ISSN: 0853-7720

# JURNAL
# PENELITIAN DAN KARYA ILMIAH
# LEMBAGA PENELITIAN UNIVERSITAS TRISAKTI



**Nomor 7, Februari 2000**

# JURNAL
# PENELITIAN DAN KARYA ILMIAH
# LEMBAGA PENELITIAN UNIVERSITAS TRISAKTI

**Penerbit** : **Lembaga Penelitian Universitas Trisakti**
**Pelindung** : **Rektor Universitas Trisakti**
Prof. Dr. Thoby Mutis
**Penasehat** : **Pembantu Rektor I Universitas Trisakti**
Ir. Asri Nugrahanti
**Ketua Lembaga Penelitian Universitas Trisakti**
Dr. Ir. Dadan Umar Daihani DEA.
**Staf Ahli** : Prof. Dr. H. RA. Ma' roef
Drg. I. Sadrach
Ir. Hidayat Ardiwiwiranata MSIE
Prof. Ir. Soekisno Hadikoemoro
Prof. Dr. Maftuchah Yusuf
**Penaggungjawab** : Ir. Quintarina Uniaty B., MS. Ars.
**Dewan Redaksi :**
**Pimpinan** : Ir. Agus Budi Purnomo Ms., Ph.D
**Wakil Pimpinan** : Dr. Erwin Iskandar
**Redaksi Pelaksana** :Ir. Didien Suhardini Msc.
Dr. Erwin Iskandar
Dr. dr. R.M. Nugroho Abikusno, MSc.
Ursula Sihite
**Sekretariat** : **Tata Usaha Lembaga Penelitian Universitas Trisakti**
**Alamat Penerbit** : **Gedung M Lantai XI USAKTI**
**Telp. 5663232 (Hunting) Pesawat 141, 144**
**Jalan Kyai Tapa Grogol, Jakarta 11440**
**Fax. 5673001, 5684021**

# Daftar isi

# Pengantar Redaksi

Jurnal Penelitian dan Karya Ilmiah Lemlit Usakti no. 7 kali ini terbit dengan format baru. Isi jurnal mengenai lingkungan hidup dilihat dari berbagai sudut pandang, diantaranya tentang pendidikan lingkungan hidup di perguruan tinggi, pengelolaan sampah terpadu di BSD, strategi untuk mencapai kehidupan berkelanjutan, hubungan antara suhu lingkungan dengan jenis permukaan vegetasi dan fungsinya, proyek penelitian sumberdaya air , penilaian kesehatan lingkungan di apartemen kemayoran serta profil kesehatan dan keamanan kerja para buruh di pabrik.

Sedang kolom tetap inovasi menampilkan Hirarchial Clustering untuk membuat diagram hubungan ruang.

Untuk terbitan mendatang jurnal Penelitian dan Karya Ilmiah Lemlit akan menampilkan berbagai karya dari disiplin teknik sipil. Sumbangan naskah dari para penulis di bidang tersebut masih ditunggu.

Redaktur Jurnal, 2000

Agus Budi Purnomo

# EVALUATION OF ENVIRONMENTAL HEALTH IN KEMAYORAN PUBLIC HIGH RISE BUILDING, CENTRAL JAKARTA

Rina K. Kusumaratna & Nugroho Abikusno*)

## Abstract

Tujuan penelitian adalah untuk memperoleh data kesehatan dan lingkungan dari warga penghuni rumah susun Kemayoran, Jakarta Pusat. Metode penelitian adalah secara observasi dengan rancangan studi secara potong lintang. Instrumen penelitian menggunakan kuesioner tertutup dengan 49 variabel. Hasil penelitian menunjukkan bahwa perbedaan ditemukan pada bahan bakar untuk memasak dari minyak tanah (sebelum) menjadi fasilitas gas (sesudah). Jarang ditemukan larva nyamuk pada tempat penampungan air terbuka karena ketidakteraturan pemasokan air bersih di rumah susun. Terjadi peningkatan pengeluaran bulanan untuk makanan dan fasilitas lain karena penghuni harus membayar lebih banyak untuk fasilitas rumah susun. Ditemukan kepadatan penghuni per luas tipe rumah yang melebihi standar ideal. Disarankan agar dalam pengelolaan rumah susun perlu dilakukan penyuluhan secara teratur kepada warga tentang kebiasaan tinggal di rumah susun, kebersihan dan sosialisasi antara tetangga rumah susun tersebut.

