

Theoretical basis for reasonable population distribution in Tho Chu archipelago

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Abstracts

Tho Chu archipelago is one of administrative units of Kien Giang province, Hon Nhan- one of its islands - is selected to become A1 base point of baseline for Vietnam territorial waters. If Tho Chau district is established, it will contribute to identifying sovereignty of Vietnam Southwest sea area following the United Nations Convention on the Law of the Sea, creating favourable conditions for islands' socio-economic development, developing culture, enhancing effects of administration work and life quality of population in this island, firmly protecting sea border, securing island and sea sovereignty... However, the establishment of Tho Chu district appears in the context of streamlining administrative apparatus and limitation of capital for infrastructure construction in district level. This article focuses on the analysis of some factors affecting a reasonable population distribution in order to meet the requirement of building the Tho Chu into a district-level administrative unit in Kien Giang province.

Keywords: Tho Chu island, factors, population distribution, reasonable.

INTRODUCTION

Tho Chu island (Tho Chau commune) is considered as the southwestern pole in the Gulf of Thailand, is an administrative unit in Kien Giang province, in which, Hon Nhan - one of 8 islands belonging to the archipelago - is chosen as the standard A1 of baseline which is used to identify Vietnamese territorial waters. At the 4th session, Kien Giang Provincial People's Council session IX (term 2016–2021) on July 19, 2017 voted to approve the resolution on adjusting administrative boundaries of Tho Chau commune, Phu Quoc district, establishing Tho Chau district in Kien Giang province. On July 20, 2017, the Chairman of Kien Giang Provincial People's Council signed a resolution No. 76/NQ-HDND on the unification of the proposal to adjust the boundary of Tho Chau commune in Phu Quoc district in order to establish Tho Chau district in Kien Giang province. The establishment of Tho Chau district will be a milestone to mark the maritime rights and sovereignty of Vietnam at the Southwest in accordance with the provisions of the International Convention on the Law of the Sea. In addition, it will create favorable conditions for the development of the marine economy in the southwestern sea area, developing culture, improving the efficiency of the administration and the lives of people on the island, strengthening national defense and security, ensuring the island sovereignty and firmly protecting the border sea. Tho Chau island district has an area of nearly 1,400 ha on 8 islands and some reefs and is located 101 km from the center of Phu Quoc district and 220 km from Rach Gia city centers. This island district was established in the context in which the Party and the Government determined to streamline the administrative apparatus and reduce capital to invest in infrastructure, architecture... for district administrative units,... In particular, there are 621 households, 1,909 people and up to 500 people as "immigrants" (the number of inhabitants is only equal to the size of a commune's population) on this island. The establishment of district administrative units like Tho Chau district has created many issues related to

population distribution and socio-economic development. Based on secondary sources and actual investigation materials, this paper focuses on addressing some factors affecting the reasonable population distribution for making Tho Chau become district administrative unit in Kien Giang province.

METHODOLOGY

Practical approach is an important one implemented by many members who participated in the East Sea - island research program about population distribution in the island, different stages of the marine program and projects about migration of different districts to the island in sea areas of North - Central - South regions from the 90s of the twentieth century to the present.

Approaching the modern theory of small island population distribution allows synthesizing, drawing and building experience of population distribution into new theories for the era of marine economic development of nations and small independent islands with many materials and technical conditions in order to ensure a reasonable, stable and sustainable population distribution for the coastal islands of Vietnam.

Cultural approach is used to illustrate the general intellectual level of population in relation to a reasonable population arrangement in the process of establishing and building a district with new level of awareness and culture.

Territorial approach allows considering the scope of spatial linkage of 11 out of 13 islands of this commune of district Phu Quoc in the coastal system of Vietnam, except for two offshore island districts: Hoang Sa and Truong Sa...

Systematic and interdisciplinary research methods, which are based on the basic and general principles of geography - culture - society - environment interdisciplinary science, initially give some research results about population distribution in reasonable and sustainable direction of districts of Vietnam's coastal island system.

RESEARCH RESULTS AND CONCLUSION

Progress of population development in Tho Chu islands (Tho Chau commune)

Vietnamese fishermen have lived on the Tho Chu Islands since the 18th century. Tho Chu islands was named by King Gia Long in 1820 when the island was also the logistics base of Lord Nguyen Anh. During the period of 1777–1785, many times Lord Nguyen Anh, his family and subordinates came here and used Bai Ngu as a place for sightseeing and military affairs. A part of the population stayed to live; forming a community with about 150 rooftops until the Republic of Vietnam (mainly on Tho Chu island). In March 1970, the Saigon government implemented a migration policy, established a program for emigrating and securing a village in Tho Chu island, the first round had 20 households, then there were two households, and in 1975, there were about 100 households with 500 people on the island.

