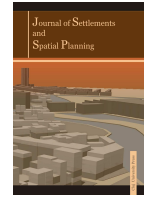




Centre for Research on Settlements and Urbanism

Journal of Settlements and Spatial Planning

Journal homepage: <http://jssp.reviste.ubbcluj.ro/eng/index.html>



Elements That Shape Slum Integration. A Systematic Literature Review


Sri Aliah EKAWATI*¹, Idawarni J. ASMAL², Nurul NADJMI², Samsuddin AMIN²

* Corresponding author

¹ Hasanuddin University, Faculty of Engineering, Department of Urban and Regional Planning, Makassar, Sulawesi, INDONESIA

² Hasanuddin University, Faculty of Engineering, Department of Architecture, Makassar, Sulawesi, INDONESIA

✉ aliah.sriekawati@unhas.ac.id  0000-0001-6347-4316

✉ idawarniasmal@yahoo.com  0000-0003-2427-6389

✉ nurul_nadjmi@yahoo.com  0009-0005-3896-3181

✉ samsuddin@unhas.ac.id  0000-0003-3011-0027

DOI: 10.24193/JSSP.2023.2.04

<https://doi.org/10.24193/JSSP.2023.2.04>

Keywords: *slum settlement, slum integration, mobility, space utilization, social cohesion, economic practices*

ABSTRACT

Massive urbanization is considered to be one of the causes of population density that eventually triggers the creation of slums in a city. Slums are synonymous with poverty, crime, low education, and lack of infrastructure, making the area segregated from the formal urban space. Settlement communities have difficulty accessing facilities in the formal urban space. This study aims to formulate the elements that form the integration of slum areas. The method used is a *Systematic Literature Review* (SLR). The four stages in this SLR method are (1) identification; (2) screening; (3) eligibility; and (4) inclusion. A total of 62 articles were reviewed in this study. The results of this study are nineteen elements that form the integration of slum areas seen from physical and socio-economic aspects. If physical aspects include road network, accessibility, distance, public transportation, visual, public open space, periphery, settlement pattern, infrastructure, topography, and orientation, the socio-economic ones refer to local wisdom, background, social networks, types of activities, community empowerment, the sense of belonging, economic networks, and local economic empowerment. It is presumed that the results of this study can be used as guidelines for structuring slums so that they do not become marginalized areas or separate from formal urban areas.

1. INTRODUCTION

One million people of the world's population live in slum areas and this tends to increase due to the ongoing flow of urbanization (Raofi et al., 2022; Mahabir et al., 2016). Massive urbanization is considered to be one of the causes of the density of a city that eventually triggers the development of slums (Rijal and Tahir, 2022). The presence of slums in the middle of cities has regional and global implications, affecting education, health, morality, and social

exclusion (Mahabir et al., 2016). Rapid population growth is not matched by the ability of the land to provide a decent living environment (Takyyi et al., 2021; Nugroho 2019; Anindita et al., 2022). High birth rates and domestic migration became the background for the increase in urban population. An increasing number of family members require a large living space or a new residence on a new land. Likewise, the arrival migrants who occupy urban areas with economic motivations (O'Brien et al., 2023) choose to settle near their workplace (Surya et al., 2019; Naing, 2019). Limited

and static land can no longer accommodate the increasing population. However, they choose to build the houses on illegal land without proper planning. The result is a settlement that is synonymous with poverty, unemployment, low education, and inadequate infrastructure.

The negative image created by slums is followed by a community stigma that also tends to be negative (Janches, 2012). They are synonymous with the poor (Meréiné-Berki et al., 2017), uneducated (Pedro and Queiroz, 2019), prone to criminal acts (Sutiyarsi et al., 2019), and the erosion of local wisdom values due to modernization (Ekawati et al., 2022). Therefore, they fall into the group of urban communities that are marginalized (undesirable). Their access to other urban spaces, basic facilities, and city transportation is minimal. Children growing up in slums have difficulty accessing education and healthcare facilities (Janches, 2012; Turok and Borel-Saladin, 2018). The negative perception attached to slums results in them being segregated from 'formal' urban spaces.

Improved connectivity between slums and the rest of the city is needed (Turok and Borel-Saladin, 2018). Consequently, urban infrastructure and spatial planning need further attention to accommodate the activities of people moving from slums. The development of urban infrastructure that is not integrated and ignores the needs of the community adds to the rundown of coastal settlements. On the other hand, slums tend not to be integrated into 'formal' urban spaces (Kamalipour and Peimani, 2015), with no cohesion between them and other urban spaces. Evolution has highlighted the fragmentation of the city marked by the proliferation of elite housing estates known as gated communities, and new exclusive commercial or shopping centers.

Studies related to slums have been conducted by many experts in the last 10 years. The studies related to slums, especially in Makassar City can be grouped into six categories based on the raised issues, as follows: (1) characteristic exploration (Rahayu and Jaharuddin, 2020; Asmal et al., 2019; Syarif et al., 2015); (2) infrastructure quality improvement (Irfan and Pano, 2021; Satar et al., 2021; Surya et al., 2020-a; Surya et al., 2020-b; Surya et al., 2020-c; Zanuardi et al., 2017); (3) community empowerment (Ramirez-Lovering et al., 2018); (4) disaster mitigation planning in slums (Indayani et al., 2021; Syarif et al., 2020; Wunas, 2019; Naing and Ikhsan, 2016; Ekawati et al., 2022); (5) slums as tourist areas (Arifin et al., 2021; Misbahuddin et al., 2018; Asmal, 2016); (6) slums and other urban areas (Surya et al., 2021; Putra and Nareswari 2019; Darmansyah et al., 2019).

All the above-mentioned studies focus on slums. The impacts of urban development such as reclamation, as well as social, cultural, and economic changes seen as external factors affecting the physical

and non-physical aspects of slums have been studied. Exposure to the urban spaces around slums acts as one of the variables considered when determining the arrangement of slums. The directions generated from previous research centered on improving the quality of the slums themselves. Studies generally discuss slum upgrading with one solution that integrates slums with surrounding areas. However, no studies have formulated the principles of slum upgrading integrated with urban areas, especially in the case of coastal cities.

This study aims to define the elements that integrate slums with other urban spaces. The research question arises: "In what ways do slums integrate with other urban spaces?" This study will describe how physical and non-physical elements are interrelated in creating slum integration with other urban spaces, this also being the difference between the current research and the previous studies reviewed in the present paper. As such, previous studies only discussed the observed elements in the integration process without looking at the relationship between one element and another. It is hoped that the results of this study can be used as guidelines for structuring slums so that they do not become marginalized areas or separate from formal urban areas.

The integration of slums with the global urban space, especially from a physical standpoint, is also expected to improve the social and economic quality of the people who live in them.

2. METHOD

The systematic literature review method is a scientific method intended to minimize biases in identifying literature reviews to answer specific research questions. The SLR process follows the PRISMA flow (Figure 1) which consists of (1) identification; (2) screening; (3) eligibility; and (4) inclusion.

a). Identification. The first stage of this SLR process is to identify keywords in the data search engine. The keywords used in this research are "city integration" and "coastal slum". The search technique uses the keywords that have been determined using the Boolean search operator: ("city integration") AND ("coastal slum"). The search for articles related to these keywords was performed in the following international databases: Web of Science (WoS), Research Gate, and Science Direct. Google Scholar was used as an additional database. In this process, 2,511 articles were identified that were ready to go through the screening stage.

b). Screening. After entering the specific keywords, filtering is carried out according to predetermined criteria (Table 1). The selected articles were from journals covering the period between 2013 and 2023. The language used was English with Social Science and/or Regional and Urban Planning as the

subject area. After the screening stage, a total of 778 articles were screened.

Table 1. Criteria for selected articles.

Database	Inclusion	Exclusion
Types of literature	Journal (review articles and research articles), proceedings	Passages/chapters from books, articles in newspapers and magazines, theses or dissertation reports
Language	English, Indonesian	Non-English, non-Indonesian
Period	2013-2023	<2013
Subject area	Social science and/or regional and urban planning	Non-social science; non-regional and urban planning

c). *Eligibility.* This stage is done by reading the title and abstract of the article. Through this process, articles that do not discuss the integration of slums and coastal cities will be removed. Likewise, the same article title in two or more databases will only be counted as one. Through this stage, 112 articles related to the integration of slums and coastal cities were obtained.

However, 50 articles were removed because they had the same title in more than one database.

d). *Included.* The last stage is to read all the articles and identify what criteria are needed for an inclusive public open space. The total number of articles to be studied is 62.

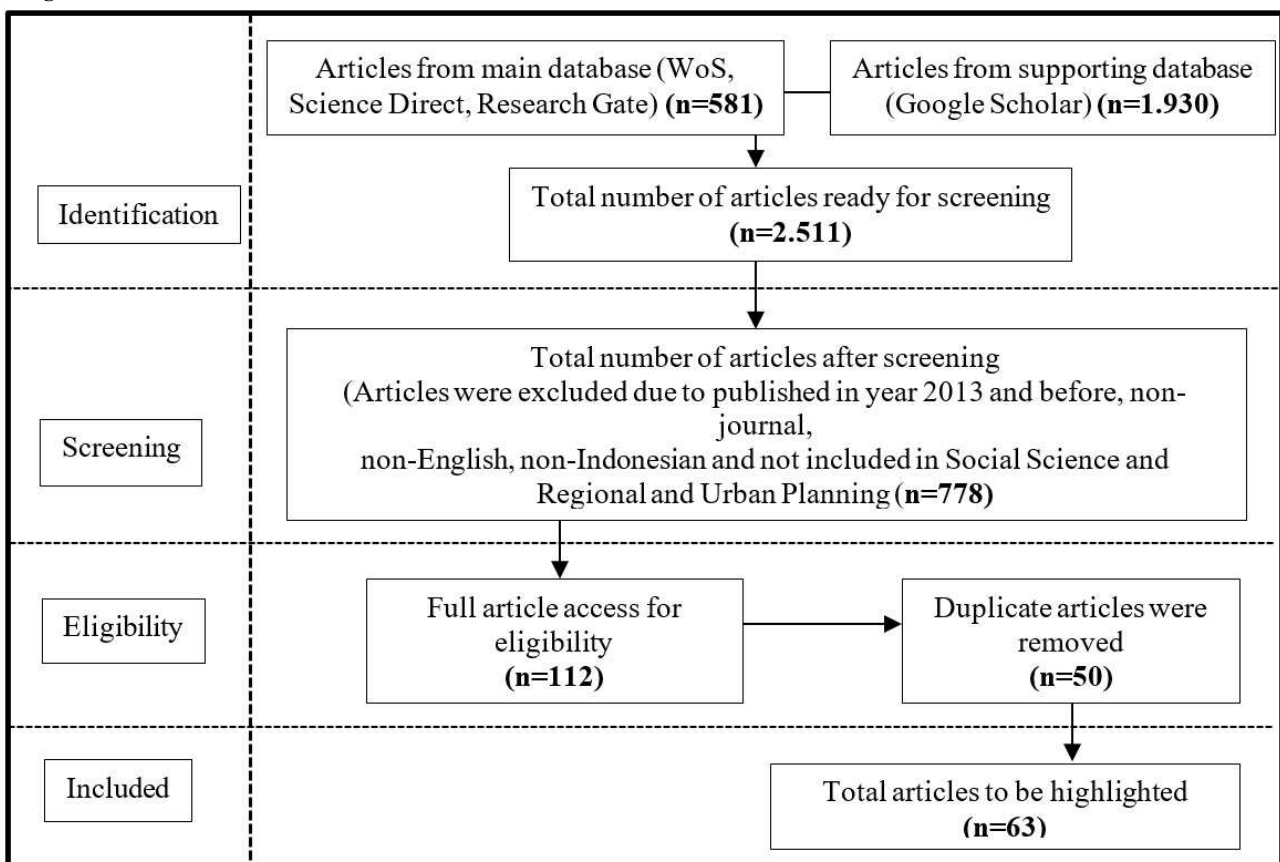


Fig. 1. Flowchart of systematic literature review.

