



Sanitation, hygienic attitude and poverty

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IN INDONESIA, THE progress of Water Supply and Sanitation Programme still left behind, compared with Korea, Japan or Singapore. Poverty, knowledge, attitude, and behavioural related to health, geography, and many other things influence the acceleration of increasing of water and sanitation coverage in national scale.

Environmental sanitation is a result of complex interaction between human and environmental system which influence human health.

The objective of the study is to find out:

- whether there is any relationship between level of poverty and environmental sanitation;
- whether there is any relationship between hygienic attitude and environmental sanitation;
- whether there is any relationship between topography and environmental sanitation;
- whether there is any relationship between level of poverty and hygienic attitude simultaneously with environmental sanitation in poor villages.

Material and method

This study is a correlational research, the population of this study is community living in poor villages, the target population is woman who has children under five years in District of Subang, West Java Province. 200 samples were drawn through proportional stratified sampling. Environmental data was collected based on field observation, this includes:

- environmental condition of water supply scheme;
- environmental condition of faecal waste;
- environmental condition of solid waste;
- environmental condition of water used waste;
- environmental condition of water container at home.

Level of poverty data was collected by observation and interview, this includes:

- ability to provide physiological needs such as food, clothing, and shelter;
- ability to provide communication and information needs;
- ability to provide education needs;
- ability to provide health services;
- ability to provide social needs.

Hygienic attitude data was collected by interview, this covers:

- prevention of diarrheal diseases;

- maintenance of latrine/place for defecation;
- washing hand;
- feeding child;
- latrine construction;
- maintenance of water container at home;
- maintenance of place for solid waste.

Topography data differentiated into three categories, those are:

- mountainous area;
- hilly area;
- flat area.

Validity of the instrument can be defined as the degree to which a test measures what it is supposed to measure. Construct validity concerns the degree to which the test measures the construct it was designed to measure. Reliability is concerned with how well a test measures what it is supposed to measure, reliability involves the consistency, dependability, or stability of the test score. Internal consistency is an approach to reliability, is frequently used because it provides an estimate of reliability with only one administration of a test. The coefficient alpha (Cronbach, 1951) is an internal consistency index design for use with test containing items that have no right answer. Instrument for measuring level of environmental sanitation has reliability Alpha Cronbach 0.872, the same method was used to measure reliability of the other instruments, the result were $r = 0.848$ for instrument measuring poverty and $r = 0.791$ for instrument measuring hygienic attitude.

Result

Environmental sanitation score distributes between 11 and 44, score of poverty distributes between 12 and 36, and score of hygienic attitude between 12 and 36. The values of Arithmetic mean, standard deviation, and variance can be seen at Table 1.

First hypothesis: there is a relationship between level of poverty and environmental sanitation, based on statistical analysis, coefficient regression $b = -1.28$, constant $a = 57.32$ and coefficient correlation $r = -0.83$, and $r^2 = 0.69$. The equation can be written:

$$Y = 57,32 - 1.28 X1$$

Significance test for this regression gets F calculation = 440.51, this value much higher than F table = 3.89, test for linearity gets F calculation = 2.04, this value less than F table 2.09, so the regression was significant at alpha 0.05,

Table 1. Arithmetic mean, standard deviation and variance of environmental sanitation (Y), level of poverty (X1) and hygienic attitude (X2)

Variable	Ar. mean	Sta. deviation	Variance
Y	25.31	6.55	42.84
X1	24.94	4.23	17.93
X2	25.48	3.65	13.29

and linear. Finally it means there is a relationship between level of poverty and environmental sanitation.

Second hypothesis: there is a relationship between hygienic attitude and environmental sanitation, based on statistical analysis, coefficient regression $b = 0.68$, constant $a = 8.07$ and coefficient correlation $r = 0.38$, and r squared $= 0.14$. The equation can be written:

$$Y = 8.07 + 0.68 X_2$$

Significance test for this regression gets F calculation = 32.78, this value higher than F table = 3.89, test for linearity gets F calculation = 1.96, this value less than F table 2.09, so the regression was significant at alpha 0.05, and linear. Finally it means there is a relationship between hygienic attitude and environmental sanitation.

Third hypothesis: There is a relationship between topography and environmental sanitation, statistical analysis using independent test between two factors with table contingency 3×3 . Chi squared calculation gets $X^2 = 12.17$ is higher than X^2 table = 9.49, so there is a relationship between category of topography and category of environmental sanitation, significant at alpha 0.05.

