



## Social Norms Framework of Suku Laut in Traditional Coastal Settlement of Mainland Batam

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### ABSTRACT

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The SDGs expect industrial development to contribute to human welfare, including traditional ethnic minorities. Since 2000, industrial development in Batam has led to urbanization and limited land, causing expansion of development to traditional coastal settlements and affecting changes in social norms of the community, which threaten the loss of social and cultural values. This problem needs to be addressed by the government efficiently and inclusively to ensure sustainable development that preserves and strengthens Batam's local identity. This study aims to formulate a social norm framework as material for government consideration in developing strategic policies in planning for the sustainability of the existence of Suku Laut in Batam. The research used a mixed method through a questionnaire among the Suku Laut community, field observation, and expert interviews. This study used Likert's Summated Rating, SPSS, Analytical Hierarchy Process, and City Resilience Framework theory. According to the findings, Suku Laut in mainland Batam has four social norms framework indicators defining its social norms framework, such as place (environment and infrastructure), organization (society), people (wellbeing), and leadership strategy (knowledge). In short, the government's consideration in sustainable planning and management is providing adequate education by empowering stakeholders and providing marine infrastructure in coastal settlement areas.

## 1. INTRODUCTION

The United Nations General Assembly established global Sustainable Development Goals (SDGs) in 2015 to achieve sustainable development by 2030. There are 17 interrelated goals to ensure human wellbeing, economic prosperity, and environmental protection. Sustainable Development Goal 11 explicitly aims to build better and more sustainable communities and cities. Building a safe, resilient, and sustainable city requires maintaining positive economic, social, and environmental links between urban, peri-urban, and rural areas, strengthening national and regional planning, and safeguarding and protecting the world's cultural and natural heritage [1]. Hence, the impact of urbanization on communities and cities is massive, including poverty, slums, crime, land use changes, environmental degradation, and social segregation [2]. Succinctly, cities need to meet the needs of their populations and develop social challenges in community identity, which may hinder the achievement of Sustainable Development Goal 11 targets [3, 4].

The significant problems faced in Indonesia regarding urban threats caused by urbanization are increasing population density and urban environmental demands causing changes in land use to provide housing needs and other urban facilities. Limited land has led to the expansion of development to suburban areas such as traditional coastal settlements, which have inherited historical, social, and cultural values that can threaten the loss of social and cultural values [5]. Thus, solid urban planning will be vital in managing this problem.

Indonesia is a maritime country with an ocean area of 5.8 million km<sup>2</sup>, consisting of a fishery area of 3.1 million km<sup>2</sup> and an Exclusive Economic Zone of 2.7 million km<sup>2</sup>. In comparison, Indonesia's land area is 1.9 million km<sup>2</sup>. Indonesia also has 17,508 islands with a coastline of 104,000 km. Geographically, Indonesia is an archipelagic country with two-thirds of the ocean area more prominent than the land. On December 13, 1957, in the Juanda Declaration, Indonesia was officially announced as an Archipelagic State as the leading country dotted with islands [6]. As a maritime country, of the 67,439 villages in Indonesia, approximately 9,261 villages are categorized as coastal villages or traditional coastal settlements [7].

Batam City is one of Indonesia's cities dotted with islands. Batam City is the largest city in the Riau Islands Province, Indonesia, with an area of 1,647.83 km<sup>2</sup>. Batam City consists of 329 inhabited islands consisting of one large island and the center of urban growth, namely Batam Island as the mainland, in addition to two other large islands, Rempang Island and Galang Island, where the Barelang Bridge connects these three islands. The rest are other small islands located in the straits of Singapore and Malacca.

The ethnicity that settled on Riau Island is namely Suku Laut. The Suku Laut is famous as a representation of the maritime indigenous. This society has a maritime spirit with a tradition that makes the sea the basis for forming culture. Historically, the Suku Laut were sea nomads who depended on fishing, living on canoes with shade covers (*sampan berkajang*). This canoe also served as a boat dwelling, where

the Suku Laut conducted their daily life and livelihood activities on the sea. Suku Laut will only go ashore for necessary occasions such as collecting clean water, repairing canoes, and funeral.

Nevertheless, the current Suku Laut no longer live in canoes by the sea but chooses to live permanently on the land that forms coastal settlements. Geographically, coastal communities live, grow, and develop in coastal areas. Most Suku Laut communities make a living as fishermen, charcoal makers, and seaweed farmers. Likewise, other coastal communities faced intricate social problems, such as general illiteracy, poor human resources, poverty, social conflict, social inequality, and social changes due to industrialization and city development [8, 9].

Most Suku Laut settled at the coastal settlement near the sub-urban area known as Kampung Tua. Kampung Tua is a traditional coastal settlement with the typology of houses built on stilts above sea level, and the area of the house faces the sea. Kampung Tua is a neighborhood in Batam where the original inhabitants of Batam lived, containing historical, local cultural, and religious values that need to be preserved [10]. On the mainland, Batam island Suku Laut lives in Kampung Tua Tiang Wangkang with 99% of the original descendants of the Suku Laut.

The uniqueness of Suku Laut as a coastal community characterized by 1) A distinctive identity or peculiarity of living in the sea on a canoe (*sampan berkajang*), 2) The population is quite limited or smallness so that they still know each other between individuals with personality, 3) Uniform nature with limited differentiation or homogeneity, 4) The life needs of the community are limited so that they can be fulfilled on their own and do not depend on outside parties, all providing self-sufficiency [11]. Furthermore, the traditional coastal settlement of Suku Laut embraces the historical value of traditional Malay wooden houses built on stilts [12, 13] and traditional culture, which is the cultural heritage of Batam City.

