



UNIVERSITI PUTRA MALAYSIA

***ASSESSING THE ENVIRONMENTAL HEALTH AWARENESS AMONG
LOCAL AND FOREIGN WORKER AT KLANG VALLEY***

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**ASSESSING THE ENVIRONMENTAL HEALTH AWARENESS AMONG
LOCAL AND FOREIGN WORKER AT KLANG VALLEY**

BY

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**Thesis submitted in fulfillment of the requirement for the degree of Bachelor
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and Health Sciences, Universiti Putra Malaysia**

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In the name of Allah, the Most Gracious, and the Most Merciful.

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ABSTRACT

ASSESSING THE ENVIRONMENTAL HEALTH AWARENESS AMONG LOCAL AND FOREIGN WORKER AT KLANG VALLEY

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Introduction: This study surveyed the environmental health awareness among local and foreign workers in Klang Valley. Environmental Health is one aspect of public health. Environmental health awareness plays an important role to educate people to become more aware of an environmental health issue and know how to prevent it. This study carried out among 120 workers in Klang Valley which included 60 local workers and 60 foreign workers. **Objectives:** The aim of this study was to assess the environmental health awareness level among local and foreign workers at Klang Valley. **Methodology:** This study used simple random sampling and conducted face-to-face interview to each respondents. Each respondent was interviewed by using a set of questionnaire form. Each questionnaire form consists of two sections; Section (A) Socio-Demographic Background and Section (B) Comprehensive Environmental Health Checklist (adapted from Community Environmental Health Assessment Toolbox for New Mexico (2004)). All the data were analyzed by using SPSS (Statistical Package for Social Science) Version 20. **Results and discussion:** The result showed that there were significant differences of environmental health awareness level among local and foreign workers ($p < 0.05$). The regression analysis showed that level of education, employment status and household income were significantly influenced by the environmental health awareness level among local workers. However, age and attend courses, seminars, or workshop related to environmental health awareness were significantly influenced with the environmental health awareness level among foreign workers. **Conclusion:** This study highlighted the necessary of increase the environmental health awareness among local and foreign workers, thus this will help to enhance the environmental health and safety perception, practices and knowledge among the working population in the country.

Keywords: Environmental Health Awareness, Local Workers, Foreign Workers, Klang Valley

ABSTRAK

MENILAI TAHAP KESEDARAN ALAM SEKITAR DI KALANGAN PEKERJA TEMPATAN DAN ASING DI LEMBAH KLANG

NURUL AINA BINTI KAMALUDIN

Pengenalan: Kajian ini mengkaji tentang kesedaran kesihatan alam sekitar di kalangan pekerja tempatan dan asing di Lembah Klang. Kesihatan alam sekitar adalah salah satu aspek kesihatan awam. Kesedaran kesihatan alam sekitar memainkan peranan yang penting dalam mendidik orang ramai supaya lebih peka tentang isu kesihatan alam sekitar dan tahu bagaimana untuk mencegahnya. Kajian ini dijalankan di kalangan 120 orang pekerja di Lembah Klang termasuk 60 orang pekerja tempatan dan 60 orang pekerja asing. **Objektif:** Tujuan kajian ini adalah untuk menilai tahap kesedaran kesihatan alam sekitar di kalangan pekerja tempatan dan asing di Lembah Klang. **Metodologi:** Kajian ini menggunakan persampelan rawak mudah dan menjalankan temuduga muka-ke-muka kepada setiap responden. Setiap responden telah ditemubual dengan menggunakan satu set borang soal selidik. Setiap borang soal selidik ini mengandungi dua bahagian; Seksyen (A) Latar Belakang Sosio-Demografi dan Seksyen (B) Senarai Semak Komprehensif Kesihatan Alam Sekitar (disesuaikan daripada Kotak Maklumat Komuniti Penilaian Kesihatan Alam Sekitar untuk Mexico Baru (2004)). Semua data telah dianalisis dengan menggunakan perisian SPSS (Pakej Statistik untuk Sains Sosial) Versi 20. **Keputusan dan Perbincangan:** Hasil kajian menunjukkan bahawa terdapat perbezaan yang signifikan tahap kesedaran kesihatan alam sekitar di kalangan pekerja tempatan dan asing ($p < 0.05$). Analisis regresi menunjukkan bahawa tahap pendidikan, status pekerjaan, dan pendapatan isi rumah sangat mempengaruhi tahap kesedaran kesihatan alam sekitar di kalangan pekerja tempatan. Walau bagaimanapun, umur dan menghadiri kursus, seminar, atau bengkel yang berkaitan dengan kesedaran kesihatan alam sekitar telah mempengaruhi tahap kesedaran kesihatan alam sekitar di kalangan pekerja asing. **Kesimpulan:** Kajian ini menekankan perlu untuk meningkatkan kesedaran kesihatan alam sekitar di kalangan pekerja tempatan dan asing, sekaligus ini akan membantu meningkatkan persepsi keselamatan dan kesihatan alam sekitar, amalan dan pengetahuan di kalangan penduduk yang bekerja di negara ini.

