

# Area Based Upgrading of Human Settlement

The fishing villages of Penjaringan and Cilincing districts



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## Introduction

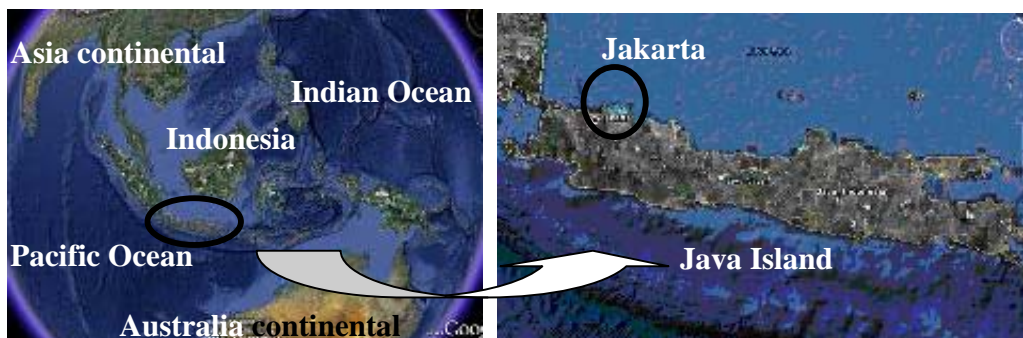
Indonesia is one of the largest fish producing country in the world. Ironically, as the main actor, most of fishermen live in poverty. They live in groups in a formal or informal settlement. The two largest fishing villages in Jakarta located in Penjaringan and Cilincing sub districts. The main problem in both areas is deterioration of environmental quality due to population growth and low awareness of the environment. The Government efforts to improve the environment by relocation to other area or housing flats development paying less attention to the fishermen needs. However, most of them who have been relocated back to their original place. The aim of this paper is to discuss and suggest how to improve the fisherman life through education, research, and dedication to community.

# 1 Shelter Situation Analysis

## 1.1 Basic General Data

### Indonesian Geography and Administration

Indonesia is an archipelago with 17,508 islands, extending along 3,977 miles, 1,904,443 m<sup>2</sup> with approximately 60% sea between the Indian and Pacific Ocean located on Southeast Asia between Asia continental and Australia continental that spread 6° NL - 11° SL and 97 ° to 141 ° EL<sup>1</sup>. Country through land border: Malaysia, Papua New Guinea, Timor Leste. Through the sea border: the Indian state, Australia, Singapore, Philippines, Vietnam, Thailand, Brunei Darussalam, Cambodia, Thailand, Burma<sup>2</sup>. Five large islands in Indonesia are: Sumatra with a 473,606 km<sup>2</sup>, Java with an area of 132,107 km<sup>2</sup>, Kalimantan (the third largest island in the world) with an area 539,460 km<sup>2</sup>, Sulawesi with 189.216 km<sup>2</sup>, and Papua with an area of 421,981 km<sup>2</sup>. Indonesia has 33 provinces including 2 Special Region (Daerah istimewa) and a Special Capital Region (Daerah Khusus Ibukota). Indonesian population is about of 240.27 million people, 60% or more than 133 million people lived in about 7% of the total land area on the island of Java<sup>3</sup>. On this island, located the main capital of Indonesia namely Jakarta. Jakarta is located on northwestern coast of Java.



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<sup>1</sup> <http://www.indonesia.go.id> downloads April 21st, 2009

