Image of Health house in Indonesia Based on Susenas 2017

Ginoga Veridona[*], Artha Prabawa[**]

[*] Faculty of Public Health, Universitas Indonesia
[**] Biostatistics and Population Study Department Faculty of Public Health Universitas Indonesia

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Abstract- Houses are a primary need for humans. The need for houses that meet healthy requirements is very important in order to improve household health status and prevent disease. The parameters of a healthy house have been regulated by a law issued by the Ministry of Health where there are 17 parameters that must be met. The purpose of this paper is to know the overview of healthy houses in Indonesia. The data used is the 2017 Susenas module. The assessment of healthy houses is based on 17 parameters which are divided into three categories, namely good, medium and less. From the results of the analysis it was found that the number of healthy houses in Indonesia was 11.3% good / fulfilling healthy conditions, 75.70% moderate categories, and 13.00% less categories. The results of mapping the number of houses in good condition are mostly in Java, Bali and southern Sumatra.

Index Terms- house, healthy house, mapping

I. INTRODUCTION

Houses are a primary need for humans and a place to spend some of their time. The house is also a place to live that must meet the criteria of comfort, security and health to support residents to work productively, therefore it is necessary to meet certain requirements. The Ministry of Public Works and Public Housing, requires that the house be habitable, space needs per person are 9 m2, the activity space gets an even distribution of light, good ventilation, air temperature and room air humidity in accordance with normal human body temperature [1]. A healthy home is one of the means to achieve optimum health status, so that it is not only physically feasible (roof, walls, floors, ventilation, lighting); but must meet the requirements of other supporting facilities such as access to clean water and waste management to be one of the influences on human health that lives in it, aspects of air quality, water quality, and behavior of its inhabitants (smoking, use of biomass fuel / fuel wood, etc.) other).
Housing quality has major implications for human life and this is of particular concern, with the world's urban population predicted to double by 2050 [2].
Provision of good housing is one of the UN agendas, where housing is not just a roof over someone's head. Conversely, housing is defined as privacy which means adequate; adequate space; physical accessibility; structural stability and endurance; lighting; adequate heating and ventilation; adequate basic infrastructure; such as water supply, sanitation and waste management facilities; appropriate environmental quality and health-related factors; and an adequate and easily accessible location [3].
In Indonesia, the procurement of healthy or habitable homes continues to be driven through the Ministry of Public Works and Public Housing (PUPR). Where in 2018 through the Public Housing Stimulant Assistance with a budget of 3.2 trillion rupiah targeting 180 thousand houses can be repaired [4]. Provision of decent housing is also included in the 2019 Government Work Plan, provision of decent housing (2.20 million units) and facilitation for improving the quality of inadequate housing (158,370 units) [5].
Unhealthy or uninhabitable homes certainly affect the health of humans who live in them. This is evidenced through research conducted by Wa Ode Yuslinda et al., That there is a relationship between the physical condition of the house and the incidence of ARI (Upper Respiratory Tract Infection) [6]. Other studies also show a relationship between the physical condition of the house and the incidence of pneumonia in infants [7]. The physical quality of the house also affects the incidence of pulmonary TB [8].

In the Minister of Health Regulation no. 829 of 1999, stated that a healthy house is a house that meets health requirements, that is not only physical requirements of a house, but must meet the location requirements not prone to disasters, ambient air quality in a residential environment must be free from toxic gas disturbances either by nature or human activities and meet air quality standard requirements, have drainage facilities that are not vector vectors, have playgrounds for children, arrangements for electrical installations must meet security, available trees for reforestation [9].

In this paper an analysis will be carried out to see a picture of healthy houses in Indonesia based on 2017 Susenas data.

II. IDENTIFY, RESEARCH AND COLLECT IDEA

The data source to find out the description of healthy homes in Indonesia is the 2017 Susenas data. The unit of analysis is a sample of 300,000 households in all provinces in Indonesia (34 provinces). The limitations of this writing are not all variables for healthy homes are available in 2017 Susenas data such as disease vector variables and psychosocial variables. Besides this we have not yet weighted each variable used in the study.

Variables analyzed to describe healthy houses included 17 variables in the Susenas data, namely occupancy density, type of roof, type of wall, type of toilet, type of toilet, feces disposal, source of drinking water, distance of drinking water source to feces collection , location of drinking water source, physical condition of water, location of hand washing, available water in hand washing, hand washing liquid available, source of lighting, type of fuel for cooking, location of house. For variable ownership of latrines, type of toilet, processing of feces, combined being one becomes a healthy toilet because the type of latrine and fecal processing is only available if it has a toilet. Data analysis was carried out descriptively, using scoring and each variable was given a value of at least 1 and a maximum of 3, so that 13 variables were obtained the highest score 39.