On May 10, 1975, the Khmer Rouge captured Tho Chu island, brutally killing 513 people who had settled on this island for a long time. On 27 May 1975, Tho Chu was completely liberated and over 17 years later it was assigned to the Vietnamese Navy forces to take over.

On February 15, 1992, there was Decision No. 96/QDUB on the establishment of the provisional steering committee of Tho Chau new commune and the first move of 18 households to this island for building a new economic zone. At the end of 1992 and early 1993, 10 more households were allowed to go to the island and Tho Chau commune was officially established on April 24, 1993. Since then, residents living on the island are fishermen and naval officers of Region 5 and border guards. In early 2012, the island population was about 1,700 people with 513 households.

On July 19, 2017, Kien Giang Provincial People's Council approved a resolution to upgrade the Tho Chu archipelago from the commune level to the district level. At that time (2017), the island had a permanent resident population of 621 households, 1,909 people.

Islanders live by relying on services that follow fishing boats. So, they need to move twice a year based on wind seasons: In the Southwest monsoon season (from April to August), people move from Bai Ngu to Bai Dong; in the Northeast monsoon season (from September to March of the following year), people will move from Bai Dong (also called Bai Dinh, Bai Vong) to Bai Ngu. In addition, some islanders produce small handicrafts, cultivate green vegetables, raise livestock and others catch fish along the island, fish in cages. Besides, fishing boats belonging to other provinces often come here to shelter on the full moon day to buy fuel, necessities and sell caught anchovies... Sometimes there are thousands of people. Therefore, the population distribution on the island depends on many different factors.

Factors affecting the population distribution in Tho Chu archipelago

Total area, population - small characteristics of this archipelago

The Tho Chu archipelago consists of 8 islands and some underground islands. In particular, the largest island is Tho Chu of Tho Chau commune (1,242.93 ha) and people only settle on the island. Hon Tu (91.10 ha), Hon Cao Cat (41.82 ha), Hon Xanh or Hon Keo Ngua (14.12 ha); Hon Nhan or Hon Hang, Hon Chim (with A1 marking of the baseline - 3.37 ha), Hon Hon also known as Cai Ban (3.37 ha), Hon Da Hon or Hon Mo (0.74 ha) and the smallest one Hon Kho (0.48 ha) are only rocky outcrops, which are small uninhabited islands [1].

In terms of area size, only Tho Chu island and Hon Tu are classified as the average island type (from $> 1 \text{ km}^2$ to $< 100 \text{ km}^2$) while other islands in the Tho Chu archipelago are classified as small by Patrick D. and other's classification (2016) [2], or from small to very small and extremely small by the classification of Le Duc An [3]. Although the island size is not large, the linkage of the islands has partly overcome the "smallness" of the islands in the Tho Chu archipelago by economic, social and livelihood activities that occur regularly among the islands. Linking small islands has the role

of “expanding the livelihood space” for the main island inhabitants (Tho Chu).

The “smallness” of Tho Chu island is also reflected in the size of the population currently residing on the island. Kuznets (1965) [4] uses a population limit of 10 millions to divide large or small island economies. There are 621 households with 1,909 people (as of 2017) in Tho Chu island, which is very small according to Kuznets. If comparing the population density with other single island districts like Bach Long Vi (164 people/km²) or Con Co (182 people/km²) or Con Dao (162 people/km²), not mentioning Ly Son (2,200 people/km²) or Phu Quy (1,528 people/km²)...

the population density of 137 people/km² of Tho Chu is quite low.

With low population density, livelihoods are mainly fishing, fishery logistic services, and fish cage farming that make the exploitation of marine resources low.

In 2015, the whole of Tho Chau commune had 20 households raising fish in cages, reaching the output of more than 20 tons, and 40 near-shore fishing households reaching the output of 150 tons. In 2016, processing output reached 1,372 tons, income per capita reached VND 35 million/person/year, creating jobs for 300–400 labors. Compared to other island districts, this number is quite low.

