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SOCIO-SPATIAL TRANSFORMATION MODEL OF URBAN ARCHITECTURAL ELEMENTS: THE PERSPECTIVE OF LOCAL COMMUNITIES IN THE CORRIDOR OF BOULEVARD II, THE COAST OF MANADO CITY, INDONESIA

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Abstract: Socio-spatial transformation of urban architecture is a new concept in the discipline of architecture and urban planning. These socio-spatial changes have an impact on the architectural elements of the city. When development occurs in coastal areas, local fishing communities bear a huge burden from this condition. This study aims to explore the definition and understand the characteristics of socio-spatial transformation of urban architectural elements, from the perspective of local communities in urban coastal areas. The grounded theory research method is used to develop a theoretical explanation of the definition and characteristics of the changes that occur. The data was obtained inductively from local communities, and it was collected through focus group discussions and in-depth interviews. The results define the socio-spatial transformation of urban architectural elements, resulting in changes in land use and an increase in the value of land prices, in the characteristics, types and architectural styles of the area, changes in land use intensity, in open-space use, in circulation character, pedestrian and parking, physical changes and environmental quality, in historical space and buildings in the area, in socio-economic space of the local community, and changes in socio-cultural space of the local community.

Keywords: Grounded theory, socio-spatial transformation, urban architectural elements, urban coastal local communities.

Introduction

The socio-spatial transformations that occur in cities with high spatial growth and hardly any economic development for the affected communities often have significant negative impacts that tend to be invisible. Sometimes, the process of spatial modernisation creates segregation and conflict, due to a lack of city policies that pay attention to the interests of the population, with only focus on the interests of personal businesses, which does not unite residents and businesspeople. As a result, private investment is not controlled and only benefits the businesspeople (Álvarez de Andrés *et al.,* 2015; Gnatiuk & Kryvets, 2018).

Socio-spatial transformation also shows the flow of distribution of goods and services, labour migration, increased economic productivity, vertical and horizontal social mobility, increased economic activity towards the development of growth poles and agglomeration of suburban metropolitan areas, causing socio-cultural transformation towards different interactions and adaptations in the function of the developed space, which is characterised by unequal control over the reproductive space, which

causes social change, community segmentation, marginalisation and poverty in local communities (Surya *et al.,* 2018).

Previous studies that used a socio-spatial approach as an inseparable part of them examined the factors forming the pattern of slum settlements, the expansion of crowded living areas, socio-spatial segregation and modifying the diversity of social and economic conditions, social integration of urban space and choosing the right settlement location, fragmentation of residential zoning variations based on population typology, as well as physical and socio-economic transformation due to tourism, which can show settlement localisation and development ideas, found social problems due to transformation, and important policy implications, especially for the identification of local policies that can reduce existing income inequality (Dupont, 2004; Almuna *et al*., 2012; Setioko, 2013; Eranil Demirli *et al.,* 2015; Fernández de Córdova *et al.,* 2016; Patel, 2016; Silin, 2016; Yankson *et al*., 2017; Zain *et al.,* 2018; Lelo *et al.,* 2019).

Spatial physical changes that take place rapidly work as determinants of changes in social formation, which begins with the development of building functions that are dominated by modern building styles. This spatial transformation causes changes in social formation in the area, from single social formations to multiple social formations, and the coexistence between capitalist and non-capitalist modes of production, resulting in inequality in the mastery of spatial reproduction, significant changes in the life of the city and its suburbs, changes in building and development lifestyles, and impacts on the landscape and surface of suburban areas and the proportions and styles of buildings, which can result in environmental problems (Surya, 2015; Surya *et al.,* 2018b; Hardi *et al.,* 2020).

Many studies have attempted to explain this topic, but most of them focused on spatial transformations that have an impact on social change, and changes in the function and characteristics of buildings from residential to commercial, negatively impacting the quality of housing, developing suburban areas with expansion to agricultural land that is initiated by business groups, causing changes in the function of the area and even changing the meaning of micro space from social and cultural values to economic values (Yankson *et al*., 2017). Dynamic change has resulted in many conflicts, where infrastructure is overused, and illegal land use change and construction have become commonplace. Newcomers can replace old residents, although it is recognised that accessibility has the greatest impact on regional development (Vasárus *et al.,* 2018). However, most of these studies only partially discuss social change and spatial change, in the sense that they do not fully discuss integrated socio-spatial aspects, and do not focus on explaining the definitions and characteristics of integrated socio-spatial transformation with changes in urban architectural elements. Hence, there are gaps that can be filled by this research.

Thus, the main objective of this study is to answer the research question of whether the definition and characteristics of the socio-spatial transformation of integrated urban architectural elements are elaborated according to what is experienced by local communities in urban coastal areas.

Materials and Methods

Study Area

The research locations are three sub-districts, namely Sindulang I Village, Sindulang II Village, and Bitung Karangria Village in Tuminting District. The geographical location of the Manado City area and precisely the Boulevard II corridor is at the coordinates of 1°29’59. 66” – 1°30’52.05” N and 124°50’27,24” – 124°50’41,67” E. More details of the research location are presented in Figure 1 below.

Data Collecting Techniques

The grounded theory methods (Strauss & Corbin, 1998) is used due to a lack of studies on the specific factors and relationships between factors that include the socio-spatial

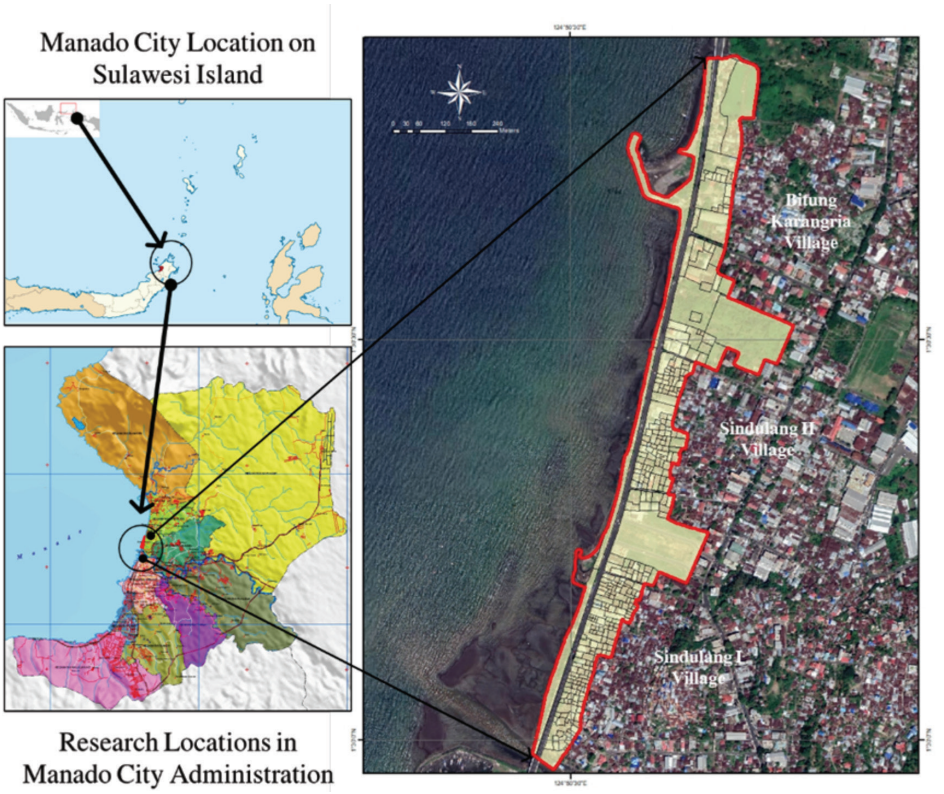

Figure 1: The location of the Boulevard II Corridor in Manado City as the object of study

transformation of urban architectural elements. The advantage of the grounded theory method is that it is a systematic procedure, which explains a process, action, or interaction through an interactive process of data collection and analysis, and this method is especially suitable for discovering theory.