<sup>2</sup> <http://id.wikipedia.org> downloads April 21st, 2009

<sup>3</sup> <https://www.cia.gov>. downloads April 21st, 2009

Figure 1: Indonesia and Java Island. Source: Google earth.com

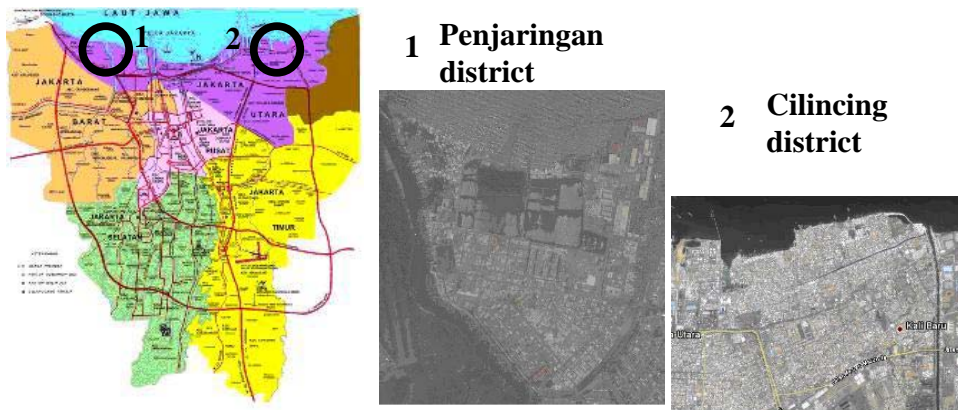


Figure 2: Jakarta City, Penjaringan district and Cilincing district. Source: Google earth.com

## Penjaringan and Cilincing General Data

Jakarta is a province that consists of 5 cities and one district. One of them called North Jakarta that covers an area which most of them are located across the north coast of Java. In North Jakarta municipality located two Jakarta ports namely Tanjung Priuk and Sunda Kelapa. A Sunda Kelapa port is a part of Penjaringan sub district and Tanjung Priuk port is a part of Cilincing sub district. Both of them are part of North Jakarta Municipality which is the largest fishing village in Jakarta located.

Penjaringan sub district and Cilincing sub district have 0 - 2 meters height from surface of the sea with comprises under surface of the sea in several places which are consists of swamps. This area is prone to flooding due to the flow from other places or the high tide of the sea and as a result of the 9 rivers and 2 canals flood.

Penjaringan sub district has a 35.49 km<sup>2</sup> area consists of 5 sub district (Indonesian: kelurahan). The land is influenced by tidal sea water with alluvial, regosol, and grumusol type that make it unstable. Physically, this area consists of land, dam, swamp, rice field, and protected mangrove forest<sup>4</sup>. Cilincing sub district has a 39.7 km<sup>2</sup> area consists of 7 sub districts. Both of them have a geographic land changes because of swamp and dam hoarding (for the settlement

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<sup>4</sup> Penjaringan in figures, 2008

population, development of public facilities, and social facilities) that sometimes caused the flooding<sup>5</sup>.

Table 1: Demography<sup>6</sup>.

No	Municipality & sub district	Area km <sup>2</sup>	Population (people)			Density (People/km <sup>2</sup> )	Household
			Male	Female	Total		
1	Jakarta Utara Municipality	139,6	612.389	585.581	1.197.970	8.584	340.362
2	Penjaringan sub district	35,49	29.493	26.690	56.183	14.208	16.311
3	Cilincing Sub district	39,7	16.342	15.918	32.260	3.881	9.219

The table above shows that Penjaringan has a higher number of population, density, and the household rather than Cilincing. This is caused by area that Cilincing broader than Penjaringan with lower population density.

#### Demography and Health

In Indonesia, Total fertility rate in 2009 was 2.31 children born/woman. Birth rate in 2008 was 19.24 births/1,000 population and 6.24 deaths/1,000 population.

Table 2 shows that the male mortality rate slightly higher than women<sup>7</sup>.

Table 2: Health<sup>8</sup>.