The Systematic Literature Review method used in this study has limitations. The data or observed variables found in this study come purely from text studies. Further empirical studies in the field and quantitative studies are needed to obtain more accurate results. Furthermore, most of the research locations in the literature are in Indonesia. This certainly limits the generalizing potential of the findings, considering that there are differences in physical, cultural, and climatic elements in each slum in various countries. Studies from different countries that consider the physical and non-physical aspects of the study location are needed to

obtain a comprehensive and comprehensive picture of the integration of slums with other urban spaces.

3. RESULTS AND DISCUSSION

3.1. Distribution pattern of slum integration study

Identification of the distribution pattern of slum integration studies was conducted to find out how many related studies were conducted in various countries in the same year, the characteristics of the

study location, and the form of integration discussed. Identification of the distribution pattern is needed to explore the urgency of slum integration studies as well as to find information gaps that have never been approached. Table 2 shows the identification of article

identity based on title, year, country, location (coastal, riverside, or city center), and form of integration (physical or socio-economic). The explanation of each identity will be presented further.

Table 2. Identification of article identity.

No.	Author, Year	Country	Location	Integration	Database
1	(Kumari, 2022)	India	Riverbank	Physical	Google Scholar
2	(Cutini et. al., 2020)	Italy	City Center	Physical	WoS, Research Gate, Google Scholar
3	(Syafitri et. al., 2022)	Indonesia	City Center	Physical	Google Scholar
4	(Alikhodja, 2022)	Algeria	City Center	Physical	Google Scholar
5	(Perera and Co, 2022)	Sri Lanka	City Center	Physical, Socio-economic	Google Scholar
6	(Irsyad and Hitoshi, 2022)	Indonesia	Riverbank	Physical	Research Gate, Science Direct, Google Scholar
7	(Nugraha, 2022)	Indonesia	City Center	Physical	Google Scholar
8	(Zeid and Vialard, 2022)	Egypt	City Center	Physical, Socio-economic	Research Gate, Science Direct, Google Scholar
9	(Baharuddin et. al., 2021)	Indonesia	Coastal	Physical, Socio-economic	Google Scholar
10	(Sherlia et. al., 2021)	Indonesia	Coastal	Physical	Google Scholar
11	(Pusporini et. al., 2021)	Indonesia	Riverbank	Physical	Research Gate, Google Scholar
12	(Ragheb and El-Ashmawy, 2021)	Egypt	City Center	Physical	Research Gate, Google Scholar
13	(Ghanam and El-Deep, 2021)	Egypt	City Center	Physical, Socio-economic	Google Scholar
14	(Surya et. al., 2021)	Indonesia	Coastal	Physical, Socio-economic	Research Gate, Google Scholar
15	(Munirwan et., al., 2021)	Indonesia	Coastal	Physical, Socio-economic	Google Scholar
16	(Pinto et. al., 2021)	Philippines	Coastal	Physical	Research Gate, Google Scholar
17	(Radliyatullah and Dwisusanto, 2020)	Indonesia	City Center	Physical	Research Gate, Google Scholar
18	(Surya et. al., 2020)	Indonesia	Coastal	Physical, Socio-economic	Research Gate, Google Scholar
19	(Özdener and Özkan, 2020)	Turkey	City Center	Physical	Google Scholar
20	(Surya et al., 2019)	Indonesia	City Center	Physical, Socio-economic	Research Gate, Google Scholar
21	(Hidayanti et. al., 2021)	Indonesia	City Center	Physical, Socio-economic	Research Gate, Google Scholar
22	(Syarif et. al., 2020)	Indonesia	Coastal	Physical	Research Gate, Google Scholar
23	(Abozied and Vialard, 2020)	Egypt	City Center	Physical, Socio-economic	Google Scholar
24	(Hatipoglu and Mahmut, 2020)	Turkey	City Center	Physical, Socio-economic	Research Gate, Google Scholar
25	(Sen and Baran, 2020)	Turkey	City Center	Physical	Google Scholar
26	(Raudina, 2020)	Indonesia	City Center	Physical	Google Scholar
27	(Wiedmann et. al., 2019)	Qatar	Coastal	Physical, Socio-economic	Research Gate, Google Scholar
28	(Samburu et. al., 2019)	Kenya	City Center	Physical	Research Gate, Google Scholar
29	(Michiani and Asano, 2019)	Indonesia	Riverbank	Physical, Socio-economic	Science Direct, Research Gate, Google Scholar
30	(Jimmy, et. al., 2019)	Kenya	City Center	Physical, Socio-economic	Google Scholar
31	(Putra and Nareswari, 2019)	Indonesia	Coastal	Physical	Research Gate, Google Scholar
32	(Ruiz-Tagle, 2013)	USA	City Center	Physical, Socio-economic	Research Gate, Google Scholar
33	(Raniasta, 2019)	Indonesia	Coastal	Physical	Google Scholar
34	(Ena et. al., 2019)	Brazil	City Center	Physical	Research Gate
35	(Cutini et. al., 2019)	Philippines	Coastal	Physical	Research Gate, Google Scholar
36	(Hutama and Kristiadi, 2019)	Indonesia	Riverbank	Physical, Socio-economic	Google Scholar

No.	Author, Year	Country	Location	Integration	Database
37	(Syarif, 2018)	Indonesia	Coastal	Physical, Socio-economic	Research Gate, Google Scholar
38	(Hutama, 2018)	Indonesia	Riverbank	Physical, Socio-economic	Research Gate, Google Scholar
39	(Prayitno, 2018)	Indonesia	Coastal	Physical	Research Gate, Google Scholar
40	(Thurber et. al. 2017)	USA	City Center	Physical, Socio-economic	Research Gate, Google Scholar
41	(Padmanaban et. al., 2017)	India	City Center	Physical	Google Scholar
42	(Prayitno, 2017)	Indonesia	Riverbank	Physical, Socio-economic	Research Gate, Google Scholar
43	(Lopes et. al., 2017)	Brazil	City Center	Physical	Research Gate, Google Scholar
44	(Pacheco, et. al., 2017)	Portugis	Coastal	Physical	Research Gate, Google Scholar
45	(Marpaung and Silaban, 2017)	Indonesia	Coastal	Physical	Google Scholar
46	(Hamidah et. al., 2017)	Indonesia	City Center	Physical, Socio-economic	Google Scholar
47	(Mohammadi, 2017)	Iran	City Center	Physical, Socio-economic	Research Gate, Google Scholar
48	(Taki, 2017)	Saudi Arabia	City Center	Physical	Research Gate, Google Scholar
49	(Donegan and Trigueiro, 2016)	Brazil	Coastal	Physical	Research Gate, Google Scholar
50	(Mohamed, 2016)	Egypt	City Center	Physical	ScienceDirect, Research Gate, Google Scholar
51	(Rafieian et. al., 2016)	Iran	City Center	Physical	Google Scholar
52	(Cornburn and Syerdlik, 2017)	Brazil	City Center	Physical, Socio-economic	Research Gate, Google Scholar
53	(Hamidah et. al., 2016)	Indonesia	Riverbank	Physical, Socio-economic	Google Scholar
54	(Gemalsigit et. al., 2015)	Indonesia	City Center	Physical, Socio-economic	Google Scholar
55	(Schroeder and de Saboya, 2015)	Brazil	City Center	Physical	Research Gate, Google Scholar
56	(Syarif et. al., 2015)	Indonesia	Coastal	Physical, Socio-economic	Google Scholar
57	(Mohamed and Mohareb, 2015)	Egypt	City Center	Physical, Socio-economic	Research Gate, Google Scholar
58	(Krenz et. al., 2015)	Brazil	City Center	Physical	Research Gate, Google Scholar
59	(Hernández-García, 2013)	Colombia	City Center	Physical, Socio-economic	Research Gate
61	(Mohamed et. al., 2013)	Egypt	City Center	Physical, Socio-economic	Research Gate, Google Scholar
62	(Vasku, 2013)	Saudi Arabia	City Center	Physical	Google Scholar
63	(Ismail et. al., 2013)	Egypt	City Center	Physical	Research Gate, Google Scholar

Slum integration study by year. Based on the findings above, it is known that studies related to the integration of slums with other urban areas are still relatively 'quiet' (Fig. 2).

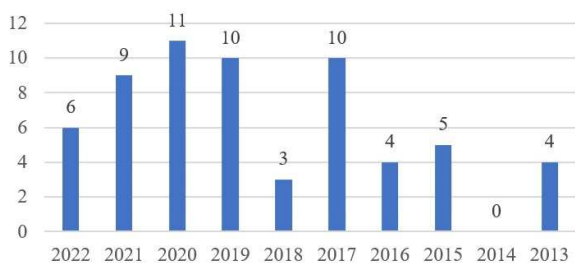


Fig. 2. Article amount by year.

There is still a need for studies related to integrated slums considering that various problems or issues referring to segregation are still being discussed (Janches, 2012; Kamalipour and Peimani, 2015;

Cahyani and Widianingsih, 2019). This *systematic literature review* is expected to add to the inventory of studies on slum integration that guide the structuring and upgrading of slums in urban areas.

Slum integration by country. Figure 3 shows a comparison of the number of articles reviewed by study location.

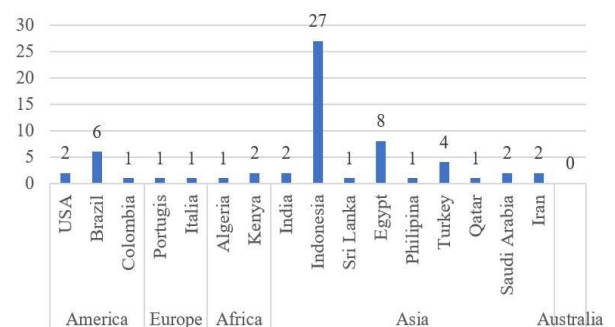


Fig. 3. Article amount by country.

Based on the graph, it is clear that the dominance of slum-related studies is located in developing countries such as Indonesia, Egypt, Brazil, Colombia, Portugal, Algeria, Kenya, India, Sri Lanka, the Philippines, and Iran. These studies illustrate that attention to the existence of slums in developing countries still needs to be addressed, not only to improve the physical quality of the environment but also to boost the social and economic welfare of the community. Furthermore, studies in Indonesia, as an archipelago, are mostly located at the level of coastal slums. On the other hand, there are also studies related to regional integration in developing countries such as the USA, Italy, Portugal, Turkey, Qatar, and Saudi Arabia. Some researches, such as in the case of the USA, focus on socio-economic integration rather than physical settlement. However, other developing countries besides the USA still discuss slum integration in terms of both physical and socio-economic aspects. This illustrates that, even in developing countries, the case of slums, including segregation based on origin, economic conditions, and race, cannot be separated from urban issues.