In 1971s, the Indonesian government designated Batam Island as the first industrial area based on Presidential Decree Number 74 of 1971. Batam is the melting pot of economic growth in the western part of Indonesia, being on the international sea trade route and dealing with developed countries such as Singapore and Malaysia. Industrial developments attracted many immigrants to work and settle in Batam, called urbanization, so in 2000, there was an explosion in the population of Batam City with an increase of 3.36%. In line with the rapid population growth, there has been an increase in development in industrial, commercial, and residential settlements so that by 2020 the number of built-up areas in the center of Batam City has reached 97%. On the other hand, there is an expansion of ad-hoc development approaching sub-urban areas or traditional coastal settlements.

This phenomenon impacts change in social norms that threaten to lose the character and existence of Suku Laut's traditional coastal settlement. However, Batam still needs regulations related to the urban planning and preservation of traditional coastal settlements, including protecting the invaluable cultural values of Suku Laut. The Batam City Spatial Plan or RTRW for 2021 to 2041 needs a program plan for traditional coastal settlements to attain sustainability of traditional coastal settlements.

Therefore, this research examines the impact of industrial development and urbanization on the traditional coastal settlement, which focuses on social norms changes. However, these alterations of social changes cause positive or negative

effects on traditional coastal settlements' sustainability development. The results of this research formulate the social norm's framework to fill the gap between the traditional coastal settlement preservation and to support government spatial plan regulations (RTRW) in urban planning of Batam in the next twenty years.

## 2. LITERATURE REVIEW

### 2.1 Urban growth caused social change

Urban growth causes many problems, including the unplanned and uncontrolled spreading of urban development and the enormous urban sprawl of suburban areas. This problem occurs because urban growth needs to follow appropriate urban planning regulations [14]. Urban sprawl occurs due to high population growth caused by urbanization; an increase followed this increase in the need for settlements. However, due to limited land in the city center, development had to reach the sub-urban areas [5].

Urbanization in Indonesia is closely related to urban sprawl, population growth, increasing food demand, housing, urban facilities, and transportation. Some suburban areas in Bandung, Batu, and Pekanbaru, Indonesia, changed agricultural land use to non-agriculture land use function to provide the demand for settlement and other urban facilities. They impacted agricultural productivity and activities, forcing the farmers to change their occupation from agricultural to industrial or commercial activities [15-17].

Settlement concentrations are a spatial manifestation of population growth due to an increase in urbanization. Agglomerations in urban areas form urbanization, leading to an increase in space use and changes to land use [18, 19]. The urbanization process in Indonesia has developed a spatial configuration between rural and urban areas where urban functions fulfill rural characteristics, especially in the social and economic activities of people living in rural areas [20, 21].

Social change is interpreted as a change in social phenomena at various levels of human life, starting from the individual level to the level of society [22, 23]. Moreover, social change is an inseparable part of the community; these changes occur because of the community's stability to adapt to new needs and conditions that arise in line with community growth. Thus, social change only happens with symptoms and driving factors. Signs of social change can affect by external factors such as development and policy changes. In addition, it is also affected by internal factors such as an increase in community members and an increase in open-minded and educated individuals [24, 25]. The main factors causing social changes in the community are development and urbanization, which causes changes in social interaction, preferences, and behavior in the local community [26-33].

Therefore, social change patterns have led to the adaptation of a community group to its environment in the form of behavioral adaptation that refers to action. A unification process between local culture and urban culture in the lives of local people characterizes this form of adaptation. In the transformation process, mediation occurs between the local and new incoming values, which involves articulating values and norms [34-36].

In short, urban growth causes the spread of urban development and expansion, which is vast in suburban areas. Since urban communities take up a large portion of suburban

land, they generate social changes in suburban communities, especially in interactions and behavior. It is possible for urban and rural communities to interact and receive new influences that lead to new social norms and values [37].

## 2.2 Social interaction and behavior

The life association, whose container is the community, is centered on social interaction. Social interaction is a process in which reciprocal relationships arise between individuals and groups. From this process, structurally will arise social patterns, culture, social institutions, social stratification, power and authority, value systems, thought patterns, attitudes, and behavior patterns, which form a system of rules or norms [22, 26].

Social interactions are spontaneous and are more than just pleasurable social behavior; they can shape individual lives [38, 39]. Social interaction also creates a sense of interdependence and allows the exchange of memories, resources, and traits, which expands and combines people's identities and creates cohesion [40]. In a nutshell, social interaction has a significant role in improving the quality of life [41]. One of the most significant challenges is that a person's behavior is always, at least in part, a function of the behavior of his or her social interaction partner. Social interaction explains how people react or respond to various types of other people's behavior [42, 43].

Human is the center of the environment and, at the same time, part of the environment. The human desire to interact with the environment and control the environment for the benefit of their life is the main factor that causes the formation of human behavior toward the environment. Nevertheless, a model for understanding human behavior is a social norm [44-46]. Changes in social norms, the intervention must create new beliefs within the group in each individual to allow new behaviors to emerge. Thus, a belief component is needed to change attitudes and behavior so that social norms change.

Social behavior is a natural behavior and arises spontaneously in interaction, observable, and determinant of the environment. Social behavior is a reciprocal relationship between two or more individuals due to a stimulus or influence from the environment to behave under environmental expectations, which involves cognitive factors to determine whether the individual accepts or rejects the influence of his environment [47, 48].

Thus, social behavior exists and develops through social interaction processes. Social behavior manifests in the responses between people expressed by interpersonal reciprocity. Interaction with urban communities will create new behaviors from sub-urban communities and change social norms that apply to follow new behaviors to understand these new behaviors.