Table 1. GDP of coastal districts in Vietnam

No.	District	GDP (million USD)	GDP per capita (USD/person)	Growth rate of GDP (%)
1	Phu Quoc	617.88	5,149 (2017)	38.5 (2010–2017)
	Tho Chu commune	2.96	1,548 (2016)	No data
2	Kien Hai	23.41	959 (2013)	12 (2013)
3	Con Dao	12.15	2,800 (2015)	17.65 (2010–2015)
4	Phu Quy	19.39	450 (2006)	12–13 (1996–2007)
5	Ly Son	19.07	903 (2015)	16.67 (2011–2015)
6	Con Co	1.78	No data	No data
7	Cat Hai	11.78	394 (2012)	10.30 (2010–2015)
8	Bach Long Vi	18.85	2,039 (2013)	12.00 (2003–2013)
9	Co To	20.30	2,800–3,000 (2017)	14.00 (2011–2014)
10	Van Don	101.32	2,273 (2016)	16.80 (2007–2011)

[Sources: Calculating from statistical data of coastal districts]

The small size of the island (the total area, population) affects the ability to accumulate GDP and the development of residential livelihoods; it makes Tho Chau commune highly sensitive to ecological and economic as well as social activities which are significantly influenced by physical and financial flows from outside. Meanwhile, the internal capacity for low-level socio-economic development has created restrictions on the population distribution related to labor - employment - income:

The economic activities of this island are narrowed, it is difficult to increase the scale and ability to expand the field of development;

The island’s economy depends on inputs and outputs of all resources, including human resources, which currently consist mainly of simple labor or rudimentary labor;

Internal island isolation from access conditions in Bai Dong beach (Bai Vong) and Bai Ngu beach due to the influence of two wind seasons is the cause of limiting the scale of economic development on this island;

The exploitation ability of land fund in both quantity and quality in Tho Chu big island and other islands in Tho Chu archipelago is limited when most of the land fund is currently managed by the defense force;

Limited population capacity, low ability for increasing capacity due to lack of important physical resources such as land, especially water resources, make the capacity of resources accumulation (water accumulation, energy storage) low;

High pressure on resources reduces the supply ability of natural resources for island

population distribution in the current institutional and policy context;

Narrow cultural space, but high density of cultural convergence (multi-origin and origin of island population); cultural and social institution is not strong enough to be able to adjust social relations;

High vulnerability due to high area ratio/coastline ratio; although it can expand livelihood space, it narrows living space.

Isolation of Tho Chu archipelago - difficult for population distribution and socio-economic development

Located 102 km from the center of Phu Quoc island, 220 km from Rach Gia city, 157 km from Ca Mau cape, approaching Tho Chu archipelago - district only by sea or air is very limited (There are two trips of speedboat every two days. The speedboat runs in and out in the next day with the run time about 8 hours from Phu Quoc to Tho Chu (and vice versa) in calm sea condition). The route from Rach Gia to Tho Chu and the route from Ca Mau to Tho Chu also take more time than one from Phu Quoc. If the cargo ship runs, it takes two to three days from the inland ports to the island, only one or two trips a week. This is a geographically difficult trait for residential development based on trade links because almost all life-service items depend on this accessibility. Among the coastal districts, Tho Chu island is one of the farthest ones, although the approach distance is equivalent to Bach Long Vi island. Therefore, in the context of high waves, strong winds, and storms, the connection - the ability to access this island district is almost zero - this is the cause of the isolation of the island from other ones and the mainland that affects population distribution.

In addition to the “isolation” of the archipelago from the mainland, the other small islands in Tho Chu archipelago are located within a distance of 15–20 km from the center of Tho Chu big island (equal to 1/5–1/7 of the distance from Phu Quoc to Tho Chu), which also creates a certain “isolation” between 8 islands in this archipelago, causes difficulties in approaching the islands not only in great sea waves but also in calm sea condition. However, it is also a significant distance to expand the

livelihood space, as well as the living space for island inhabitants, affecting the population distribution, socio-economic development of Tho Chau commune in the future.

Role and impacts of sea on population distribution on the islands of Tho Chu district

Tho Chu is located in the Gulf of Thailand, one of the two large bays located in the southwest of the East Sea. The Gulf of Thailand covers an area of about 320,000 km², a shallow bay with an average depth of about 45 m; the deepest point is 80 m.

Different from the environment on the mainland of Southern region in Vietnam, the Tho Chu archipelago is surrounded by the sea environment - a flexible environment, which makes different values for the sea - island space, makes the boundary islands or districts themselves become “no defined” than terrestrial administrative boundaries. These boundaries are more of a legal procedure than practical values, so the island government often sets up policies to guide activities in a maritime space rather than a strict regulatory system of management [5]. That can widen the livelihood activities of residents on Tho Chu island. In addition, islands that are inhabited and established as administrative units are often used as standard points to determine baselines; Hon Nhan in Tho Chu archipelago (9°15' North latitude and 103°27' East longitude), which is defined as the benchmark A1 of the Vietnamese sea baseline in accordance with UNCLOS, is an example.

The Gulf of Thailand is influenced by two wind seasons: The Northeast monsoon season lasts from November to April next year and the Southwest monsoon season lasts from June to September. These two monsoons strongly influence the economic and living activities of the inhabitants of Tho Chu island, making these activities move from Bai Dong beach to Bai Ngu beach and vice versa in two wind seasons.