Study location. Figure 4 shows the study location of each article. The research that has been conducted is predominantly in slums located in the city center, with 37 articles.

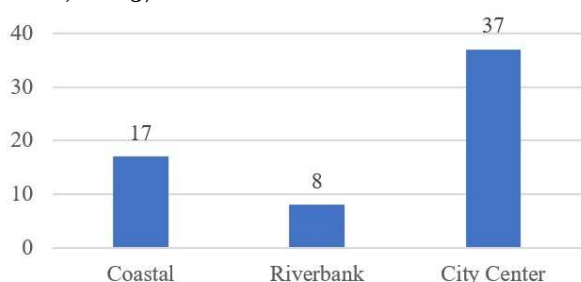


Fig. 4. Article amount based on the study location.

Only 17 articles were related to the coastal area and eight targeted the riverbank slums. This number indicates that the study of coastal settlement integration is still low, especially the integration of slums with coastal urban spaces.

Integration aspect. Based on Figure 5, it is known that two aspects form slum integration, namely physical and socio-economic aspects.

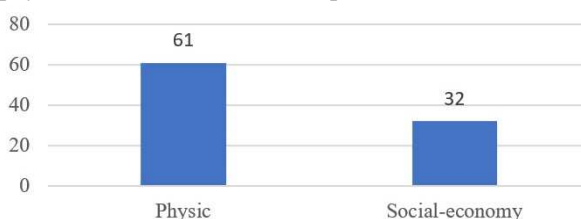


Fig. 5. Article amount by integration aspect.

The physical aspect is the dominant aspect as a shaping determinant of area integration (61) compared to the socio-economic one (32). This illustrates that the

physical elements in an area determine the integration of the area. Connectivity between two spaces in a city is an indicator of integration. The connectedness of urban spaces, including slums, supports the creation of socio-economic integration. It can be said that the physical elements become a 'container' for people mobility based on the activities they do in spaces with corresponding supporting functions.

3.2. Elements of slum integration in the case of coastal cities

Table 3 shows the elements of slum integration with the rest of the city. There are two forms of integration elements identified in this literature study, namely physical elements and socio-economic elements. Physical elements include road network, accessibility, distance, public transportation, visual, public open space, marginal areas, settlement pattern, infrastructure, topography, and building orientation. Socio-economic elements include local wisdom, background, social networks, types of activities, community empowerment, sense of belonging, economic networks, and local economic empowerment. Furthermore, there are also elements of coastal settlement integration with marine/water areas that are mentioned in several studies, including accessibility, distance, public open space, and orientation (Table 3-highlight).

Table 3. Elements of slum integration in coastal cities.

No.	Physical Integration	No.	Socio-Economic Integration
1	Road network	1	Local wisdom
2	Accessibility	2	Background (social cohesion)
3	Distance	3	Social network
4	Public transportation	4	Type of activity
5	Visual	5	People empowerment
6	Public open space	6	Sense of belonging
7	Marginal area	7	Network economy
8	Settlement pattern	8	Local economic empowerment
9	Infrastructure		
10	Topography		
11	Orientation		

Based on the identification results, it is known that the most mentioned elements related to slum integration are the road network and public open space (Figure 6). From a socio-economic perspective, the elements of activity and common background are key to slum integration. Nonetheless, all nineteen elements that have been identified are considered to contribute to integrating slums with the rest of the city. The most dominant element in the integration of coastal settlements with the water zone is the public space that becomes the boundary between land and sea. The next elements contributing to integration are accessibility

and building orientation. Finally, the elements that form the integration of coastal settlements with water are distance and activities. The explanation of each element is further presented.

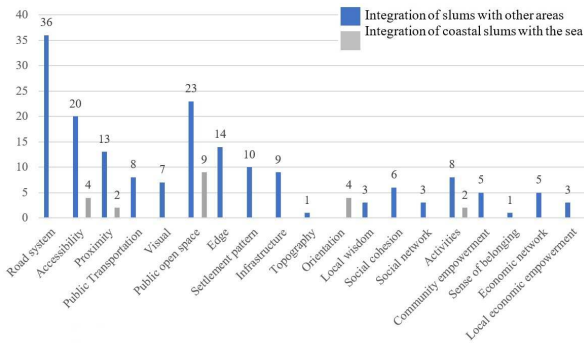


Fig. 6. Several discussions of each integration element in the article.

3.2.1. Physical integration elements

Based on the results of the literature review, ten physical elements were identified that can shape the integration of slums with other urban spaces and they are described below.

a). *Road network.* The road network is one of the strongest elements that integrate slums with other urban areas. The road network connects slums with other urban activity centers such as economy, education, and stations (Hidayanti et al., 2021; Raudiana, 2020; Padmanaban et al., 2017; Donegan and Trigueiro, 2016; Rafieian et al., 2016; Mohamed et al., 2013), as well as public open spaces (Irsyad and Hitoshi, 2022). Connections between local road networks, including pedestrian pathways, and the main road network (city road network) are key in integrating slums with urban areas at a global level (Syarif, 2018; Alikohdja, 2022; Kumari, 2022; Ragheb and El-Ashmawy, 2021; Ghanam and El-Deep, 2021; Abozied and Vialard, 2020; Hatipoglu and Mahmut, 2020; Samburu et al., 2019; Ena et al., 2019; Hutama and Kristiadi, 2019; Hutama, 2018; Prayitno, 2017; Marpaung and Silaban, 2017; Mohammadi, 2017; Mohamed, 2016; Mohamed and Mohareb, 2015; Krenz et al., 2015; Mohamed et. al., 2013; Vasku, 2013; Ismail et al., 2013). In addition, the existence of ring roads that pass near slums can help improve regional integration (Syarif, 2018; Alikohdja, 2022; Perera and Coorey, 2022). At the micro level, the road network pattern within the slum also affects the integration of the area. An interconnected road network, or in other words, no dead ends, is considered to improve regional integration (Putra and Nareswari, 2019; Nugraha, 2022; Sherlia et al., 2021; Wiedmann et al., 2019; Raniasta, 2019). Dead-end roads result in low connectivity, stopping movement and accessibility. In addition, the fewer the twists/breaks/turns, the more integrated the area (Cutini et al., 2019) as they reduce visual barriers that make it easier for people to

recognize the environment and determine direction. A grid street network is considered the most integrated pattern because it is continuous both visually and in terms of movement, and there are no dead ends either (Zeid and Vialard, 2022).

b). *Accessibility.* Accessibility is understood as the level of ease to reach or obtain an object. At the city scale, accessibility is seen from the perspective of how easy and convenient it is to reach a place. The ease and convenience are related to the route, mode of transportation, availability of road network, and the diversity of people who can access the place (Zuraida et al., 2018). Accessibility is an element that is an indicator of slum integration with other urban areas. The ease of access to slums can be observed from the flow of movement into and out of the area. Various alternative 'gateways' that serve as exit and entry points for settlements can increase the value of integration (Pusporini et al., 2021; Özdener and Özkan, 2020; Şen and Baran, 2020; Wiedmann et al., 2019; Syarif, 2018; Hutama, 2018; Padmanaban et al., 2017; Lopes et al., 2017; Donegan and Trigueiro, 2016). These gateways connect slums with other segments of the city (Mohamed et al., 2013; Putra and Nareswari, 2019) and surrounding urban facilities (Jimmy et al., 2019). The diversity of 'doorways' in slums will influence the diversity of routes that will lead residents out into the global urban space (Perera and Coorey, 2022; Rafieian et al., 2016; Schroeder and de Saboya, 2015). The diversity of movement paths is known as the level of permeability of the area. The higher the permeability of the area, the more integrated the area (Rafieian et al., 2016). Accessibility convenience can be viewed by users or people who go through the access. Both gateways, transportation modes, and road networks should be usable by the public with diverse backgrounds (physical condition, gender, age) (Hatipoglu and Mahmut, 2020; Hamidah et al., 2017). Access should also be child-friendly, for example by reducing crosswalks on highways that serve as routes. Pedestrian paths are also made friendlier to facilitate movement (Hidayanti et al., 2021). Accessibility is an element meant to integrate coastal settlements with the water zone. Coastal communities who are generally employed as fishermen must be able to access the sea to go to work. The pier becomes a connector point between land and sea, as well as surrounding facilities such as boat moorings and open spaces for human circulation (Michiani and Asano, 2019; Hamidah et al., 2016). Coastal residential areas should also be accessible by water, not only from the main land, but (Syarif, 2018). The existence of a dock connects one coastal settlement with another by boat. This is a potential alternative circulation route, other than by road. The integration of coastal areas can also be seen in the relationship between buildings on the water and the land zone. Coastal settlements consist of buildings on water and on land. Therefore, a link is

needed in the form of a wooden walkway, although it can only be accessed by pedestrians (Syarif, 2018; Hamidah et al., 2016).

c). Distance. Distance is one of the elements considered in the integration of slums with other urban areas. The farther the slum is from the city center, or the closer it is to the periphery, the more segregated it is, the lower the integration value (Rafieian et al., 2016). The distance from slums to activity centers in urban spaces (e.g. public facilities, economic centers, and workplaces) should be short (Kumari, 2022; Pinto et al., 2021; Raudiana, 2020; Cutini et al., 2020; Syarif, 2018; Prayitno, 2018; Donegan and Trigueiro, 2016; Schroeder and de Saboya, 2015; Syarif et al., 2015; Mohamed, 2016). Indicators of the distance between settlements and other urban activity spaces, including water zones, is walkability (Cutini et al., 2020; Özdener and Özkan, 2020; Raudina, 2020) as well as the proximity between arterial roads and local roads (Özdener and Özkan, 2020).

d). Public transportation. The integration of slums with urban space is also determined by public transportation. A slum can be said to be integrated if it is traversed by public transportation lines (Surya et al., 2021; Özdener and Özkan, 2020; Abozeid and Vialard, 2020; Taki, 2017; Cornburn and Sverdlik, 2017). Transportation that is friendly to passengers with various backgrounds (Hidayanti et al., 2021) makes it easier for residents to move toward urban spaces, and interact with communities outside their place of residence to reduce isolation and segregation (Cornburn and Sverdlik, 2017). Slum integration can also increase if there are public transportation nodes near the area, such as stations (Syafitri et al., 2022). The existence of public transportation lines can reduce people's dependence on private vehicles (Hidayanti et al., 2021). In addition, unique public transportation alternatives such as cable carts that can support tourism activities with the theme of slum tourism can also be taken into consideration (Hernandez-Gracia, 2013). This uniqueness can invite the attention and interest of people from outside to visit the slum, which can increase social interaction and integration.