The drawback of this method is that it is difficult to determine when the categories are saturated, although this can be anticipated by using constant comparative and theoretical sampling (Creswell, 2015). The grounded theory not only uncovers relevant conditions, but also determines the actors under investigation actively responding to existing conditions, interacting and producing consequences from their actions. It is also important that the generalisation of the theory is achieved through a process of abstraction that occurs during the entire research, and it can be verified (Corbin & Strauss, 1990). In this study, the grounded theory method is used to define and understand the characteristics of socio-spatial changes in urban architectural elements in urban coastal areas.

Sampling

The purposive sampling technique was used in this study, and the participants who were interviewed were theoretically selected to help researchers form a good theory. A snowball sampling technique was then carried out to identify interesting statements and information from people who had more information. The constant comparative data analysis technique is also used in the process of retrieving information from data collection, which is compared with the emerging categories (Creswell & Poth, 2018). Based on the focus of this study, local coastal communities in the research area were selected. These local communities are indigenous people who have lived permanently in the research

location for at least 20 years, and currently work as fishermen, or other professions that are currently being undertaken due to the construction of Boulevard Road. Theoretical sampling is also used to ensure that the local communities participating in the study have sufficient experience to provide a complete picture (Strauss & Corbin, 1998).

Data Collection

The main data was collected by conducting in-depth face-to-face interviews, while participant observation, literature study, documentation, and focus group discussions were used to complete the lack of interview data. These interviews are guided by research questions, but are not structured to allow for the discovery of several current ideas and themes.

When the interviews and preliminary data analysis are completed, the initial codes and categories are obtained for further intercoder agreement through cross-checking the codes developed by other researchers by comparing the results obtained independently. (Creswell, 2014).

Sample Size and data saturation

There are several stages in the grounded theory for data saturation, and in this study, researchers guarantee that they have gone through the data saturation process from the initial data collection. The saturation uses constant comparative and theoretical sampling. The zigzag process involve the collecting of information until the categories are saturated on the theoretically selected interviewees (Creswell & Poth, 2018). The sample size consisting of 40 informants was used as a baseline measure. The sample range in grounded theory research should be in the range of 20 to 60 informants (Charmaz, 2006).

When data collection has been carried out, member checking is then carried out through a focus group discussion to determine the accuracy of the research results. Researchers provide opportunities for informants to comment on the research results (Creswell, 2014). If it turns out that the explanation is inaccurate, or is not agreed upon by the informant, then the researcher revises the themes or discussion so that it can be better according to the views of the informant (Creswell, 2016).

The process of validating data is done through the triangulation of data sources, methods, and time, including the intercoder agreement, to meet the reliability of data quality, with the Cohen Kappa result being 89%.

The complete characteristics of informants from the beginning to the end of data collection are presented in Table 1. A total of 60 informants took part in the in-depth interviews, and half of them were invited to take part in the focus group discussions.

Table 1: Characteristics of the informant.

No	Code	Ethnic	Profession	Age (Years)
1	LCIB.01	*Sangir*	Fisherman + Kiosk Merchant	50
2	LCIB.02	*Sangir*	Kiosk Merchant	44
3	LCIB.03	*Timor-Timor*	Kiosk Merchant	50
4	LCIB.04	*Borgo*	Trader Fisherman	27
5	LCIB.05	*Sangir*	Fisherman + Kiosk Merchant	48
6	LFC.06	*Sangir*	Fisherman	64
7	LCIB.07	*Borgo*	Fisherman + Kiosk Merchant	51
8	LCIB.08	*Sangir*	Fisherman + Kiosk Merchant	56
9	LFC.09	*Sangir*	Fisherman	56
10	LFC.10	*Sangir*	Fisherman	47

No	Code	Ethnic	Profession	Age (Years)
11	LCIB.11	*Gorontalo*	Fisherman + Kiosk Merchant	37
12	LCPF.12	*Minahasa*	*Pajeko* fisherman	48
13	LFC.13	*Sangir*	Kiosk Merchant	65
14	LCIB.14	*Sangir*	Fisherman + Kiosk Merchant	54
15	LCIB.15	*Sangir*	Kiosk Merchant	36
16	LFC.16	*Sangir*	Kiosk Merchant	62
17	LCIB.17	*Borgo*	Housewife	63
18	LFC.18	*Sangir*	Kiosk Merchant	67
19	LFC.19	*Makassar*	Kiosk Merchant	58
20	LC.20	*Borgo*	Civil servants	54
21	LC.21	*Sangir*	Housewife	42
22	LC.22	*Gorontalo*	Civil servants	48
23	LCIB.23	*Bantik*	Trader Fisherman	62
24	LCIB.24	*Sangir*	Fisherman + Kiosk Merchant	67
25	LCIB.25	*Borgo*	Trader Fisherman	66
26	LCIB.26	*Sangir*	Trader Fisherman	42
27	LCIB.27	*Bantik*	Trader Fisherman	71
28	LCIB.28	*Sangir*	Trader Fisherman	40
29	LC.29	*Borgo*	Pensioner	71
30	LCIB.30	*Bantik*	Trader Fisherman	74
31	LFC.31	*Borgo*	Kiosk Merchant	67
32	LCAF.32	*Borgo*	Aquaculture Fisherman	71
33	LC.33	*Borgo*	Pensioner	62
34	LCIB.34	*Sangir*	Kiosk Merchant	65
35	LC.35	*Borgo*	Lecturer	67
36	LFC.36	*Borgo*	Kiosk Merchant	63
37	LFC.37	*Borgo*	Kiosk Merchant	51
38	LFC.38	*Borgo*	Kiosk Merchant	65
39	LFC.39	*Borgo*	Kiosk Merchant	70
40	LFC.40	*Borgo*	Kiosk Merchant	86

Description:

LC: Local communities are indigenous people who have lived in the research location for at least 20 years
LFC: The local fishermen community is a resident who lives permanently and works as a fisherman
LFCIT: local fishermen community + informal traders are residents who live permanently, work as fishermen and have informal businesses, such as kiosks
LCIB: Local community informal traders are residents who live permanently and have informal businesses, such as kiosks
LCPF: the local community *pajeko* are residents who live permanently, and work as modern fishermen
LCAF: Local community of aquaculture fishermen are residents who live permanently, and works as aquaculture fishermen

Data Analysis Techniques

The basic principles of grounded theory data analysis (Strauss & Corbin, 1998) guide this study. The data analysis steps consist of three coding stages, in the form of open coding, axial coding, and selective coding, as well as the development of a logical paradigm or visual image of the resulting theory (Creswell, 2015). Sociometric analysis in the open coding stage uses the 2020 version of the Maxqda application to ensure that no important ideas are missed.

After three stages of coding, the analysis was performed by comparing the findings and conclusions of other studies, which are relevant in clarifying, modifying, explaining, and enriching this research (Salman *et al.,* 2021).

Results and Discussion

Social Transformation

The analysis of social change resulted in an open code consisting of eight categories and 18 subcategories. The categories are: 1) profession and occupation; 2) lifestyle; 3) relationship; 4) social class; 5) tribe, ethnicity and culture; 6) time utilisation; 7) income and relationship; and, 8) utilisation of technology. In detail, the categories and subcategories are presented in Figure 2.