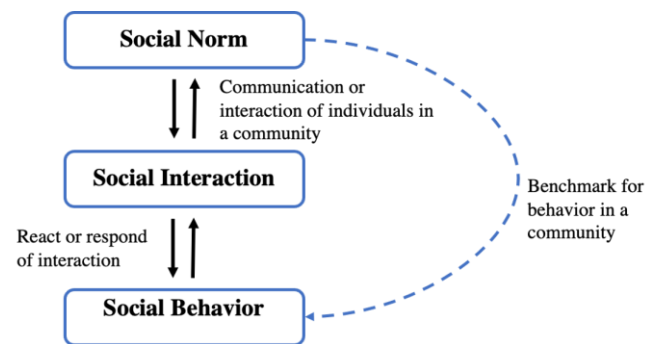
## 2.3 Social norms

Social norms exist in many social and behavioral sciences disciplines that conceptualize them as individuals' or people's perceptions about what others in their social milieu do or want them to do and social groups' or individuals' relationships with other group members [9]. Social norms help solve complex social and environmental problems because changes in social norms can refer to changes in behavior [49, 50].

Social norms are social beliefs, which are individual beliefs about the behavior and evaluations of others in social settings,

the actual reality of expected or approved behavior in a social group. Thus, there are two dimensions of social norms, namely: descriptive (general or typical behavior) and injunctive (behavior that is approved or accepted in social groups) [51-53]. In philosophy, social norms are considered a form of grammar or communication of social interaction by defining what is morally acceptable in a society or group [54]. Sociology understands norms as rules of behavior at the formal and informal levels. In law, it stands as a fact that rational individuals will conform to social norms.

Social norms are helpful as a social framework in which individual perceptions emerge around the frame of reference given by others; this is because humans believe that the perceptions and judgments of others are reliable sources of information. Thus, studying social norms is learning about human interactions [55]. Social Norms are communication tools in a community that functions as regulators of community life [22, 26]. Communication is part of individual interactions in social communities called social interactions, and the reaction or response of interaction is social behavior [28, 56, 57]. Figure 1 below illustrates the connection between social norms, social interaction, and social behavior.



**Figure 1.** The connectedness of social norms, social interaction, and social behavior

In sum, if the social norms in an area change or disappear, it will significantly change the social interaction and behavior of the community. Thus, changes in social norms will lead to changes in social interaction and social behavior. Alternatively, if there is a change in behavior and social interaction in the community, it is possible to change social norms. In the case of social norm changes, the social and cultural values of the local community will be impacted and even lost. Their loss will represent a loss of identity for the local community.

## 2.4 Social norm for an urban resilience framework

Rockefeller Foundation and ARUP 2014 developed essential urban systems highlighting the city's complexities of different drivers and city needs. A year later, the City Resilience Framework (CRF) divided the resilience framework into four dimensions: health and wellbeing-relates of people, economy, and society-relates to an organization of cities, leadership, and strategy underpinned by knowledge, infrastructure, and ecosystems/environment-relates to place. CRF has 12 goals as the basis for assessment and measurement, such as minimum human vulnerability, diverse livelihood, and employment, adequate safeguards to human health and life, collective identity and community support, comprehensive security and the rule of law, sustainable economy, reduced exposure and fragility, adequate provision of critical services,

reliable mobility and communication, effective leadership and management, empowered stakeholders, integrated development planning [58].

The urban resilience index assesses the qualities of resilience in city systems. These qualities are essential characteristics that prevent breakdown or failure: inclusiveness-priorities broad consultation to create a sense of sharing; integration-bring together a range of different systems and institutions; reflectiveness-use past experiences to inform future decisions; resourcefulness- recognizing alternative ways to use resources; robustness- well-conceived, constructed, and managed systems, redundancy- spare capacity purposefully created to accommodate disruption, and flexibility- willingness, ability to adopt alternative strategies in response to changing circumstances [59].

Changes in social norms that impact the vulnerability of local communities' social values, culture, and identity require an appropriate strategy of resilience. This social norm resilience strategy can be a reference for the government in designing policies to maintain the Suku Laut community's social, cultural, and local identity values. The social norm resilience strategy adopts the four dimensions of the Urban Resilience Framework issued by the Rockefeller Foundation and ARUP: health and wellbeing, economy and society, leadership and strategy, infrastructure, and ecosystems or environment. Urban resilience aims to address a social norm framework for the people of the Suku Laut who live in traditional coastal settlements in sub-urban areas to address the problem of vulnerability to social and cultural values of the Suku Laut community in maintaining local identity.

### 3. METHODOLOGY

This research is a mixed method combining qualitative and quantitative methods. The qualitative descriptive method was chosen to describe and analyze phenomena at research sites in natural conditions, understand human or social phenomena, and obtain comprehensive data. The data can be described clearly so that this study's results follow the existing field conditions. This research uses the descriptive method since it pertains to current conditions. A quantitative method for measuring the existence of a variable, data obtained through variable measurement can be in the form of a nominal, ordinal, interval, or ratio data. The research data collection is through observation, interview, and questionnaire for primary data, and documentation for secondary data.

The study will involve random sampling of the community's population based on the characteristics of citizens who have lived there for at least a decade. This research was conducted on 174 people living in a traditional coastal settlement on mainland Batam, who have Suku Laut's original blood, and are productive aged 21-60. Determination of the number of sample populations using the Slovin formula:  $n = \frac{N}{N(d)2 + 1}$  ( $n$ =sample;  $N$ =population;  $d$ =95% precision value or  $\text{sig.}=0.05$ ).

The questionnaires used Likert's Summated Rating (LSR) and SPSS software. The quantitative technique analysis includes editing, coding, data transformation, and tabulation. Analyzing qualitative data is using ATLAS.ti software.

