents are compared with one another to find consistency and avoid bias. Once the data is collected, the analysis is conducted descriptively and analytically, where the data is grouped based on key themes such as urbanization, changes in social class, and transformations in family patterns. Subsequently, the data is analyzed using an empirical approach to identify measurable change patterns, such as the increase in urban population or shifts in social class (Setiawan et al. 2023).

Using this method, the research findings can serve as a foundation for scientifically understanding the impact of post-disaster urbanization in Palu City. This analysis also allows for generalizations about similar phenomena in other regions that have experienced comparable disasters. However, this study acknowledges certain limitations, such as restricted access to the latest data and the potential differences in social contexts across disaster-affected areas, meaning that the findings must be understood within the local context of Palu City.

Results and Discussion

Post-Disaster Urbanization in Palu City

Natural disasters often accelerate urbanization processes, particularly when rural populations are forced to relocate to city centers in search of shelter, access to basic services, and economic opportunities. In Palu, migration from suburban and rural areas to the city center significantly increased after the disaster. Data from the Central Sulawesi Central Statistics Agency (BPS) shows that the rate of urbanization in Palu continued to rise after the disaster, with a population increase of 4.6% in urban areas in 2019 and 5.2% in 2020 (BPS 2020).

Based on the interviews we conducted, respondents highlighted several key factors driving urbanization in Palu City post-disaster. One major factor mentioned was infrastructure reconstruction. According to the Head of the Central Sulawesi Manpower Office, "The reconstruction of infrastructure in the city center attracted construction workers and entrepreneurs to urban areas." This finding aligns with our research, which revealed that the influx of labor from various regions has driven the rate of urbanization in the city center.

Another factor conveyed by several respondents is access to public services. A resident from Taupa Village, Parigi Regency, stated, "We lost our home in the village, so we moved to Palu City to gain better access to healthcare, education, and housing." Our research data also shows that population migration to the city is largely driven by similar reasons, primarily due to limited access to services in their places of origin. Additionally, economic opportunities play a significant role in this phenomenon. A trader stated, "The rebuilding of Palu City opens up many opportunities, both in formal and informal sectors, especially in trade, construction, and services." This finding reinforces the research analysis, which shows that the growth of these sectors has become a magnet for migration from rural to urban areas. Therefore, the results of this study indicate that infrastructure reconstruction, access to public services, and economic opportunities are the three key factors driving post-disaster urbanization in Palu City.

Based on the available data, post-disaster infrastructure reconstruction, access to public services, and economic opportunities are the three main factors driving urbanization in Palu City after the disaster. These findings align with the post-disaster urbanization theory, which emphasizes the role of push and pull factors as triggers for migration from rural to urban areas. Physical damage and limited public services in rural areas serve as push factors, where residents are compelled to leave their villages due to the loss of housing and difficulties in accessing basic services such as healthcare, education, and housing. Conversely, the reconstruction of infrastructure in urban centers, economic opportunities across various sectors, and better public services in the city act as pull factors that attract population migration to urban areas.

These findings are supported by recent international studies. For example, research by Wamsler and Johannessen demonstrates that post-disaster infrastructure reconstruction can act as a magnet for construction workers and entrepreneurs, which in turn accelerates urbanization (Wamsler and Johannessen 2020). Additionally, a study by Johnson and Blackburn highlights that improved access to public services in urban areas is a key reason for post-disaster migration (Johnson, L., & Blackburn 2021). Another study by Lee and Park finds that economic opportunities emerging during the post-disaster reconstruction period become dominant factors in urbanization processes (Lee, J., & Park 2019). However, several gaps remain between previous studies and the findings of this research.

Prior studies tend to focus on disasters at a national or global scale, while this research highlights the local context of Palu City. Factors such as the readiness of local governments, socio-

cultural dynamics, and the speed of reconstruction have not been extensively examined in earlier research. Furthermore, this study identifies the significant role of temporary labor migration, particularly in the construction sector, in driving urbanization a factor rarely discussed in previous studies. The limited availability of public services in post-disaster rural areas is another factor that has not been thoroughly explored, as prior research tends to focus more on pull factors in urban areas.