The categories in the open code in their causal relationship focused on core phenomena of professions and jobs transformation, consisting of 1) switching professions; 2) side jobs; 3) new job expectations; 4) being a fisherman and kiosk merchant for a long time; and, 5) reasons of being a fisherman. Causal conditions that encourage changes in professions and occupations to consist of 1) social class distinction; 2) business relations; 3) the lifestyle of the local community and immigrants; and, 4) the fisherman's income. The context of social change is the dominant tribe, traditions, values and norms, and socio-cultural conditions. While the intervening conditions consist of 1) time utilisation (fishing time and reasons go to sea); 2) utilisation of technology; and, 3) relationship (relations between immigrants and local communities, kinship among local communities, and community organisations). In

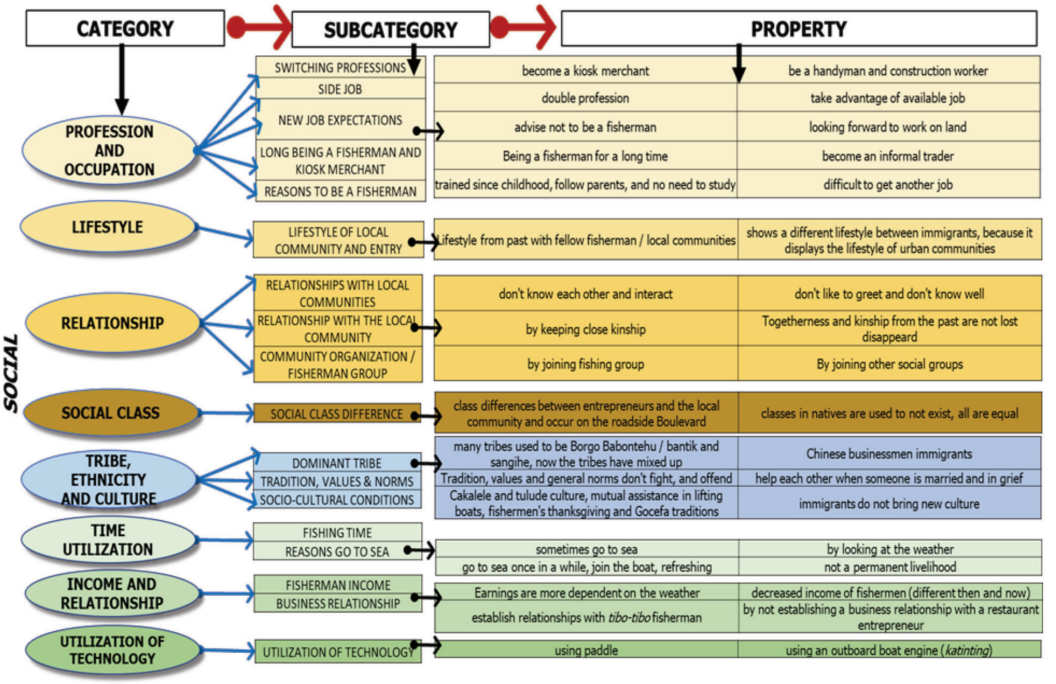

Figure 2: The open code of social transformation

detail, the axial coding process can be seen in Figure 3.

The core phenomenon is professions and job transformation. The local fishing community responded to this phenomenon of change by accepting the reality, as the fishing profession has been around for a long time. However, efforts to find a side job, if the sea conditions do not allow them to go to sea, such as during dangerous weather, are still carried out by taking advantage of existing job opportunities. In this process, it is understood that most fishermen try their luck by becoming informal traders, artisans, and casual daily workers. Actions taken by local communities when they become kiosk merchants by disrupting the use of sidewalk space by transforming it into a trading space, making the sidewalk not function optimally, often lead to them dealing with civil service police units and conflicting with fisherman during severe weather when the lifting boats is blocked by kiosks. The change of profession as artisans and casual daily workers is the action of fishermen as they are also accustomed to carpentry due to their expertise in repairing boats. In addition, those who do not have the skills of a handyman prefer to become freelance daily workers, who of course are still engaged in the construction sector. The increasing number of fishermen hanging professions, indicating hope for new jobs, means the sustainability of the fishing profession among local communities is getting smaller. The more work that is available on the land, the more parents will advise their children not to become a fisherman and look for work on land instead. Moreover, it is revealed that being a fisherman is difficult, especially when facing extreme weather.

There is a change in the profession in terms of traditional to modern fishermen. It is understood that those who remain as traditional fishermen are senior fishermen, while those who are relatively younger become *pajeko* fisherman. The expectation of a large income associated with *pajeko* fishing is the motivating factor for them to become modern fishermen. Besides that, in addition to being a modern fisherman, some of them, especially in Sindulang Ihaveas, changed their profession from traditional fishing to aquaculture fisherman, namely by nurturing Trevally fish (called *bobara*) seeds. In this condition, it is found that most traditional fisherman transforms into dual professions, if the weather is good, they will go out to sea, while if the weather is not good, they will work on the land.

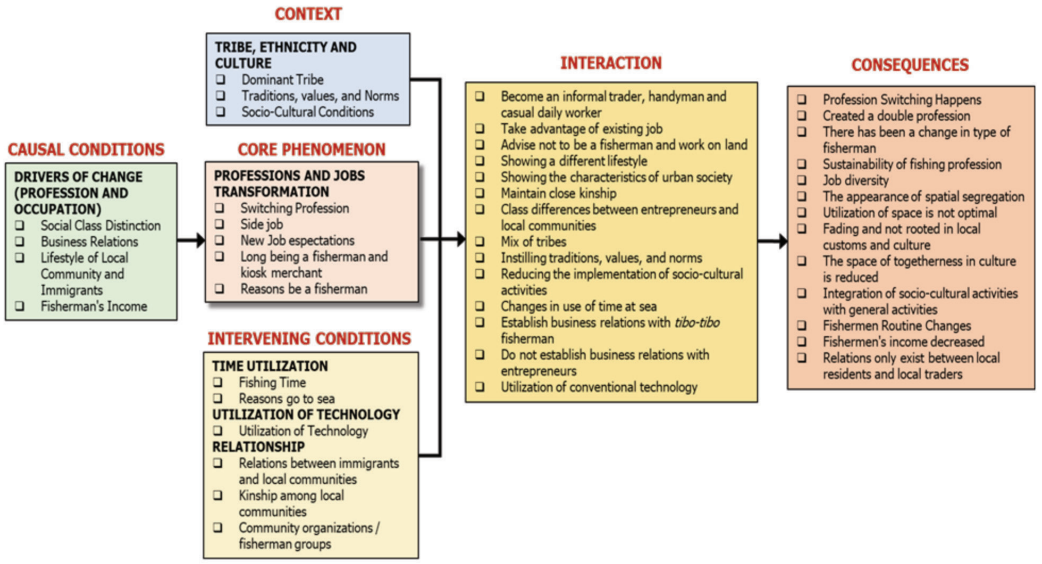

Figure 3: Axial code of social transformation

Ethnicity and culture are also contexts that influence social changes that occur after the construction of the Boulevard Road. It was found that many dominant tribes in this area were originally the Borgo, Bobontehu, and Sangir. Currently, since the opening of regional access, the existing tribes have been mixed, with some being Bantik, Sangir, Gorontalo, etc. The three tribes originally inhabited this location and they were known as reliable fishermen and used to live on the coast. Some of the immigrant entrepreneurs are predominantly Chinese, and their goal is to run a restaurant business and is characterised as a capitalist entrepreneur.

The current mixing of tribes in the area brings diversity to indigenous tribes and cultures, but it does not result in the loss of existing traditions, values and norms, or the lead to the existence of a new culture in the area. Customary rules, values and general norms also apply in local communities, such as do not fight and offend each other between tribes are still maintained. Besides, the culture of togetherness is still extraordinarily strong, especially in celebration of weddings (joy) and especially in death events (sorrow). The utilisation of space during these events and celebrations is still being carried out, However, due to limited open space, roads are sometimes occupied are closed during an event. Other residents, who are not part of the local community group, consider it normal and natural, even though these events lead to disrupted access to the road space.

In this context, *cakalele* is a local culture that is still practised. There are two types of *cakalele*, one war *cakalele* (bulging eyes) and *a* victory *cakalele* (smile). Especially for *cakalele*, it was found that they are carried out as morning events, and the implementation began to shift if there were special religious or government events. Likewise, with the tradition of lifting boats due to professional changes, the number of fishermen on the beach is decreasing, and when the waves and weather are bad, the number of boat lifters is at least six people. Therefore, the space for togetherness in the *cakalele* culture and the boat-lifting tradition has diminished.

The causal conditions for the transformation of professions and jobs are influenced by differences in social class, business relations, lifestyle, and incomes of fishermen. There is a social class distinction between entrepreneurs and the local community, occurring on the side of Boulevard Road as a space for interaction between local communities and entrepreneurs. Even though they are in the same room, it turns out that the business relationship between the entrepreneurs and the local community is not established. Instead, the local community still maintains a relationship with the trader fisherman, who is a local trader that buys fish caught by a fisherman for resale. Furthermore, the lifestyle shows distinctive characteristics between immigrants who have displayed the lifestyle of urban communities through dressing, means of transportation and the facilities between the local community and businessmen immigrants.