Fourth hypothesis: there is a relationship between level of poverty and hygienic attitude simultaneously with environmental sanitation, based on statistical analysis, coefficient regression $b = -1.22$, $c = 0.27$, constant $a = 48.84$ and multiple coefficient correlation $R = 0.84$, and R squared = 0.71. The equation can be written:

$$Y = 48.84 - 1.22 X_1 + 0.27 X_2$$

Significance test for this regression get F calculation = 241.45 this value much higher than F table = 3.89, so the regression was significant at alpha 0.05, and there is a relationship between level of poverty and hygienic attitude simultaneously with environmental sanitation.

Discussion

- The National Policy is committed to the poor community to improve of community welfare, i.e., through provision of capital for business and health, education as well as social facilities. This policy will effect very much to the efforts for the increasing the environmental sanitation status of the community. Since the study show that there is a strong relationship between level of poverty and environmental sanitation. The coefficient correlation is $r = -0.83$, it means that environmental

sanitation could be contributed by level of poverty as much as 69 percent.

World Bank explains that environmental pressure from diverse root: poverty, ignorance, greed, custom, climatic and geographic insufficiency, lacks in technology and in development itself. Based on the above, it is aware that the poverty in the developing countries has become prime causal factor of environmental pollution. Therefore, the effort of poverty alleviation will effect to the environmental sanitation. Environmental sanitation development should be done, such as implementation of health education, provision of water supply and latrine facilities. This effort is also intended to accelerate successful introduction of healthy living habits in the poor community.

- This study has got evidence that there is an interrelationship between hygienic living attitude and environmental sanitation. It is expected that health education could promote better understanding among community members for the need of hygienic life styles and positive behavioural changes. Furthermore, to have maximum result the health education should be supported by provision of environmental sanitation facilities namely water supply and sanitation facilities. This research is conducted on women whose possess children under five years. The presence of an interrelationship between environmental sanitation and hygienic living attitude can shows that the role of women as well as mothers is very important, particularly for the improved environmental sanitation in rural area. Health education towards mothers could yield the improvement of environmental sanitation status through positive behavioural changes and healthy living attitude. The coefficient correlation between hygienic attitude and environmental sanitation is $r = 0.38$, it means that environmental sanitation could be contributed by hygienic attitude of the woman as much as 14 percent. Because of their varying roles, men and women may have different preferences and incentives regarding sector activities. In their role as collectors and managers of household water, women may have a considerable amount of knowledge about water sources and their quality and reliability. Women also may be more motivated to maintain a new system, if the system breaks down, they will be the ones who have to walk long distances to collect water from the old source, when the system is installed is inappropriate spot. In line with environmental sanitation, the role of women/mothers are dealing with clean water handling efforts. It is starting from collection phase, and continues into the distribution phase, storage phase, utilization phase, and to the consuming/serving phase.
- The topography constitutes an essential factor with the frame work for formulating national policy on environmental sanitation. So, the development of environmental sanitation should pay attention to spatial ap-

proach. It means that the development should consider towards various conditions such as topography, climate, hydrogeology, vegetation and cultural conditions.

- There is relationship between hygienic attitude and level of poverty simultaneously with environmental sanitation, with coefficient correlation $R = 0.84$, it means that environmental sanitation could be contributed by hygienic attitude and level of poverty simultaneously as much as 71 percents. Health-related behaviour is not only determined by a complex mix of knowledge, beliefs, attitudes, norms, and customs. Socio-economic determinants even political factors also play a dominant role. Mukharjee (1990) put it as follows: "Among the rural population in India, 'cleanliness' is understood as holistic concept, emanating from within the person-from one's thought and behaviour and extending to one's physical self, home and environment, in that order. However, time and money are seen as major constraints for achieving the desired level of cleanliness.

Sanitation always plays with waste, it can be solid waste or waste water, all waste still have potential energy which essential for a certain living things. So far health personnel always considers that those waste must be put away far from human activities because can cause hazard for human being. Since waste consists of organic matters that could fertilize plant, so two objectives should be developed in the environmental sanitation programme: (1) improve environmental sanitation and (2) improve poverty.

Conclusion

- The result of this study shows that there is a relationship between poverty level and environmental sanitation status. The efforts of poverty alleviation, such as improvement of public infrastructure and national assistance programme for poor community, intended to enhance environmental sanitation.
- The result of this study also shows that there is a relationship between hygienic living attitude and environmental sanitation status. In order to improve healthy living attitude, it is necessary to carry out a health education for the community.

- The presence of relationship between topography and environmental sanitation status indicates that topography as a essential factor in formulating policy of environmental sanitation development.
- This study has found out that there is a relationship between poverty level and hygienic living attitude simultaneously with environmental health status. It means that improvement both hygienic attitude and level of poverty will get better result in improving environmental sanitation.

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