e). Visual. The visual aspect is one of the elements that can improve area integration, especially on a micro level. Continuous visuals, especially in slum areas, allow people walking around to get their bearings and not get lost (Cutini et al., 2020; Perera and Coorey, 2022; Pusporini et al., 2021; Sen and Baran, 2020; Wiedmann et al., 2019; Raniasta, 2019). The view inside the circulation path should not be obstructed so that people can see the path before they enter/go through it (Hatipoglu and Mahmut, 2020). Visual integration also affects the activities that occur in a settlement. Based on Perera and Coorey (2022), necessary activities predominantly occur in spaces that have high visual integration, while optional activities take place in spaces with low visual integration. Spaces

that are visually obstructed have the potential to be segregated and separated from other spaces. In general, public open spaces have high visual integration. The open nature of the space expands the view of the observer without obstructions. Therefore, public facilities should be placed around open spaces (Pusporini et al., 2021).

f). Public open space. Public open space is a physical element of the area that becomes the center of social activities in slums that can improve communication and social interaction (Perera and Coorey, 2022; Irsyad and Hitoshi, 2022; Hatipoglu and Mahmut, 2020; Michiani and Asano, 2019; Hutama and Kristiadi, 2019; Thurber et al., 2017; Lopes et al., 2017; Marpaung and Silaban, 2017; Mohammadi, 2017; Syarif et al., 2015). Social interactions that occur in public open spaces can improve regional integration from a social aspect (Ghanam and El-Deep, 2021). Based on their position, there are two types of public open spaces within slums. First, public open spaces are located at the edge of the settlement (Abozeid and Vialard, 2020), including those bordering water (Raniasta, 2019). Public spaces at the edge should function as economic spaces, such as markets (Wiedmann et al., 2019; Munirwan et al., 2021; Hutama, 2018; GemalSigit et al., 2015). In addition to commercial facilities, public spaces can be public facilities such as public libraries (Hernandez-Garcia, 2013), sports halls, education, recreation, and even health (Jimmy et al., 2019). These public spaces can not only be enjoyed by slum residents but also by residents outside the settlement (Hamidah et al., 2017). Second, public open spaces that are located within slums. Public open spaces in slums take the form of narrow alleys or small 'pockets' of fields where social interactions occur (Hidayanti et al., 2021; Prayitno, 2017). This type of public open space connects houses within the settlement, increasing the integration of the local area (Syarif et al., 2020). Waterfront open space is one of the elements that integrate the land zone and water zone. Waterfront open spaces should be public spaces that are utilized for economic activities, especially for fishing activities that are the livelihood of coastal communities (Lopes et al., 2017) such as markets and fish auctions (Munirwan et al., 2021; Pacheo et al., 2017). In addition, waterfront spaces can also be inspection roads (Pusporini et al., 2021) or promenades (Michiani and Asano, 2019; Donegan and Trigueiro, 2016). Waterfront space is space that is directly related to the sea/water (Syarif et al., 2015). In general, waterfront space is a border area that is free of permanent buildings and utilized for joint activities (Raniasta, 2019; Hutama and Kristiadi, 2019). Open areas between buildings/settlements and water are good integrators. Open areas free up barriers for people to get to the water and expand visuals. In addition, waterfront public spaces can be a place for activities and interactions that increase social integration.

g). Marginal areas of slums. The marginal areas of slums are the most integrated zones as they are directly connected to the rest of the city (Pinto et al., 2021). The periphery is a spatial potential as it is the 'gateway' of the settlement (Mohamed, 2013) and the link between the settlement and the rest of the urban space (Özdener and Özkan, 2020). Marginal areas are suggested to be public spaces in the form of open spaces (Pusporini et al., 2021; Abozeid and Vialard, 2020; Radliyatullah and Dwisusanto, 2020), or commercial zones (Hutama, 2018; Zeid and Vialard, 2022; Ghanam and El-Deep, 2021; Samburu et al., 2019), whose activities are dynamic (Alikhodja, 2022). The function of commercial areas is considered to be a good integrator (Wiedmann et al., 2019; Samburu et al., 2019). Commercial functions are considered to be able to 'capture' the flow of movement and become a forum for social interaction (Samburu et al., 2019). Public open spaces provide a platform for social interaction between residents and outsiders that can enhance social integration (Mohamed et al., 2013). Furthermore, the edge area should be connected to the city circulation path, or regional high system (Abozeid and Vialard, 2020; Hutama and Kristiadi, 2019; Mohamed, 2016). If it borders water, there should be a waterfront inspection road (Pusporini et al., 2021). On the other hand, it is not advisable to use massive walls in slum marginal areas as they can sharpen segregation (Özdener and Özkan, 2020).

h). Settlement pattern. Settlement patterns also determine slum integration. Settlement patterns with labyrinthine or organic streets, which characterize slums, are considered to reduce integration because they make it difficult or confusing for users (Hutama and Kristiadi, 2019; Hidayanti et al., 2021; Pacheo et al., 2017). Organic patterns are characterized by an organic road network (Lopes et al., 2017; Prayitno, 2017; Taki, 2017). Paths with irregular patterns reduce the value of integration (Pacheo et al., 2017) due to the many turns to access the space which results in higher 'depth' values (Hutama, 2018) as well as visual obstructions and dead ends (Pacheo et al., 2017). Furthermore, collective settlement patterns are more integrated compared to natural or private settlement patterns (Syarif et al., 2020; Syarif, 2018). Collective settlement patterns are considered more compact and form public open spaces that connect the surrounding houses. Public open spaces are also a place for social interaction between residents with different backgrounds (Syarif et al., 2020). However, natural settlement patterns are oriented toward the relationship between residents and their environment, while, private settlement patterns tend to separate residents from others because of the orientation of forming a personal identity. The last two patterns are considered to increase segregation and weaken integration.

i). Usage infrastructure. Slum integration is characterized by the integration of infrastructure networks in the settlement with city networks (clean water, electricity, drainage) (Mohammadi, 2017; Hamidah et al., 2017; Surya et al., 2021; Surya et al., 2020-d; Surya et al., 2019), electricity, and waste (Rahgeb and El-Ashmawy, 2021; Michiani and Asano, 2019). The lack of clean water availability and poor waste management make the life quality of the residents living in slum areas even lower. Clean water for consumption and waste management are related to the health of the residents (Cornburn and Sverdlik, 2017). Improving the environmental quality of slums can be achieved through the approach of strengthening usage infrastructure networks that are integrated with the city network (Surya et al., 2021; Parikh et al., 2012). For example, drainage channels that are well integrated with the city's drainage network help slum residents to drain wastewater and prevent flooding. However, integrated infrastructure planning must be done inclusively. Socialization and education programs regarding the importance of the infrastructure to be provided should be conducted before construction (Putra and Wardani, 2023). A participatory approach that involves residents in planning, implementation, and maintenance is needed.

j). Topography. Topography can affect integration. Topography is one of the physical elements of the natural environment in terms of land elevation. The development of a city, including the selection of a place to live, takes into account the contours of the earth. Flat topographies are more integrated than hilly ones. Hilly or contoured topography reduces integration by making access difficult, visually obstructive, and can even separate settlements from the main urban fabric (Krenz et al., 2015; Syarif et al., 2015). Thus, the development of urban and residential facilities and infrastructure networks will adjust to the topography for optimal benefit. For example, the integration of settlement drainage channels with city networks utilizes topography by approaching the principle of gravity in draining water (Parikh et al., 2012). Furthermore, topography can also influence settlement integration into disaster management (Manakane et al., 2023). Evacuation routes tend to occupy gently sloping lands as steps can make movement difficult, especially in a disaster situation.

3.2.2. Elements of socio-economic integration

Based on the result of the literature review, eight elements of socio-economic integration were identified. These eight elements include:

a). Local wisdom. Local wisdom is understood as a value or idea from a community group that is good, wise, rooted, and taught for generations (Juhadi et al., 2018). Local wisdom in some regions in Indonesia is

considered to be one of the elements that can improve integration, especially social integration. In general, local wisdom underlies the relationship between humans and the environment or between fellow humans. These relationships create harmonious and balanced social interactions that become a strong element in shaping integration. Some of the principles passed down in Java, especially Yogyakarta, are known as *guyub*, *magersari*, and *ngindung*. *Guyub* means family and, from the perspective of urban planning, a *guyub* city is a place where groups of people take the initiative and participate in the development of the city in a positive direction (Tucunan and Ridwan, 2018). *Magersari* is understood as a form of sharing or agreement between the Sultan and his people, as well as between the residents themselves (Prayitno, 2017). *Magersari* is the granting of permits with the status of use rights on land under the authority of the Kraton (Mathan'ai and Cahyani, 2022). Based on the Yogyakarta Special Region Governor Regulation No. 33, 2017, on the Management and Utilization Procedures of Sultanate Land and Duchy Land, in *magersari*, there is a historical bond and it is given only to indigenous Indonesian citizens valid for as long as they inhabit the land. Still based on the same regulation, *ngindung* is a customary right of the community, given by the Sultanate, to use land that is not *keprabon* or *dede keprabon* (*keprabon* or *dede keprabon* is the land owned by sultaned of Yogyakarta). Furthermore, local principles from South Sulawesi that are considered to increase integration in society are *sipakatau*, *simasemaseang*, and *sipakalebbi* (Zeid and Vialard, 2022).

Sipakatau means mutual respect, *simasemaseang* translates as kinship and *sipakalebbi* is rendered as justice. These three principles strengthen the bonds of individuals in a settlement, increasing social interaction and integration and also influence settlement patterns. *Sipakatau* forms an elongated pattern following the road network or seaside with a medium integration value. *Simasemaseang* generates a cluster pattern with a high integration value, whereas *sipakalebbi* employs a spread pattern with a low integration value compared to the previous two patterns (Baharuddin et al., 2021).

b). Background. Another element that can increase integration in a settlement is the similarity of the residents' backgrounds. Every individual tends to want to live with groups with similar backgrounds (Hatipoglu and Mahmut, 2020; Thurber et al., 2017; Prayitno, 2017). Background similarities can be seen in economic conditions, social strata, occupation (Surya et al., 2020-d), region of origin (Mohamed et al., 2013), and race (Thurber et al., 2017). The similarity of backgrounds is the capital for the creation of social cohesion in settlements. Social cohesion is an adhesive or bond so that community groups remain united or integrated. The similarity of backgrounds in social

cohesion reflects integration, which is characterized by adaptation and cooperation.

c). Social networking. Integration in slums can be seen from the perspective of the social networks of the people who live there. The involvement of individuals or groups in settlements with social organizations in different places can increase community integration (Jimmy et al, 2019; Surya et al., 2021; Ruiz-Tagle, 2013). Social networks are social capital and serve as both barriers and binders that are considered to enhance or inhibit social integration (Meréiné-Berki et al., 2017). Furthermore, Lockwood (1964) in Meréiné-Berki et al. (2017) suggested that integration includes both system and social integration, the former manifesting in participation in a formal institution. Additionally, this system integration occurs 'outside' the inhabited settlement. Meanwhile, social integration means being part of a small group such as family, friends, or neighbors (Archer, 1996; Meréiné-Berki et al., 2017) and is created in marginalized or segregated communities/settlements, where it also becomes even stronger.