When fishermen's income decreases, the existence of a culture rooted in the area also changes. Like the *cakalele* activity, it was found that funding was an obstacle because at present, the activity of inviting *cakalele* was something that had to be rewarded, which used to be only the spontaneous participation of the local community. If unchecked, it will be one of the causes of the local culture not taking root in the next generation, because the space for socio-cultural activities has decreased. Especially at this time during the Covid-19 pandemic, the impact on the economy has resulted in a decline in income, as well restrictions on gathering activities both on a small and large scale. This condition also has an impact on other community gathering activities, such as the thanksgiving ceremonies performed by fishermen and the commemoration of Independence Day, which requires a large amount of money for the implementation of competitions, which are rarely carried out and become limited.

The conditions that affect the transformation of professions and jobs are also realised because of the reasons for going to sea and the time at sea that has changed. This is also closely

related to the construction of Boulevard II, the consequence of which reduced the supply of fish because fish are far from the catchment area, which is usually only ±2 km from the coast to be far away in the archipelago. Although the price of fish has increased, conditions with the presence of trawlers (*pajeko*), who use better and more sophisticated technology, have an impact on fisherman's actions, leading to them not going out to sea every day, even in mild weather, as the technology they use is only rowing and traditional boats that use external machine motors (called *catenating*). This leads to reduced income due to their simple technology (many rivals of *pajeko*), and in the context of this professional transformation, it is also understood that the fishing routine has changed from being obligated to go to sea as local communities have started to switch professions to the informal sector.

These conditions also affect the kinship between fellow local communities. The local community maintains close kinship relationships, both in joyful and sorrowful events, interacting with each other, and joining fishing groups and other social groups. The relationship between migrants (entrepreneurs) and local communities influences social change in the Boulevard II area. The presence of entrepreneur immigrants, whose main goal is to do business and take economic profit (capitalist), has an impact on the kinship between the local community and capitalist entrepreneurs, with the local community not interacting with the entrepreneurs. This leads to close ties between immigrants and natives, and class distinctions between entrepreneurs and local communities that occur on the side of Boulevard Road.

The stages of axial coding social transformation through causal conditions, the core phenomenon, context, intervening conditions, interactions and consequences as described above, becomes an important part of the stages of theory formation of social transformation through selective coding, as can be seen in Figure 4.

Spatial Transformation

Spatial change analysis resulted in an open code consisting of four categories and nine subcategories. These categories are 1) safety and comfort of space; 2) stages of spatial transformation; 3) spatial transformation impact; and, 4) spatial planning. In detail, the open code for spatial transformation is presented in Figure 5.

The categories in the open code in axial coding produce the core phenomena of the spatial transformation impact, which consist of 1) socio-economic impact; 2) sociocultural impact; and, 3) physical environment impact. Causal conditions that drive the impact of spatial transformation consist of 1) pre-development; 2) development transition; and, 3) post-development. The context of spatial change is the local communities' space needs. Meanwhile, the influencing conditions consist of the safety and comfort of the space. In detail, the axial coding process can be seen in Figure 6.

The core phenomenon in spatial change is spatial transformation impact. This impacts the socioeconomic, sociocultural, and physical environment. There has also been a change in economic structure with the entry of entrepreneur immigrants (capitalism), which incidentally, comes from ethnic Chinese entrepreneurs, who attempts to formally bring ethnic pluralism to this boulevard corridor. The socio-economic conditions of the area have increased from the socio-economic conditions of the local community to the dominant livelihood of fishermen, transforming into a diversified livelihood, and leading to a formal and informal socio-economic conditions.

The transformation of space has an impact on the socio-cultural aspect of the local community, specially adapted to the traditional activities of mutual assistance, lifting the boat due to limited space and obstacles, and the loss of gathering space when the local community beach seine (locally called *soma dampar*) is finished. Lifting this boat is done for two purposes, first to dry the boat body so it doesn't

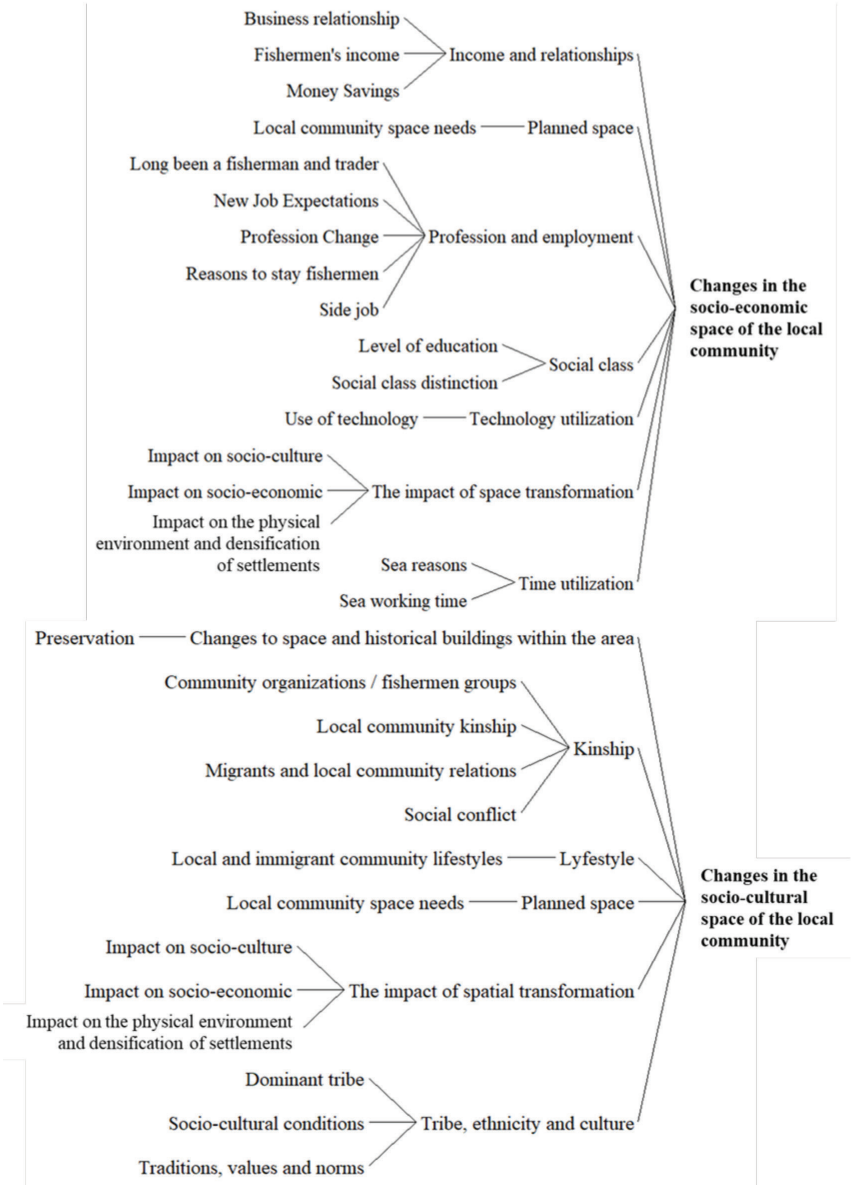

Figure 4: Selective coding of social transformation

get damaged quickly, and second, lifting it when the weather is bad and choppy so that the boat is not damaged. Even though this tradition is still carried out, especially during the west wind season when the weather is choppy and windy, it becomes exceedingly difficult to do so and requires extra energy from fishermen to secure their boats from the beach and lift them to the side of the road.