All data collected will be verified using the Analytical Hierarchy Process (AHP) analysis to obtain verified data. Furthermore, the researcher will describe the overall analysis as the final result of this study. In contrast, AHP is used in this

study to analyze the opinions of nine (9) professionals or experts on the social changes (changes in social norms) that occur at traditional coastal settlements. The expected results of this AHP as the basis for designing the social norm framework combined with the resilience framework theory by the Rockefeller Foundation and ARUP. The flowchart of this research methodology can be seen in Figure 2 below.

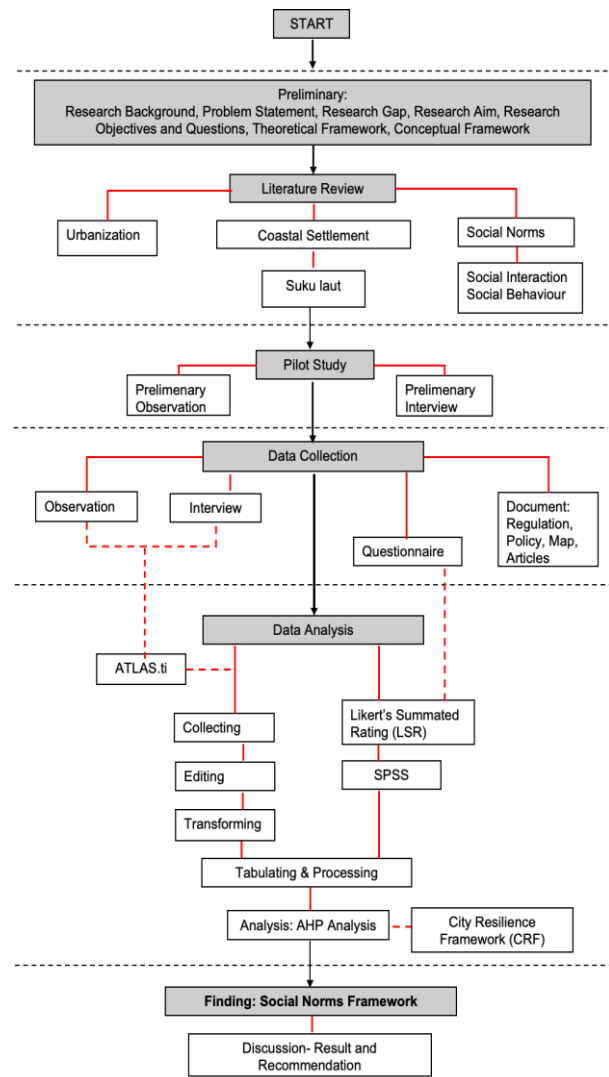


Figure 2. Research methodology flow chart

### 4. FINDING AND DISCUSSION

#### 4.1 Research instrument test

##### 4.1.1 Validity test

A validity test involves distributing questionnaires to measure the validity or testimony of the instrument. This study conducted a validity test to determine whether the questions used in this study measured the research variables (X and Y); the meaning of the variables X and Y is the variable X for social interaction and the variable Y for social behavior. The validity test will use the Pearson Product Moment correlation with the SPSS application software version 26.00. The test takes place by correlating the score of respondents' answers for each question item. Table 1 below shows the results of the validity test of variables X and Y with SPSS version 26.00.

**Table 1.** Validity test

Item	Questions	Rcount	Description
<b>Variable X (social interaction)</b>			
X1	I often interact with neighbors in the alley/ complex	0.760	Valid
X2	I often interact with neighbors from different alleys/ complexes	0.633	Valid
X3	I can accept opinions and criticism from neighbors	0.752	Valid
X4	I respect any choices or decisions that are different from mine	0.719	Valid
X5	I get along with everyone in the neighborhood where I live regardless of social status	0.750	Valid
X6	I always say hello when I meet a neighbor I know	0.733	Valid
X7	I do not hesitate to say hello or give a smile to my neighbors even though I do not know them in my neighborhood	0.699	Valid
X8	I respect neighbors of different ethnicities and beliefs	0.727	Valid
X9	I greet when I visit a neighbor's house	0.744	Valid
X10	I am close with my neighbors if I have something in common, for example, the same hobbies, tastes, age	0.662	Valid
X11	I help neighbors who are having trouble to the end	0.718	Valid
X12	I only communicate with neighbors near the house	0.355	Valid
X13	I am willing to give input to my neighbor for his good	0.697	Valid
X14	I am willing to lend my things to neighbors	0.793	Valid
X15	I am willing to give/ share my belongings with neighbors in need	0.775	Valid
X16	I visited a neighbor's house on a feast day	0.761	Valid
X17	I can tell my difficulties/ problems to my neighbors	0.495	Valid
X18	I always went to the houses of neighbors who got married, gave birth, had a circumcision, got sick, or passed away	0.749	Valid
X19	I invite neighbors to visit my house	0.750	Valid
X20	I take part in religious activities in the neighborhood where I live	0.724	Valid
<b>Variable Y (social behavior)</b>			
Y1	I understand that everyone has different thoughts	0.450	Valid
Y2	I accept other people's strengths and weaknesses	0.482	Valid
Y3	I said hello when I entered the house	0.545	Valid
Y4	I said goodbye when I was about to leave the house	0.523	Valid
Y5	I am a sociable person	0.532	Valid
Y6	I am being polite to elders	0.551	Valid
Y7	I solved the problem without a fight	0.580	Valid
Y8	I ask to shake hands when I meet neighbors on the street or at events	0.540	Valid
Y9	I lowered my body as I walked past in front of the elders	0.591	Valid
Y10	I speak softly to everyone	0.609	Valid
Y11	I was trusted to keep secrets by my neighbors	0.453	Valid
Y12	I obey the elders	0.565	Valid
Y13	I am not ashamed to admit mistakes and apologize to my neighbors	0.594	Valid
Y14	I give a smile when a neighbor greets me	0.319	Valid
Y15	Spitting and throwing garbage everywhere is common	0.478	Valid
Y16	I said thank you after receiving the help	0.596	Valid
Y17	Do not interrupt other people's conversations	0.309	Valid
Y18	Talking dirty and rude with peers	0.304	Valid
Y19	Return borrowed items	0.478	Valid
Y20	Obey the rules that exist in the neighborhood	0.472	Valid

