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Spatial Arrangement of Coastal Sama-Bajau Houses Based on Adjacency Diagram

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ABSTRACT

This research studies the diversification of space distribution in selected Sama-Bajau dwellings along the north coast of Sabah: Kudat and Pitas; and east coast of Sabah: Mabul Island. This study investigates the frequency of spatial arrangements in Sama-Bajau coastal houses as a preliminary step in understanding their ideal home based on the existing socio-culture and economic practice. Adjacency Distribution Diagram by Mushtaha et al (2011) is used for simpler and compact visual diagram that explains the space distribution in each house attended. This paper is exploratory and applies a qualitative method. This study suggests that the spatial distribution amongst coastal Sama-Bajau consists of Dynamic interconnectivity (Type A), linear configuration (Type B), Anarchy configuration (Type C and D) and Modernist influence (Type E). The frequency of given types is found to weighs more on Type B, which is a linear configuration from the entrance towards guest area and ending up to the living area.

1. Introduction

Sama-Bajau is one the largest ethnics in Sabah making up approximately 477 000 people in Sabah (Department of Statistics, 2013). However, this number is not exactly accurate given the census was done on citizen whom legally considered national by the government of Malaysia. A perpetual problem seemingly yet to find a decisive solution is the growing number of illegal immigrants particularly in the east coast area of Sabah. Despite the fact that this hidden numbers have becoming much of a concern, it doesn't change the reality that these people have slowly adapting life in their new ground. Many of them consist of nomadic[1] Bajau people who rely predominately on sea as livelihood, have become accustomed to the land which provide them with much commodity in these modern days. While immigrating only started to intensify during the late 1960s due to the armed conflict in Southern Philippine. The vanguards for the influx of Bajau people have occurred for hundreds if not thousands of years. This major influx in various level and period have created the Jomo Sama, the term synonymous with inland Bajau or specifically pointing towards the west coast Bajau. The contrapuntal of Jomo Sama would be the A'a Sama or the east coast Bajau[2] whose lives revolve around the sea- scouring through the vast open water for marine resources as part of their daily living.

1.1 Socio-economics

Internally, the A'a Sama proclaims themselves as A'a Dilaut, which means Sama on the sea, or A'a Dea, in reference to the A'a Sama living permanently ashore- strand of villages along the coast or islands particularly in the Semporna region (Sather, 1997; 2001). They were once nomadic hopping from one area to another in order to find fertile fishing grounds (Chou, 1997; Lowe, 2003; Nolde, 2009). However, as time progress and the influence of modernization imposed, they have been slowly sedentary and slowly settled on land. The term Bajau is originally given by outsiders to this people though the Bajau themselves prefer to be called Sama- Jomo Sama, as in west coast Bajau and A'a Sama, as in the east coast, both of which considered as part of Sama people (Sendera & Nornis, 2008). The west coast Bajau are able to utilised the land for crop plantations (Kling, 1995) and even involve in commerce (St John, 1974) though some portion of them are still rely on fisheries as their main source of income. These sea-reliance west coast Bajau are mainly detached from agricultural activities due to their skill being limited to what they inherit from their parents. The landed productivity has been subsistence and boat still their main transportation while the houses are built along the coasts to fit their

[1]Bajau Laut, which is part of the Sama-Bajau people in Sabah is considered one the sea nomads in Southeast Asia. This large group of sea nomads consists of three major ethnolinguistic groups influenced by location, speech pattern, history and culture: Mokens in Mergui archipelago, Orang Suku Laut of Riau-Lingga archipelago and Bajau Laut in Sulu archipelago. (Lapian & Kazufumi,1996; Chou, 2006).

[2]There have been confusion with the usage of Bajau terms advocating location within Sabah for example east coast and west coast. East coast Bajau are synonymous with the term Bajau Laut or Sama Dilaut (Sather, 1997) due to the majority of Bajau population there are still tied to the sea living while those in west coast have a total reliance towards the land based livelihoods. However, these terms proved to be inaccurate due to the many west coast Bajau still heavily dependence on sea for their livelihoods thus the omnipresence of coastal dwellings along the west coast in Sabah.