The study of Pham Thuoc [6] showed that in the Southwest monsoon season, the direction of surface flow and the bottom of the northwestern part of the Gulf of Thailand are nearly identical. The water flows in a clockwise direction, so the possibility of material loading (including dirt) from the west to the east is very

large, affecting the waters around the Tho Chu archipelago. In the Northeast monsoon season, the monsoon and tidal currents create a closed loop that includes both the upstream and submerged waters, forming a counterclockwise water circulation, as opposed to the Southwest monsoon. These are factors affecting the livelihood activities and environment on the sea for residents of Tho Chu island.

The quality of the surveyed marine environment shows that the oil content is low, there is no sign of oil pollution. Two elements of heavy metals, Fe and Zn, are evaluated as having high content, the content of other metal elements such as Co, Cd, Cu, Hg, Pb, As are low, the Cyanide (CN) content is also very low, does not affect shrimp, fish [6].

Right on each island, the flow from the surface of small islands from the peak to the sea is usually very short, so the impact of the sea on the island is huge. For example, the highest elevation in Tho Chu island - 167 m, Hon Tu - 60 m, Hon Cao Cat - 45 m, Hon Nhan - 40 m, Hon Cao - 45 m... makes vulnerability of beaches and seaside areas around the islands of Tho Chu archipelago high.

The diversity of space and environment on island affects population distribution in Tho Chu district/island

Although located in Tho Chu archipelago, 8 islands have heterogeneous geological and geomorphological features both on the island and the seabed area around the island. In general, the islands of the Tho Chu archipelago are formed by sandstone alternating with a few siltstones, gravel stones which are composed of sedimentary rocks.

Research results of Pham Ba Trung [7] showed that the seabed terrain of Tho Chu archipelago is quite complicated. Around Tho Chu archipelago, the bottom terrain is relatively steep, the northern part is relatively flat, comfortable to the north, the southern one has many underground hills, the eastern and western ones of Tho Chu island have two deep valleys and many underground hills; besides, there is also a shallow beach in the east of Hon Kho. In the condition of seasonal flows on the islands and rich sediment water sources, the seabed topography has a strong impact on

marine ecosystems around the islands of Tho Chu archipelago.

The island - maritime space of Tho Chu island has potentials that can be exploited to develop livelihoods, economy, but are not yet fully recognized.

Firstly, it is the basis for determining overlapping areas on the continental shelf between Vietnam, Thailand and Malaysia in the agreement between the government of the Socialist Republic of Vietnam and the Kingdom of Thailand on the delimitation of maritime boundaries between these two countries in the Gulf of Thailand, which was signed on August 9, 1997 in Bangkok. Vietnamese government and Malaysian government cooperated to submit a joint report on the continental shelf area involving these two countries to the Commission on the Continental Shelf of the United Nations on May 6, 2009. Vietnamese and Cambodian governments also agreed to sign an agreement on common historic sea area.

Secondly, the Tho Chu archipelago is located near the fishing grounds using double-net, the seine one and the gill one. These are key fishing grounds of offshore fishing, attracting hundreds of boats from other coastal provinces in the South. These fishing vessels often visit Tho Chu island to access fishery logistics and rest for the moon fishing day.

Thirdly, the geographic position of the Tho Chu archipelago not only helps Vietnam expand the territory of hundreds of thousands of square kilometers to the sea but also makes an important geopolitical position and defense and forms a strong outpost on the sea.

Fourthly, when the trading position of the Tho Chu archipelago is exploited, it will be of great value to the services of general navigation in the Gulf of Thailand, which is currently a recognition point on the Bangkok - Kampong Som - Singapore maritime route.

Fifthly, Tho Chu archipelago has great tourism potential. If this potential is connected to other islands in the Gulf of Thailand such as Nam Du - Tho Chu - Ba Lua - An Thoi - Hai Tac, it will create a special tourist space on the sea of Kien Giang province, promote the development of new professions, support the

population distribution and livelihood development in Tho Chu island in the future.

Sixthly, eight islands in Tho Chu district all have certain heights (The height of Tho Chu island is 167 m, Hon Tu is 60 m, Cao Cat is 45 m,...), which is an important advantage

exploited in marine services in the Gulf of Thailand (Lighthouse on Tho Chu island is an important positioning point for maritime routes in the Gulf of Thailand, maritime services are also provided on other islands).