No	Gender	Infant mortality (deaths/1000 live births)	Life expectancy (years)
	Male	34.93	68.26
	Female	24.77	73.38
	Total	29.97	70.76

Communities maintain awareness of the environment is low. The rivers and canals in this area are used as a place to waste disposal and a public toilet that make the water flow obstructed. Procurement of health facilities consist of government maternity hospital, private maternity hospital, public health centre, public health clinic, public medical clinic, teeth medical clinic, midwife service,

<sup>5</sup> Cilincing in figures, 2008

<sup>6</sup> Jakarta Utara in figures, 2008

<sup>7</sup> [https://www.cia.gov. downloads](https://www.cia.gov.downloads) April 21st, 2009

<sup>8</sup> [https://www.cia.gov. downloads](https://www.cia.gov.downloads) April 21st, 2009

laboratories clinic, dispensaries, optic, integrated service post, and medicine store. Based on Hariyadi's paper (2006), type of diseases that generally found in this area are infectious disease cholera, measles and other diseases caused by bacteria or water that is less environmental sanitation. Since 1999, Indonesian government work to prevent of diseases measles, BCG, cholera, disease due to mosquitoes, tetanus, and polio<sup>9</sup>.

## Economy

Most of Cilincing's and Penjaringan's people working as fisherman, industrial laborer, and trader. They spent their money of 100,000 IDR - 500,000 IDR per month to fulfill their consumption of food and non foods. Fulfillment of daily needs met through the nearest market. Less than 10% had been budgeted for health care. People in Penjaringan district working as fisherman (20.82%), industrial laborer (42.05%), businessman (22.07%), and trader. Most of them are migrant fishermen from Indramayu, Cirebon, and Tegal with 24.14% as a settle and fisherman fishing boat owners at a time and 75.86% as unsettle fisherman and fishing workers at a time<sup>10</sup>.

## 1.2 Shelter Related Fact and Figures

### Access to Shelter

Penjaringan and Cilincing has growth rapidly and physically changes because of population growth and urbanization. This is increasing population density as well as the number of buildings. The number of building in both of this area reached to 105616 with the following details: 62992 permanent buildings, 26329 semi permanent buildings, and 16285 temporary buildings with an average of 4 family members in one house. There are 3152 units stack house, 13017 units real estate, and 10 apartment buildings too. According to the number of buildings and household, the housing deficit is 13081 units. Details of housing stock for each sub-sub-district can be seen in table 3.

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<sup>9</sup> Hariyadi, Demography and Social Economics 2006

<sup>10</sup> Jakarta Utara in Figures, 2008

Table 3: Housing stock<sup>11</sup>.

No	Sub district	Housing stock (unit)				Housing deficit (unit)
		Permanent	Semi permanent	temporary	Multi-storey	
1	Penjaringan	39.022	7.743	2.523	2.644	5.541
2	Cilincing	23.970	18.586	13.762	508	7.540

The percentage of ownership in Penjaringan district is divided into ownership, the purpose of land, and the use of land. Most of building ownership in fishing settlement is private property and another is rent. Stack house generally are rented.

Table 4: Land area<sup>12</sup>.

No	Sub district	Ownership (%)			Land area status	
		Ownership	Purpose of land	Use of land	registered	Not registered
1	Penjaringan	26.68	28.74	5.67	61.10	38.90
2	Cilincing	21.88	7.73	12	41.61	58.39

Some fishermen housing was built illegally at the river flood plain, estuary side, and the beach. Development is done with pilling up swamp, dam or estuary. This is in violation of technical rules, ecology and administrative. Most of fishermen housing located in the land, another by boat, and no buildings are on the sea. Generally, building form is a stilt building or multi-storey building. Building material made of concrete, steel, and some of the wood.



Figure 3: temporary.



Semi permanent

<sup>11</sup> Jakarta Utara in figures, 2008

<sup>12</sup> Jakarta Utara in figures, 2008



Figure 4: permanent

multi storey

### Access to and cost of Basic Services/Infrastructure

Based on the slum area maps in 2006, most areas (70%) of the Penjaringan and Cilincing sub-district belonging to the slum category. This category related to deterioration of basic services/infrastructure such as flood, sanitation, waste, the density of buildings, roads, clean water supply, housing construction, and environmental. Now, local government is doing some programs to improve basic services through the KIP, urban renewal, and building rehabilitation. Private companies also started to take a part to improve the quality of this area through a Corporate Social Responsibility (CSR) program which is channeling program between private enterprise and community organizations.