lifestyle. The coastal dwellings as ubiquitous as it seems, are not only associated itself with the Bajaus, but also other ethnics that relies heavily on sea products, thus creating the fishing villages. In Sabah alone, ethnics like Iranun and Suluk both settled themselves on the coastal areas and many of which are located directly above the water by stilt support. In Pitas[3], findings have suggested that ethnic Sungei, who mostly found on the riverside, have settled along the north coast of Pitas. These coastal Bajau could be the subject that fills the interstice between the fully sedentary Bajau and those nomadic Bajau who are yet to find a place to permanently anchored onto. The multitude of coastal Bajau could be the key to determine the natural progression of a nomadic sea Bajau in the past towards the urbanized Bajau in the contemporary. This vertical mobility of Sama-Bajau[4] as mentioned by Saat (2003) could be in by the inherited cultural values and the changing socio-economics of which in turn changed the worldviews and built environment of Sama-Bajau.

1.2 Built Environment

Built environment is in fact a vast subject to be touch upon and built environment alone can define the identity of Sama-Bajau as it depends heavily on the beliefs that have been practiced by the community for generations. It has been a debate as to whether the Sama-Bajau in the coastal area could have possessed a concrete cultural nexus that could have very well off being preserved or even to cause conservationist to think about conservation. Basically the individual abodes[5] are grown out of basic necessities and build for temporary station while they wait for better opportunities elsewhere. There are many aspects that can be touched in the realm of built environment. As mentioned in Jusan & Sulaiman (2005), there are concrete and abstract aspects to be explored. The concrete aspects consist of existing features, spatial organization, settings, physical expression, and etc. Abstract on the other hands related to the cultural landscape. While Sama-Bajau's built environment is short on noticeable physical artifacts, they are rich in culturally diverse use of landscapes whereby the environment is part of the mechanism that drives their life to these days. The cultural landscape is an environment where people establish the profound link between themselves and the nature- human organization of space and time Jackson (1984). It is the interaction of culture with the natural area that creates natural landscape. As Sauer (1925) mentioned:

> '*A cultural landscape is fashioned from a natural landscape by a culture group. Culture is the agent while the natural area is the medium. The cultural landscape the result*.'

The Sama-Bajau might have fond association with their cultural landscapes, but from the environment itself the Sama-Bajau have realigned their socio-economic practices and adapting to any changes imposed upon them. The changes in socio-economic among Sama-Bajau can be said as vertical mobility where they slowly reconstituting themselves by the way they anchored themselves at one place they deemed suitable. This suitability might result from the economic stability a certain household achieved. However, major sedentary process could be the result of Islamisation among the nomadic Bajau. Sendera (2007) in her studies mentioned that the Islamisation of nomadic sea Bajau[6] calls for disciples to settle down in order to perform prayers at ease. This process could have been on- going for centuries but many of the current coastal dwellings of Sama-Bajau are relatively new. Those who have settled way earlier could have moved further inlands to form what would be a modern west coast Bajau. It is without doubt that the transitions have created spaces in the coastal dwellings resembling the spaces of their previously nomadic lifestyle– the boat-house. The boat-house itself has evolved in terms of functions and physicalities. In the east coast, the Bajau traditional boats consist of two most prominent and discernible types- Boggo-Boggo and Lepa-lepa[7]. Each of which considered as *Biral* or collateral boats and main boat respectively. Sather (2001) mentioned that not all Bajau in the east coast are able to build their own boat before post-independence period, many of them procure it from the other Sama-Bajau community[8]. Most notably, the finest Lepa-lepa constructed would be from Bum Bum Island by Sama Kubang (Sather, 1997). The term 'finest' would relate back to the workmanships of the Boatwright with exquisite carvings and colorful fabrics. However, this Lepa-Lepa is not practical to the common Bajau as they prefer a more basic approach due to their rudimentary lifestyle.

Sedentary process among Sama-Bajau or '*sedentarization*' is part of the historical facts that sees many nomadic Bajau Laut came to settled permanently on land. While the sedentary process did not happen abruptly, majority of the Bajau Laut still tied to the sea life. This has caused many of the once–boat dwelling-people build the houses over the water along the coast of the water that was once roamed by their individual boats. Though over the years, government has put efforts on relocating water villages to a more effective planning, very few manage to adapt to the new surrounding only for them to return to the coastal area[9]. This is also the case for Orang Suku Laut of Indonesia documented by Lenhart (1997) witnessing the rising number of coastal dwellings is due to the ineffective inland resettlement program by the government. As mentioned by Lenhart:

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[3]The data is based on the findings in Kampong *Malubang* during the site visit in September 2013.