## Introduction

A Healthy life is very important for every person who lives as a member of a family. Healthy living conditions at home and its immediate environment reflects this healthy life style concept. A Home provides its inhabitants with a place for living, rest, bringing up children, studying, working and other related domestic activities. The World Health Organization (WHO) defines a home as a place for growth and development of mental, physical and social potentials of all members within the family. As a consequence, a home must have good quality of its supporting facility. Good facility must be available within close proximity of a person's residence. These facilities consists of (i) school for child's education; (ii) convenience market for family daily sustenance; (iii) work place to support daily living; (iv) communication and recreation; (v) adequate and clean water supply; and (vi) affordable health

*) Dept Community Medicine & Medical Nutrition, Trisakti University, Jakarta

clinic in cases of sudden acute illness and life threatening emergency.

The objective of this study was to determine the health and environmental status of residents living in Kemayoran public high rise building, Central Jakarta. The results of this public service study will be used to design health promotion curricula based on a health and environmental assessment of residents in a public high rise building. The results of public service health promotion will be reported in another paper.

## Method

The study used a cross-sectional, observational design. The study instrument was a closed-ended questionnaire consisting of 49 variables and had been previously pre tested. Respondents were sampled from 2 out of 4 sectors - Dakota and Convaire. All home types were sampled from T18 to T42. The sampling scheme of the study is illustrated in Table 1.

Table 1. Kemayoran Public High Rise Building 1998 Sampling Scheme (n=179)

| T18 | T21 | T36 | T36 | T42 |
|---|---|---|---|---|
| 12B | 6B | 3B | 4B | 16B |
| 704 U | 408 U | 286 U | 64 U | 256 U |
| 70 (7/B) | 48 (8/B) | 29 (10/B) | 6 (2/B) | 26 (2/B) |

Note : T = type; B= block; U= unit; n/B = number sampled per block.

The sampling method used random numbers derived from scientific computer to determine respondents included in the survey. There were a total of 176 respondents surveyed out of a sampling list of 202 respondents. The response rate of respondents was 89%. The questionnaire consisted of respondent's identity, housing & environment, health, social relations and nutrition. Comparison was done on respondent's perception regarding environmental health issues before and after residing in high rise building. These results will further be discussed using the term former residence and present residence.

## Result

### General description of respondent

Seventy percent of respondents were residents of Dakota sector. Forty percent lived in T18 and 26% lived in T36 home types. Forty percent lived on the second floor and 20% lived on floors 3, 4 and 5 respectively. Forty-seven percent of respondents lived with ≤ 4 person and 43% had 5-8 persons per household. Fifty-seven percent were household heads and 43% were

household members, who were mostly housewives.

Fortyfour percent of household head's education was senior high school and 24% had college education. Fortyseven percent of household head's occupation was private sector and 29% were entrepreneurs.

Seventy-four percent of tenant's status was old member. They were formerly inhabitants of Kemayoran, which underwent urban renewal through the construction of the present public high rise building facility. Fifty-one percent of respondents owned their housing unit. Eighty-one percent have lived in their apartment for 11 - 12 months. Thirty-four percent preferred to stay at present residence due to its strategic location being close to their work place and its rapid access to public transportation.

### Housing and Environment

Ninety-six percent of respondents had permanent homes before moving to present residence. Forty-two percent previously lived in 18 $m^2$ homes and 24% in 36 $m^2$ homes. Eightynine percent had tiled floors in their former residence.