The current reduction in fisherman's thanksgiving activities has shifted its implementation and is integrated with Manado City Anniversary activities or Church Thanksgiving ceremonies. Fisherman routinely performed them annually between 1960s and 1990s by utilising the large coastal space, and tents (called *sabua*) were built which were used for communal worship. In the tent, tables

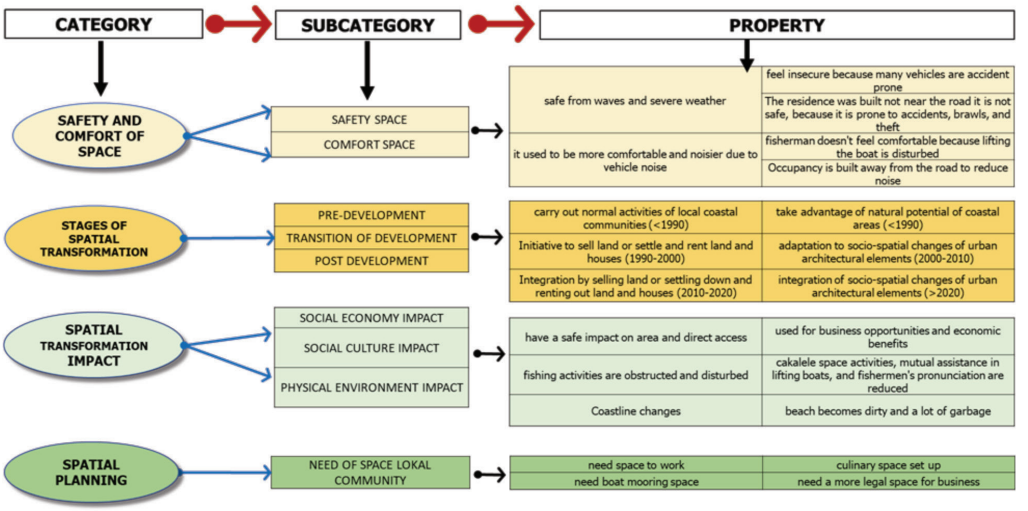

Figure 5: Open code of spatial transformation

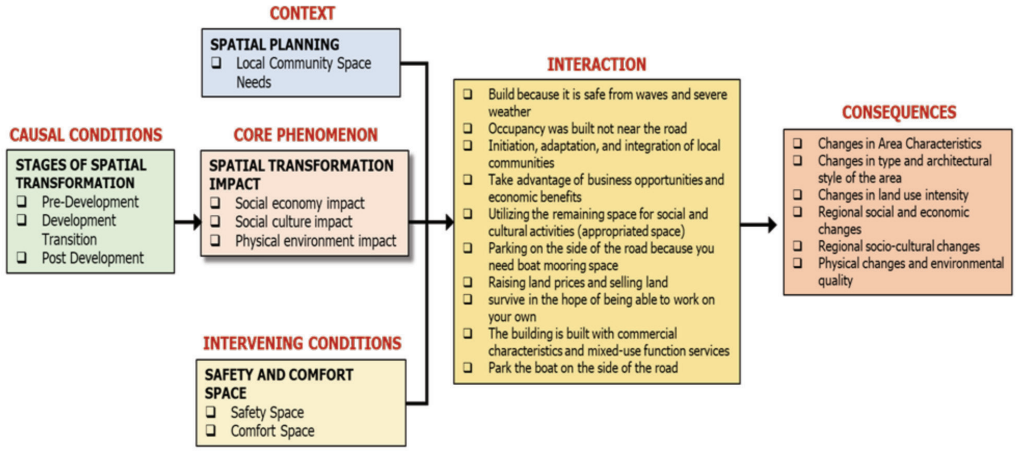

Figure 6: Axial code of spatial transformation

are arranged for their catch, which can then be enjoyed (eaten together). The activity lasts from morning to evening, followed by the *cakalele* activity. Then, at night, it was closed with a dance (called *katrili*), which could continue up until dawn. However, since the change in coastal space and the difficulty of getting a large space has become a factor, these activities are rarely done, although it is also found that the village elders who maintain this tradition have died, and the income of fisherman are decreasing, which ultimately lead to these problems. The availability of funds to hold this tradition is another factor why the fisherman's thanksgiving tradition activities are rarely carried out and are starting to disappear. Even if an integrated activity for the Manado City Birthday or Thanksgiving Church is held, it will lead to the use and closing of the road, such as for weddings and mourning events.

The core phenomenon of physical changes in the environment can be seen in changes in the coastline, which is the impact of space transformation, caused by the construction of Boulevard II Road. Strong interaction occurs in the fishing community. Changes in the coastline lead to space for fishermen's activities to be

obstructed and disrupted because, in the process of constructing Boulevard II Road, a barrier was built from stones, and when it was completed, access for the fishermen in boating activities was limited. The highlight is the existence of a boat mooring space, which has changed drastically from what is usually located on the beach and close to houses, to being far from the residences, so boat control activities are hampered. Another thing is that the boat mooring facilities are not evenly distributed, and the fishing community in Sindulang II complains about this as they don't have boat mooringavailable like in other villages. Due to this, fishermen take adaptation actions by parking their boat on the side of the road, in this case the sidewalk, which of course requires extra energy compared with the previously, where the boats are parked on the beach. This leads to physical changes and changes in environmental quality, as well as regional architectural design interventions, which are carried out by local communities, including by making girders or access rails for boats, made from wood and or other materials. Even though there are often conflicts and arguments between fishermen and merchants, especially during severe weather seasons, the activity of lifting boats is hindered by kiosks.

The causal conditions that affect the core phenomenon are understood as the stages that occur in the Boulevard II areas, which are divided into 3 (three) main one, namely 1) the pre-development stage, which is before the 1990s, where the context is still in the form of coastal settlements with local fishing communities doing activities regularly; 2) the transitional stage of development, from the 1990s to 2010s (about 20 years), which is marked by the commencement of the road construction plan for Boulevard II in 1993, through the construction of a border to retain the road body, starting from part of Sindulang I village; and, 3) the post-development stage, between the 2010s and 2020s, which occurred when Boulevard Road II was completed on the asphalt in 2014, with access to Soekarno Bridge in 2015 and Hasanuddin Road in the north.

The local community needs space to do business, that is organised, and adheres to the law. Following the construction of the boulevard road, members of the local community engaged in the informal sector by becoming kiosk merchants in unplanned spaces, as well as on the edge of the boulevard in their legal residences, setting up informal kiosks. The need for this planned space will hopefully lead to the local community beginning to initiate, adapt and integrate with the changes. This integration process took place after Boulevard Road II was completed in 2014. Several actions were taken by the local , which include: a) integration with changes after the construction of Boulevard Road II, because it has a good impact, with the opening of area access and rising land prices; b) integration with changes after the construction of Boulevard Road II, because it has a good impact on the social life of the community; c) integration with changes after the construction of Boulevard Road II because there are side business opportunities; and, d) utilising the appropriated space because it needs a more legal and organised space for local communities to do business. Actions taken by local communities have good consequences with changes in the characteristics of the area, as well as changes in function and the character of circulation.

Space transformation is also understood to be influenced by the security and comfort conditions of the space. Security from the impact of damage to people's houses due to waves during severe weather were overcome with the presence of Boulevard Road II. The action of the local community by building permanent housing because the area is safe from waves and severe weather, consequently, changes the type and architectural style of the area, from an outmoded to a modern style with commercial and service characteristics by the current use of space. Regarding the comfort of the space, it was found that the past conditions were considered to be more comfortable, because the atmosphere was more comfortable and calmer, far from being noisy as it is now. The action against this condition is that housing is built away from the road due to it being uncomfortable and noisy

with lots of vehicles, a good consequence occurring with the changes in the intensity of land use for the better.

The stages of axial coding spatial transformation through causal conditions, the core phenomenon, context, intervening conditions, interactions and consequences as explained above become an important part of the stages of theory formation for spatial transformation through selective coding as shown in Figure 7.

Urban Architectural Elements Transformation

Analysis of changes in architectural elements of the city has resulted in an open code consisting of eight categories and eighteen subcategories. These categories are: 1) land utilisation and land value; 2) land intensity, type and style of architecture; 3) circulation and pedestrian ways; 4) parking area; 5) open space; 6) support activity; 7) advertising space and regional markers; and, 8) historical building and spaces. In detail, the open code and axial coding of urban architectural element transformation are presented in Figures 8 and 9.