d). Type of activity. The type of activities is one of the elements of slum integration. Local integration (within slums) is shaped by social activity (Hutama and Kristiadi, 2019). Social activity is spontaneous, arising when people gather in a place and socialize, such as children playing or talking (Gehl, 2006). Social interaction occurs in well-integrated street spaces (Abozeid and Vialard, 2020; Hutama, 2018; Hidayanti et al., 2021) due to easy access and clear visuals (Perera and Coorey, 2022; Wiedmann et al., 2019; GemalSigit et al., 2015). Global integration (outside of slums) is shaped by necessary activities (Hutama and Kristiadi, 2019), which are daily or routine activities, such as moving to work or school (Gehl, 2006).

e). Community empowerment. Another aspect of social integration is community empowerment (Surya et al., 2020-d). Community empowerment can be in the form of people's participation in activities that take place inside or outside the settlement and it can also be carried out at the initiative of the community or following programs from the government or Non-Governmental Organizations (NGOs). Examples of activities carried out on this type of initiative are *gotong royong*, which means working together to achieve something like cleaning a neighborhood (Hamidah et al., 2017) and independent waste collection (Mohammadi, 2017), whereas government or NGO programs that involve community participation include the Green Kampung Program or Urban Farming. Community empowerment is considered to increase integration because there is social interaction to achieve common goals.

f). The sense of belonging. The sense of belonging is understood as the attachment that residents feel to their place of residence, being a

symbolic integration in an area (Jimmy et al, 2019) and arising from familiarity among neighbors, feeling at home, pride, and feeling as being part of the community or neighborhood. This element shows more integration or connection between residents and their place of residence, while also being related to settlement conditions. Based on research by Jimmy et al. (2019), slum residents give a poor expression of their environment. According to them, slums are bad places for child development because they are unsafe. Therefore, these conditions can erode the sense of belonging of the residents. Furthermore, Málovics et. al. (2019) suggest that a person's attachment to a place is influenced by place characteristics and community relationships. Informal and profitable economic activities in open spaces are one of the characteristics of places that bind residents, especially those who live in segregated settlements (Marinero, 2017). Social relations within the settlement community also have an impact on attachment to the place where they live. The culture of helping each other to fulfill basic needs strengthens social ties between individuals or families (Málovics et. al., 2019).

g). Network Economy. Economic integration is characterized by the connection of economic activities within the settlement with economic activities in the surrounding area (Syarif, 2018). People in urban slums generally work in the informal sector, being employed as laborers, mini market employees, or street vendors. The movement of people from inside the settlement to the outside, driven by economic activities creates an economic network that becomes an element of regional integration. These economic activities act as integrators or connect settlements with places where earning a living occurs (Syarif et al, 2015; Hamidah et al., 2016). Furthermore, the activities of fishermen who live in coastal settlements become connectors of land and sea areas while generating integration between them. Movement from land to sea, or vice versa, indicates that the relationship between the two still exists (Lopes et al., 2017).

h). Local economic empowerment. Integration triggered by economic activity does not only arise from the movement of residents from within the settlement to the surrounding area. Economic interaction can also be observed in the people movement from the outside into the settlement. This can happen in the peripheral zones of slums that have functioned as markets or other commercial functions (Mohamed et al., 2013; Surya et al., 2020-d). Economic activities appear in public spaces and trigger social interactions (Michiani and Asano, 2019; Munirwan et al., 2021; Hamidah et al., 2016; Mohamed and Mohareb, 2015). The actors of the economic activities in question are the people who live in the settlements because they still take place in the slum zone, namely the periphery, Therefore, capital is needed to support small businesses with job creation

programs (Ghanam and El-Deep, 2021) and education for employment opportunities (Cornburn and Sverdlik, 2017). Community economic empowerment in slums can thus be enhanced by the development of local economic activities and production (Surya et al., 2020-d).

3.3. Linkage between integration aspects

Through the literature review that has been conducted it can be identified how the relationship between one aspect and another can create an integration of settlements with other urban spaces. There is a connection between them, be it between physical elements with physical elements, non-physical elements with non-physical elements, or non-physical elements with physical elements. Two groups of physical aspects are considered to improve settlement integration, namely mobility and space utilization. In the case of non-physical aspects, social cohesion and economic practices become the driving force of settlement integration. The explanation of each linkage is as follows:

A). Linkage between physical aspects

a). Mobility. Mobility in this study is understood as the ability of people to move from settlements to other urban spaces and back to their neighborhoods. Elements such as road networks, accessibility, distance, and public transportation are things that affect movement. When interpreted, movement is an indicator or evidence that a settlement is integrated with other urban spaces. If movement stops or is obstructed, the settlement can be said to have low integration or even segregation. To create continuous movement, compact elements are required. An interconnected road network, a variety of entry and exit routes, and a distance that can be reached on foot or by public transportation can flow smoothly.

b). Space utilization. Space utilization in this study is understood as the utilization of everything inherent in slums. The elements that form integration are related to functions such as public open space, periphery areas, settlement patterns, visual, topography, and usage infrastructure. These elements are inherent in slums. Zones such as public open spaces, especially those in the marginal areas, become connectors between the settlement space and the outside world. Settlement patterns and usage infrastructure are inherent characteristics of slums that determine the level of integration of the area. Slum patterns are also related to a long visual distance, where a wide view can be achieved without being obstructed by building masses. Topography is related to the usage of infrastructure where the sloping topography facilitates the integration of networks both within the settlement and the connections between networks inside and outside the settlement. Therefore, the cohesiveness of the basic elements inherent in slums is

necessary to generate integration locally (within slums), as well as globally (between settlements and other urban spaces).

B). Linkage between non-physical aspects

a). Social Cohesion. Social cohesion in this study is understood as the ties formed between individuals in the settlement, which then form joint activities, intimacy, and joint efforts to achieve common goals. Social cohesion is considered to increase integration both between individuals within the settlement and with other individuals outside the settlement. Social cohesion in this research includes local wisdom, background, social networking, sense of belonging, community empowerment, and type of activities.

b). Economic Practices. Economic practices in this study are understood as various economic potentials, both in the form of natural and human resources, which characterize the community in a settlement and then become capital to carry out economic activities outside their neighborhood. Economic practices include the local economy and networking economy. Local economy means the potential of local communities to drive the economy. Small businesses such as household enterprises are the driving force of the economy in slums. In addition, the uniqueness of nature provides resources that can also become capital for business, such as marine products that can be sold by residents in coastal settlements. The existence of distinctive characteristics of economic activities becomes the differentiation of superior products of the community in the settlement from groups outside the settlement. The socio-economic aspect of shaping integration is the interaction that occurs between people living in slums and people living in the surrounding areas. Interactions created from social and economic activities are believed to be the capital of regional integration. Interaction can create social connections, whereas positive reciprocal relationships occurring between individuals inside and outside the slum can generate social harmony.

C). Linkages between physical and non-physical aspects

An explanation of the interrelatedness of physical and non-physical aspects is depicted in the mapping of integration aspects. Figure 7 shows that slums can be divided into three zones: outer zone, middle zone, and inner zone.

The outer zone includes mobility-related elements that connect the settlement point with other spaces in the city. Further movement along with its facilities (road network, accessibility, and public transportation) is an indicator that a settlement is integrated with other urban spaces. Movement out of the slum is motivated more by economic activities than social activities. While the central zone and inner zone include elements connected to the spatial utilization of the settlement, the middle zone is the periphery area

which is the 'living room' of the slum. This is a transitional zone, where insiders and outsiders meet and is suggested to be a public area of the type of public open spaces, parks, and retail.

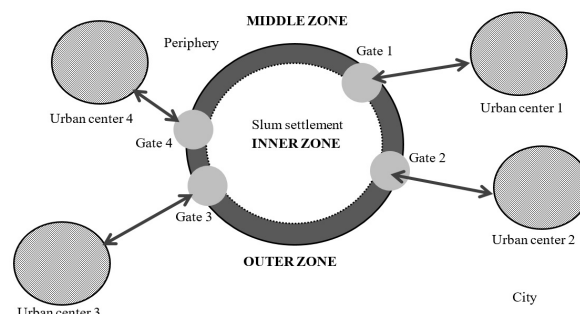


Fig. 7. Three zones for integrating slum settlements into other urban spaces.

The dominant activities that occur here are social and economic activities. Utilizing the periphery area as a public space is the easiest way to improve the integration of slums with the surrounding space. Furthermore, the inner zone is a more private area. The created integration is localized and can be enhanced through the arrangement of settlement patterns, used infrastructure, topography, and visuals. Due to its private nature, the dominant activities in this zone are social.

4. CONCLUSIONS

Through this study it is illustrated that the integration of slums with the city is not only formed from physical aspects alone. A broader perspective is needed to capture the non-physical aspects that must be considered to improve slum integration. The existence of slum communities from social, economic and cultural aspects is often ignored so that macro urban planning does not affect people's lives, with the exception of the physical aspects. Physical improvement of the slum environment without socio-economic considerations of the community only becomes a slum upgrading activity. Integration is interpreted as inclusive, and comprehensive which will have an impact on the settlement resilience. While the previous studies examined only one aspect of the settlement (Alikhodja, 2022; Cutini et al., 2019; Ena et al., 2019; Lopes et al., 2017), this research illustrates how physical and non-physical elements are interrelated. Although Janches (2012) and Jimmy et al. (2019) have mentioned two aspects of slum integration, namely physical and non-physical aspects, they have not elaborated on the interrelationship between them.

This research also provides additional insights into previous studies related to slums, spatial segregation in urban areas, and spatial integration. The novelty of this study resides in mapping the aspects that form settlement integration from a spatial perspective in the form of zoning. Spatial mapping is also expected

to make it easier to identify issues in slums as well as to determine the priority aspects to be solved by planners and decision-makers at various spatial levels.

However, the findings in this study are purely derived from the review of previous research articles. Empirical studies including quantitative tests, especially related to the correlation between aspects, are needed to obtain more accurate results. The location and typology of the settlements within the city need to be carefully considered. For example, settlements located in the center of the city will certainly have different treatment from those located at the water's edge. Studies related to the integration of slums with the sea are still not comprehensive. Of the 62 studies, only 17 comprised research conducted on the coast. The reviewed articles allude to elements of slum and marine zone integration such as waterfront, public open space, orientation, accessibility, and activities. Moreover, they have also touched on how spatial elements shape land-sea connections. Nevertheless, there is no further explanation of the influence of changes in the social orientation and livelihoods of coastal communities (Syarif, 2018) on the integration of the area. After reviewing the principles of slum integration in the case of coastal cities, several questions arise: (1) is there a change in the utilization of the sea zone for coastal communities whose livelihood orientation shifts to land? (2) what is the spatial utilization pattern of the land zone (slums) and water zone by coastal communities? (3) how is the movement of coastal communities in utilizing land and water space? (4) how is integration between land and water zones created in coastal cities slums? It is hoped that this article can be a reference as well as a foundation for structuring settlements in coastal cities to improve regional integration. Furthermore, further studies to find the form of slum integration in coastal cities through space utilization and movement patterns are still needed. The elements that constitute the integration of residential areas identified in this study become the basis for describing the form of slum integration in coastal cities.