[4]Sama-Bajau is the term best described the Bajau people in holistic viewpoint whereby it consists the east coast Bajau and west coast Bajau. Even though the government has used these two terms to a great extent, it is still considered too generalized without pinpointing the exact pattern of behavior on a specific sub-ethnic of Bajau. The terms such Pala'u, referring to the still nomadic sea Bajau; Coastal Bajau or Sama Kubang in the east coast (Sather, 1997; Ali, 2010; Brunt, 2013); land Bajau and urbanized Bajau could be used for accuracy in describing the people.

[5]The usage of abode instead of house is used due to the interpretation that a house should be a complete set of dwelling that serves a complete purpose for a living. According to Merriam-Webster, the term house means- a building that serves as living quarters for one or a few families. Though it might fit well with Bajau dwellings, the correct term 'abodes'- the place where someone lives, fits well with the dwelling's temporary nature

[6]Nomadic sea bajau or more synonymous with the sub ethnic of east coast Bajau- Pala'u still continue roaming the waters in Darvel gulf though the numbers are dwindling over the years

[7]The origin of the current illustrious Lepa-lepa is still up for a debate and no definitive answer as to when it actually rised and becomes popular among the Bajau of the east coast. However, Sather (2001) postulated that the existence might be as recent as the beginning of twentieh centuy. Previously .

[8]East coast Bajau is a term given to generalize the many groups of Bajau collectively in the coastal area of east Sabah. This groups name after themselves based on the geographical location of the group itself for example the Bajau Laut living in Omadal Island are called as Sama Omadal or Bajau Omadal.

[9]Information gathered is based on an interview with Haji Mastan family in Mandi Darah Island, Pitas.

'Fundamental problem for the Orang Suku Laut emerged in that they were neither used to living on land (especially nomads), nor in settlements with a dense population'

It comes to no surprise that the Orang Suku Laut would reject the relocation due to the pressure of adapting new life in a new environment they are not familiar with. Besides, the monetized-oriented urban area has the Sama-Bajau concerns. Considering their livelihood only just enough to feed their household while only a diminutive amount of leftovers to save, living in the urbanized area could pave their way to a debt liability. Thus, many of them prefer to live adjacent to the coastal area where the sea is accessible to them and at the same time, free from external responsibility to their expenditure.

2. Spaces and Socio-relation

The fact that a boat is one of transportation that human create to move on the water does not change that a boat has no defined space. The Lepa -lepa itself is a floating house in the form of boat made for the nomadic Bajau. The boat-house, of which still widely used among the Sama Pala'u, is a practical adaptation to reef living and fishing (Nimmo, 1968). The space is divided into three main parts: the bow area for catching fish; the middle space where they receive guests and also happen to be the sleeping area; and the stern area for cooking. Even inside aboat, space exists and specifically defined on the functions it imposed. The boat itself might not induced the sense of architecture but the fact that they are occupants who are experiencing spaces delineating each other in a sole structure made up the sense of architectural construct as a whole. Caudill (1971) stated that shape and space are not making the architecture, but the people that experiencing and enjoying that said shape and space. Figure 1 shows the typical space organization within a boat-house of Sama Pala'u which continue to be used in isolated Islands such as Mabul Island and Omadal Island in Semporna region, though the number wanes since the start of the post-independence period (Sather, 2001).

Given the simplicity of the spaces, the coastal dwellings, of which considered the next evolution of Sama-Bajau houses has the spatial resemblance to the boat-house. Much like a single boat house for a household, it consists of three main spaces: the stern of the boat (buli') is used for cooking and food storage; midsection area for sleeping; and the bow is reserved for fishing activities and manning the sails (Saat, 2001). However, no proper documentation has been done regarding the coastal house due to its nature being comparable to a slump house without architectural quality. It is also an indicator of poverty (Chou, 1997; Clifton, 2011). According to Dacanay (1989) in Folk Architecture of Philippine in his study:

> *"The stairs, with three rungs above the water, leads a porch-like landing of irregularly-spaced boards, and to a one-room, two-door structure that is a combination sala and sleeping room without beds. The stairs are fenced like a small verandah at the top and on the landing one sees poles that serve as washlines together with dried tree trunks, stumps and firewood."*