Cilincing district has 11 MCK, 7 household waste channel, 14,161 water network, 7 wells, and 37,153 who buy water. Social facilities in this district consist of 94 mosques, 203 little mosque, 19 churches, 1 temple, 1 and temples. Sports facilities in Cilincing district consist of 14 football field, 46 badminton fields, 42 volley fields, and 10 other field<sup>13</sup>.

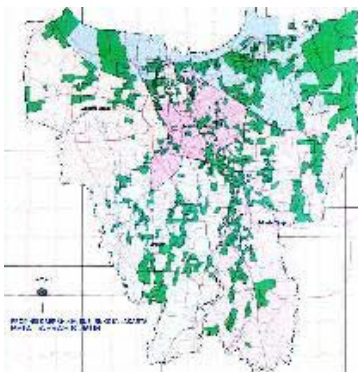


Figure 5: Jakarta's slums area maps, 2006

<sup>13</sup> Cilincing in figures, 2008

## Access to and cost of Education

In general, education budgeted only 10-30%. Table 5 shows that not all of the population can read and write. School life expectancy indicates that the average people only up to primary school. It indicates that the level of education should be improved.

Table 5: Education<sup>14</sup>.

No	Gender	Read and write ≥15 year (%)	School life expectancy (year)
1	Male	94	12
2	Female	86.8	11
3	Total	90.4	11

As a capitol city, Jakarta has been a home for many qualified education institution from preliminary school to the university. Educational facilities in this area consist of 42 playgroup, 61 elementary schools, 31 junior high schools, and 15 senior high schools. Now, Indonesian government is committed to improving public education program with a 9<sup>th</sup> year free school from elementary school to junior high school. So that people can have education at least until junior high school graduate. Ironically, there are different conditions Penjaringan and Cilincing sub-districts. Most of the fishermen who settled in this area only graduated from elementary school (Winandari, 2006). This program can't be used by them because their minimum income didn't enough to get books and uniforms.

### 1.3 Housing Policy

According to State Minister for Public Service Rules, the fishing village must have facilities that support economic activities based on the housing fishermen as follows<sup>15</sup>: fishing pier, place the fish auction, solar depot, gas station, and water, pos sea safety, boat repair workshop, Market place to sell a variety of fish, products (fresh fish, salted fish, and fish) that are processed in the factory, well-organize shopping for fish roasted in a stall, roads, transportation facilities, where parking is sufficient, space for the season the fish with a wide and close to

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<sup>14</sup> <https://www.cia.gov>. downloads April 21st, 2009



housing, the house was built as the home array maisonet with 42 sq m for each unit. Space located under the stairs for fishermen work space. Location is not exposed to sea water tide. The priority area for the fishermen has the following conditions<sup>16</sup>:

- Dirty environmental conditions.
- Contaminate the surrounding waters.
- Low accessibilities to fishing areas or isolated, for example because located in the border countries and small islands isolated.
- Poor communities.
- Prone to fire disasters.
- Vulnerable to abrasion including waves, tsunami and wind.
- An area that is in or near a fishing port development plans, and industry fishery.

#### 1.4 Actors in Shelter Delivery and their Roles

The actors involves in shelter delivery are the national government, local government, private-sector housing producers, community organization and research institution. The national government which consists of several agents provides regulations for housing systems.

- State Minister for Public Housing: Responsible for setting housing standards and policies and overseeing the implementation of housing
- Ministry of Public Works: Responsible for the planning and development of housing infrastructure
- National Land Agency: Supervise the suitability of land for housing
- National public housing companies: Develop housing for low income people
- Private sector: develops housing for upper and middle income people.

In general, communities built their house by themselves. The research institutions are doing research such as predict the housing need, the appropriate space area, housing form, facilities required, infrastructure, and technology that make it easier

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<sup>15</sup> State Minister for Public Service Rules, 2000

<sup>16</sup> Ministry of Housing of Republic of Indonesia Rules Number 15/PERMEN/M/2006

for people to achieve house. The institutions committed to apply the knowledge to help the urban people to make their lives better.