Land utilisation and land value transformation are a core phenomenon in urban architectural elements transformation. This phenomenon is influenced by changes in circulation, pedestrian ways and parking areas. The construction of Boulevard Road II changes circulation and pedestrian ways, as well as

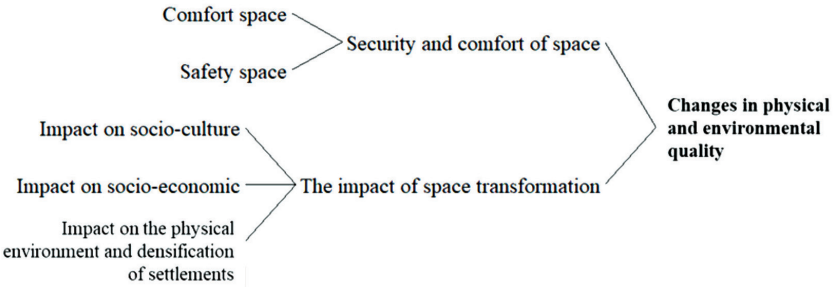

Figure 7: Selective coding of spatial transformation

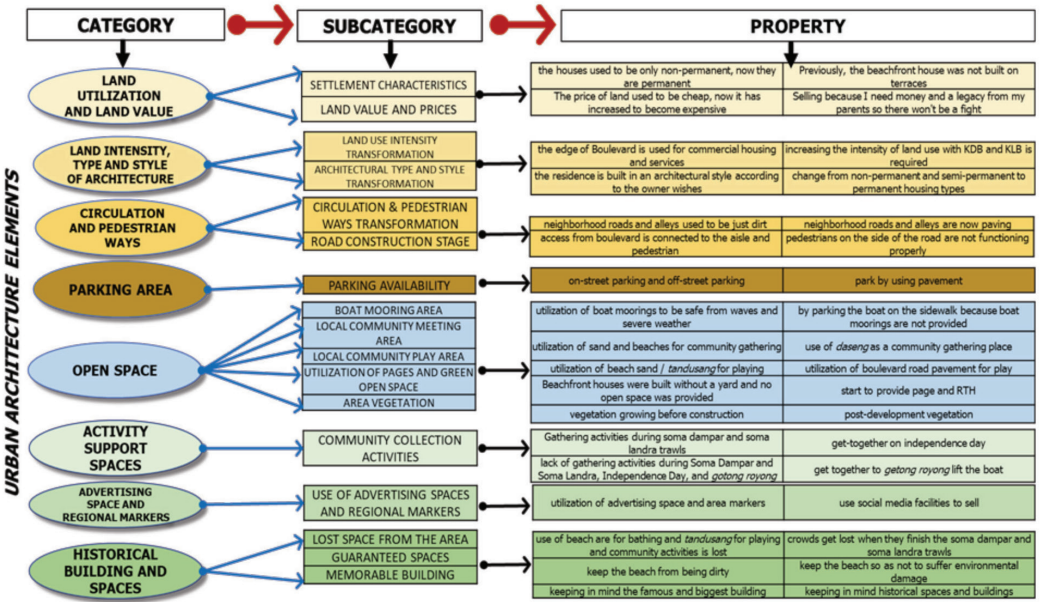

Figure 8: Open code of urban architecture element transformation

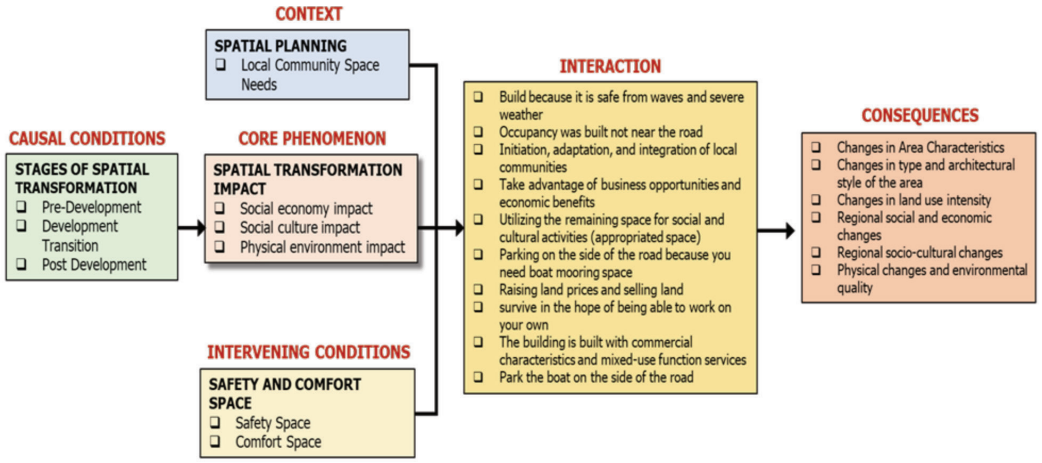

Figure 9: Axial code of urban architecture element transformation

parking areas. This is also driven by changes in circulation, pedestrian ways and parking available on street and off the street in the area, due to changes in settlement characteristics and rising land prices. Changes in characteristics can be seen in the transformation of housing from emergency to permanent, with an increase in the intensity of land use in the Building Coverage Ratio (BCR), Floor Area Ratio (FAR) and Green Area Ratio (GAR) as required (better and orderly occupancy). This process occurred due to the increase in land prices on Boulevard Road, in which land is used for commercial activities and services. The result of this process has a good impact on the Boulevard Road II area because the settlements are more organised, the dominance of permanent commercial activities and services, and changes in the intensity of land use.

In context, the transformation of land use and value is understood to also result in changes in the meaning of open space in the area. One of the obvious impacts on the local fishing community is the existence of fishing facilities, in this case related to boat mooring facilities that are not evenly built in the area. Sindulang II fisherman can feel this, due to the unavailability of boat moorings, fisherman parks their boats on the sidewalk, increasing boats parking when the weather is bad, extreme, and choppy. The fisherman began to intervene in the boat parking design by making access in the form of rails or girders made of wood and bamboo to facilitate the process. Because of this, the sidewalk function is not optimal, it becomes a boat parking space.

Gathering activities that used to be carried out often on the beach using *daseng* are still being carried out now. *Daseng* is in the form of an emergency building, where fisherman rests and store fishing equipment. The *dasengs* that used to dot the beach have decreased and there are now only one or two *dasengs* per village. Apart from being in *daseng* as they have always been used for gatherings on the beach, the local community is using the sidewalk for community gathering activities. Consequently, pedestrians also do not function optimally because they are used for gatherings and community activities. The area's vegetation have also changed during the construction of the Boulevard Road, with trees felled during the construction of the Boulevard Road and the natural growth of new trees, along with the planting of several trees after the road construction was completed. Changes that occur include the reduction of existing vegetation, such as coconuts, and the growth of new vegetation, such as *bitung* trees after the construction of the boulevard road. However, the shoulder and *ketapang* trees (called *nusu*) that used to exist in this area\ still grow a lot on the beach.

Some things were lost during the construction of Boulevard Road II, including the open space for playing, when the road was used by the local community for sports and other activities. This is due to changes in the function and character of the circulation due to the the road becoming an arterial road that is busy with passing vehicles.

Another change is that the use of the beach for bathing is reduced because the beach is getting dirty, and the use of *tandusang* for playing and community activities are starting to disappear, due to the area of this barren space, which used to be up 200 metres from the beach, has reduced. It is clear that the community;s efforts to keep the beach from being dirty and always clean are seeing an impact, as well as the loss of space for playing activities and community gatherings in *tandusang* on the beach, and the reduction in community activities for bathing on the beach because it is dirty and experiencing environmental degradation. This also affects the memories of the local community, which used to remember the famous, largest and historic buildings, but is now starting to be forgotten and switch to buildings and areas that are visited by many and are crowded into regional economic activities, and this brings more diversity of architectural types and styles.