REFERENCES

- Abozied E. Z., Vialard A.** (2020), Reintegrating informal settlements into the greater Region of Egypt through the regional highway network. *Regional Studies, Regional Science*, 7(1), 333-345. DOI: <https://doi.org/10.1080/21681376.2020.1804443>
- Alikhodja M.** (2022), Street network and land use in the slum of Chouf Lekdad in Setif (Algeria). *Technium. Social Science Journal*, 36(1), 743-755. DOI: <https://doi.org/10.47577/tssj.v36i1.7393>
- Anindita F. A., Firmansyah, Syarifudin D.** (2022), Potensi ketersediaan lahan dan sebarannya bagi kebutuhan permukiman (Potential availability of land and its distribution for settlement needs). [Article in Indonesian]. *Jurnal MODERAT*, 8(1), 124-144. DOI: <https://doi.org/19.25157/moderat.v8i1.2599>
- Archer M.** (1996), Social integration and system integration: Developing the distinction, *Sociology*, 30(4), 679-699. DOI: <https://doi.org/10.1177/0038038596030004004>
- Arifin M., Hermansyah H., Sawar N. A., Fachruddin M. A., Jannah D. T., Ayun D. M.** (2021), Konsep penataan permukiman yang mendukung pariwisata berkelanjutan berbasis kearifan lokal Pulau Lakkang (The concept of settlement arrangement that supports sustainable tourism based on local wisdom of Lakkang Island). [Article in Indonesian]. *Jurnal Teknik Perencanaan Wilayah dan Kota*, 10(1), 65-75. DOI: <https://doi.org/10.141710/tpwk.2021.30094>
- Asmal I., Santosa H. R., Amri N.** (2019), The human dimension and its effect on multi-function streets in settlement on water of Buloa Kareppa and Marbor Tallo. *Proceeding of The 3rd International Conference of Science*, 1341, 052010. DOI: <https://doi.org/10.1088/1742-6596/1341/5/052010>
- Asmal I.** (2016), Improving the Lale-lae Island environment and settlement quality as a marine tourism destination in Makassar City. *Architecture & Environment*, 15(1), 1-10. DOI: <https://dx.doi.org/10.12962/j2355262x.v15i1.a2138>
- Baharuddin H., Asmal I., Syarif E.** (2021), The impact of local wisdom on the coastal settlement spatial configuration in the City of Parepare. *EPI International Journal of Engineering (EPIJE)*, 4(2), 188-195. DOI: <https://doi.org/10.25042/10.25042/epi-ije.082021.11>
- Cahyani D., Widaningsih L.** (2019), Marginalized urban communities characteristics and preferences. *Social Sciences*, 3(21), 178-192. DOI: <https://doi.org/10.18502/kss.v3i21.4967>
- Cutini V., Pinto V. D., Rinaldi A. M., Rossini F.** (2020), Proximal cities: Does walkability drive informal settlements? *Sustainability*, 12(3), 756 DOI: <https://doi.org/10.3390/su12030756>
- Cutini V., Pinto V. D., Rinaldi A. M., Rossini F.** (2019), Informal settlements spatial analysis using space syntax and geographic information systems. *International Conference on Computational Science and Its Application: ICCSA 2019*, 11621, 343-356. DOI: https://doi.org/10.1007/978-3-030-24302-9_25
- Cornburn J., Sverdlik A.** (2017), Slum upgrading and health equity. *International Journal of Environmental Research and Public Health*, 14(32), 1-12. DOI: <https://doi.org/10.3390/ijerph14040342>
- Darmansyah A., Sudaryono S., Swasto D. F.** (2019), Perubahan permukiman nelayan pasca reklamasi pantai di Kelurahan Lette Kecamatan Mariso Makassar (Changes in fishermen's settlements after coastal reclamation in Lette, Mariso Subdistrict, Makassar). [Article in Indonesian]. *Jurnal Tekno Sains*, 8(2), 930170. DOI: <https://doi.org/10.22146/teknosains.37731>

- Donegan L., Trigueiro E.** (2016), To each, their beach: Unveiling nexus between architecture and society in urban beaches. *The Journal of Space Syntax*, 7(1), 87-106. <http://joss.bartlet.ucl.ac.uk>
- Ekawati S. A., Ali M., Lakatupa G., Asfan L. O. M., Manga S., Sari F. S.** (2022), Siri' na pacce: The local wisdom of coastal community settlement patterns and its existence amid COVID-19 pandemic. *Civil Engineering and Architecture*, 10(1), 55-70. DOI: <https://10.13189/cea.2022.100105>
- Ena V., Beirão J., Serdoura F.** (2019), The threshold of Rio de Janeiro's Favelas. The syntactical value of spatial sign. Conference 12th International Space Syntax Symposium (12SSS). At. Beijing, China. URL: <http://www.12sssbeijing.com/upload/file/1562658083.pdf>
- Gehl J.** (2006), *Life between buildings: Using public space*. Island Press. Washington D.C. ISBN: 97816110910231
- Gemal Sigit P., Soetomo S., Syahbana J. A., Manaf A.** (2015), Ruang netral di Kota Ambon (Segregasi dan integrasi ruang kota) (Neutral space in Ambon City (Segregation and integration of urban space)). [Article in Indonesian] Proceeding CoUSD, Conference on Urban Studies and Development, September, 30-42. URL: http://eprints.undip.ac.id/49781/1/1.3.Prosiding_Gemal_Sigit.pdf
- Ghanam R. A. A. L., El-Deep A. S.** (2021), Upgrading urban spaces in slums as a tool to achieve social sustainability (making slums livable)- The case study of eit-Elwan Slum-Kafr El Sheik City-Egypt. *Mansoura Engineering Journal*, 46(2), 67-78. DOI: <https://doi.org/10.21608/BFEMU.2021.175695>
- Hamidah N., Rijanta R., Setiawan B., Marfai M. A.** (2017), "Kampung" as a formal and informal integration model (Case study: Kampung Pahandut, Central Kalimantan Province, Indonesia). *Forum Geografi*, 31(1), 43-55. DOI: <https://doi.org/10.23917/forgeo.v31i1.3047>
- Hamidah N., Rijanta R., Setiawan B., Marfai M. A.** (2016), Analisis permukiman tepian sungai yang berkelanjutan kasus permukiman tepian sungai Kahayan Kota Palangkaraya (Analysis of sustainable riverbank settlements in the case of Kahayan riverbank settlements in Palangkaraya City). [Article in Indonesian]. *Jurnal Teknik Sipil dan Arsitektur*, 12 (1), 13-24. DOI: <https://doi.org/10.21831/inersia.v12i1.10343>
- Hatipoglu H. K., Mahmut S. B.** (2020), Borders (in between): A city within a city decoding different morphologies of fragmented housing. *Civil Engineering and Architecture*, 8(5), 880-889. DOI: <https://doi.org/10.13189/cea.2020.080515>
- Hernández-García J.** (2013), Slum tourism, city branding, and social urbanism: The case of Medellin, Colombia. *Journal of Place Management Development*, 6(1), 43-51. DOI: <https://doi.org/10.1108/17538331311306122>
- Hidayanti I., Yamu C., Tan W.** (2021), Realized pedestrian accessibility of an informal settlement Jakarta. Indonesia. *Journal of Urbanism*, 14(4), 434-456. DOI: <https://doi.org/10.1080/17549175.2020.1814391>
- Hutama I. A. W., Kristiadi D.** (2019), Spatial re-configurational initiatives for informal-like settlement revitalization: A case of Yogyakarta Urban Kampong. *Plano Madani: Jurnal Perencanaan Wilayah dan Kota*, 8(1), 1-14. URL: <https://journal.uin-alauddin.ac.id/index.php/planomadani/article/view/7727/pdf>
- Hutama I. A. W.** (2018), The hidden structure of organic informal-like settlements in Jogjakarta City: An investigation of socio-spatial relationship in urban kampung. The 4th PlanoCosmo International Conference. IOP Conference Series: Earth and Environmental Science, 158, 012003. DOI: <https://doi.org/10.1088/1755-1315/148/1/012003>
- Indayani M., Trisutomo S., Ramli M.** (2021), We are getting stronger as we stay longer: The influence of place attachment to urban community resilience. IOP Conference Series: Earth and Environmental Science, 884, 1-7. DOI: <https://doi.org/10.1088/1755-1315/884/1/012034>
- Irfan M., Pano R.** (2021), Sustainability analysis of the canal as a waste transportation route (Case study: Makassar City, Indonesia). *European Journal of Science and Technology. Special Issue 28*, 557-561. DOI: <https://doi.org/10.31590/ejosat.1009140>
- Irsyad H. A. W., Hitoshi N.** (2022), Flood disaster evacuation route choice in Indonesian urban riverbank kampong: Exploring the role of individual characteristics, path risk elements, and path network configuration. *International Journal of Disaster Risk Reduction*, 81, 103275. DOI: <https://doi.org/10.1016/j.ijdr.2022.103275>
- Ismail A. M., Bakr H., Anas S.** (2013), A hybrid GIS space syntax methodology for prioritizing slums. coordinate, a monthly magazine on positioning, navigation and beyond, <https://mycoordinates.org/a-hybrid-gis-space-syntax-methodology-for-prioritizing-slums/> April 2023.
- Janches F.** (2012), *Public space in the fragmented city: Strategy for socio-physical urban intervention in marginalized communities*. Nobuko, Buenos Aires. ISBN: 9875843997.
- Juhadi Muis A., Sriyanto** (2018), *Kearifan lokal dalam mitigasi bencana (Local wisdom in disaster mitigation)*. [Book in Indonesian]. Penerbit Fastindo, Semarang. ISBN: 978-602-6627-23-0
- Jimmy E. N., Martinez J., Verplanke J.** (2019), Spatial patterns of residential fragmentation and quality of life in Nairobi City, Kenya. *Applied Research in Quality of Life*, 15, 1493-1517. DOI: <https://doi.org/10.1007/s11482-019-09739-9>
- Kamalipour H., Peimani N.** (2015), Assemblage thinking and the city: Implications for urban studies. *Current Urban Studies*, 3(4), 402-408. DOI: <https://dx.doi.org/10.4236/cus.2015.34031>