Kata kunci: Kesedaran Kesihatan Alam Sekitar, Pekerja Tempatan, Pekerja Asing, Lembah Klang

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LIST OF ABBREVIATIONS

IPCC	Intergovernmental Panel on Climate Change
IV	Independent Variables
DV	Dependent Variables
EH	Environmental Health
NEEAC	National Environmental Education Advisory Council
LA21	Local Agenda 21
UNDEC	United Nations Conference on Environment and Development
ASEAN	The Association of Southeast Asian Nations
NGO	Non-Government Organizations
EEAA	Environment and the Egyptian Environmental Affairs Agency
KL	Kuala Lumpur
KV	Klang Valley
SPSS	Statistical Package for Social Science
SLR	Simple Linear Regression
MLR	Multiple Linear Regression
EHA	Environmental Health Awareness
EPA	Environmental Protection Agency

CHAPTER 1

INTRODUCTION

1.1 Background

The environment is everything around us such as natural environment and man-made environment. The natural environment or unaltered environment includes flora, fauna, soil, water and minerals and also ecosystem services such as crop production, energy supply and soil maintenance. Man-made or built environment consists of homes workplaces, schools, community, includes outdoors and indoors, urban and rural. These resources and services are being decreased because of the population and consumption was increasing from years to years. The term “environment” refers to all elements of the physical and biological world (including humans), as well as the interactions between them. These elements may be categorized as ecosystem: goods, meaning the actual natural resources themselves (flora, fauna, soil mineral, air, water), and services, including the harvestable products (crops, timber), processes essential to sustain the provision of these resources (nutrient cycles, climate patterns, flooding control) and aesthetic and cultural benefits of ecosystems (recreation) (Anna Balance, 2014).

Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity (World Health Organization, 1948). Public

Health is defined as “the science and practice of protecting and improving the health of a community, as by preventive medicine, health education, control of communicable diseases, application of sanitary measures, and monitoring of environmental hazards” (The American Heritage® Dictionary of the English Language, Fifth Edition, 2013).

In view of this, environmental health is one aspect of public health it addresses all the physical, chemical, and biological factors external to a person, and all the related factors impacting behaviors. It encompasses the assessment and control of those environmental factors that can potentially affect health. It is targeted towards preventing disease and creating health-supportive environments (World Health Organizations, 2015).

Environmental health focuses on the relationship between human health and the conditions present in the environment and all elements, including air to breathe, water to drink and bath, land for cultivation, soil that we come in contact with, food to consume, the housing that we live in, and the landscape. The conditions of our housing and neighborhoods, the presence of industrial activities, and naturally occurring phenomena such as rainstorms, wind, landslides, flooding, droughts and others also being part of environmental health which when it happened it will also affect the human health.

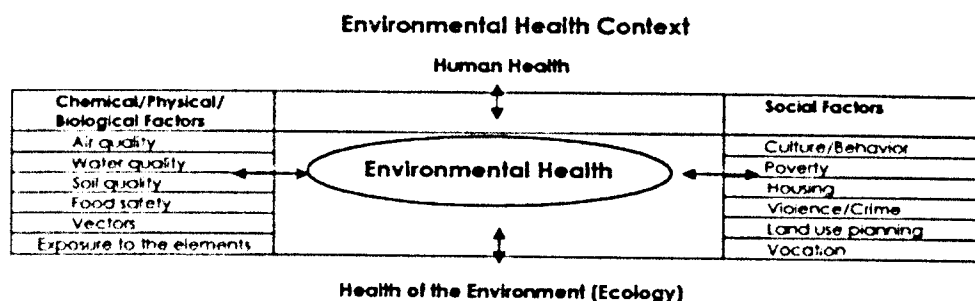


Figure 1.1: The environmental health context

Figure 1.1 illustrates the interconnectedness of human health with environmental factors and environmental health. The environmental health are interrelated with several factors consist of human health; health of the environment (ecology); chemical/ physical/ biological factors such as air quality, water quality, soil quality, food safety, vectors, and exposure to the elements; and social factors such as culture/ behavior, poverty, housing, violence/ crime, land use planning and vocation. Pollution is a generic term that refers to those factors in the environment such as substances in water, soil, or air that degrade the natural quality of the environment and/or impair the usefulness of natural resources, offend the senses (hearing, sight, taste, smell), and/or may cause health hazards. Pollution, or contamination, usually results from human activity, but can also be caused by an act of nature.

