

# EVALUATION OF AVAILABILITY OF STANDARD SANITATION FACILITIES IN HEALTH POLYTECHNIC OF KUPANG, MINISTRY OF HEALTH

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## ABSTRACT

**Introduction :** Sanitation facilities are very important for the community, especially educational institutions to prevent the occurrence of diseases, such as thypus abdominalis, diarrhea, dysentery, hepatitis A, cholera, poliomyelitis transmitted through bad environment. Adequate sanitation facilities in health institutions can break the chain of transmission of the disease especially transmitted through insect vectors and rodent animals (*flies, cockroaches, rats*). This study aims to determine the description of sanitation facilities in Health Polytechnic of Kupang.

**Subject and Method :** The type of this research is descriptive research with evaluation method with design / research design using Cross Sectional Study design. This research was conducted in all study programs in Health Polytechnic of Kupang from August to September 2015.

**Result :** The result of research at Health Polytechnic of Kupang showed that the availability of latrines has not fulfilled the requirements based on the ratio of toilet and user (1:20) 1: 29, the quality of clean water has fulfilled the physical requirements (tasteless, colorless and odorless), the number of trash cans, as many as 193 containers (69%), most of waste disposal canals in all study programs in Health Polytechnic of Kupang are already qualified.

**Conclusion :** Based on the research result found that sanitation facilities in Health Polytechnic of Kupang has fulfilled the standard, such as the availability of clean water, trash can, and waste disposal canal.

*Keywords : evaluation, sanitation facilities, Health Polytechnic of Kupang*

## INTRODUCTION

The development of health aims to raise awareness, ability and willingness to live healthy for every citizen in order to realize the highest degree of health. The community is expected to play a role as health development actors in maintaining and improving their own health status and

playing an active role in realizing public health.

According to Blum (1981), human health consists of 3 dimensions: physical, mental and social. The above three dimensions are integrative, meaning that when a person does not have one of the

above dimensions, the person can not be said to be fully healthy. From the above explanation, Blum states that health status of a person / society is influenced by 4 factors, namely: environment, lifestyle, heredity (genetic), and health care services. Thus, it can be seen that the environment has a considerable influence on public health. Most health problems are caused by environmental conditions and community behavior. This environment includes the physical environment (both natural or man-made), and socioculture (economy, education, employment, etc.).

Work environment is all things related to the operations of institutions / companies and how operational activities can run. A good working environment will greatly affect the level of employee productivity this can be seen from the improvement of technology and production mode, means and production equipment used, the level of safety and health and work environment itself. The physical environment of the workplace and the organizational environment is crucial in affecting the social, mental and physical of workers' lives (Fildia, 2013).

The health of a workplace environment can have a positive effect on workers' health, such as an increase in employee morale, decreased absenteeism and increased productivity. Conversely, unhealthy workplaces (often exposed to substances with health hazards) can increase morbidity and accidents, low quality of workers' health, increased health costs and many other negative impacts.

Health Polytechnic of Kupang, as one of the governmental-owned health

institutions, currently receives the full attention of the government, especially in terms of human resource development and fulfillment of infrastructure and facilities to support the education. This is done regularly to improve the quality of institutional services to the provision of education. The fulfillment of educational facilities and infrastructures mainly include building facilities, lecture rooms, administrative equipment (chairs, tables, furniture, cabinets, bookcases) AVA, computers, practical equipment and sanitation facilities: clean water facilities, waste disposal canal, latrine, urinal, garbage bin, westafel and so forth.

In order to achieve good quality of institution, the educational facilities and infrastructure must meet the requirements of both quantity and quality. Currently, the condition of educational facilities and infrastructures in Health Polytechnic of Kupang is sufficient, but there is a problem / obstacle regarding the availability of sanitation facilities in the institution, which have not fulfilled the requirements of both quantity and quality. Some of the problems associated to institutional sanitation facilities are: the number of latrines available is not suitable for the needs / users, as well as the availability of urinal, petroleum, clean water availability, waste facilities and waste management methods, and waste water disposal facilities.