- Krenz K., Kostouru F., Psarra S., Capille C.** (2015), Understanding the city as a whole: An integrative analysis of Rio de Janeiro and its informal settlements. ISUF 2015 XXII International Conference: City as Organism. New visions for urban life. URL: https://discovery.ucl.ac.uk/id/eprint/1555691/1/Understanding_the_City_as_a_Whole_An_Int.pdf
- Kumari R.** (2022), Urban environmental challenges associated with dynamics of slum settlement. IOP Conference Series: Earth and Environmental, 1084, Second International Conference on Sustainable Energy, Environment and Green Technologies (ICSEEGT 2022), Juni, at Jaipur, Rajasthan, India. DOI: <https://doi.org/10.1088/1755-1315/1084/1/012037>
- Lopes F. M., Trigueiro E., Donegan L.** (2017), Shifting places and community life? Comparing morphology and uses after a community reallocation from a favela to a housing estate in Natal/RN, Brazil. Proceedings of the 11th Space Syntax Symposium, Lisbon. URL: https://www.researchgate.net/publication/331230717_SHIFTING_PLACES_AND_COMMUNITY_LIFE_Comparing_Morphology_and_Uses_after_a_Community_Reallocation_from_a_Favela_to_a_Housing_Estate_in_NatalRN_Brazil
- Mahabir R., Crooks A., Croitoru A. Agourius P.** (2016), The study of slums as social and physical constructs: challenges and emerging research opportunities. Regional Studies, Regional Science, 3(1), 399-419. DOI: <https://dx.doi.org/10.1080/21681376.2016.1229130>
- Málovics G., Crețan R., Meréiné-Berki B., Tóht J.** (2019), Urban Roma, segregation and place attachment in Szeged, Hungary. Area, 51(1), 72-83. DOI: <https://doi.org/10.1111/area.12426>
- Manakane S. E., Latue P. C., Rakuasa H.** (2023), Integrating geography in disaster education: A step toward a disaster resilient Ambon City. Sinergi International Journal of Education, 1(2), 84-94. DOI: <https://doi.org/10.61194/education.v1i2.7>
- Marinaro I. C.** (2017), The informal faces of the (neo) ghetto: State confinement, formalization and multidimensional informalities in Italy's Roma camps. International Sociology, 32(4), 545-562. DOI: <https://doi.org/10.1177/0268580917706629>
- Marpaung B. O. Y., Silaban N. W.** (2017), Study of unplanned settlement structures in Coastal Belawan Medan Fishermen Village. European Journal of Social Sciences, 55(4), 462-474. URL: https://www.europeanjournalofsocialsciences.com/issues/PDF/EJSS_55_4_08.pdf
- Mathan'ai F. N., Cahyani L. L.** (2022), Status dan perlindungan hukum tanah magersari di lingkungan Kraton Yogyakarta (Status and legal protection of magersari land within the Yogyakarta Palace). [Article in Indonesian]. Notarius, 15(2), 1012-1021. DOI: <https://doi.org/10.14710/nts.v15i2.37329>
- Meréiné-Berki B., Málovics G., Tóht J., Crețan R.** (2017), The role of social capital and interpersonal relations in the alleviation of extreme poverty and spatial segregation of Romani people in Szeged. Journal of Urban and Regional Analysis, 9(1), 33-50. DOI: <https://doi.org/10.37043/JURA.2017.9.1.2>
- Michiani M. V., Asano J.** (2019), Physical upgrading plan for slum riverside settlement in traditional area: A case study in Kuin Utara, Banjarmasin, Indonesia. Frontiers of Architectural Research, 8(3), 378-395. DOI: <https://doi.org/10.1016/j.foar.2019.03.005>
- Misbahuddin F. A., Wunas S., Arifin M.** (2018), Rehabilitasi perumahan dan permukiman swadaya penunjang wisata berbasis kelayakan huni di Pesisir Pantai Tanjung Bayang Makassar (Rehabilitation of housing and self-help settlements supporting livability-based tourism on the coast of Tanjung Bayang Beach, Makassar). [Article in Indonesian]. Jurnal Penelitian Enjiniring Fakultas Teknik Unhas, 22(2), 166-174. DOI: <https://doi.org/10.25042/jpe.112018.9>
- Mohammadi A.** (2017), Using integrated spatial planning framework "ISPF" to connect informal settlement to the main city. Case study: Komb, Chabahar City, Iran. Journal of Settlements and Spatial Planning, 8(2), 107-117. DOI: <https://doi.org/10.24193/JSSP.2017.2.04>
- Mohamed A. A.** (2016), People's movement patterns in space of informal settlements in Cairo Metropolitan Area. Alexandria Engineering Journal, 55(1), 451-465. DOI: <https://doi.org/10.1016/j.aej.2015.07.018>
- Mohamed A., Mohareb N. I.** (2015), Social networks in space of unplanned settlements in Cairo Metropolitan Area. Proceedings of the 10th International Space Syntax Symposium. London. URL: https://www.researchgate.net/publication/283296617_Social_Networks_in_Space_of_Unplanned_Settlements_in_Cairo_Metropolitan_Area
- Mohamed A. A., van Nes A., Salheen M. A., Kohlert C., Schwander C.** (2013), The socio-economic implications of the spatial configuration in Greater Cairo Metropolitan Area. In YO. Kim, HT. Park, & KW. Seo (Eds.), Proceedings of the Ninth International Space Syntax Symposium, 1-18. Sejong University. URL: <https://repository.tudelft.nl/islandora/object/uuid:68f2716c-bdcf-447e-8a80-d3b025b062a3/datastream/OBJ/download>
- Munirwan H, Nurzukhrufa A., Septiandiani F., Islami C. D.** (2021), Identifikasi karakteristik ruang bersama pada permukiman nelayan untuk optimalisasi permukiman dengan konsep co-living (Studi kasus Kellurahan Kangkung, Kota Bandar Lampung) (Identification of common space characteristics in fishermen settlements to optimize settlement rejuvenation with the concept of co-living (Case study of Kangkung Village, Bandar Lampung City)). [Article in Indonesian]. Jurnal Ilmiah

Universitas Batanghari Jambi, 21(3), 1258-1263. DOI: <https://doi.org/10.33087/jiubj.v21i3.1722>

Naing N., Ikhsan A. M. (2016), Model penataan permukiman kumuh untuk pengelolaan bencana di kawasan pesisir Makassar (Studi Kasus, Kelurahan Cambaya Kecamatan Ujung Tanah) (Model of slum arrangement for disaster management in Makassar coastal area (Case study: Cambaya Village, Ujung Tanah Sub-district)). [Article in Indonesian]. LOSARI Jurnal Arsitektur, Kota dan Permukiman, 1(2), 95-104. DOI: <https://doi.org/10.33096/losari.v1i2.46>

Naing N. (2019), Pemetaan karakteristik permukiman kumuh pesisir untuk pengelolaan bencana di Makassar (Mapping of the characteristics of coastal slums for disaster management). [Article in Indonesian]. LOSARI Jurnal Arsitektur, Kota dan Permukiman. 1(1), 1-13, DOI: <https://doi.org/10.33096/losari.v1i1.26>

Nugraha P. G. W. S. (2022), Spatial study of social facilities placement in dense settlement using space syntax analysis. Case Study: Banjar Bualu, Bena Village, Bali. International Journal of Social Science, 2(2), 1441-1448. DOI: <https://doi.org/10.53625/ijss.v2i2.3071>

Nugroho A. D. (2019), Kajian pemanfaatan ruang kawasan pesisir. Studi kasus kawasan permukiman kumuh Kelurahan Pardani, Kabupaten Manokwari (Study of coastal area space utilization. Case study of Pardani Village slum area, Manokwari Regency). [Article in Indonesian]. Cassowary, 2(2), 128-146. DOI: <https://doi.org/10.30862/cassowary.cs.v2.i2.27>

O'Brien T., Cretan R., Jucu I. S., Covaci R. N. (2023), Internal migration and stigmatization in the rural Banat region of Romania. Identities, 30(5), 704-724. <https://doi.org/10.1080/1070289X.2022.2109276>

Özden Ö., Özkan H. (2020), Morphological and socioeconomic effects of the physical borders on the settlements within the city: The case of Yeni Sahra Neighborhood and Sahrayicedit Neighborhood. Journal of Architecture and Design, 1(1), 46-56. URL: <http://dergipark.org.tr/en/pub/babdergisi/issue/52218/683143>

Pacheco M. F., Navarro-Amezketta I., Heitor T. (2017), Mapping the urban form of coastal fishing towns in Algarve: Olhão e Vila Real de Santo António. Urbe Revista Brasileira de Gestão Urbana, 9(1), 313-328. DOI: <https://doi.org/10.1590/2175-3369.009/supl1.a005>

Padmanaban R., Jerome K., Asok V. S., Dasgupta P., Painho M. (2017), Urban agent-based model of urban slum Dharavi, Mumbai, India. International Journal of Earth Sciences and Engineering, 10(6), 1110-1117.

Parikh P., Parikh H., McRobie A. (2012), The role of infrastructure in improving slum settlements. Urban Design and Planning, 16(DP2), 101-118. DOI: <http://dx.doi.org/10.1680/udap.10.00038>

Pedro A. A., Queiroz A. P. (2019), Slum: Comparing municipal and census base maps. Habitat International, 83, 30-40. DOI: <https://doi.org/10.1016/j.habitatint.2018.11.001>

Perera M. K. S., Coorey S. B. A. (2022), Spatial configuration and neighborhood characteristics impact on activities in informal spaces: A case study of Badulupitiya Informal Settlements in Badulla. Conference Independence and Interdependence of Sustainable Spaces, December. DOI: <https://doi.org/10.31705/FARU.2022.19>

Pinto V. D., Rinaldi A. M., Rossini F. (2021), Learning from the informality. Using GIS tools to analyze the structure of autopoietic urban systems in the "Smart Perspective". International Journal of Geo-Information, 10(4), 202. DOI: <https://doi.org/10.3390/ijgi10040202>

Prayitno B. (2018), Sustainable resilience of vulnerable urban kampung fisherman settlement in Dadap, Indonesia. IOP Conference Series: Earth and Environmental Science, HABITechno 3 International Conference 11 November 2017, Bandung, Indonesia, 152. DOI: <https://doi.org/10.1088/1755-1315/152/1/012037>

Prayitno B. (2017), Co-habitation space: A model for urban informal settlement consolidation for the heritage city of Yogyakarta, Indonesia. Journal of Asian Architecture and Building Engineering, 16(3), 527-534. DOI: <https://doi.org/10.3130/jaabe.16.527>

Pusporini N., Palupi W. R., Septanti D., Cahyadi S., Santosa H. R. (2021), Morphological concept in evaluating riverbank slum settlement programs in Kota Lama Malang. Civil Engineering and Architecture, 9(3), hal. 634-645. DOI: <https://doi.org/10.13189/cea.2021.090307>

Putra R. A. K., Wardani A. K. (2023), Strategy of the housing and settlement service in handling slum as an effort to create a healthy environment in Banjar City. Moderat: Jurnal Ilmiah Ilmu Pemerintahan, 9(1), 165-278. DOI: <https://doi.org/10.25157/moderatjurnalilmiahilmupemerintahan.v9i1.2922>

Putra A. A. P., Nareswari A. (2019), Space consolidation for fishing settlement in Mariso District, Makassar City with space syntax. Journal of Architectural Research and Design Studies, 2(2), 70-79. DOI: <https://doi.org/10.20885/jars.voil2.iss2.art8>

Radliyattullah F. S., Dwisusanto Y. B. (2020), Integrasi Spasial dalam perancangan batas fisik perumahan kota. Studi Kasus: Perumahan Setra Duta, Bandung, Jawa Barat (Spatial integration in the design of urban housing physical boundaries. Case study: Setra Duta Housing, Bandung, West Java). [Article in Indonesian]. ARTEKS Jurnal Teknik Arsitektur, 5(2), 317-328. DOI: <https://doi.org/10.30822/arteks.v5i2.456>

Rahayu I., Jaharuddin W. (2020), Identifikasi karakteristik permukiman kumuh di sekitar Taman Maccini Sombala Kota Makassar (Identification of slum characteristics around Maccini Sombala Park, Makassar City). [Article in Indonesian]. Jurnal Teknosains. 14(2), 187-294. DOI: <https://doi.org/10.24252/teknosains.v14i2.14433>

Raudina R. G. (2020), Urban settlement patterns in edge of railroad in Medan city. International Journal of Architecture and Urbanism, 4(3), 227-236. DOI: <https://doi.org/10.32734/ijau.v4i3.5034>