The calculated R-value shows the correlation calculation results for the validity test. Items with a calculated R-value above 0.176 are considered valid items. As a result of the above calculations, the 20 question items for each variable X and Y are valid and can appear in the subsequent calculation reliability test.

#### 4.1.2 Reliability test

The reliability test aims to determine whether the questionnaire used in a study provides a constant measure and whether a measurement's results can be trusted. The reliability test of the research instrument takes place using Cronbach's Alpha method, which is greater than 5%; if Cronbach's Alpha value is greater than the r-table value and the Cronbach's Alpha value is positive, then the instrument is declared reliable. The criteria for a research instrument are said to be reliable using this technique if the reliability coefficient  $r > 0.7$ . Table 2 shows the results of the reliability test.

Based on the calculation above results, the Cronbach's Alpha value for variable X is 0.939, and the Cronbach's Alpha

value for variable Y is 0.804, meaning that the reliability coefficient  $r > 0.7$ , it can be concluded that this research is reliable.

**Table 2.** Reliability test

Category	Cronbach's Alpha	N of Items
Variable X	0.939	20
Variable Y	0.804	20

#### 4.2 Social interaction changes analysis

In order to find changes in social interaction, observations took place on the Suku Laut community at the study site, Tiang Wangkang traditional coastal settlement, Batam mainland. Observations were carried out for a week from Sunday to Saturday by observing the interactions and behavior of the Suku Laut community in the morning, afternoon, evening, and night to get a complete picture of changes in social interaction so that changes in social norms could determine.

**Table 3.** Observational data on changes in social interaction

Time	Social interaction	Criteria
<b>Morning</b>	The busiest activity is at the pier; elementary school children gather waiting for the pompong (boat) to go to school on Akar island Children walking together towards the pier for school When elementary school children went down the stairs to the boat, the older child helped the other children onto the boat by holding the children's hands. Some hold the boat so that the ladder does not sway to make a vast distance so that it is easier for small children to board the boat	Togetherness and helping each other
<b>Mid-day</b>	Little children walk in the field and play by the beach During Eid al-Adha, Muslim residents, assisted by several non-Muslims, cut the sacrificial animals (goats) in the mosque's yard, under trees, and cooked tents and mats for several people to cut the meat into small pieces to be distributed later to the citizens Residents on the street chat and greet each other. Mothers visit each other's houses; small children play in the field, both boys and girls, and some have lunch on the terrace of their house	Mutual respect, solidarity, familiarity
<b>After-noon</b>	Residents like to gather to chat on terraces, roads, fields, under trees and in front of houses Children play ball, badminton, run and play in the sand in the field and yard Little children playing in the yard	Freedom
<b>Night</b>	Youth gathered in one of the houses to chat together There are religious gathering activities	Love meeting

Table 3 above demonstrates that Suku Laut, who used to live far from the outside world and only communicated with their family groups, now like togetherness and helping each other and values mutual respect and solidarity among their settlement neighbors. Suku Laut communities have social interactions that turn out to be more open to others; they no longer see happiness only in their family groups. However, real happiness is togetherness and solidarity with others.

More social interaction is found in children than adults due to the activities of children who meet more with their peers to go to school and play. Interestingly, even though there has been road access, the Suku Laut community still chooses for their children to go to school on another island, namely Akar Island, by crossing by boat instead of going to school in the

city, which takes 15 minutes by vehicle. The Suku Laut still believes that the safest means of transportation is a boat because it is in the sea. The government needs to consider this when planning the infrastructure and transport development of the coastal area of Suku Laut in order to emphasize sea transportation. They should conduct a more comprehensive education on land transportation, focusing on the mindset and psychology of Suku Lauts in terms of safety on land.

Research related to social interaction also took place using questionnaires. The results of 20 questions given to 174 respondents found some changes in the social interaction of the Suku Laut in Tiang Wangkang traditional coastal settlement, Batam mainland, shown in Table 4 below.

**Table 4.** Social interaction change questionnaire data

Parameters	Past	Changes	Criteria
Life	Closed social life and protective	The community is open and widely socialized	Trust others; respect others; love meeting
Belief	No religious activities, carried out only with the nuclear family or individuals	There are religious activities that follow by the whole community	Religious interaction
Family	Nuclear family (Batih family)	Group member of family interact with other groups	Trust others; sense of empathy
House	Nomadic live in 'sampan berkajang' (canoe)	Live in a settlement	Modern life; educated; togetherness
Knowledge	Buying and selling interactions by barter, do not recognize currency	Educated, know currency	Educated

From Table 4 above, it is evident that, based on the questionnaire results, Suku Laut experiences changes in social interaction with the results of the classification into 5 (five) parameters, including life, belief, family, livelihoods, house, and knowledge. The changes that occur are in a positive direction. However, the Suku Laut are slowly leaving their character and identity by no longer preserving the *sampan berkajang* (canoe), their cultural value, and their historical identity as a Suku Laut. The Suku Laut live in wooden houses in settlements and fish with modern motorized boats and other livelihoods so that no younger generation has the expertise to

make *sampan berkajang*, a cultural and historical heritage of the Suku Laut.