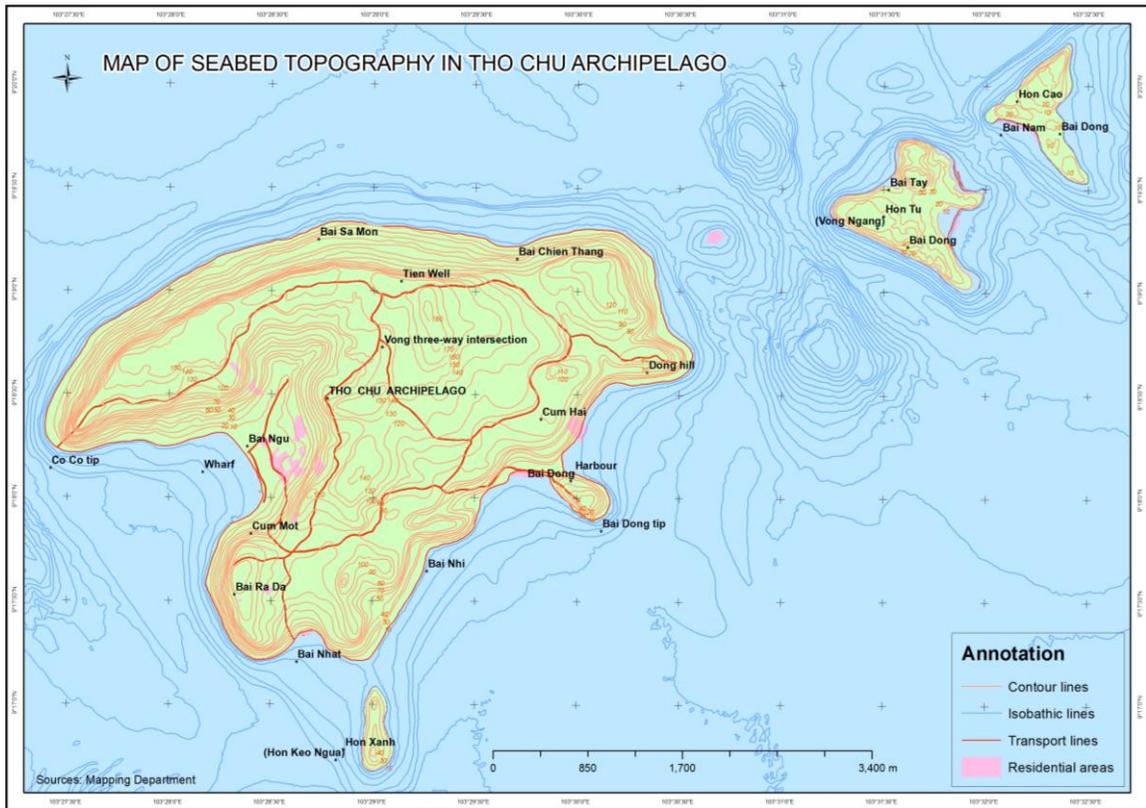


Fig. 1. Map of seabed topography in Tho Chu archipelago [8]

Based on the seabed topography of the Tho Chu archipelago, the linkage between islands will be more convenient in shallow water environments, which are a basis for connecting single reefs on underground hills and other coral reefs together and with ecosystems in two deep valleys in the east and west of Tho Chu island. This creates a diversity of ecosystems and marine environment, both play a role in providing marine ecosystem services and in protecting other islands of Tho Chu archipelago.

Under low tide conditions, the ability to link islands of Tho Chau commune will be much better, that makes livelihood development for residents of this district more

convenient. It is necessary to orient the livelihood activities and rational labor arrangement for the entire marine - island population of all 8 islands throughout the whole district but not just for individual islands (marine spatial planning of islands/district). The diversity of natural resources and environment brings many strengths and advantages to this island. For example, Hon Nhan is known for its tourism potential, it is considered not only the standard point A1 on the baseline but also the abundance of seabirds to the island. This abundance involves a clean marine environment of Tho Chu archipelago and a rich marine ecosystem that provide food sources for seabirds to survive and develop.

Impacts of double ecological sensibility by climate change and socio-economic development on population distribution on Tho Chu island

The connection of the eight islands into an archipelago is seen as specific maritime-island entities which turn into a unified island system. This system is again an integration of eight enclosed coastlines with eight small sea spaces in a larger marine space of an archipelago. In particular, each small space of each island consists of the integration of two different ecosystems: The terrestrial island ecosystem and the underwater marine one with a close relationship. Island - sea or island - island or the sea around the island relationships make multidimensional relationships, both influenced by both nature (such as the impact of climate change) and the impact of human activities (the impact of socio-economic development activities). Climate change itself and economic and social activities are also multi-directional, multi-speed, multi-scale, multi-time impacts... that create resonant implications, or these implications annihilate each other in this place or another place, at this time or another time. Since then, they cause the vulnerability of livelihood activities and survival of residents on the island through ecological sensitivity that also affects the population distribution or livelihood management.