- Ramirez-Lovering D., Prescott M. F., Kamalipour H.** (2018), RISE: A case study for design research in informal settlement revitalisation interdisciplinary design research in informal settlements. Proceeding of the 1st Annual Design Research Conference, 461-478. <https://sydney.edu.au/content/dam/corporate/documents/sydney-school-of-architecture-design-and-planning/research/ADR18-Proceedings-Final.pdf>
- Raniasta Y. S.** (2019), Integrasi ruang jalan pada area kampung. Studi kasus: Kampung Rangko, Manggarai Barat, NTT (Integration of street space in the village area. Case study: Kampung Rangko, West Manggarai, Nusa Tenggara Timur). [Article in Indonesian]. Seminar Nasional Manajemen, Desain dan Aplikasi Bisnis Teknologi, 2. <https://eprosiding.idbbali.ac.id/index.php/senada/article/view/193>
- Raofi A., Amirkhani M., Monjaze M., Peykari N.** (2022), The slums in the mirror of health: A systematic review analysis from Iran. *International Journal of Preventive Medicine*, 13(1), 137. DOI: https://doi.org/10.4103/ijpvm.ijpvm_71_21
- Ragheb A., El-Ashrawy R.** (2021), Strategic actions of urban development to define the intervention policies of slums. *City, Territory and Architecture*, 8(1), 1-18. DOI: <https://doi.org/10.1186/s40410-021-00139-w>
- Rafieian M., Alizadeh A., Tagvayee A. A.** (2016), Analysis of spatial fragmentation in the spatial organization of Yazd using network analysis and space syntax. *Human Geography Research Quarterly*, 48(3), 441-459. DOI: <https://doi.org/10.22059/JHGR.2016.51998>
- Rijal S., Tahir T.** (2022), Analisis faktor pendorong terjadinya urbanisasi di wilayah erkotaan (Studi kasus wilayah Kota Makassar) (Analysis of factors driving urbanization in urban areas (Case study of Makassar City)). [Article in Indonesian]. *Journal of Economic Education and Entrepreneurship Studies*, 3(1), 262-276. DOI: <https://doi.org/10.26858/je3s.v3i1.34341>
- Ruiz-Tagle J.** (2013), A theory of socio-spatial integration: Problems, policies and, concepts from a US perspective. *International Journal of Urban and Regional Research*, 37(2), 388-408. DOI: <https://doi.org/10.1111/j.1468-2427.2012.01180.x>
- Satar A. E., Asmal I., Syarif E.** (2021), The effectiveness of utilizing non-green public space in Untia Fishermen Settlement. *EPI International Journal of Engineering*, 4(2), 140-148. DOI: <https://doi.org/10.25042/epi-ije.082021.06>
- Samburu P. M., Hayombe P. O., Owino F. O.** (2019), Influence of circulation space configuration attributes on the location of economic enterprises in Obuga Informal Settlement, Kisumu City, *Architecture Research*. 9(3), 63-73. DOI: <https://doi.org/10.5923/j.arch.20190903.02>
- Schroeder T., de Saboya R. T.** (2015), Configurational characteristics of socio-spatial segregation in Brazilian Cities. Proceedings of the 10th International Space Syntax Symposium in London. URL: https://www.researchgate.net/publication/324687600_Configurational_characteristics_of_sociospatial_segregation_in_Brazilian_cities
- Sherlia S., Jordan N. A., Syafitri E. D.** (2021), Space syntax analysis in defining the connection of development centers in Balikpapan. *Journal of Architecture and Built Environment*, 48(1), 1-8. DOI: <https://doi.org/10.9744/dimensi.48.1.1-8>
- Surya B., Salim E., Idris M.** (2021), Sustainability handling slum settlements in Makassar City, South Sulawesi, Indonesia. *Jurnal Ilmiah Ecosystem*, 21(2). DOI: <https://doi.org/10.35965/eco.v21i2.1108>
- Surya B., Saleh H., Suriani S., Sakti H. H., Hadijah H., Idris M.** (2020-a), Environmental pollution control and sustainability management of slum settlements in Makassar City, South Sulawesi. *Land*, 9(9), 279-313. DOI: <https://doi.org/10.3390/land9090279>
- Surya B., Ahmad D. N. A., Bahrin R. S., Saleh H.** (2020-b), Urban farming as a slum settlement solution (Study on slum settlements in Tanjung Merdeka Village, Makassar City). *Spatial Planning in The Digital Age to Achieve Sustainable Development*, October 2019, IOP Conference Series: Earth and Environmental Science, 562. DOI: 10.1088/1755-1315/562/1/012006
- Surya B., Syafri Abubakar H., Annisa D. N.** (2020-c), Comprehensive assessment of slum settlement in Makassar Metropolitan City, South Sulawesi Province, Indonesia. *Preslia Journal*, 2(2), 15-42. URL: https://www.researchgate.net/publication/339712799_Comprehensive_Assessment_of_Slum_Settlement_in_Makassar_Metropolitan_City_South_Sulawesi_Province_Indonesia
- Surya B., Syafri S., Sahban H., Sakti H. H.** (2020-d), Natural resource conservation based on community economic empowerment: perspectives on watershed management and slum settlements in Makassar City, South Sulawesi, Indonesia. *Land*, 9(4), 1-34 DOI: <https://doi.org/10.3390/land9040104>
- Surya B., Saleh H., Abubakar H.** (2019), Sustainability of slum-based settlement management community socio-economic empowerment (Study on slum settlement in Panakkukang District, Makassar City). *Journal of Engineering and Applied Sciences*. 15(1), 141-152. DOI: <https://doi.org/10.36478/jeasci.2020.141.152>
- Sutiyarsi T., Koestoer R. H., Susiloningtyas D.** (2019), The challenge of slums toward a sustainable city. *IOP Conference Series: Earth and Environmental Science*, 338, 1-11. DOI: <https://doi.org/10.1088/1755-1315/338/1/012014>
- Syafitri R. A. W. D., Sukri M. F., Hakim D. N.** (2022), Typology of Manggarai Slum Area: The strategy of resilient city to fencing pandemic. *IOP Conference*

Series: Earth and Environmental Science, 1015, International Conference: Post Pandemic Cities: A Paradigm Shift? (CITIES 2021) 20/10/2021-21/10/2021. DOI: <https://doi.org/10.1088/1755-1315/1015/1/012013>

Syarif E., Asniawati, Nadjmi N., Syadzwina A. (2020), Local-wisdom and its influence on disaster mitigation on the spatial configuration of Lakkang Waterfront Settlement, The 3rd EPI International Conference on Science and Engineering 2019 (EICSE2019) 24-25 September 2019, IOP Conference Series: Materials Science and Engineering, 875. DOI: [10.1088/1757-899X/875/1/012005](https://doi.org/10.1088/1757-899X/875/1/012005)

Syarif E. (2018), Konfigurasi ruang permukiman tepi air Mariso dan Tallo ditinjau dari aspek keberlanjutan (The spatial configuration of Mariso and Tallo waterfront settlements in terms of sustainability). [Article in Indonesian]. *Jurnal Lingkungan Binaan Indonesia*, 7(1), 1-8. DOI: <https://doi.org/10.32315/jlbi.7.1.1>

Syarif E., Darjosanjoto E. T. S., Antaryama I. G. N. (2015), The coastal changes and their influence on the Spatial Configuration of Mariso Settlement, Indonesia. *International Journal of Education and Research*, 3(3), 469-482. URL: <https://www.ijern.com/journal/2015/March-2015/39.pdf>

Sen E., Baran M. (2020), Examination of traditional residences in Bitlis on the Zeydan District Scale in the context of space syntax analysis techniques. *SAGE Open*, 10(2). DOI: <https://doi.org/10.1177/2158244020919519>

Taki H. M. (2017), Slum revitalizing plan of Baghdadiyah by spatial re-modeling configuration. *Geoplanning. Journal of Geomatics and Planning*, 4(2), 213-224. DOI: <https://doi.org/10.14710/geoplanning.4.2.213-224>

Takyi S. A., Amponsah O., Yeboah A. S., Mantey E. (2021), Locational Analysis of Slums and the Effects of Slum Dweller's Activities on the Social, Economic, and Ecological Facets of the City: Insights from Kumasi in Ghana. *GeoJournal*, Vol. 86(4). DOI: <https://doi.org/10.1007/s10708-020-10196-2>

Thurber A., Bohmann C. R., Haflinger C. A. (2017), Spatially integrated and socially segregated: The Effects of mixed-income neighbourhoods on social well-being. *Urban Studies*, 55(3), 1-16. DOI: <https://doi.org/10.1177/0042098017702840>

Tucunan K. P., Ridwan Y. H. (2018), Geinschaft city: Konsep dan pengukuran kota guyub (Geinschaft city: Concept and measurement of the city of guyub). [Article

in Indonesian]. *Jurnal Penataan Ruang*, 13(1), 30-34. DOI: <http://dx.doi.org/10.12962/j2716179X.v13i1.7065>

Turok I., Borel-Saladin J. (2018), The theory and reality of urban slums: Pathwaas-out-of-poverty or cul-de-sacs? *Urban Studies*, 55(4), 767-789. DOI: <https://doi.org/10.1177/0042098016671109>

Vasku M. (2013), Generative improvement of street networks based on space syntax. Applied in a case study on an informal settlement in Jeddah. *eCAADe 31, Computation Performance Vol. 1, Spatial Performance and Space Syntax*, 367-374. DOI: <https://doi.org/10.52842/conf.ecaade.2013.1.367>

Wiedmann F., Salama A. M., Ibrahim H. G. A., Mirincheva V. (2019), New housing patterns and spatial fragmentation in gulf cities. *Journal of Urbanism: International Research on Placemaking and Urban Sustainability*, 12(4), 393-411. DOI: <https://doi.org/10.1080/17549175.2019.1626263>

Wunas S. (2019), The disaster resolving on tourism settlements in small islands. IOP Conference Series: Earth and Environmental Science, 1st International Conference on Global Issue for Infrastructure, Environment & Socio-Economic Development, 235. DOI: <https://doi.org/10.1088/1755-1315/235/1/012106>

Zanuardi A., Aulia, R. A., Hakim A. (2017), Penilaian sarana prasarana permukiman bidang cipta karya untuk identifikasi karakteristik permasalahan kumuh di Kawasan Lette dan Pampang, Kota Makassar (Assessment of settlement infrastructure to identify the characteristics of slum problems in the Lette and Pampang Areas, Makassar City). [Article in Indonesian]. *Jurnal Sosial Ekonomi Pekerjaan Umum*, 9(2), 35-188.

Zeid E., Vialard A. (2022), A classification of streets in the Greater Cairo Region. A quantitative approach to classification and urban intervention. The 13th Space Syntax Symposium, September, at Bergen, Norway.

Zuraida G. N., Wijaya K., Sukardi R. R. (2018), Keberadaan activity support yang mempengaruhi aksesibilitas pada permukiman di sekitarnya (Existence of activity support that affects accessibility to surrounding settlements). [Article in Indonesian]. *IJAZ Jurnal Arsitektur Zonasi*, 1(2), 106-111. DOI: <https://doi.org/10.17509/jaz.v1i2.13509>