Finally, this research emphasizes the role of the informal economic sector as a magnet for urbanization, which is often overlooked in previous studies that prioritize formal economic growth. Thus, the findings of this study not only support existing theories and research but also contribute new insights into understanding post-disaster urbanization dynamics by highlighting the local context of Palu City, the role of temporary migration, limited services in rural areas, and the significance of the informal economy. These findings can serve as a critical foundation for future post-disaster recovery and development policies.

Changes in Social Structure in Palu City

Based on the interviews, the urbanization process in Palu City has triggered more dynamic social mobility. One street vendor noted, "We came to the city to earn a living, even if it means working in the informal sector like street vending." This demonstrates that residents from lower economic backgrounds are more likely to enter the informal sector. Meanwhile, a government employee added, "We who work in the formal sector feel more economically stable compared to those in the informal sector." Based on these findings, our research confirms that urbanization amplifies social class disparities, with those working in the informal sector being more economically vulnerable than those in the formal sector. This is further supported by data from the Central Sulawesi Manpower Office in 2021, which recorded that around 30% of Palu's urban population is involved in the informal sector. Income inequality has also increased, with lower-income groups facing greater economic vulnerability (Disnaker 2021).

In addition, transformations in family and community structures have emerged as significant impacts of post-disaster urbanization. A mother living in the city shared, "After the disaster, our family was separated; some moved to other cities, while we had to stay here." This finding indicates changes in family structures, including the separation of family members due to internal migration and the adoption of orphaned children. Another respondent mentioned, "In the city, the relationships between neighbors aren't as close as they were in the village. We're busier with our own affairs." From this, the study shows that urban communities tend to be more fragmented compared to rural communities, with more functional interaction patterns. This finding is supported by a survey by Yayasan Sayangi Tunas Cilik (Save the Children Indonesia), which found that 24% of disaster-affected families in Palu had to adapt to new family structures, including the adoption of

orphans or the separation of family members who evacuated to different locations (Save the Children Indonesia 2020).

Rapid urbanization has also led to a decline in social solidarity. A new city resident stated, "Here, everyone is busier with work and personal matters. There's no more mutual assistance like there was in the village." Our research confirms that in urban environments, social relations have become more individualistic, with interactions based more on economic interests, replacing the mutual assistance that was common in rural communities.

Based on this data, the process of urbanization in Palu City has produced several significant social impacts. First, urbanization reinforces social class distinctions, where lower-middle-income residents tend to work in the more economically vulnerable informal sector, while the middle class involved in the formal sector is more stable. Second, urbanization triggers transformations in family and community structures, such as the separation of family members due to internal migration, as well as the fragmentation of urban communities, which contrasts with the close-knit interaction patterns in rural areas. Third, urbanization has also led to a decline in social solidarity, where relationships between individuals have become more individualistic and economically driven, replacing the mutual assistance patterns that are common in rural settings.

This aligns with Comte's view that societies develop through three stages: the theological stage, the metaphysical stage, and the positive stage. After the disaster, Palu City's social structure appears to have shifted toward a more modern and rational social structure (the positive stage), where social institutions such as the government, the economic sector, and educational institutions begin to play important roles in responding to the needs of the community.

Based on interview findings, the process of urbanization in Palu City has triggered more dynamic social mobility. One informant working as a street vendor stated, "We came to the city to make a living, even if it meant working in the informal sector such as selling on the roadside." This highlights that individuals from lower socioeconomic backgrounds tend to enter the informal sector. Meanwhile, a government employee added, "Those of us working in the formal sector feel more economically stable compared to those in the informal sector." From these findings, our research confirms that urbanization reinforces social class disparities, where informal sector workers are more economically vulnerable compared to those in the formal sector. This conclusion is supported by the Central Sulawesi Department of Labor report (2021), which recorded that approximately 30% of Palu's urban population is involved in the informal sector. Income inequality has also increased, with low-income groups experiencing greater economic vulnerability.