## 1.5 Shelter Design

Fishing settlement has a special character that is different from the other settlements based on the need for life and livelihood. Generally, fishermen always want to close with their livelihood as a fisherman in the sea (near their boat and workplace in the estuary side, river side, or coast). They live in groups in order to keep each other as a consequence of the household that often left home for several days or weeks. Fishing settlements developed with special facilities such as docks, fish auction, gas station, fish market, and boat service workshop which could accommodate boats fishing activities. Widiarso (2002) describes that most of the settlement stood on the top of the area tidal sea water, have a stilt form and the road environment<sup>17</sup>.

Initially, these settlements were built only for those who work as fishermen. Until now, according to the ID card, all building owners work as fishermen. Definition of the fishermen themselves associated with ship activities. All people involved in the process of fish considered to be fishermen. Thus, not only those who catch fish in the sea called the fishermen but also of all traders, boat owners, even the manager associated with the auction results of the sea.

Based on the working time at sea, fishermen in Cilincing and Penjaringan areas can be classified into 3 types:

- Fishermen who take fish in daily time.
- Fishermen who take fish for 1 week to 2 month at the sea.
- Fishermen who take scallop and fishing pond (only 2-5 hours a day).

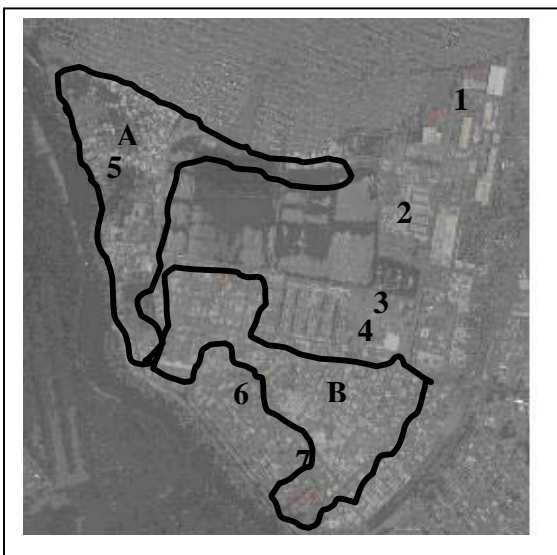


Figure 5:  
Fishermen house location based on the type of fishermen in Muara Angke  
Legend:  
A: Fishermen who take scallop and fishing pond  
B: Fishermen who take fish in daily time and for 1 week to 2 month at the sea.

Facilities map in Muara Angke fishing settlement.  
Legend:  
1. TPI, docks, ice factories, gas station.  
2. Tours fish grilled / fried, fresh fish markets, fish processing factory.  
3. Post sea security, terminal, and parking for vehicles.  
4. Traditional public markets.  
5. Processing shellfish stew and boat garage.  
6. Salted fish processing.  
7. Primary School.  
8. Fishing boat parking area (along riverside)

Cilincing and Penjaringan region has approximately 8.8% area of North Jakarta municipality and 7.4% population of North Jakarta municipality (see figures 2 and table 1). Fishing settlement on Penjaringan sub district is in the Muara Angke area. This is a fishing settlement pilot project built by local government of DKI Jakarta. Initially, this settlement was built to accommodate fishermen condemnation from Cilincing area and normalization flood channel project. Since built around the 1980s, there have been many changes in building form and environmental settlement. These changes horizontally and vertically. Horizontally, there was awakened in the additional area in the middle of the settlement that formerly used as green land and swamp and reduction area due to fire. Vertically, there was a multi-storey building function as social housing in the Westside area built by the Tzu Chi Buddhist Foundation.