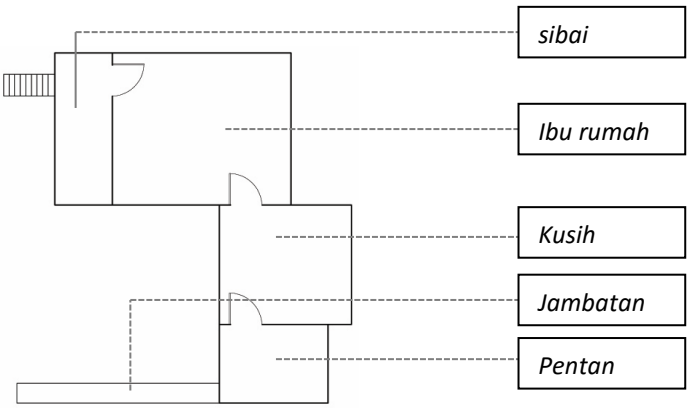

Figure 1: *A typical configuration of a complete Sama-Bajau house in coastal area*

The statement applies to the newly sedentarised nomadic Bajau of the east coast to whom the houses still can be found in Mabul Island few years ago before the authority decided to move them to the shore[10]. The modernization and the growing number of nomadic Bajau starting to sedentarize give rise to the current water villages that can be seen nowadays. As more people permanently reside along the shore, more family members starting to disseminate, creating more dwellings adjacent to the original house. This situation can be described as contained separation where the family members in a certain household separated from the nuclear family but settled somewhere vicinal to the original household. In many cases, the family members continue to live together with their parents even after marriage, a case similar to the west coast Bajau in Kota Belud (Miller, 2010) likely due to the affordance of the married members. As more individual units proliferated and more attention turned towards the land, strips of catwalk connecting to each other converged towards the land. Thus creating a water village[11] settlement of Sama-Bajau as can be seen in Sabah nowadays. Ongoing research by Sahibil[12] connote that their house is more than a mere abode, but actually a manifestation of physical and spiritual appraisals. He posited in details for a complete *Sama-Bajau* house would consist of: *ibu rumah* (main house body); *sibai* (*serambi* or guest area); *kusih* (kitchen); *pentan* (platform); and *jambatan* (catwalk).

The influence of social organizations and worldviews also affect the way the Sama-Bajau organized their settlement, and down to individual homes. The family ties are so strong it would be unlikely for them to be separated. Their social organization basically resembles those of Orang Suku Laut (OSK) in Indonesia. The fact that these two ethnic are related with each other under the term 'sea nomads' heightened the fact that they share the same principle that made up the fabric of their life. Studies by different scholars also indicated that the Sama-Bajau originated from Johore (Van Dewall, 1884 and Rutter, 1922 as in Rodney et al., 2010; Beng Liang, 1977; Nimmo, 2001b; Ali, 2010; Ibrahim et al., 2013) and given that OSK are made up of diverse named groups in Riau-Lingga archipelago (Chou, 2006), there exist a link that ties the two subjects together only to be diversified by locations.

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[10]Information is based on several interviews with the enclave occupants in Mabul Island on September 2013.

[11]Water village settlements are not exclusive only to the Bajau, but also widely discernible amongst the Suluk and Iranun. Based on the study done at the Kampong Suluk of Mabul, their settlement is more organized, using a better technology in storing boats (as can be seen for the usage of levered boat bay), more space personalization and better house construction materials.

[12]Zaimie Sahibil current studies are considered as one of the most valuable reference in this research due to his personal bloodline being one of the Sama-Dilaut (*Ubian*) himself. He is currently doing his research on the traditional houses of Sama-Dilaut.

Lenhart (1997) in his studies on OSK stated 'social organization is characterized by the principles of independence, equality and seniority. Its basis is kinship ties and the ideal of marriage is endogamy. They travel around in small groups of kinsmen under the leadership of an elder, or live in corresponding groupings in settlements ashore', which explains the close-knit dwellings as can be seen along the coasts. Though in the case of Jomo-Sama, urbanization and education have led them to be more individualistic (Miller, 2011; Nornis, 2012). Many of them, particularly youths, went to the city and live a modern life, which is devoid of their ancestral principles and customs.