#### 4.3 Social behavior changes analysis

Research related to changes in the social behavior of the Suku Laut is also carried out through observation and distribution of questionnaires, as was done in research on changes in social interaction. The following is a change in behavior resulting from observational data and questionnaires.

**Table 5.** Observational data on changes in social behavior

Social behavior	Criteria
Sargassum dries in the field, on the street in front of the house, and clothes dry on the terrace Greet each other when they meet Likes to play music loudly Kids love to play with dogs and chickens in the field	Trust each other, respect each other
Residents at night are used to opening their house doors (do not close the door if it is not time to sleep) Canoes park beside or behind the house (near the house) and on the beach	
Children are independent and go to the pier or school alone without being accompanied by their parents Bigger boys are helping other small children get on the boat	Courage, independence, responsibility, love for others
Both young and old mothers sit and chat on the terrace of the house; some are eating Sirih/betel	
During Eid al-Adha, all residents get qurban meat regardless of Muslim or non-Muslim religion	
Big children take care of their younger siblings while playing (not indifferent and busy playing alone, responsibility to take care of younger siblings)	

Table 5 shows a change in the social behavior of the Suku Laut, who trust the settlement community without being afraid of someone stealing their belongings, and their caring and helping attitude regardless of differences. Unfortunately, the Suku Laut still needs to understand the territorial area where everyone has territorial boundaries. The Suku Laut uses existing vacant land to dry sargassum without seeing it as someone else's territorial area. In a canoe, all activities, including cooking, sleeping, playing, and many others, are carried out without regard for space. The government needs to educate the Suku Laut regarding territorial boundaries in public spaces. Education is the main focus that the government must give to the Suku Laut.

**Table 6.** Social behavior change questionnaire data

Parameters	Past	Changes	Criteria
Life	Nomadic	Sedentary	Sedentary housing; trust other; togetherness
Belief	Animistic belief	Has religion	Has religion
Family	Parents prepare 'sampan' for their married children	Parents educate children to work and be independent	Independence; responsibility; courage; sense of empathy
Married	The ideal marriage is with cousins; maintain group authenticity/distinctiveness	Open-minded, freedom, modern marriage	Modern marriage; is open-minded; accepts differences
Livelihoods	Go to sea catching fish in the sea or crabs in mangrove swamps	Diverse livelihoods	Independence; responsibility; courage
House	Less luck of house facing west (dead sun)	Linear pattern house	Modern life; educated; togetherness
Knowledge	Traditional goods	Modern life	Modern life; high standard of living

According to Table 6, Suku Laut experiences changes in social interaction, producing 7 (seven) parameters and 15

criteria as indicators of changes in social interaction. The Suku Laut experienced a change in their formerly nomadic dwellings in canoes to settle in a house with a linear settlement pattern following the path of the road and no longer understanding the direction of the house based on the rising and setting of the sun. The social life that is more open to outsiders no longer requires marrying cousins; they have also known religion and have modern lives and received an education. However, Suku Laut no longer maintains group authenticity or distinctiveness, with openness to accepting newcomers with modern culture, friendship, and marriage, causing the Suku Laut to lose its traditional culture. Changes in social interaction and behavior can change social norms. Combining and merging with an analysis of the criteria for changes in social interaction and behavior will produce 17 criteria related to social interaction and social behavior; AHP will then analyze these parameters to find social norms changes.

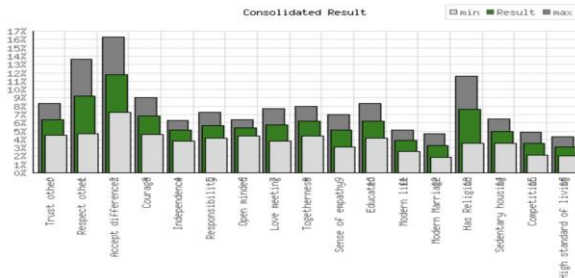
#### 4.4 Social norms changes parameters

In order to get the priority parameters of changes in social norms, an analysis of 17 criteria will take place based on changes in social interaction and social behavior using Analytical Hierarchy Process (AHP). Coding for each criterion is: 1=trust other; 2=respect other; 3=accept differences; 4=courage; 5=independence; 6=responsibility; 7=open minded; 8=sedentary housing; 9=togetherness; 10=sense of empathy; 11=educated; 12=modern life; 13=modern marriage; 14=has religion; 15=love meeting; 16=competition; 17=high standard of living. The AHP process involves nine experts in formulating priority criteria that will be the basis for the formulation of social norms change.

The 17 criteria indicators produced 136 pairwise comparisons to calculate priorities using the Analytic Hierarchy Process with an AHP scale of 1-9, namely: 1-Equal importance, 3-Moderate importance, 5-Strong importance, 7-Very vital importance, 9-Extreme importance (2,4,6,8 values in-between). The resulting weights depend on the principal eigenvector of the decision matrix, as seen in Figure 3, with principal eigenvalue ( $\lambda$ )=17.990 and consistency ratio (CR)=3.8% (0.038). The consistency ratio value is  $-0.005 \leq 0.1$ , meaning that the matrix is consistent.