*Figure 6: Social housing built by Tzu Chi Buddhist foundation*



*Figure 7: Fisherman housing built by them self on the swamp*

Initially, the residential area in the fishing settlement is located in the South. Housing is built at the border of Angke River (where they tie up the boat). There is a swamp and fishpond in the middle of the area. Some of these swamps have heaping up and used as a residential area. Multi-storey building actually is intended to accommodate the increasing number of fishermen families. However, the plan does not run properly. Some of the fishermen who lived in this building sold their living permits residence to live in their origin area (above the swamp, along the coast, and near the mangrove forest). Some of their origin area used rubbish and clamshell to heaping up the swamp. The lower part of the house was filled with rubbish and clamshell.

Fishing settlement on Cilincing sub-district has a rapid growth because of population and urbanization from Indramayu, Cirebon and Banten area. This caused the environment quality to be down. Both of Cilincing and Penjaringan area has 3% from North Jakarta municipality with 5% population (see figure 2).

Land use in Penjaringan and Cilincing are as follows: industrial area, offices and trade areas, agriculture area, container warehouse, grave area, ordered residential areas (with good facilities and sanitation), stack house area, current density settlements area (with good infrastructure and sanitation), high density settlements area that are mixed with home industry (with poor facilities and sanitation), high density settlements area (with poor facilities, sanitation, and flood-prone), fishing settlements area, cultural sites area, slums and squatter area (with poor facilities, sanitation, water supply, and flood-prone), and open space area those are flood-prone.

Table 6: Use of land and shelter quality<sup>18</sup>.

No	Variable	Penjaringan	Cilincing	
1	Use of land (%)	Housing	45.02	32.51
		Industry	16.94	25.59
		Office and warehouse	10.85	4.79
		Agriculture	0	15.45
		Garden	10.24	0
		Underused land	17.37	0
		Others	9.58	21.65
2	Shelter quality (unit)	Not feasible	3.006	2.132
		Wild hut	1760	-
		River flood plain	753	1469
		Radius of high voltage electrical circuitry	1078	12

Based on data in 1999 there were increase of permanent houses approximately 11,467 unit while semi permanent houses were reduced as much as 347 units and semi-permanent home was reduced as much as 512 units. There are 5138 units that are not feasible<sup>19</sup>. Table 6 shows none of Cilincing sub-sub district live in a wild hut; actually, there is a number of household that live in a wild hut too. Some

<sup>18</sup> Jakarta Utara in figures, 2008

<sup>19</sup> Astuti, 2006

buildings in fisherman settlements have a low environmental quality, especially stilt houses. The cellar stilt filled with rubbish and clamshell.

The buildings generally functions as a dwelling house as well as a place to work such as repairing and storing the fishing equipment and cultivating fish haul. Most of them have a terrace at the front or back of the house which is used for work and socializing with other people and use brick or wood as a wall material. Wood bridge is use to connecting between buildings and roads. There are 2836 household in 2247 buildings which live in river flood plain and 1090 numbers of household which live in radius of high voltage electrical circuitry.

The condition of inland water consists of salty inland water and polluted sea water. Because of this, people in this area difficult to use the land water for their daily life. The land which easily affected by flood was 0.1 km<sup>2</sup>. Most of them have been anticipated flooding.

## 2 Organization

Trisakti University, is the only private university in Indonesia established by the Government of the Republic of Indonesia on 29 November 1965 through a decree from the Minister of Higher Education and Science (PTIP) 013/dar No. 1965 signed by Dr. Sjarif Thajeb. It is the largest private universities in Indonesia with nine faculties and graduates school and has over 30,000 students currently enrolled with commitment to prepare students for future challenges. As a private university that is not subsidized by the government, every student pays for the education. There are available scholarships for outstanding students from Trisakti University itself, the Indonesian government and several private or state companies.

As a university, Trisakti University working in 3 levels consists of education and teaching, research, and dedication to the community. First, lecturer that working in this institution committed to give the best learning activities for students. Second, researcher that working in this institution doing research based on their specialized background. In department of architecture, the research focus on structures, the history of architecture, and city and the settlements, such as predict the housing need, the appropriate space areas, housing forms, required facilities, infrastructure, and technology that make it easier for people to achieve

house. Third, Trisakti as institution committed to applied the knowledge and research to help the urban people (especially for poor people in 5 areas in Jakarta) to make their lives better through the advising.