Determination of healthy home category scores as follows:

- Good : score 34-39 (>87%)
- Moderate : score 25 – 33 (64-87%)
- Low : score < 25 (<64%)

Information from the score is:

1. Good : meet the health requirement, if the above percentage are above 87%
2. Moderate : when the parameter percentage is between 64-87 %
3. Low : when the percentage of parameters is less than 64%

Parameters used in the Susenas module for the determination of healthy homes and score, scores as in Table 1.

Tabel 1. Variable and Score

No	Variable	Answer	Score
1	Occupancy density (=r1604/r301)	1. Populous > 9 ~~8~~m2 / org	1
		2. < 9~~8~~ m2 / orang	3
2	Roof (r1607)	1. Beton	3
		2. Roof tile	3
		3. Asbestos	2
		4. Seng	2
		5. Bamboo	1
		6. Wood	1
		7. straw/palm fiber/leaves/rumbia	1
		8. Others	1
3	Wall (r1608)	1. Wall	3
		2. Bamboo / wire plastering	3
		3. wood / board	1
		4. Woven bamboo	1
		5. Logs	1

		6. Bamboo	1
		7. Others	1
4	Floor (r1609)	1. Marble / granite	2
		2. ceramics	2
		3. Wooden / vinyl / carpet	2
		4. Ubin / tegel / terrace	2
		5. Wood / board	3
		6. Cement / red brick	1
		7. Bamboo	1
		8. Soil	1
		9. Others	1
5	Latrines meet healthy requirements (r1610a, r1610b, r1611d)	1. Yes, qualify	3
		2. Yes, it doesn't meet the requirements	2
		3. not qualify	1
6	Source of drinking water (r1611a)	1. Branded bottled water	3
		2. Refill water	3
		3. Piping	3
		4. Drilling well / pump	3
		5. Protected Well	3
		6. Unprotected Well	2
		7. Protected fountain	3
		8. Unprotected fountain	2
		9. Surface water such as (river / lake / reservoir / pond / irrigation)	1
		10. Rainwater	1
		11. Others	1
7	Distance of source to water to feces disposal (1611b)	1. <10 m	1
		2. ≧10 m	3
		3. Unknown	1
8	Location of water source (r1612a)	1. In the house / area in the fence of the house	3
		2. Outside the fence area of the house	1
9	Water conditions (r1613)	1. Muddy	1
		2. Colored	1
		3. Taste	1
		4. foamy	1
		5. Smelly	1
		6. Not one of the above	3
10	Availability of a	1. Yes, in the house, water is available, hand washing liquid	3

	good CTPS place (r1617a,b,c)	is available 2. Yes, outside the house, there is water, hand washing liquid (laundry laundry / washing dish) is available 3. No hand washing place	 2 1
11	Source of lighting (r1618a)	1. PLN electricity by meter 2. PLN electricity without meter 3. Non PLN electricity 4. Not electricity	3 2 2 1
12	Cooking fuel (r1619)	1. Electricity 2. Elpiji 5,5 kg/blue gaz 3. Elpiji 12 kg 4. Elpiji 3 kg 5. City gas 6. Biogas 7. Kerosene 8. Briquettes 9. charcoal 10. Firewood 11. Others 12. Not cooking at home	3 3 3 3 3 3 2 2 1 1 1 1
13	Ever been flooded (r1620)	1. Yes 2. Never	1 3

III. WRITE DOWN YOUR STUDIES AND FINDINGS

a. Image of a healthy home based on all variables

From the results of the analysis show that from the aspect of occupancy density, 83.5% of houses in Indonesia fall into the fairly good category. Water conditions, and the condition of houses that are not flooded with good categories are quite high (more than 90%). For physical building houses, roofing materials and floors of houses, no more than 40% are included in the good category, only walls that have reached 65.9%. The availability of latrines that meet new health requirements is around 57.8%. Good hand washing facilities with soap (CTPS) are still very lacking, 37.7%.