To these days, influence from the modernization and intercultural contact- acculturation- had the settlement varied and diversified individual homes. Notably, the materials in dwelling construction have gone from rudimentary stage: usage of thatched *nipah* leaves for roof and walls, raw timber poles and column taken from mangroves, and bamboo strips-covered apertures; to a modern influenced dwelling: timber house with finely cut timber planks and glass-louvered windows. These changes are discernible visually but to understand the fabric of life changing pattern in their homes, space diversification among individual homes is one of the aspects that can be looked upon. Coastal dwellers of Sama-Bajau in particular are bound by their socio-economics limitations. The size of the household depends on the family expansion and changes in their lifestyle making the addition or deduction of spaces become essential as time progress.

In this paper, space diversification is the main focus and serves as the harbinger of potential future studies that can be stemmed from studying spatial variation in Coastal Bajau dwellings, which is what considered as the second step of Sama-Bajau social mobility in Sabah. Spatial studies in Sama-Bajau dwellings are close to non-existence as the subject of homes and dwelling is not their strongest aspect. Most studies focus on cultural studies, histories, and linguistics pertaining to the issues of socialization of time, space, and identity. A considerable amount of literature has also focused on processes of changes: modernization, social mobility and development (Chou, 2006), while recent studies in Semporna focused on their participation as one of the bodies for resource management in marine protected areas (Clifton, 2009; Clifton and Majors, 2011; Brunt, 2013).

3. Method

Participatory Observation, Semi structured interviews and Adjacency Diagram (AD) by Mushtaha et al (2011)

3.1 Locations

Pitas district: Kampong *Mapan-Mapan*, *Mandi darah* Island, Kampong *Mangkubau*, Kampong *Naruntung*
Kudat district: Kampong *Indarasun Dandulit*, Kampong *Landung Ayang*
Semporna district: Kampong Bajau, Mabul Island.

3.2 Participants

Participants were selected three to five households in each of the Kampong visited with the exception of *Mandi darah* Island with all dwellings covered on the island. The households were picked on a random, bearing at least three dwellings covered. Participants also consist of head of families or in the event of their absence, the closest of kin who lives under the same household.

3.3 Data Collection

Data was collected upon interviewing with the participants with their dwelling's space arrangements charted on the spot.

4. Approach

Approach used in the analysis of space distribution in this study is based on the proposed Adjacency Distribution Diagram that has been modified for inseminating true geographic direction of spaces in the analysis (Mushtaha et al., 2011). The reason behind the conception of the diagram is to show the circulation and connection of internal spaces in the space typological study in a simple diagram visually. The approach was inspired by Kurosawa (1988) but modified to cater more on indoor spaces of housing units. It is also intended to find a common prototype or configuration that can be considered for future development and at the same time respecting the needs of the occupants (Mushtaha et al., 2010). Though the usage of 'Analytical Hierarchy Process' prove to be commonly used, it also vindicates the cultural attributes that revolves around the usage of spaces in the settlement. While there could be many other tools for studying patterns of architectural spaces in the name of space syntax, this approach could very well be part of it as mentioned by Khattab (2005). Likewise, Space Syntax has been used to determine social functions whether it is generative or reproductive (Peponis and Wineman, 2002).

a. Type A: Dynamic Interconnectivity

The spatial configuration includes a very basic component of the house comprise of guest area and living area accessible from the entrance and considered as A-a. The interconnectivity between entrance, living area and guest area is marked by 'constant' showing the compulsory element that made up the core of this category. There is also indicated a sub type A-b for this category denoting additional private spaces such as kitchen and bathroom accessible from either the living area or guest area. Sub type (A-c) on the other hand, categorized by having extra spaces for domestic livelihood of certain households while sub type (A-d) categorized by denoting all the areas area accessible from any entrances of certain houses.

b. Type B: Linear Configuration

Type B configuration is categorized by having clear and linear spatial arrangements from the entrance to guest area and subsequently ended at the living area. This micro space nexus is considered as the 'constant' in type B. Sub type B-b is marked by the continuity of the 'constant' towards additional private spaces in certain houses with clear linearity while subtype B-c is the complete isolation of guest area from the private spaces (PA) but at the same time, accessible from the living area and the entrance. B-d configuration on the other hand acted in the opposite of B-c with PA accessible from the guest area. Sub type B-e is for the inclusion of the livelihood area, e.g. grocery store or small restaurant.