Sanitation facilities are very important for the community, especially educational institutions to prevent the occurrence of diseases transmitted through bad environment, such as thypus abdominalis, diarrhea, dysentery, hepatitis A, cholera

and poliomyelitis. Given the fact that adequate sanitation facilities in health institutions can break the chain of transmission of the disease especially transmitted through insect vectors and rodent animals (flies, cockroaches, rats), the researchers evaluate the availability of sanitation facilities that meet the standards in the scope of Health Polytechnic of Kupang. This study aims to determine the description of sanitation facilities in Health Polytechnic of Kupang.

## **MATERIAL AND METHODS**

### ***Types and Research Design***

The type of this research is descriptive research with evaluation method. The design of the study used is Cross Sectional Study design where all the variables were observed at the same time, no variable observation time difference. This research was conducted in the study programs in Health Polytechnic of Kupang. The study was conducted in May - June 2015.

The population of this study is all study programs and offices of the Directorate of Health Polytechnic of Kupang. The samples of this study are the total population, namely the study program of Nursing of Kupang, Midwifery, Environmental Health, Pharmacy, Dental Nursing, Nutrition, Health Analyst, and Directorate of Health Polytechnic of Kupang.

### ***Instrument Research***

Instruments used in this study: Questionnaire and checklist sheet, Microbiological Inspection for examination of *E. Coli* bacteria in water.

### ***Data collection technique***

Steps / workings of research are as follows:

1. Preparation of research instruments in the form of questionnaires;
2. Data collection was done by using the research questionnaire at the research site, namely the study program of Nursing of Kupang, Midwifery, Environmental Health, Pharmacy, Dental Nursing, Nutrition, Health Analyst, and Directorate of Health Polytechnic of Kupang;
3. After the data is collected, the researcher calculates the suitability of the facility according to the health standard;
4. Assessment;
5. Perform processing and data analysis.

### ***Processing and Data Analysis***

The data obtained is presented in tabular form and then analyzed descriptively.

## **RESULTS**

### ***Overview of Research Sites***

Health Polytechnic Kemenkes Kupang is an educational institution owned by the Ministry of Health of the Republic of Indonesia, in East Nusa Tenggara which borders east of Fatuleu Street, west by the Nursing study program, south by RSS Liliba, north of Jalan Piet A Tallo. Campus of Health Polytechnic of Kupang itself consists of 7 study programs with their respective borders. The School of Environmental Health is adjacent to the east of Fatuleu Street, west by the Nursing study program, south to the Liliba RSS, north of the border of Jalan Piet A Tallo.

The study program of Nursing is adjacent to the east of the Health Polytechnic of Kupang Campuses, west to the Liliba RSS, south of the border with RSS Liliba, to the north of Jalan Piet A Tallo. study program of Pharmacy, study program of Analyst and study program of Nursing Dental area adjacent to the eastern border with Penitentiary, westside South Oesapa Subdistrict, Regency of Pharmacy in the south, and BAPELKES Kupang in the north. The study program of Midwifery and the study program of Nutrition is adjacent to the east of R.A Kartini Road, in the west by Ina bo'i Street, south by the new City Church, north of the East Timor Express.

#### ***Area of Building***

Table 1 shows the building area and the year of establishment of all study programs in Health Polytechnic of Kupang. The Ende nursing program has the largest building area of 2323.5 m<sup>2</sup> (founded in 2002) while the Nutrition study program has the smallest building area of 713 m<sup>2</sup> (established in 2013).

#### ***Condition of Sanitation Facilities Outside the Building***

Sanitation facilities outside the building consist of cleaning equipment and garden yard used for each study program in the scope of Health Polytechnic of Kupang. The availability of sanitation facilities is described in Table 2.

Table 2 shows that the outdoor sanitation equipment of all study programs in Health Polytechnic of Kupang consists of broomsticks, garbage bins, spades, and lawn shears.