### Lighting and ventilation

72% of light source was sunlight in the former residence compared to 73% in the present residence. 98% respectively had no source of ventilation in the former and present residence. 65% had 2-3 bedrooms in the former residence compared to 53% in the present residence. 84% had bedrooms with window in the former residence compared to 89% in the present residence. Thus, lighting and ventilation was not significantly different in the former and present residence.

### Cooking oil and water source

53% used kerosene oil for cooking in the former residence compared to 93% used gas for cooking in the present residence. 55% had no exhaust fan in the former residence compared to 48% had exhaust fans in the present residence. 36% and 26% of respondents had water sources from tap and public tap in the former residence. 54% and 21% of respondents had water sources from tap and public tap in the present residence. 18% bought water in the former residence compared to 4% in the present residence.

### Drinking and bathing water

85% had sufficient water containers in the former residence compared to 86% in the present residence. 93% had good visual drinking water quality in the former residence compared to 94% in the present residence. 37% and 23% of respondents had bathing water source from tap and public tap in the former residence. While in the present residence, respondents had tap water inside (54%), tap water outside home (21%) and public tap (21%) respectively. Water containers were sufficiently clean namely 80% and 91% in

the former and present residence respectively.

**Bathing and sewage water**

93% had sufficient visual bathing water quality in the former residence compared to 95% in the present residence. 61% had toilet facilities with septic tank in the former residence compared to 71% in the present residence.

**Sewage water and garbage**

77% had closed water sewage system in the former residence compared to 78% in the present residence. 90% regularly maintained their sewage in the former residence compared to 95% in the present residence. 64% used plastic bags for household garbage in the former residence compared to 85% in the present residence. 71% used public waste collection in the former residence compared to 82% in the present residence.

**Mice and mosquito**

It was observed that 70% had mice and cockroaches in the former residence compared to 57% in the present residence. It was observed that 72% had mosquito larva in water containers in the former residence compared to 78% in the present residence. 45% of respondents cleaned water container weekly in the former residence compared to 52% who cleaned it every other week in the present residence.

**High rise building preference**

Ninety-six percent of respondents preferred to stay in high rise building. The main reason for their preference was due to its favourable environmental condition (37%) and based on other personal reasons (40%). However, 4% of respondents did not prefer to live in high rise building because of what they considered unfavourable environmental conditions.

**Health, Social Relations and Nutrition**

**Health and social relations**

57% of respondents suffered from upper respiratory tract infection in the former residence compared to 53% in the present residence. 35% used the health centre in the former residence compared to 42% in the present residence. 37% went to private practitioners in the former residence compared to 39% in the present residence. 68% went to tenant activities in the former residence compared to 73% in the present residence. 35% routinely read the holy Koran in the former residence compared to 41% in the present residence.

**Food expenditure and energy food pattern**

26% had monthly expenditures of 100,000 - 300,000 Rupiah in the former residence compared to 30% had up to 1,000,000 Rupiah in the present residence. 98% ate rice as their main energy source in the former residence compared to 97% in the present residence. 54% ate rice thrice daily in the former residence compared to 83% in the present residence.

**Protein and vitamin food pattern**

40% ate tempe or tofu as their main protein source in the former residence compared to 38% in the present residence. 52% respectively ate protein once daily in the former and present residence. 68% ate green leafy vegetables as their main vitamin source in the former residence compared to 66% in the present residence. 50% respectively ate vegetables once daily in the former and present residence.

## Discussion

The reason for data collection of only 2 sectors was due to its close proximity compared to the other two sectors. Furthermore, these two selected sectors were near to the health promotional site, which enabled the study team to conduct both public service and research activities at the same time. However, the types of housing unit included in the study of the selected sectors did not differ from the other unsolicited sectors. The random table systematically derived selected house numbers of the respondents of this study. Besides the sampling list, there was an additional waiting list of respondents to ensure (i) replacement of absentees from the original sampling list and (ii) prevention of a large number of absenteeism during the study, which was done on a weekend. This strategy explained the relatively high response rate of respondents (89%).