c. Type C: Intermediary Configuration

Spatial in type C is where the entrance of certain households is connected directly to the guest area. The entrance will lead to the living area before connecting to the private area or guest area. Sub-type

C-a denote the absence of clear guest area in certain households where the living area could also be used as a guest area while sub type C-b has the presence of guest area on the secondary motion of spaces, connected to the living area.

d. Type D: Anarchy Configuration

Type D shows an unconventional space configuration that welcomed the occupants by using the private area before finally moving towards other spaces. Sub type D-a, is for the linear configuration from the entrance to the private areas and followed by the living area. D-b, on the other hand has guest area connected directly from the private area and D-c is for guest area that connected to both entrance and living area. In the study done, none of the houses belonged to the Sub-type D-a and D-b.

e. Type E: Modernistic Influence

Type E shows a striking unconventional form and configuration amongst coastal *Sama-Bajau* houses being a double story. In the study, only one house indicated to be in this category. Showing the resemblance to the shop houses spatial configuration, ground floor is used for the livelihood area and receiving guests while the top floor comprise of a bedroom and a living room.

Table 2: Summary of House Types indicated

Since the form of the house dependable on the economics affordability of the occupants, space typology is used focusing solely on the distribution of the spaces. Adjacency Diagram Theory (A.D) as proposed by Mushtaha et al. (2011) will be used to identify the space

Table 1: *Adjacency Diagram for attended houses*

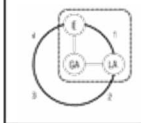
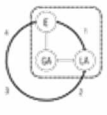
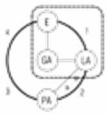
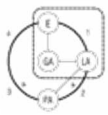
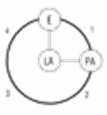
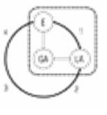
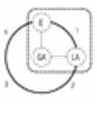
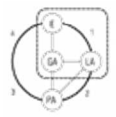
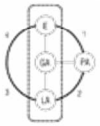
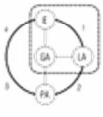
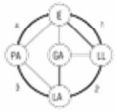
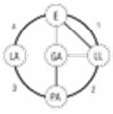
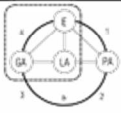
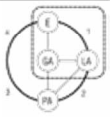
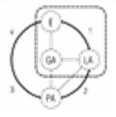
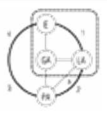
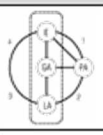
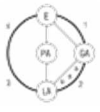
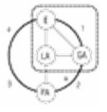
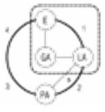
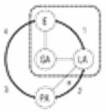
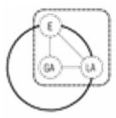
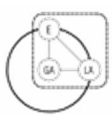
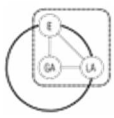
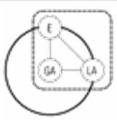
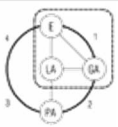
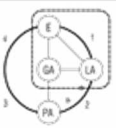
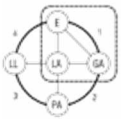
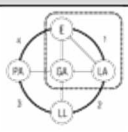
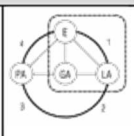
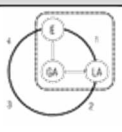
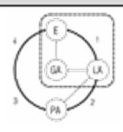
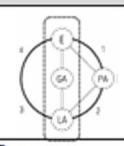
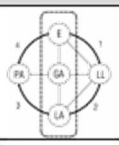
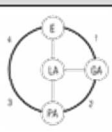
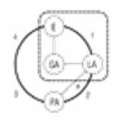
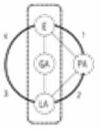
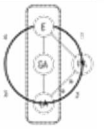
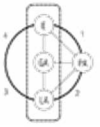
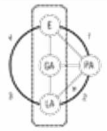
Kampong Indarasun Dandulit					Kampong Bajau Mabul	
						
Type B-a Sub -	B-a -	B-b -	B-b B-b- (2-2)	C B-b-(2-3)	B-a -	B-a -
					Kampong Mapan Darat	
						