#### ***Condition of Sanitation Facilities Inside the Building***

##### **1. Clean Water**

Based on the data in Table 3, the quality of clean water at all study programs in Health Polytechnic of Kupang has met the physical requirements, i.e. tasteless, colorless and odorless.

##### **2. Trash Can**

Table 4 shows that the number of garbage cans placed throughout Health Polytechnic of Kupang are 296 bins. Total number of eligible bins was 193 pieces (69%), while unqualified was 103 (21%).

##### **3. Latrines**

Table 5 shows that the availability of latrines at Health Polytechnic of Kupang does not qualify based on the ratio of toilet and user (1:20), which is 1: 29. At the study program level, toilet availability at the Health Analyst study program meets the requirements with a ratio of 1: 12, and the Directorate office with a ratio of 1: 7.

Table 6 shows that the availability of bathrooms in Health Polytechnic of Kupang does not qualify based on the ratio of toilet and user (1:20), which is 1: 29. At study program, bathroom availability in Health Analyst study program has met the requirement with ratio 1: 12, and the Directorate office with a ratio of 1: 7.

does not meet the requirements (2:20), which is 1: 41.

4. Sinks

Table 7 shows that the availability of sinks at Health Polytechnic of Kupang

5. Waste disposal canal

Table 8 shows that most of waste disposal canal conditions in all study programs of Health Polytechnic of Kupang have met the requirements.

**Table 1 Building area in Health Polytechnic of Kupang**

No	Study Program	Building area (m <sup>2</sup> )	Since year
1	Keperawatan Kupang	1453	1995
2	Keperawatan Ende	2323,5	2002
3	Keperawatan Waingapu	2046	2013
4	Kebidanan	3695	2013
5	Kesehatan Lingkungan	1854,4	1993
6	Farmasi	893	1988
7	Keperawatan Gigi	841,36	1989
8	Gizi	713	2013
9	Analisis Kesehatan	1092	2010
10	Direktorat	2184	2007

**Table 2 Availability of External Sanitation Facilities in study program in Health Polytechnic of Kupang**

No	Study Program	Broomsticks	Garbage bins	Spades	Lawn shears
1	Keperawatan Kupang	25	10	3	3
2	Keperawatan Ende	10	15	4	2
3	Keperawatan Waingapu	10	5	2	2
4	Kebidanan	100	6	2	1
5	Kesehatan Lingkungan	28	6	4	3
6	Farmasi	50	20	4	1
7	Keperawatan Gigi	30	5	2	1
8	Gizi	10	2	2	3
9	Analisis Kesehatan	24	6	2	1
10	Direktorat	5	2	2	4

**Table 3 Quality of Clean Water at study program in Health Polytechnic of Kupang**

No	Study Program	Physical Condition of Clean Water		
		Tasteless	Colorless	Odorless
1	Keperawatan Kupang	Eligible	Eligible	Eligible
2	Keperawatan Ende	Eligible	Eligible	Eligible
3	Keperawatan Waingapu	Eligible	Eligible	Eligible
4	Kebidanan	Eligible	Eligible	Eligible
5	Kesehatan Lingkungan	Eligible	Eligible	Eligible
6	Farmasi	Eligible	Eligible	Eligible
7	Keperawatan Gigi	Eligible	Eligible	Eligible
8	Gizi	Eligible	Eligible	Eligible
9	Analisis Kesehatan	Eligible	Eligible	Eligible
10	Direktorat	Eligible	Eligible	Eligible

**Table 4 Condition of Trash Can in study program in Health Polytechnic of Kupang**

No	Study Program	Σ Trash Can	Condition of Trash Can			
			Eligible	%	Not eligible	%
1	Keperawatan Kupang	30	30	100	0	0
2	Keperawatan Ende	27	0	0	27	0
3	Keperawatan Waingapu	18	18	100	0	0
4	Kebidanan	41	33	80	8	20
5	Kesehatan Lingkungan	33	33	100	0	0
6	Farmasi	30	5	17	25	83
7	Keperawatan Gigi	14	14	100	0	0
8	Gizi	47	22	47	25	53
9	Analisis Kesehatan	23	23	100	0	0
10	Direktorat	33	15	45	18	55
<b>Total</b>		296	193	69	103	21