Tabel 2. Variable Health Houses Based on Categories

No	Variable	Category		
		Good (%)	Moderate (%)	Low (%)
1	Occupancy density	83,5	-	16,5
2	Roof	38,9	57,0	4,1
3	Wall	65,9	-	34,1
4	Floor	38,6	5,3	56,0

5	Latrines meet healthy requirements	57,8	5,7	36,5
6	Source of drinking water	82,8	10,4	6,8
7	Distance of source to water to feces disposal	62,5	-	37,5
8	Location of water source	62,0	-	38,0
9	Water condition	92,5	-	7,5
10	Source of lighting	81,9	13,7	4,5
11	Cooking fuel	68,2	8,0	23,8
12	Ever been flooded	96,7	-	3,3
13	Availability of a good CTPS place	37,7	30,1	32,2

Drinking water sources that are considered to meet the health requirements have been 82.8%, for water sources that use dug wells and springs the distance to sewage disposal and the location of water sources has been quite good, above 60%. For lighting sources only 4.5% of households are still lacking. The use of fuel that is good in cooking can affect air pollution in the house. From the results of the analysis it was found that only 23.8% of households that cooked with fulfilling fuel did not meet the healthy requirements.

b. An overview of a healthy house by region

From the results of the analysis, the categories of healthy homes in Indonesia are as follows: Good categories of 11.3%, moderate categories 75.70%, and less categories 13.00% (figure 1a). If seen by province (figure 1b), it can be seen that the average house with a good category is in southern Sumatra and Java Island, Bali. And the highest is in Central Java Province (33.90%) and D I Yogyakarta (23.70%). If we analyze the categories of urban and rural areas, the number of houses that meet the health requirements is 12.2% in urban areas and 10.5% in rural areas (figure 2).

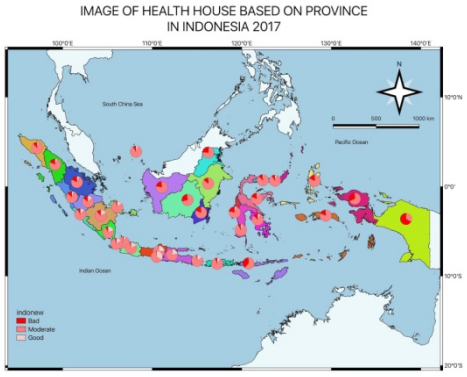

Figure 1a. Image of a healthy home by province in Indonesia in 2017

Figure 1b. Image of health houses in Indonesia in 2017

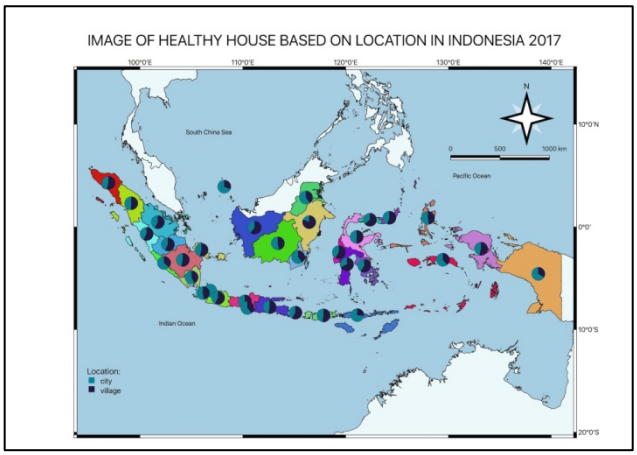

Figure 2. Image of houses that meet healthy requirements based on urban and rural areas

In figure 2 it can be seen that the number of houses that fulfill healthy homes is not only in urban areas but also in rural areas. As in most islands of Java and Sumatra. Even in almost all provinces on the island of Sulawesi the number of houses that meet health requirements is more in rural areas than in urban areas.

Washing hands with soap is included in clean and healthy living behavior and of course affects the health of the households that live in it. From the results of analysis of houses that provide hand washing facilities that meet the requirements in Indonesia, only 37.7%. Seen from the picture 3 houses with good hand washing facilities are located in most of the islands of Sumatra and Java. Whereas in the East the existence of hand washing facilities that meet the requirements is still low.