Air, water, soil, and food are the sources of human survival. Air support oxygen to humans and animals while carbon monoxide to plans. Without air all living things will die but only good quality of air will save the human being. Nowadays, air quality is decreasing from years to years because of industrialization, urbanization, and open

burning whether natural occurring or man-made. In recent years, Malaysia has experienced severe haze, causing an emergency. The impact to the children is the school had to be closed and advised to wear masks during outdoors because the air quality is very poor and any outdoor activities need to be stopped for a while until the situation returned to normal.

Water plays an important role in our daily life as well as other living things. Water provides us a drink, for daily use such as bathing, washing dishes, watering the plants, drinking for animals and others. However, only good quality of water will guarantee the human health. As we can see today, many rivers are being polluted because of human itself. The rivers are the main lifeblood of our water resources. People do not feel responsible when throwing the garbage into the river without thinking of the consequences in the future.

1.2 Problem Statement

Today, Kuala Lumpur is the largest urban centre in the country and is currently expanding as part of a merging conurbation stretching from Port Klang by the Straits of Melaka in the west to the foothills of the Main Range in the east, a distance of approximately 48 km in between these general directions of growth, rapid development continues to take place so that before long not only the valley gets “filled up” by urban land uses but the spill-over effect of such development can also be felt well beyond the

valley boundary with far-reaching consequences, both on the natural environment as well as the lifestyle of the population (Abdul Samad, 1982; Brookfield *et al.*, 1991).

In view of this, there is an increasing trend of heavy in-migration of community to the Klang Valley for the promising job opportunity. Between 1991 and 2000, the population of Klang Valley increased from about 3.2 million to 5.1 million, at 5 per cent per annum. Migration is induced by opportunities of higher learning, and employment in the manufacturing, services and construction sectors. Heavy concentrations of population in the Klang Valley, however, have given rise to many socioeconomical and health problems which has exacerbated the strain on existing social amenities and infrastructures (Tey Nai Peng, 2012).

Besides the phenomena of in-migration to the Klang Valley, the country still facing the critical problem of labour shortage has led to an influx of foreign workers from Indonesia, Philippines and Bangladesh to fill the needs of the construction, plantation, manufacturing and services sectors. Between 1996 and 2000, Selangor received a net inflow of 371,000 migrants, of whom 14 per cent were foreigners. On the other hand, Kuala Lumpur received 42,000 in-migrants between 1996 and 2000, but sent almost 100,000 away to the state of Selangor (Tey Nai Peng, 2012).

Environmental health awareness is one of the components which need to be achieved towards a sustainable development in this region. This is crucial as the community mostly spends their time at home, work, or school. Some of these

environments may expose people to indoor air pollution; inadequate heating and sanitation; electrical and fire hazards; and lead-based paints hazards. Tempte and McCall (2001), argue that individual level awareness of and concern for environmental hazards is lacking. An individual's level of knowledge about environmental health hazards influences how he or she perceives the level of risk associated with exposure (Johnson, 1993). Individual knowledge regarding health risks is known to profoundly influence risk perception which, in turn, affects a personal's attitude. Thus, an individual's knowledge, perception, and attitude are fundamental in determining how that person behaves regarding environmental hazards.

According to an annual report from Intergovernmental Panel on Climate Change (IPCC) (2014) found out that global temperatures will hit a staggering 4.8 degrees Celsius above pre-industrial levels by the end of the century with potentially negative consequences for humanity, ecosystems and sustainable development until such extent that environmental problems constitute further degradation (Nagra & Kaur, 2013). This meanly affirms that environmental awareness leads to responsible citizenship behavior (Sengupta *et al.*, 2010). In addition, the tenth Malaysia plan (Country Health Plan, 2011 – 2015) also highlighted the wide gap between community health-related knowledge-behaviors. The report revealed that the community still does not take ownership of their health issue, in fact, there is still limited resources and unsafe environment that constraints the community living in a safe and healthy environment.