In the sea-island environment, speed - tempo - scale - intensity,... of the structural and functional changes occur faster than on the mainland, partly due to the flexibility of the marine environment, on the other hand, due to the “small” scale of islands, therefore, the impact of ecological sensitivity often occurs faster and stronger, especially the double impact between climate change and socio-economic development. The double impact of climate change and socio-economic development through three characteristics of the sea and island environment is:

“Transboundary - borderless”: Impacts should be spread rapidly with large-scale in the marine space and environment;

“Mobility” by flexibility in ocean air environment and seawater environment;

“Ease” by fast penetration, less obstructed and low tolerance of both natural systems (mangroves, coral reefs, underground life...) and humanities (civil works, engineering...). This requires that the economy and social organization must have a specific structure to increase resilience to the impacts of natural and socio-economic activities to ensure the survival of residents of Tho Chu island.

Natural resources management and population distribution in Tho Chau commune

Natural resources that have been used directly for livelihood and survival activities on the islands in Tho Chu archipelago are very limited. There were 621 households and 1,909 people per natural area of 1,397.93 hectares; the actual administrative land fund which was managed by Tho Chau commune was only 80 hectares (the report of the Commune People’s Committee in 2017), then land fund for population’s life is very tight (only 5.72% of total natural area). Therefore, the current civil works developed in the horizontal direction that created more pressure on the land fund. But in order to develop in the vertical direction, the households cannot afford the price of materials outside the island which is very high, they do not have enough financial capacity. This is a contradiction between the use of natural resources and financial capital, so it is necessary to support real estate investments from the State and entrepreneurs.

Water resources: Most households use self-extracting water from wells (drilling or digging) spontaneously in conditions of insufficient water resources. In addition, living and production activities (fish and squid processing) need a very high demand of fresh water, water supply for thousands of offshore fishing boats of other provinces makes water resources be polluted, and the supply capacity is reduced. The increasing demand for economic development makes the pressure on water supply increase; therefore it is necessary to have solutions to use water resources reasonably.

Valuable forest resources both provide water resources and protect environment, but it has been exploited to supply fuel and seafood

processing for a long time, so it has been reduced. If there is no solution to prevent the exploitation of forest resources thoroughly and no way to supply the military's fuel (coal, gas) for civilian and economic activities on the island, perhaps the forest on Tho Chu island will have an outcome like Ly Son island. Currently, there are 4 seafood processing complexes working regularly and 3 processing operations working seasonally with a total processing capacity of nearly 1,000 tons of squid, plus more than 10 anchovy processing facilities (steaming, drying) with high scale; demand for water and fuel sources is a major problem.

Due to the fact that the islanders are only fishing around Tho Chu island, the marine resources around this island are also seriously deteriorating. The impact of increasing domestic wastewater has made the marine ecosystems around the island decline the capacity of ecosystem services. In order to minimize the exploitation of resources, the fishermen on the island have developed fish cage farming models (about 30 households raise about 100 cages of Bop fish - one kind of striped bass). Because of varieties and natural food sources, this product is very popular in domestic restaurants. This is a reasonable direction of livelihood development for island district residents.

These issues show that it is necessary to manage natural resources in order to ensure stability of population's living through stable livelihoods linked to natural resources. So what is the modern management method suitable for the development of Tho Chu island?

Following an ecological point of view, resource management should be implemented (biomimicry) with the help of natural energy and ecological processes in order to enhance coping ability when facing with economic and environmental effects from the sea-island space of Tho Chu island/district; fish cage farming is an example.

Following an economic point of view, resource management should be targeted to maintain criterion of relatively high average income on a narrow area unit on this island. This helps this island to search for comparative

advantages to produce suitable crops and livestock. It is even possible to create a monopoly of the island's particular agricultural products with high economic value, making a long-term and sustainable livelihood for residents on this island.

Following a management standpoint, resource use is recognized from comparative advantages of special services, such as sea-going tourism or marine services, maritime transport, cargo transshipments,... However, it is necessary to examine threshold balance of response and the trend of eliminating traditional trade on the system of small islands of Tho Chu archipelago. Especially, the participation of populations on small islands in the full system of tourism and service development needs be considered under standpoints of landscape management and sustainable ecosystem access management. Based on natural resources, population's cultural traditions and basis of quantifying resource values, the development threshold will be determined and the development orientation will be built.

Following a social point of view, resource management should be "maximized" with the potential to preverse resource values. For example, it is advisable to calculate moderate pavement width because the traffic flow is not high; it is necessary to calculate the area of social utility facilities within a sufficient range... in order to preserve natural resources for diversifying the exploitation of natural resources with added value rather than "exploiting thoroughly" them with a fixed value.