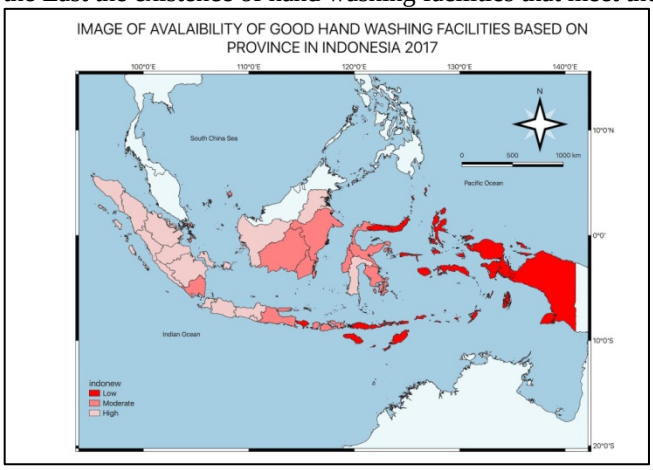

Figure 3. Image of the availability of good hand washing facilities by province

In terms of physical buildings, almost all provinces in Indonesia do not yet have healthy conditions for their inhabitants (figure 4). Whereas for latrines that have not met healthy conditions, only in Papua, East Nusa Tenggara and a small part of Sulawesi island (figure 5).

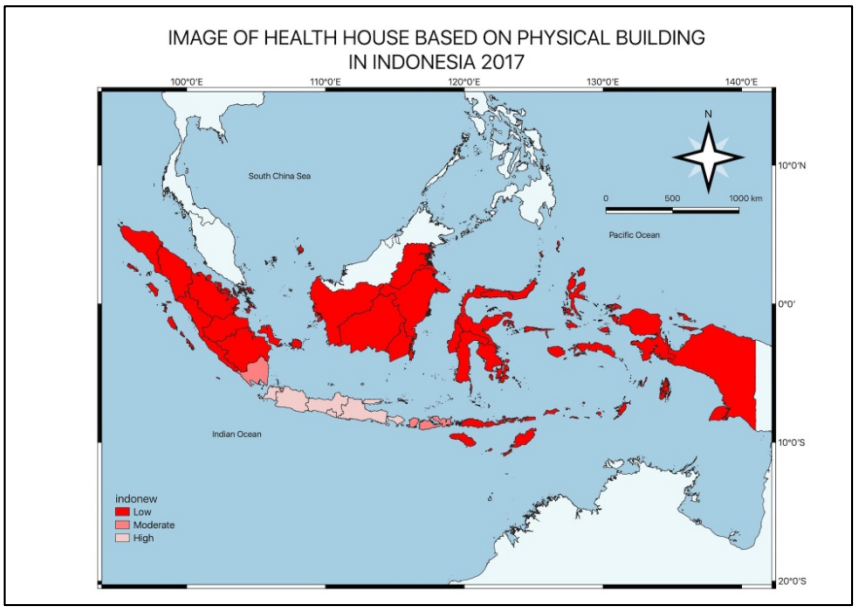

Figure 4. Image of a healthy house based on physical buildings in Indonesia

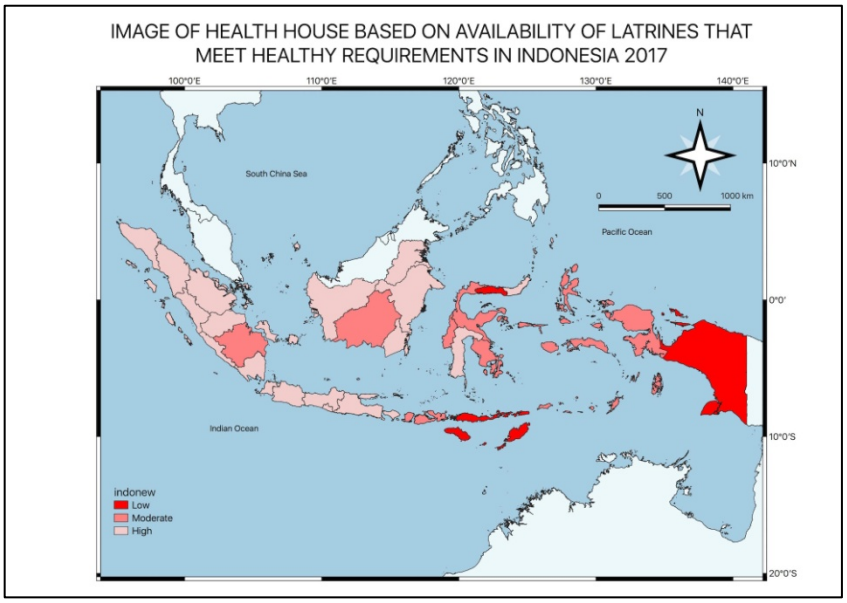

Figure 5. Image of a healthy home based on the availability of latrines that meet the healthy requirements in Indonesia

The air quality in the home can also be affected by the fuel used for cooking. Overall more than 60% of households have used good fuel. If seen by region in eastern Indonesia there are still many who use fuel for cooking which can cause pollution in homes such as kerosene, charcoal and firewood (figure 6).