This comparative study was designed to answer the question on how respondents felt before and after living in high rise building. Whether there were any significant differences between the two conditions? The primary question to be answered was whether the respondents considered presently living in high rise building much better than their previous living facilities. Respondents were mostly people who lived in the same area before the construction of the high rise building. However, some tenants came from other areas that were mostly participants of similar urban renewal development programs in the Jakarta metropolitan area. Overall, the majority of respondents preferred living in high rise public buildings because of its convenience being located near their work place.

The study results showed no obvious differences between living conditions before and after life in a public high rise building. There were no significant differences in the following housing conditions before and after living in public high rise building:

1. Lighting and ventilation.
2. Water source for drinking and bathing.
3. Visual quality of drinking and bathing water.
4. Bathing and sewage water.
5. Sewage water and garbage disposal.

6. Health and social relations.
7. Monthly food expenditure.
8. Type of energy food and frequency.
9. Type of protein and vitamin source and their frequency.

However, this study found differences in the following housing aspects:

1. Type of cooking oil was different before and after living in high rise building. Formerly, they used kerosene oil for cooking (53%), while after living in high rise buildings, most of the tenants used gas for cooking (93%). In this case, the housing tenants were provided with exhaust fans in their respective kitchen unit.
2. Rarely was mosquito larva found in open water containers because the water source for drinking and bathing was not regularly available. They cleaned water containers only once every other day. This condition may have changed former tenant's cleaning habits of regularly scrubbing of water containers in the former residence.
3. Food expenditure especially monthly expenditure increased because they had to pay more after living in high rise building. The higher cost of living was also due to monthly housing mortgage and maintenance.

If comparison was done between the number of inhabitants and area of unit per square meters, then this ratio was larger or below the ideal recommended for a sustainable living environment. As stated by the WHO Definition, a healthy home should be able to provide optimal growth and development of mental, physical and social potential of all members in the family. This condition is not possible in a crowded housing unit, 18 - 36 $m^2$, and inhabited by 2 - 8 persons in each apartment.

Facilities to support housing were presently limited to small shops (*warung*), a neglected children playground, and rationing of tap water especially for tenants on the upper floors. A primary school is available behind the housing facility. A large hospital is also available near the public housing facility, but the tenants generally could not afford its cost of services. No religious facilities were available within the public high rise building complex. However, public transportation was within walking distance of the housing facility.

## Recommendation

In the future, people will have to tolerate living in high rise building. However, they are not used to living in these types of housing facilities due to their previous experience living in a totally different environment - single independent living unit vs. multiple apartment living unit. It is definitely a totally new situation for them. Thus, managers of the high rise building

should provide their tenants with regular housing and environmental health promotional programs. The Community Services Institute of Trisakti University could routinely conduct this activity through community academia partnership programs of this institution. Further-more, the construction of high rise building should consider the inclusion of modern supporting facilities such as (I) readily available tap water including centralised hot water, (ii) modern convenience shops, (iii) 24 hour health clinics, (iv) religious and recreational facilities, and (v) young children developmental playground.

## Acknowledgement

The authors would like to thank the members of Trisakti Medical Student Research Club for their assistance in conducting the survey.

## Reference

1. Kusumaratna, R.K.. Report of Public Services Activities on Environmental and Housing Health Promotion and Prevention of Dengue, Kemayoran Public High Rise Building, Kebon Kosong subdistrict, central Jakarta, June 28, 1998. Jakarta: Community Medicine Department, Trisakti University: 1998.

2. Slamet, J.S., Kesehatan Lingkungan. Yogyakarta: Gadjah Mada University Press: 1994.