The construction of Boulevard II road has caused historical buildings and spaces that existed before the 1990s to change and the impression is starting to be abandoned. It can be seen that during this period, the mass baptismal spaces at the mouth of the Tondano river have begun to disappear, along with the historical objects of the Japanese veldbox from which there were originally two pieces, currently only one remaining in Bitung Karangria Village, with the other in The Sindulang I Village has been stockpiled. During the construction of the Boulevard Road, the traditional activities of releasing *gocefa* is disappearing.

Furthermore, The transformation of the architectural elements of this city brings changes tp the type and style of architecture, and the process is manifested through physical changes to the building. Although it is found that the physical changes of the buildings were carried out when funds and capital were available, at least by building service housing with a permanent type (originally non-permanent and semi-permanent) vertical concept, due to the high land value, it indicates that there was an action to improve the quality of the buildings. Even though the architectural style follows the wishes of the owner and does not reflect the uniformity of regional architecture, this shows that the phenomenon of land use change has an impact on changes in the type and architectural style of the building. At least in this condition, local wisdom, through community gathering activities, began to change, including being rarely seen and decrease in the number of people participating in collecting fish when fishermen finished doing *soma dampar*, as well as the increasing difficulty in helping the community to lift boats together because of the remote boat parking access conditions. It also has an impact on reducing gatherings and crowded activities during the Independence Day event, because the available space on the beach is increasingly limited.

Other conditions that affect the opening of access the change in the marker space of a more organised residential area, and the dominance of commerce and services. Previously, there were no advertisements and regional markers in the area, now they are starting to appear to decorate the area. Entrepreneurs and local communities are utilising advertising space and area markers, as well as social media facilities to support service and trade business activities in this area, which are predominantly restaurants and cafes. The number of advertisements and area markers leads to changes in land use, which were originally dominant in coastal settlements, into residential, commercial and service areas.

The stages of axial coding urban architecture element transformation through causal conditions, the core phenomenon, context, intervening conditions, interactions and consequences as described above, has become an important part of the stages of theory formation

of urban architecture element through selective coding, as can be seen in Figure 10.

Discussion

The theory built from the local community becomes the foundation for understanding the model framework that describes the socio-spatial transformation of urban architectural elements in urban coastal areas. The construction of a framework that identifies actions and the spatial transformation of urban architectural elements changes can fill gaps in the literature and offer innovative ideas about the characteristics of effective and sustainable socio-spatial transformation of urban architectural elements for fishing local communities in coastal urban areas.

Although research on socio-spatial changes as a process has been carried out (Söylemez &

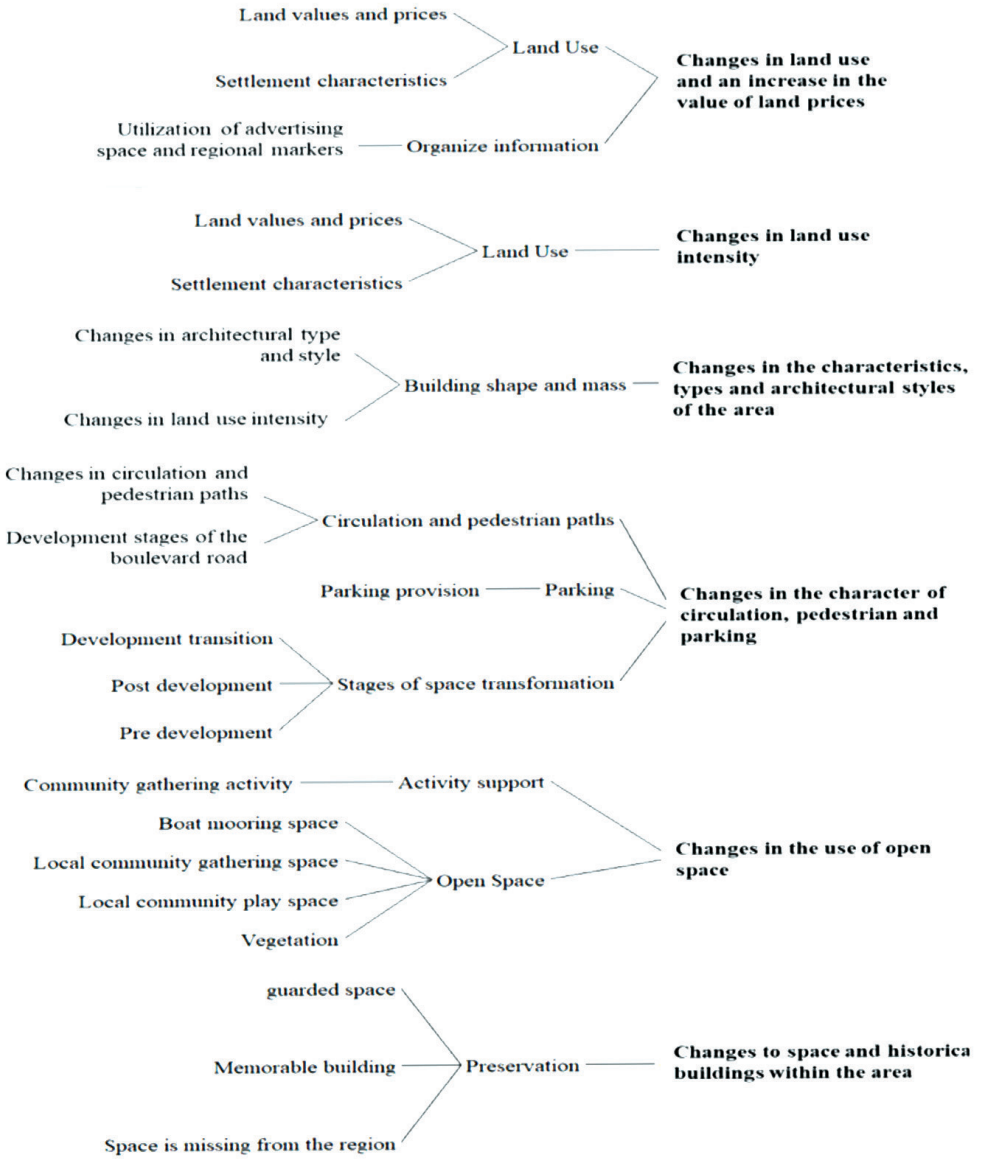

Figure 10: Selective coding of urban architecture element transformation

Varol, 2020) and research on the architectural elements of the city has also been carried out (Farhan *et al.,* 2020), this study focuses more on the cultural heritage and architecture of critically endangered cities, and it was found that several factors played a key role in the formation and transformation of urban architecture and specific urban structures. The most influential factors are mainly related to religion, environment, and politics. This means that it is difficult to make an overall comparison between the socio-spatial transformation framework and the process framework for the transformation of urban architectural elements because this has never been done. As the first-mentioned study further develops an innovative composite index methodology for a comprehensive understanding of socio-spatial border areas to assess the cross-border mobility of nation-states through socio-spatial approaches and fuzzy logic methods in GIS to compare the characteristics of border areas or to forecast future developments. This is of course a different approach from this study, which uses a more grounded theory.

Although there are also studies related to the grounded theory that examine urban areas, as was done by Karimimoshaver *et al.* (2020), this study is only concerned with urban views and their impacts on citizens, and identifies the factors that create and influence urban views and their impacts, including the reasons why views are desirable or undesirable by finding five main categories, including Natural Elements, Visual Harmony, Proportion Spatial, Identity, and Visual Disturbance.

The socio-spatial transformation associated with slum settlements as researched by Zain *et al.* (2018) has not described the close relationship with the architectural elements of the city and then related to the socio-cultural changes in slum areas, as what was studied Surya *et al.* (2021). Their findings are quite different from this paper, in which they concluded that social change in slum settlements focuses on several things, namely changes in attitudes, increasing knowledge, and changing people's behaviour, in the sense of creating an environmentally conscious culture. This study it is not focused on settlement slums.