Type B-b Sub -	B-d -	B-d -	B-e -	E -	A-d -	B-a -
				Kampong Kandinga		
						
Type B-b Sub B-b-b	B-b B-b-b-(2)	B-c B-c-a	D -	A-b A-b-(2)	B-b B-b-(2)	B-c B-c-(2-2-2)
Mandi darah Island						
						
Type A-a Sub -	A-a -	A-a -	A-a -	A-b -	A-b A-b-(2-2)	A-c -
						
Type A-c Sub --	A-d -	B-a -	B-b -	B-c -	B-e B-e-c	C-b -
Kampong Mapan-Mapan						
						
Type B-b Sub B-b-2	B-c -	B-c B-c-(2-2)	B-c B-c-c	B-c B-c-c-(2)		

Table 2: *Summary of House Types indicated*

Types	Space configuration
Type A	Dynamic interconnection of Guest area,
Type B	Linear configuration from the entrance
Type C	Living area as the initial before connecting
Type D	Private area as the initial before connect-
Type E	Double storey houses.

patterns among selected coastal houses in the study. The theory proposed a new approach by admitting a true geographic direction for an accurate architectural typology. However, the method of drawing diagram and the placement of have been modified due to the less complexity of spaces in *Sama-Bajau* houses. Dropping the factorial patterns, this study diagram took the zoning of spaces proposed by taking the space progression within houses typology pushed forwards in clockwise direction for better understandings in the diagram concomitant to the spatial arrangements in the studied houses. The entrance (marked by the letter E) will always be on top demarcate the starting point of the spatial journey and ending of the diagram. Spaces shall be divided inside the circumference of the house marked by five areas indicated: LA= Living area; PA= Private area; GA= Guests area; LL= Livelihood area; and E= Entrance. Locations of the bedroom also will be situated according to the clockwise zoning as stated in the drawn plan. The zonings are numbered from 1 to 4 to mark the locations of the bedroom. For example if the bedrooms are located in the living room located after the guest area in type B-b, that means the bedrooms will be located in zone number 2. Bedrooms located at the guest area for instance, will be considered located in zone 1 and if for some specific reason, the household has a single bedroom in the kitchen area, that bedroom shall be located in zone 3 or after the PA circles in the diagram. Number and coding of bedrooms added to the zonings will be based on the theory proposed Mushtaha et al. (2011). Depending on the location of the bedrooms, one example taken from no.3 in *Indarasun Dandulit*, bedrooms are located in the living area. Based on its type, the house is a 'B-b' denoting that the living area is in the starting of zone 2 within the diagram. First and second bedrooms will be marked according to the zoning which is 2, making it 2-2. The coding of the house would be B-b-(2-2). The additional third letter in the sub type, for example type B-c-c, means that the nexus of three spaces tied together forming the interconnectivity between areas. It is used solely on type B due to the clear linearity of space progression presented. Third letter 'a' would mean the nexus is within zoning 1, third letter 'b' on the other hand will be used within zoning 2 and so forth.

Data collected shows the tendency of coastal dwellings towards type B configuration. The figure shows that most of the coastal dwellings space configuration has a clear linearity of space hierarchy. Depending on the locations, it is hypothesized that the more linear configuration is as result of contact between acculturation and also urbanization influence from the city area. It is also an outcome of displacement and political oppression by the authority. Contrary to the linear configuration, houses in the remote areas such in *Mandi darah* island are still rely on the sea as their livelihood, thus making the spaces dynamic and creating a nexus of so called practicality based on their norms and reliance. The outcome shows that the core spaces of *Sama-Bajau* coastal houses consist of the entrance (*jambatan*), *sibai* (*serambi*), and *diom luma* (living room or sleeping room). The building form on the other hands, are not considered to be of salient value due to the incongruence and constant substitution.

In the study done in *Mandi darah* Island, a relatively remote area off the shore of Kampong Mapan-Mapan, Pitas, some of the houses are indicated to be devoid of a clear guest area or *sibai* as in the west coast Bajau language. The term 'clear' means that the *sibai* area is wide enough for guests to actually sit and relax while meeting the house owner. Some of the house have *sibai* but doesn't merit the quality of welcoming guests. It would eventually lead the guests to the living area instead and the *sibai* becomes the place for the house owner to rest his fishing equipment. Need to be noted that another function for *sibai* is a place for them to loosen up. However, one of the houses that have insignificant *sibai* was observed to be relatives to the owner that has the biggest guest area in the vicinity of the coastal settlement. He also owns a small grocery shop with recently covered (with roofing) *sibai* cum seating area for his small restaurant.