### 3 Shelter Problem

Generally, fishing settlements grows naturally and does not consider the water border area such as coastal, river, or estuary. Some of them were built illegally. Fishing settlement condition that closest with mangrove forest, river, coast and fishermen's habits that throw away their trash directly into water causing river or estuary silting up and water pollution. Mangrove forest, river, and estuary reduction was caused by illegally housing in waterfront area. Settlement development is done by pilling up swamp, dam or estuary with the shell skin or a mound of trash that is in violation of technical rules, ecology, and administrative.

The environment quality not only decreased by flooding but also by population growth and limited land in this area. This can be seen from the building density and estuary constriction that is used for settlement expansion. The Government has undertaken efforts to improve the environment by relocation to Indramayu and development of housing flats for the fishermen. New settlements designed and built by the government paying less attention to the fishermen needs. There is a lack of facility in their new settlement such as fish auction, boat service workshop and placed far away from their workplace ( $\pm 15$  km between existing settlement in Jakarta and new settlement in Indramayu). However, most of the fishermen who have been relocated back to the place in Cilincing and Penjaringan district because of that thing.

Generally, those buildings that were built by the government and the private sector don't involve the fishermen in the process of planning and design. This has been affected the design, function, and ownership changes that are compliance with their need. Fishing settlement in Penjaringan district has the horizontal and vertical changed since built in 1980. Horizontally, there are constructed area expansion on the green open space or swamp area and reduction in other areas due to fire settlement. Vertically, there are stack house built by the Indonesian Government and the Tzu Chi Buddhist Foundation to accommodate the increased of family fishermen same as to avoid the swamps hoarding. At this time the stack

house buildings or settlements provided for fishermen are changed of ownership or rented to the employees and laborers. Fishermen who originally lived in the stack house sell their permits and stay in their old settlement that closed to the water. This makes the old settlement overcrowding because of overpopulated and deteriorated on quality life.



Figure 8: Overpopulated settlement

At this time, fishing settlement conditions in Penjaringan and Cilincing sub-district have a declining environmental quality because of no adequate water supply, sanitation, and trash. The livelihood of fishermen that should be near the sea or river make them survives in this area. On the other hand, this area is prone to risk and ecological issues. This is very close to the sea that vulnerable to tsunami, tide, flood, and closed to the mangrove forest too that can disrupt the sustainability of ecosystems. There is also danger for children because of lacking of security barrier between sea or river and their house.



Figure 9: No water network



Figure 10: No safety for children

Community involvement in planning, implementing and improving the quality of the environment and life in the new building is needed to the new environment and in accordance with the needs and lifestyle.

## 4 Proposal for Change and Improvement

Two types of fishing settlement based on the land status are formal and informal settlement. Both of them can be upgrade to a better quality through participatory upgrading settlement and proper infrastructure. Informal settlements should be maintained for not disrupt the ecosystem and national rules moreover their existence expected to improve the local conditions. In the forced condition, they can be moved to another place called resettlement in accordance with their livelihood. The important things that must be considered are: fishermen livelihood, ecological issue, and risk.

According to pro-poor urban settlement and housing design, Department of architecture, Trisakti University committed to apply the knowledge to help the low-income households especially fishermen in 3 levels consist of education and teaching, research, and dedication to the community. Some program could be arranged as follows:

1. Education and teaching.
  - Increasing awareness and understanding of the problems associated with the fishing community especially low-income households.
  - Increasing responsibility to teaches on how to apply in the pro-poor urban settlement, housing, and sustainable design, so that poor people do not evict their original place and have the opportunity to improve their life.