1.3 Study Justification

Environmental degradation is a major problem of our present world. Negative effects, future potentialities of destruction, risks, and vulnerabilities are evident in nature and society and that these existing environmental problems are being widely acknowledged through media, conferences, campaigns, reports, and policies to sort long term solutions (Nagra and Kaur, 2014).

To combat this problem, we need environmentally sensitive and aware people (Manpreet & Manjeet, 2013). One's knowledge, perception, and attitude are fundamental in determining how one behaves regarding environmental hazards. Even though policy makers and scientist have made great strides in promoting environmental health, threats still exist. This may due to individual actions in response to potential health hazards. Past study also showed that one of the best ways of preserving the environment is through environmental education and creating awareness among society (Shil *et al.*, 2013; Thapa, 1999).

Studies by Flynn, Slovic, and Mertz (1994) and Willis, DeKay, Fischhoff, and Morgan (2005), have suggested that there are six key variables that influence how individuals perceive environmental health hazards. These include the impact the ecological issue generally has on human health, whether the issue can be controlled or corrected, the benefits or negative connotations associated with the risk, how the

individual is directly affected, the degree of knowledge the individuals has about the issue, and whether or not there are any aesthetic impacts.

This is mostly observed when they are exposed to an emerging crisis where the extent of adaptation and coping is closely related to resources and assets, thus encourages the government, both public and private sectors to support and prioritize the people's coping mechanisms and to collaboratively do the task with ease and confidence in improving coping strategies and adaptation measures and increasing young person's sense of belonging to continually help themselves and the community as well (Saiful Hadi, 2010). This can be all feasibly happened because environment has become the concern of all academicians, intellectuals, scientists, and policymakers across the continents (Kant & Sharma, 2013).

To date, it is still limited research examines the environmental health awareness level among foreign and local workers in Malaysia. Therefore, this study is to examine the level of awareness of environmental health, which include occupational health and safety, hygiene and sanitation among local and foreign working community. Findings of this study could assist in identifying knowledge gaps and indicate where additional training and awareness rising is required.

1.4 Conceptual Framework

Figure 1.4 shows the conceptual framework of this study. The aim of this study is to assess the environmental health awareness among local and foreign workers at Klang Valley. The respondents who involved in this study are local and foreign workers who work in Klang Valley areas only.

The foreign and local workers were assessed about the environmental health awareness through socio-demographic status such as age, nationality, living in part of Klang Valley, how long lived in Klang Valley, level of education, marital status, distance to nearest health care services, employment status, total number of people live in the house, total household income, total number of people working in the house, experienced any health-related symptoms/diseases due to living environment, experienced any health-related symptoms/diseases due to working environment, and attend any course, seminar or workshop related to environmental health awareness in workplace.

The awareness of environmental health was examined through a modified Comprehensive Environmental Health Checklist (adapted from Community Environmental Health Assessment Toolbox for New Mexico (2004)) which consists of odor and air pollution; water quality; sanitation; occupational safety; household hazards and safety; natural hazards; neighborhood safety hazards; industrial hazards; river and irrigation canals; and; roads and highways, railroads and walkways.