Impacts of cultural diversity on livelihoods and population distribution on Tho Chu island

So far, residents of Tho Chau island commune are completely migrants. In addition to 621 households with 1,909 permanent residents, there are usually about 300–500 households working freely for living on the island regularly or seasonally. In addition, fishermen of about 300–500 boats (more than 1,000 workers) from other places regularly temporarily stay on this island so that offshore fishing activities constitute a form of a multi-

cultural connection, both livelihood culture and environmental culture.

The settlers themselves, who stay on this island, are immigrants following migration program from different places to this island. Some of them come from Kien Luong and Kien Hai of Kien Giang province, others come from some provinces of Ca Mau, Binh Dinh, Quang Ngai, and some demobilized soldiers from the Northern provinces stay on the island,... That creates a cultural diversity, both living and environmental aspect. Therefore, the fastest and most favorable business environment is trading and services (restaurants, motels, inns, groceries, food,...), fishing logistics (ice, petrol,...), then raising fish in cages, catching near shore, but without any offshore fishing activities,... All these activities take place in a very narrow living space, interlacing horizontally, narrowing vertically; they occupy a lot of space, but the efficiency of living space use is not high. That is the origin of the financialization process (financial accumulation), privatization of existing resources (rental of land, sale of fresh water,...) and ownership (win ownership of resources), privatization of natural resources usage and exploitation (for personal ownership), including the space of residents on this island. Common community space and resources are therefore reduced, narrowed, causing difficulties for the mobilization of necessary resources in the case of social infrastructure development (developing traffic system, constructing social works,...). In a certain situation and time of the future, that can create a local cultural convergence of the residential groups, the family groups occupy the majority in the community, affecting the social structure, impacting on the activities that adjust social functions, these impacts can be positive, but that often leads to more negativity. In such conditions, it is necessary to establish a common cultural institution of this island/district (including formal and informal institutions), the foundation of official culture is “living and working under the law”, it is necessary to avoid familiarization, prevent culture management and law enforcement by family groups like in the town of Tho Chu before, which affects unofficial institutions.

Impacts of urbanization and population growth on population distribution on Tho Chu island

Urbanization is necessary, but the urbanization models on islands cannot be the same as on the mainland, but it is necessary to consider it with the proper integration of narrow space on floating islands and open space on the wide space towards the sea in a unified territory.



Fig. 2. Bai Ngu beach



Fig. 3. Bai Dong beach

With a rather narrow living space of Tho Chu islands, living activities and livelihood activities of the island population are concentrated in Bai Ngu beach. Bai Ngu beach has a concave arc shape with two protruding areas, Co Co beach and Nhan beach, with a length of about 750 m, a width of 15–25 m. Bai Dong beach is about 150 m in length, about 30–40 m in width. There are two beaches on Hon Tu, separated by a sedimentary rock. Hon Tu beach is about 250 m in length, about 25–

30 m in width, not yet populated and developed in terms of livelihoods. Other islands such as Cao Cat, Hon Nhan, Hon Xanh, Hon Cao, Hon Kho... are very small ones with almost no sea sand beaches. In such a narrow living space with the need of urbanization, the direction of urban space development - the most reasonable living space is developed in two dimensions: Vertical and horizontal reaching out to the sea with a cascading structure (including underground and undersea). That is the orientation for infrastructure development planning on the narrow ground of Tho Chu island in particular and other small islands on the coastal island system in general. The current approach to spreading space on the horizontal surface is completely unreasonable in this case.

In the direction of that space development, the next thing to do is determining the space capacity suitable for population growth. The process of settling is always associated with the process of population growth, both natural and mechanical increases. Therefore, it is necessary to turn the space usage and management into long-term fixed-use spaces (construction works with long-term use) and temporary use space (construction works with a short-term use) following certain planning. The standpoint of space usage is utilizing the maximum space, adapting from the multi-layered structure, creating many life forms of tropical rainforests, both creating a rich living landscape and increasing the service capacity of the urban population ecosystem itself; all these activities will make smart, modern, multi-functional living space structure and livelihoods.

Economic development and reasonable population distribution

The population will not exist on the island if livelihoods are not developed, but livelihoods are closely related to economic development. When the economy of the island develops, it will make all aspects develop more strongly, investment capital will increase, conditions and ability to expand livelihood development space and the ability to diversify economic activities will increase and be continuously improved; in the opposite direction, the population will gradually leave the island when livelihoods are

no longer available and eventually there will be uninhabited islands.