1	1	1.00	1.00	1.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	2.00
2	1.00	1	2.00	2.00	2.00	2.00	1.00	1.00	3.00	2.00	2.00	2.00	2.00	2.00	1.00	2.00	2.00
3	1.00	0.50	1	3.00	3.00	3.00	3.00	3.00	3.00	3.00	1.00	3.00	3.00	1.00	3.00	3.00	3.00
4	1.00	0.50	0.33	1	1.00	1.00	2.00	1.00	2.00	1.00	2.00	3.00	1.00	1.00	3.00	3.00	3.00
5	0.50	0.50	0.33	1.00	1	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
6	1.00	0.50	0.33	1.00	1.00	1	1.00	1.00	1.00	2.00	1.00	2.00	2.00	1.00	1.00	2.00	1.00
7	1.00	0.50	0.33	1.00	1.00	1.00	1	1.00	1.00	1.00	1.00	1.00	2.00	1.00	1.00	2.00	2.00
8	1.00	1.00	0.33	0.50	1.00	1.00	1.00	1	1.00	2.00	1.00	1.00	3.00	1.00	1.00	1.00	2.00
9	1.00	1.00	0.33	1.00	1.00	1.00	1.00	1.00	1	2.00	1.00	2.00	3.00	1.00	1.00	2.00	1.00
10	1.00	0.33	0.33	0.50	1.00	0.50	0.50	1	1.00	2.00	2.00	1.00	1.00	1.00	3.00	2.00	1.00
11	1.00	0.50	1.00	1.00	1.00	1.00	1.00	1.00	1	2.00	3.00	1.00	1.00	1.00	1.00	3.00	3.00
12	0.50	0.50	0.33	0.50	1.00	0.50	0.50	0.50	1	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
13	0.50	0.50	0.33	0.33	1.00	0.50	0.50	0.33	0.33	1.00	1	1.00	1.00	1.00	1.00	1.00	1.00
14	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1	3.00	5.00	5.00	5.00	5.00
15	1.00	1.00	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	1	1.00	2.00	1.00	2.00
16	1.00	0.50	0.33	0.33	0.50	0.50	0.50	1.00	0.50	0.33	1.00	1.00	0.20	1.00	1	1.00	1.00
17	0.50	0.50	0.33	0.33	0.50	1.00	0.50	0.50	1.00	0.50	0.33	1.00	1.00	0.20	0.50	1.00	1

(a) AHP pairwise matrix



(b) AHP consolidated

Figure 3. AHP result

These are the resulting weights for the criteria based on pairwise comparisons displaying the order of priority of the results of the expert assessment using AHP software which appears in the following Table 7 below.

Table 7. Social norms AHP result

No	Category	Priority
1	Trust others	6.4%
2	Respect others	9.2%
3	Accept differences	11.8%
4	Courage	6.8%
5	Independence	5.1%
6	Responsibility	5.7%
7	Open minded	5.4%
8	Sedentary housing	5.8%
9	Togetherness	6.2%
10	Sense of empathy	5.1%
11	Educated	6.2%
12	Modern life	3.9%
13	Modern Marriage	3.3%
14	Has Religion	7.6%
15	Love meeting	5.0%
16	Competition	3.5%
17	High standard of living	3.1%

Table 7 above shows the priority indicators of social interaction and behavioral change. The highest priority score (11.8%) was accepting differences where previously Suku Laut lived closed, isolated, lived with their nuclear family, and only gathered with their fellow. Suku Laut still consisted of the inner family or batih family and did not accept strangers or outsiders into their environment. They maintain integrity and maintain group authenticity (distinctiveness). The growth of mainland Batam as an industrial city and technological developments have brought changes in accepting differences and living more openly with outsiders. The lowest priority score is a high standard of living (3.1%), even though the Suku Laut community is amid growth and technological progress. No one places a high standard of living as the goal of life but views religion and education as far more critical than a high

standard of living. The AHP analysis takes the ten highest criteria out of 17, the ten priority parameters of changes in social norms. Table 8 below presents the ranking order of the ten parameters.

Table 8. Social norms priorities parameters

Category	Priority	Rank
Accept differences	11.8%	1
Respect other	9.2%	2
Has Religion	7.6%	3
Courage	6.8%	4
Trust other	6.4%	5
Educated	6.2%	6
Togetherness	6.2%	7
Love meeting	5.8%	8
Responsibility	5.7%	9
Open minded	5.4%	10

Table 8 above shows where the ten parameters of social norms have experienced significant changes that the government must consider in the development and the impacts. In the process, it can say that considerable changes have occurred in the positive category where indigenous tribes, namely Suku Laut, can be more advanced with the times and become prosperous human beings through openness and ownership of belief. The Suku Laut community understands the importance of education so that all their children attend school. However, the government needs to realize that this change will also impact where Suku Laut, who used to be calm and live in peace with nature, and will compete to fulfill their desires like modern humans. Marriage education still needs to be socialized in the Suku Laut community, which still has a tradition of marrying with their cousins.

Table 9. Social norms change framework criteria and indicators

Parameters	Criteria	Indicators
Accept differences	Cohesive communities	Organization-society
Respect other	Cohesive communities	Organization-society
Has Religion	Adequate education	Leadership and strategy-knowledge
Courage	Diverse livelihoods	People-wellbeing
Trust other	Cohesive communities	Organization-society
Educated	Adequate education-empowered stakeholders	Leadership and strategy-knowledge
Togetherness	Collective identity and community support	Organization-society
Sedentary housing	Safe and affordable housing	Place-environment
Responsibility	Minimal human vulnerability	People-wellbeing
Open minded	Cohesive communities	Organization-society

#### 4.5 Social norms framework

The Rockefeller Foundation and ARUP previously issued a framework for city resilience known as the City Resilience Framework (CRF), which divides the resilience framework