The relevance of this study as described Yunus (2008) in his dissertation related to spatial transformation, which consists of four elements that change, namely land use characteristics, building characters, settlement characters and circulation characters, have not yet been described as the actual process of change. This means that this research is one of the few socio-spatial transformation models applied to local coastal urban communities and the only model that integrates socio-spatial transformation with changes in urban architectural elements. In the absence of a model that is used to study the characteristics of the socio-spatial transformation of urban architectural elements, a specific substantive model or framework on changes in the morphology of the city was finally developed by Syarif (2016), in his dissertation. But even then, it only produces five elements of urban morphological transformation. Thus, there is no empirical evidence outside of these studies to provide support for the use of this model framework.

These findings may support the socio-spatial changes seen in the study. When local communities have not fully adapted to socio-spatial changes, they can try various aspects of the process to integrate with changes in urban architectural elements, including by taking advantage of economic opportunities through the informal sector, such as becoming kiosk merchants by turning roadside dwellings into selling kiosks. Besides that, by using appropriate space, like the pavement. Another important finding in this study is how the socio-spatial transformation of urban architectural elements is described as a dynamic state. Regarding the dynamic elements of urban architecture, a study that uses a grounded theory approach concludes that improving the image of a city is a dynamic and complex process that displays a meaningful mix of structures, activities, and stakeholder participation sustainably and dynamically (Shirvani Dastgerdi & de Luca, 2019).

Two studies examining the socio-spatial transformation have also proven how the dynamic concept, with its unique characteristics, works effectively, recommending the continuous use of skills and techniques to sustain these socio-spatial changes, such as new development decisions, urban spaces changing spatially, increase space, increase prosperity and expand modernisation expectations in many dynamic cities in such spaces, consequently leading to widespread public disillusionment and failure to produce environments that reflect local values, which can collectively shape public areas in developing cities. to form a quality urban space (Mandeli, 2019)

The urban architectural elements referred to in this study are elements are part of an urban design process. Therefore, the socio-spatial transformation of urban architectural elements as part of the urban design process is dynamic in nature with the main mechanism demonstrating impact and benefits on the transformation process. This aspect of the transformation model framework can be an important contribution to other studies that explain how socio-spatial transformation architectural elements of this city occur. From the perspective of Surya *et al.* (2018a), the growing morphological diversity and the availability of adequate road transportation have become the driving force for the integration of the surrounding urban activity system into a determining factor for changing the orientation of local community activities from fully farming to non-formal economic activities. At this stage the coexistence of two types of production modes with the tendency of a formal type of economy driven by the capitalist sector and an informal type of economy that is driven by a pre-capitalist sector but not in a hierarchical position. Physical and economic transformations lead to socio-cultural transformations of local communities, which are marked by differences in socio-economic relations and wealth gaps between communities. Controlling the reproduction of inequality in new urban spaces as well as differences in adaptability to the reproduction of developing spaces affect the marginalisation and poverty of urban local communities and have an impact on the penetration of empty spaces, urban public spaces for the need to build residential facilities and non-formal urban economic activities as a form of community existence.

There is not much evidence about the definition of socio-spatial transformation of urban architectural elements in the realm of local coastal urban communities that tries to explain the characteristics of the changes, especially when using grounded theory, so this is something that is new.

In general, studies that examine socio-spatial transformations that are integrated with the transformation of urban architectural elements can be a comparison to this developed theory. Research on this subject is quite limited. The actual process of integrating the socio-spatial transformation of urban architectural elements in the domain of local fishing communities is still largely unrevealed. Studies from (Benslimane & Monastery, 2019; Yang *et al.,* 2020) reveal that urban-rural transformation is influenced by natural conditions and socioeconomic development, where traffic location is the most significant factor. This includes the construction of new roads that have destroyed many traditional houses in old cities, and are influenced by the financial flows of international capitalism and which seek further integration into the world economy, integrating into the attention of urban and architectural approaches to adapt to local lifestyles and cultures, is expected to strengthen this model, although this finding only looks at one element related to cultural heritage, and also some studies using socio-spatial transformation and changes in separate urban architectural elements can support the conceptualisation of this theory.

This is also explained by Dakey *et al.* (2022), in which the fast pace of change in coastal systems requires governance and management strategies that are strong against uncertainty, how the role of community opinion in decision-making and coastal risk governance is limited to risk assessment and experience, including community preferences can have a

high impact on the resilience and transformation of the system, as a way of interpreting changes in community decisions and adaptation to future changes under increasing uncertainty with a focus on variations in human-nature interactions, which influence how decision- making can be mainstreamed into policy planning, thereby contributing to better governance of coastal risks.

Conclusion

This research was conducted to define and understand the characteristics of the socio-spatial transformation of urban architectural elements using the grounded theory. The results are interpreted based on selective coding so that it can be defined as a process that results in: (1) changes in land use and an increase in the value of land prices; (2) changes in the characteristics, types and architectural styles of the area; (3) changes in land use intensity; (4) changes in the use of open space; (5) changes in the character of circulation, pedestrian and parking; (6) changes in physical and environmental quality; (7) changes to space and historical buildings within the area; (8) impact on changes in the socio-economic space of the local community; and, (9) impact on changes in the socio-cultural space of the local community.

The above definition provides an understanding of the characteristics of land use changes from residential to commercial and services, of course, will increase the value of land prices and this tendency usually occurs on the side of the road. When land uses change, it will have an impact on changes in the type and architectural style of the area. This is clear because the building which was initially dominant in the emergency and semi-permanent type with an adaptive tropical coastal residential architectural style will change to a permanent type with a modern architectural style, characteristic of commercial and service buildings. This, of course, will have a good impact on the development of coastal areas because it will increase the regularity of the buildings, and change the concept of building from horizontal to vertical. Of course, this is part of the consequence of rising land prices, bringing changes to the characteristics of the intensity of land use. Although it is also realised that when coastal space is transformed, the use of open space for local communities will also have an impact, including reduced open space for social play activities and the loss of local wisdom in community gathering activities when collecting fish during trawl nets. Including the reduced open space for playing activities in *tandusang* which was very crowded in the 1990s. Playing activities in this barren area is part of the characteristics of coastal communities.

There are some good impacts, including changes in the character of circulation, pedestrians, and parking. From the initial function of local roads to the function of arterial roads, this of course brings changes and improvements in the quality of pedestrian and parking areas that are more organised. Because of the function of Boulevard Road II and it being connected to the Soekarno bridge, accessibility is easier and opens isolated access to and from outside the area. Although the construction of Boulevard Road II has brought a good impact, the physical and environmental quality has changed and is thought to be likely to decline. When road construction results in changes to the coastline, it also has an impact on changes in regional vegetation, as well as changes in security and space comfort. The local community is the subject that tends to feel these changes. In addition, changes in the function of historical spaces and buildings tend to occur due to the development process that prioritises physical space and ignores historical spaces. This has been proven, when the veldbox which is a historical heritage was piled up during construction and its current existence is neglected, including the traditional *gocefa* room, which is no longer practised.

Furthermore, it must be acknowledged that road construction brings changes and increases the socio-economic space of the region. However, this only benefits the capitalists. Local communities and traditional fishing fishermen

are threatened with sustainability, many traditional fishing fishermen switch professions and survive with the emergence of multiple professions, or also by taking advantage of other job opportunities, and this is an unavoidable consequence. In addition, to maintain life, local communities take advantage of pedestrians and unplanned spaces an economic space in the informal sector. Most recently, the characteristics of changes in socio-cultural space are seen in the reduced and lost use of the cultural space of fisherman's gratitude, the disruption of the lifting boat tradition (called *mapalus*), and the most worrying thing is that rooted local cultural activities, such as *cakalele* and the closing of the year (called *kunci taong*), even though they are still being carried out at this time, are thought to be threatened.

The theoretical model produced, of course, still needs to be tested for its significance, becoming a theory that can be generalised so that it will be useful in further research on the development of the theory of socio-spatial elements of urban architecture that can determine bound elements, free elements and other elements that influence it, including further studies. Which can measure the sustainability of the socio-spatial transformation of harmonious or equitable urban architecture, to obtain a leveraged point and formulate scenarios, policies and strategies for the development of other urban coastal areas, to reduce negative impacts on local communities.

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