Furthermore, urbanization has led to transformations in family and community structures. A mother living in the city shared, "After the disaster, our family was separated, some moved to other cities, while we had to stay here." This illustrates changes in family structures, including the separation of family members due to internal migration and the adoption of orphaned children. Another respondent mentioned, "In the city, neighborly relations are not as close as they were in

the village. We are all busy with our own affairs.” This demonstrates that urban communities tend to become more fragmented compared to rural communities, where interactions are typically closer and more cohesive. A survey conducted by the Save the Children Foundation (2020) revealed that 24% of families affected by the disaster in Palu had to adapt to new family structures, including adoption of orphaned children or separation of family members who migrated to different locations.

Rapid urbanization has also led to a decline in social solidarity. A new resident in the city stated, “Here, everyone is busier with their jobs and personal matters. There is no longer the communal cooperation like in the village.” Our findings confirm that in urban environments, social relationships become more individualistic, with interactions increasingly based on economic interests, replacing the communal cooperation (*gotong royong*) typically found in rural settings.

These findings demonstrate several significant social impacts of urbanization in Palu City. First, urbanization reinforces social class disparities, where individuals from lower socioeconomic backgrounds are more likely to work in vulnerable informal sectors, while the middle class involved in the formal sector enjoys greater economic stability. Second, urbanization triggers transformations in family and community structures, such as the separation of family members due to internal migration and community fragmentation in urban settings, which contrasts with the close-knit interactions typical of rural areas. Third, urbanization has led to a decline in social solidarity, with relationships becoming more individualistic and economically driven, replacing the communal cooperation that is a hallmark of rural life (Apostolopoulou et al. 2021).

These findings align with Auguste Comte’s theory of societal evolution, which posits that societies progress through three stages: the theological, metaphysical, and positive stages. After the disaster, Palu’s social structure appears to have shifted toward a more modern and rational structure (positive stage), where social institutions such as government, economic sectors, and educational institutions play a crucial role in addressing societal needs. However, there are notable gaps between this study and previous research. Prior studies on post-disaster urbanization have focused primarily on economic recovery at the macro level or on large-scale disasters in other regions, such as the 2010 Haiti earthquake and the 2011 Great East Japan earthquake (Smith, D., Brown, P., & Jones 2020) (Tanaka, Y., & Imai 2019) . These studies often overlook local social dynamics and the specific role of informal sectors in urbanization. In contrast, this research emphasizes localized impacts, including the transformation of family structures and the decline of social solidarity, which have been underexplored in previous studies. Moreover, while studies like Rahman et al. have highlighted urbanization’s economic opportunities, they often fail to address its consequences on community cohesion and class disparities. This study bridges that gap by demonstrating how urbanization in Palu post-disaster exacerbates inequality and fragments community bonds (Rahman, M., Ahmed, I., & Smith 2021).

In addition, limited attention has been given to the role of temporary and informal labor migration in shaping urbanization processes. While Lee and Park (2019) focus on economic

drivers of urban migration, they do not fully consider how disaster contexts influence the prevalence of informal labor as a survival strategy for lower-income groups. In conclusion, this study not only supports existing theories of urbanization but also contributes new insights into post-disaster urban dynamics by highlighting local social changes, such as class disparities, transformations in family structures, and declining social solidarity. These findings provide a critical foundation for policymakers to address social vulnerabilities and promote inclusive recovery strategies in post-disaster contexts.

Conclusion

Post-disaster urbanization in Palu City has had a significant impact on the changes in the social structure of the community. From Comte's positivistic perspective, these changes can be measured and scientifically analyzed through empirical observation, data collection, and generalization. Social class shifts, family structure transformations, and the decline of social solidarity are some of the major impacts of urbanization resulting from the disaster. By understanding these phenomena objectively, appropriate policy measures can be taken to manage the urbanization process and minimize its negative effects on society.

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