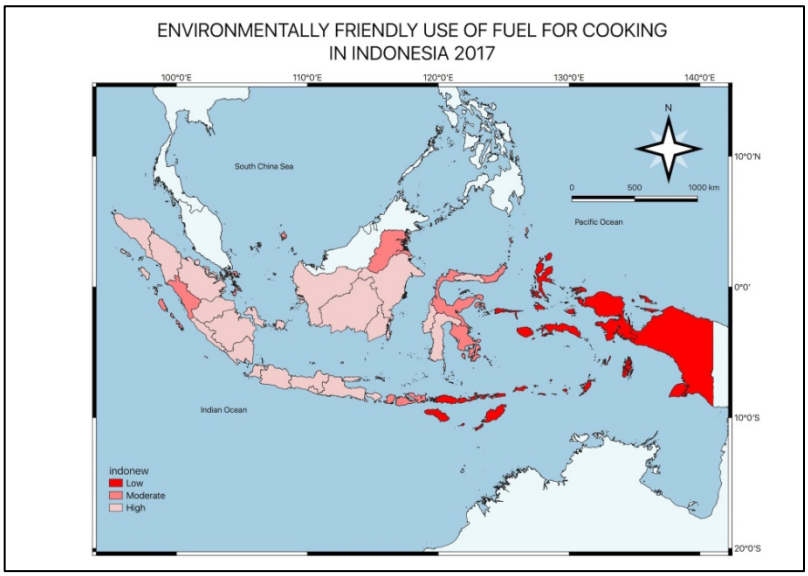

Figure 6. Image of environmentally friendly cooking fuel use by province in Indonesia

Discussion

A good home can save lives, prevent disease, improve quality of life, reduce poverty, and help reduce climate change. In addition, good homes are important for health, given urban growth, increasingly densely populated populations and climate change. The distribution of houses that meet the health requirements in Indonesia turns out to be not much different between urban and rural areas, this proves that many households living in urban areas still do not care about the influence of their homes on their health.

From the 13 variables that have been analyzed, only 6 variables whose value is still lacking are: house roofs, floors, latrines that meet healthy requirements, distance of water sources to feces disposal, location of water sources, and availability of good hand washing places.

Clean and healthy living behavior (PHBS) is still very low, this is evidenced by the availability of hand washing places and the use of soap still in the home, which is only 37%, especially in eastern Indonesia where the percentage is very low.

The physical condition of house building has an effect on health and the incidence of disease [10][11]. Viewed from most regions, Indonesia does not have physical buildings that meet healthy requirements, especially for roofs and floors of houses. For roofs 49.8% roofed zinc and there were still 3.1% roofed straw or palm fiber. As for the floor, there are still 5.3% grounded. This condition certainly affects the air quality and humidity in the house which can cause or spread diseases such as tuberculosis [12] or breathing-related (ARI)[13].

Among the requirements of a healthy home is the availability of human waste disposal that meets healthy requirements, such as the use of latrines, the type of latrines and the distance of the source of water from the landfill [9] [14]. Judging from the analysis of Papua, Gorontalo and NTT are the lowest provinces in the ownership of latrines that meet healthy requirements. Latrines that do not meet health requirements are a factor in diarrheal disease [15] [16][17].

IV. CONCLUSION

Distribution of healthy homes in Indonesia is seen only on the island of Java, Bali and parts of Sumatra. Of course this is a homework from the Ministry of Public Works and Public Housing so that it does not only focus on building houses but must also improve existing home facilities to meet healthy requirements. The Ministry of Health is also responsible for educating households to behave in a clean and healthy manner so that the number of diseases caused by physical conditions and the home environment can be reduced.

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AUTHORS

First Author – Ginoga Veridona, Faculty of Public Health, Universitas Indonesia, ginogave@yahoo.com
Second Author – Artha Prabawa, Biostatistics and Population Study Department Faculty of Public Health Universitas Indonesia.
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Correspondence Author – Ginoga Veridona,ginogave@yahoo.com,ginogaveridona@gmail.com, +62 897 8540942.