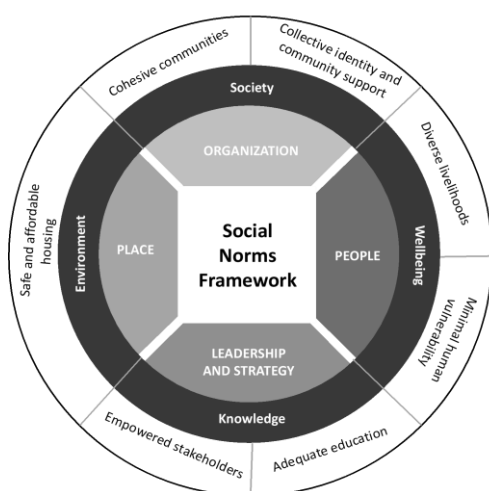
into four dimensions and 12 goals as a basis for assessment and measurement. A framework is an effective instrument for demonstrating a comprehensive plan in city management. A lack of precise planning and framework can reduce the effectiveness of regional and city resilience. Therefore, by conducting a comprehensive analysis of the ten parameters above, it is necessary to have a framework as an essential instrument to increase resilience and implement a preservation strategy for the sustainability of the social and cultural values of the Suku Laut on the Batam mainland. The framework was produced by reflecting the CRF and integrating ten parameters of the social norm changes of the Suku Laut.

As in Table 9 above, there are ten parameters of social norm changes currently prevailing in the Suku Laut community in mainland Batam. With the influence of development-industrial growth and urbanization, some changes occur in society, knowledge-education, economy-livelihoods, and housing-environment.

The dimension of the Suku Laut community, which used to be closed and had limited socialization with outsiders, has turned into an open relationship with outsiders and has broad socialization with various tribes. The unity in society is getting closer, and the relationship is more harmonious (cohesive communities), with active community involvement and solid social networks (collective identity and community support).

Changes in livelihoods occur with a large variety of livelihoods (diverse livelihoods), whereas previously, the Suku Laut only had a livelihood as traditional fishermen catching fish with spears. Several other livelihoods include being a modern fisherman using motor boats and fishing gear, seaweed farmers (sargassum), charcoal makers, and employees to meet the basic needs of the Suku Laut (minimum human vulnerability).

Suku laut used to live in *sampan berkajang* nomadic in the sea. They can now live permanently on the coast by building permanent houses with space and functions (safe and affordable housing). Even though the Suku Laut already has a religion and understands the importance of education for their children, they still need more education from the government regarding land transportation, ideal marriage, and understanding territorial (empowered stakeholders).



**Figure 4.** Social norms framework

For this reason, the author produces a social norms framework explicitly made for the Suku Laut community, as shown in Figure 4 above.

In Figure 4, four indicators from the social norm framework of Suku Laut in the mainland must account for sustainable planning and development. In the first indicator, place relates to the environment and infrastructure where the Suku Laut community needs easy access to both land and sea transportation and adequate infrastructure; besides that, the Suku Laut needs healthy and safe homes with affordable housing.

In the second indicator, the organization relates to society, focuses on community support, and creates a cohesive community so that mutual trust exists between the community and the public's trust in the government. The existence of a coherent community and active community participation will have an impact on strengthening local identity and culture, where all citizens feel a sense of belonging.

The third indicator, people-related wellbeing, is divided into diverse livelihoods and minimal human vulnerability. Diverse livelihoods focus on the diversity of livelihoods and ensuring the availability of livelihoods for the community. Meanwhile, minimal human vulnerability focuses more on basic needs. In contrast, for the Suku Laut community, the most significant focus is on housing or safe settlements for all residents, apart from the need for healthy food.

The fourth indicator is leadership and knowledge-related strategy; this indicator focuses on empowering stakeholders through affordable and quality education for all Suku Laut communities. Providing sufficient knowledge is a positive value to equip the Suku Laut to face technological advances. In addition, adequate education will facilitate communication and cooperation between communities and the government in implementing development and management plans. The government needs to focus on developing a strategy to maintain the social and cultural values of the Suku Laut, a cultural heritage, so that development can be in line with the preservation of the culture of the Suku Laut in mainland Batam.

This framework aims to assist the government in planning the development of traditional coastal settlement areas in the spatial plan regulations (RTRW) of Batam in the next twenty years so that the Suku Laut in mainland Batam with social and cultural values is maintained.

## 5. CONCLUSIONS

Along with the passage of time and the city's development, coastal communities that have access to urban areas or surround the mainland are slowly experiencing changes in social life. The Suku Laut community has a change in social interaction and behavior, which turns out to be more open to others, comprehensive relationships, togetherness, and solidarity with others. Openness impacts the entry of new values and cultures, eliminating the community's original values. Even the existence of Suku Laut communities is possible only to become history.

Each city has its characteristics, identity, and social and cultural values. Thus, social norms manifest themselves differently in different places according to the character of the place. The framework of social norms will form the basis of the tools that will enable the preservation of cultural values and make them more resilient amid development. Ultimately, this will lead to new ideas and opportunities to engage new actors in society, government, and industry on what makes it viable and resilient. To maintain the social and cultural values of the Suku Laut in the mainland of Batam, the government

needs to focus on: safe and affordable housing, adequate sea and land infrastructure, ensuring minimal human vulnerability, diversity, and availability of people's livelihoods, creating a cohesive and harmonious community through community support, increasing public trust in the government, and empowering the community; by providing affordable and quality education facilities as well as providing education to Suku Laut regarding land transportation, ideal marriage, and territorial understanding in public space (empowered stakeholders).

This research has limitations on Suku Laut in the mainland and does not discuss the hinterland; this limitation opens opportunities for further research to focus on the hinterland. Hopefully, other traditional tribes worldwide that face similar threats to their social and cultural values can adopt this framework of social norms.

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