The island economy is not a constant function and the mobility is increasing, so the island economy is under the influence of many sensitive agents compared to the mainland. The vulnerability of the economy will be faster and more sensitive, the possibility of economic recovery before the “shocks” will be more difficult. Therefore, the economic development orientations for the stabilization of the population living on Tho Chu island/Tho Chau commune cannot be the same as the adjacent Phu Quoc Island or Con Dao island or Phu Quy island as well as Bach Long Vi island. It can be seen that there is not a “model” to be able to “assemble” all islands, but each island/district has its own advantages and limitations, which create a reasonable economic development orientation. It is necessary to make plans to develop a reasonable economic space that is integrated, consistent with the planning of resource use, especially planning of land resources, population and sea-island space,... based on the principle of threshold development under appropriate management and adjustment of the State. But, according to these requirements, the level of current managers in Tho Chu islands is still not good, so there is a need for investment of manager training not only from the support of the province but also from the central authorities along with the focus, combination of many scientific minds in the process of management, investment, development,...

It is necessary to have investment capital of big enterprises for economic development of this island/district because small businesses will not be able to adapt to the risks in this island environment including small islands. But big businesses will not invest without economic profit, so the balance between “economic profit” and “social profit” needs to be ensured by specific national policies and mechanism of local authorities. In this way, it is possible to develop the economy of Tho Chu islands, to ensure the stability of the population living, thus achieving the goal of firmly maintaining the national territorial sovereignty in the southwestern sea of the country.

Stable and reasonable population distribution in association with enhancing management institutions on Tho Chu islands

The characteristics of “small”, “isolated”, “lack of supply”, “sensitive to the natural - human impacts”,... strongly affect the population distribution. In order to minimize the limitations, it is necessary to take various methods and solutions, such as reasonable technical solutions or integrated solutions that harmonize with nature... However, all measures and solutions may be “harmonious”, “reasonable” or not, they depend on a mechanical adjustment, which is created by institutions.

According to the interpretation of Prof. Nguyen Thanh Tuyen [9]: In fact, institutions, mechanisms, policies and operating mechanisms are a series of methods and measures in different positions, levels and organic relationships in the governance socio-economic management, in which institutions play a leading role.

Institution consists of formal institutions that are “legal” systems, and informal institutions that are public opinions contributing to form morals, lifestyle, and human dignity... “moral philosophy The vertical and horizontal relationships originate from institutions through the system of mechanisms, policies, management mechanisms (governance) that lead to behavior and vice versa. This creates harmony, rationality and stability in population allocation on Tho Chu islands. In particular, there should be a well-operated, dynamic and effective government apparatus, a multi-component economic structure where the private sector has a key role and position in the island economy, a proper operating mechanism, separating state management and economic management to promote effective population structure, population distribution, and reasonable labor distribution in the specific situation of Tho Chu islands. Along with that, there should be a cultural society in harmony with nature, not the culture that maximizes the exploitation of natural resources and destruction, but it is the culture of enriching resources, increasing the

value of resources which are not abundant on this archipelago.

CONCLUSION AND SUGGESTIONS

It is necessary to solve many different issues with multi-dimensional and multi-field characteristics for population distribution. The rationality in population distribution is harmonizing relationships that arise in a unified natural - social system of the sea - island space.

The problems of population allocation in Tho Chu islands will have positive results when studying in many dimensions, which can focus on:

Developing a sustainable residential livelihood. The income of most residents of Tho Chau commune is now backed by the salaries of officials and those who enjoy retirement to stay permanently on the island, support from settlement assistance, production development before and after 2000. They are always aware of the preservation and development of its capital by service activities.

Sources of income from tourism and its services are very limited in the current context because of barriers of traffic conditions and restrictions on entry; therefore, it is necessary to make solutions for development links.

The leadership system has not met the actuality; lack of spatial organization thinking, the limitation of social management level has been affecting the population distribution of the former and Tho Chu commune if there is no solution to invest human resources.

The diversity of origin and livelihood experience of the population, in which mainly unskilled and inexperienced workers of far-sea livelihoods - the sea. Most residents now seek service livelihoods or livelihoods to exploit their livelihoods. There is no basis to form a livelihood chain by taking added value to create an eco-economy, increase value of resources and use a part of value-added resources that make livelihoods. This requires synchronous investment solutions, especially both material, technical and human solutions from the early stage of developing the island economy.

Economic activities in Tho Chau commune should be oriented according to a reasonable combination of diversity and

specificity, between non-resource economic activities and markets, and limited internal resources with the ability to link development, combine island-based livelihoods and marine-based livelihoods, between limited resources and huge position resources and expanding,... to create a stable platform for rationalizing and relocating population.

It is necessary to invest in intensive cultural issues for residents of Tho Chau commune, both natural and living culture towards a resident culture in harmony with nature and the island district environment. Not only maintaining and developing the culture of residents but also preserving and developing a natural culture for diverse communities living on the islands.

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