**Table 5 The availability of a functioning latrine in study program  
in Health Polytechnic of Kupang**

No	Study Program	$\Sigma$ Latrines	$\Sigma$ User	Ratio	Explanation
1	Keperawatan Kupang	10	347	1:35	Not eligible
2	Keperawatan Ende	10	350	1:35	Not eligible
3	Keperawatan Waingapu	5	354	1:71	Not eligible
4	Kebidanan	15	437	1:29	Not eligible
5	Kesehatan Lingkungan	7	281	1:40	Not eligible
6	Farmasi	10	297	1:30	Not eligible
7	Keperawatan Gigi	5	229	1 :46	Not eligible
8	Gizi	10	241	1:24	Not eligible
9	Analisis Kesehatan	17	200	1:12	Eligible
10	Direktorat	8	54	1:7	Eligible
<b>Total</b>		<b>97</b>	<b>97</b>	<b>2790</b>	<b>1 : 29</b>

**Table 6 Availability of toilets / tub of water to clean in study program  
in Health Polytechnic of Kupang**

No	Study Program	$\Sigma$ Toilet	$\Sigma$ User	Ratio	Explanation
1	Keperawatan Kupang	10	347	1:35	Not eligible
2	Keperawatan Ende	10	350	1:35	Not eligible
3	Keperawatan Waingapu	5	354	1:71	Not eligible
4	Kebidanan	15	437	1:29	Not eligible
5	Kesehatan Lingkungan	7	281	1:40	Not eligible
6	Farmasi	10	297	1:30	Not eligible
7	Keperawatan Gigi	5	229	1:46	Not eligible
8	Gizi	10	241	1:24	Not eligible
9	Analisis Kesehatan	17	200	1:12	Eligible
10	Direktorat	8	54	1:7	Eligible
<b>Total</b>		<b>97</b>	<b>2790</b>	<b>1 : 29</b>	<b>Not eligible</b>

**Table 7 Availability of Sink at study program in Health Polytechnic of Kupang**

No	Study Program	$\Sigma$ Sink	$\Sigma$ User	Ratio	Explanation
1	Keperawatan Kupang	4	347	1 : 87	Not eligible
2	Keperawatan Ende	2	350	1 : 175	Not eligible
3	Keperawatan Waingapu	4	354	1 : 89	Not eligible
4	Kebidanan	20	437	1 : 22	Not eligible
5	Kesehatan Lingkungan	8	281	1 : 35	Not eligible
6	Farmasi	3	297	1 : 99	Not eligible
7	Keperawatan Gigi	1	229	1 : 229	Not eligible
8	Gizi	13	241	1 : 19	Not eligible
9	Analisis Kesehatan	10	200	1 : 20	Not eligible
10	Direktorat	3	54	1 : 18	Not eligible
	<b>Total</b>	68	2790	1 : 41	Not eligible

**Table 8 Waste disposal canal in study program in Health Polytechnic of Kupang**

No	Study Program	Wasted disposal canal condition			
		Waste disposal canal facilities are available	Has a slope	Made of impermeable and covered material	Wastewater is channeled to the infiltration bath
1	Keperawatan Kupang	Yes	Yes	Yes	Yes
2	Keperawatan Ende	Yes	Yes	No	No
3	Keperawatan Waingapu	Yes	Yes	Yes	Yes
4	Kebidanan	Yes	Yes	Yes	Yes
5	Kesehatan Lingkungan	Yes	Yes	Yes	Yes
6	Farmasi	Yes	Yes	Yes	Yes
7	Keperawatan Gigi	Yes	Yes	Yes	Yes
8	Gizi	Yes	Yes	Yes	Yes
9	Analisis Kesehatan	Yes	Yes	Yes	Yes
10	Direktorat	Yes	Yes	Yes	Yes