Houses are technically expanded according outside nuclear family to house any unmarried or single siblings demarcating boundaries between them. Unmarried or single siblings living together with the nuclear family composition are rare especially when it involves single male siblings due to the tendency of man to start his own family but in the case of Martin, Abdul Han's brother is different. He has been known single and has been living in the nearby house with no additional spaces other than small *kaki lima* and a relatively small living area for sleeping. He mentioned that he use the single space in his house for various activities and only go to Abdul Han's house for daily rhetorical conversation. They also mentioned that the surrounding houses belong to their kin.

Space sharing is apparently common practice among Sama Bajau. In particular, the west coast Sama-Bajau as in relation to the niche people the study suggests, are of a 'cognatic bilateral society' (Miller, 2011), which also means that they chose to co-operate with kinsmen. Resident networks, is the epitome of kinship relations among *Sama-Bajau* people. It is further estimated that the study of typological houses needed a relative interpretation with the socio-economics of the occupants to answer the identity of each housing typology in order to achieve a better understandings on its transformation. Talking about identity, it is emphatically related to the notion of culture that

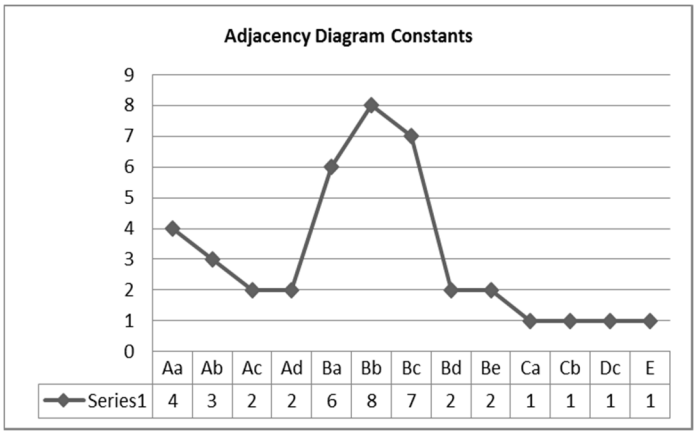


Figure 2: *Frequency of house types according to categories*

maintains and carries information on how behavior and artifacts are to be created (Rapoport, 1988).

5. Conclusion

The constant that has been achieved in the result weighing towards Type B- a linear configuration from the entrance towards guest area before ended up in the living area. As can be seen, the type B spatial arrangement can be considered as simplistic with linear space progression that proves to be popular among the coastal Bajau families. This also signifies that the core spaces of coastal Sama-Bajau would coincide with those of scholar's observation having a platform that serves as verandah- to welcome guests, and a single room used for sleeping. The *kusih* (kitchen) and *jambatan* (catwalk) as mentioned by Sahibil are variates that dependable on the household's relation with neighboring units. A cohesive settlement comprise of several units owned tied by family relation usually interconnected with series of catwalks leading to the shoreline and the existence of kitchen- of which size be contingent on the number of female members in a certain household, also depends on the unit's function to the neighboring units. Some units are constructed nearby a certain household to accommodate newly-wed family members and due to the adjacency, kitchen can be shared between two households, thus effectively reducing the cost of construction in a new dwelling.

This arrangement however, always could be associated with the level of affordance a certain household could sustain to build a house, as it all boils down on financial stability of that said household. Furthermore, it could also influenced by the limited knowledge that they have on house construction given that the same knowledge has been passed down for generations and is persistently used due to its stability and security. A knowledge that has been imbued with modernistic influence could result in the anomaly such as the rise of double story dwellings such in type D. All things considered, the congeries of diverse spatial arrangements in coastal dwellings developed out of individual needs which boils down to the intrigue of space personalization within individual homes. As discussed earlier, the space might have changed due to the growing number of families living in the house and the socio-economics of the household, but the 'boundary' aspect also need to be taken into consideration. By the term boundary, it is imperative to consider the ownership of the land that they currently nestled on and their social status in the perspective of the authority as it may impedes their very own self-personalization to be more bold and unencumbered.

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