- Introducing the participatory planning concept to the student. Invite along student to fishing settlement to look fishermen lifestyle and their living space condition, to explore their basic requirements, and to involve students into participatory planning and design project. This is very important to introduce and develop students a new skill about participatory planning and design because that will be a change for them to working with communities. This also one ways to transfer knowledge from lecture to student that every place has their own character that must be accommodated in the design and teach pro-poor design all at once.



Figure 11: Scheme of good fishing settlement

## 2. Research.

- Collecting data about the needs of floor space, facility, life, so that upgrading can determine the priorities in accordance with the low-income households needs.
- Finding a fishing village and housing pattern that adequate with the user needs and livelihood.

Based on my research<sup>20</sup>, the fishing settlement pattern is appropriate for the fishermen as follows:

- The fishing settlements must have a specific facilities such as quay, fish auction, gas station, water supply network, sea security station, boat repair shop, roads, transportation, fish drying up space, fishing equipment stores, shops, market, healthy centre, and food stalls.
- Residential locations around 50-100 m from the quay and  $\geq 200$  m from the fish auction. Due to the border lines of the beach, the location of housing recommended in the rivers edge with minimum distance of 50 m. If the dwelling is located on the edge distance of the beach must be at least 100 m.
- Open space between border lines of the water and the workplace or residential area can be accessed by public.

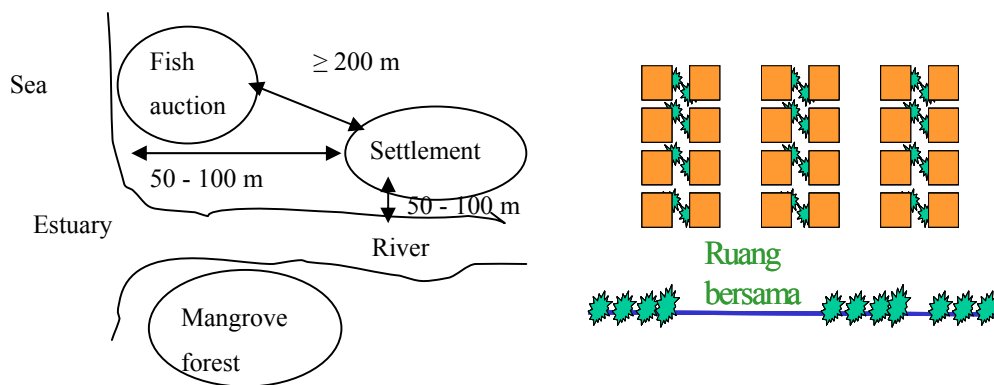


Figure 12: Layout recommended for settlement and for green space and housing block.

- The main road must be in the middle of settlement and the second road must be directly connected between residential areas and quay.
- Settlement consists of several blocks with 8 - 20 housing units in each block. Each block is inhabited by fishermen who have a family background of the same work, the type of fishing, tribal, or kinship and divided with fence or road<sup>21</sup>.
- Residential oriented to the water (river/sea) and enclosed by yard or road.

<sup>20</sup> Winandari, Fishing Settlement Pattern Based On The Occupants Perceptions, Case Study: Muara Angke Fishing Village, 2007

<sup>21</sup> That is contradictory with ministry of public service rules (2000) that the fishing settlement must be on cluster layout and each block is arranged in line according to the road.

- Green area recommended in the riverside, roadside, in front of the house, but not in the middle block, the corner block, or the middle settlement.
3. Dedication to the community.
- Socialize participatory planning to the poor people community and the benefits of the mangrove areas and pursue them to preserve the mangrove forest and to keep the water clean.
  - Continuing to improve design facilities such as sanitary and utility through a technical assistance (a part of the process of participatory planning and development) so that implementation can be adequate with the healthy housing standard.
  - Continuing multidisciplinary programs in research and applications that have been carried out by the University of Trisakti through research institutions and community service agencies such as working closely with the government and the private sector to make a mangrove ecological tourism area and allow Occupant to participate this activity.

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2009 <http://www.kemenpera.go.id/pp.asp>, download April 20<sup>th</sup>