## DISCUSSION

### *The suitability of the number of latrines with users at Health Polytechnic of Kupang*

The latrine is a building used to remove and collect manure which is commonly called latrine / toilet so that the dirt is stored in a certain place and does not become the cause or spreader of disease and pollute the settlement environment (MOH RI, 2001). Healthy latrine requirement according to the MOH RI (1985), among others, does not pollute drinking water source, odorless, easy to clean, equipped wall and roof protector, waterproof wall and light colored, enough lighting, waterproof floor, sufficient space, low, ventilation is good enough, and available water and cleaning tools. In addition, to prevent the occurrence of health problems and environmental pollution in the office, in this case Health Polytechnic of Kupang, the availability of latrines and the suitability of the number of latrines with the number of users also need to be considered. According to Kepmenkes RI Number 1405 / Menkes / SK / XI / 2002 on Health Requirements for Office Work Environment and Industry, every office must have toilets with 1: 25 latrines for male employees and 1: 20 for female employees.

Based on the results of the research, the overall availability of latrines in Health Polytechnic of Kupang have not fulfilled the requirements based on the ratio of toilet and users (1:20), which is 1: 29.

While at study program level, the latrine availability at the Health Analyst study program is already qualified 1: 12 ratio, and the Directorate office with a ratio of 1: 7.

### *The availability of clean water reservoirs and the quality of clean water at Health Polytechnic of Kupang*

Water is very important for human life. Water required by humans to live healthy must qualify for its quality. Besides, it must also be able to meet in quantity (amount). The fulfillment of the need for clean water must meet two requirements, namely quantity and quality (MOH RI, 2005). One of the qualitative requirements is the physical requirements of water that meets the physical requirements, which are odorless, tasteless, colorless and clear. Based on the research result, the quality of clean water in all study programs in Health Polytechnic of Kupang has fulfilled the physical requirement, that is not tasteless, colorless and odorless.

### *Availability of trash can and final waste management in Health Polytechnic of Kupang*

Waste storage is a temporary waste bin before the garbage is collected, to be transported and discarded (destroyed) and for that it needs to be provided a different place for different types and types of waste. The purpose of separation and storage here is to facilitate its annihilation. The requirements of the dumpster are: 1) the construction is strong so as not to leak easily to prevent the scattering of garbage,

2) have a lid and easy to open to empty its content and be cleaned. It is recommended that the lid of the bin can be opened or closed without soiling the hands, 3) the size of the bin in such a way that it is transportable by one person.

The results of this study indicate that in Health Polytechnic of Kupang, the number of eligible bins as many as 193 pieces (69%), while the unqualified were 103 pieces (21%). The number of unqualified bins is caused by the trash that cannot have a lid.

Availability of liquid waste disposal facilities (waste disposal canal) at Health Polytechnic of Kupang. Waste disposal canal is a building used to dispose waste water in bathrooms, washers, kitchens and others not from toilet. Healthy waste disposal canal should meet the following requirements: 1) Do not contaminate the source of clean water, 2) Not create water puddles that can be used for mosquito breeding (given a fairly tight cover), 3) No odor (given enough cover) , 4) Does not cause mud or unpleasant view (does not leak until overflow).

Based on the result of research, almost all conditions of waste disposal canal in all study programs of Health Polytechnic of Kupang have fulfilled the requirements, among others: 1) Waste disposal facilities available, 2) Has slope, 3) Made of waterproof and closed material, and 4) Wastewater is channeled to the infiltration bath. The above qualified wasted disposal canal will not be a breeding ground or resting place for organisms that may be detrimental to health.

## CONCLUSION

The result of research in Health Polytechnic of Kupang showed that the availability of latrines have not fulfilled the requirements based on the ratio of toilet and user (1:20) 1: 29, the quality of clean water has fulfilled the physical requirements (tasteless, colorless and odorless), a number of trash cans as many as 193 containers (69%), most of waste disposal canal conditions in all study programs Health Polytechnic of Kupang are already qualified.

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