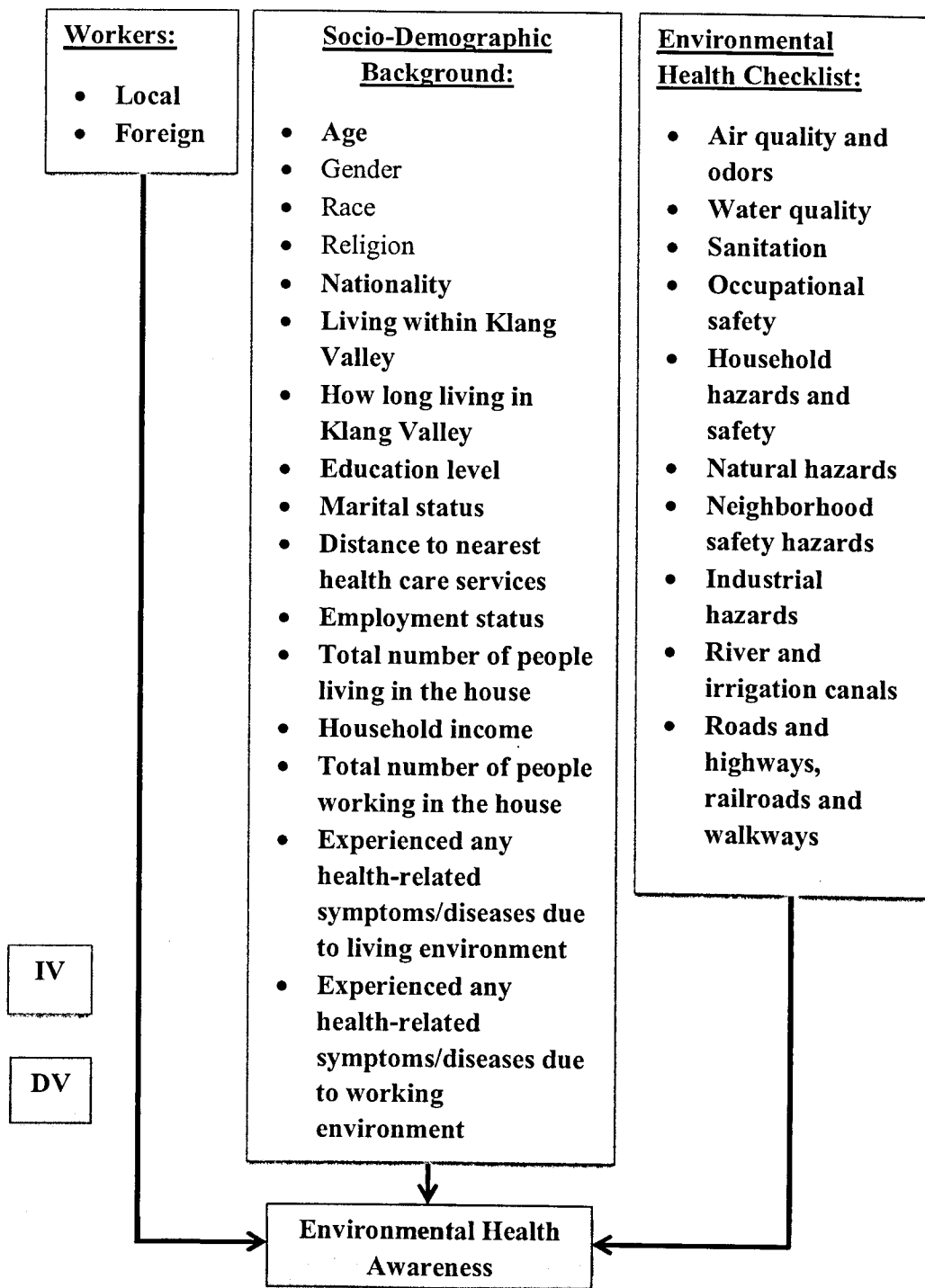


Figure 1.4: Conceptual framework of Environmental Health Awareness

1.5 Research Objective

1.5.1 General Objective

To assess the environmental health awareness level among local and foreign workers at Klang Valley.

1.5.2 Specific Objective

- i. To examine the socio-demographic background of the local and foreign workers.
- ii. To determine the level of environmental health awareness among local and foreign workers.
- iii. To compare the level of environmental health awareness among local and foreign workers.
- iv. To determine the relationship of socio-demographic background and the level of environmental health awareness among local and foreign worker.

1.6 Study Hypothesis

- i. There is significant difference of environmental health awareness level between local and foreign workers.
- ii. There is significant relationship between socio-demographic background and environmental health awareness among local and foreign workers.

1.7 Definition Of Term

1.7.1 Conceptual Definition

i. Environmental health awareness

By definition, the scope of the term ‘the environment’ is very broad. One way it can be conceptualized is as all of the external elements which surround, influence and affect life. While this is often associated with natural environmental factors (such as air, water and climate), human settlements are ‘environments’ in their own right. Environmental awareness is an integral part of the movement’s success.

ii. Foreign workers

Foreign is located outside a particular place or country and especially outside your own country; or coming from or belonging to a different place or country; or relating to or dealing with other nations. A foreign worker is a person who employed in a country on a temporary basis to which the person is not a citizen.

iii. Local workers

Local can be defined as pertaining to or characterized by place or position in space; spatial. Besides that, local can be related with belonging or relating to a particular area or neighborhood. Local workers in Malaysia define as a potential workforce born in Malaysia and exceptional is also given to citizen who holds Malaysian Permanent Resident.

1.7.2 Operational Definition

i. Environmental health awareness

Environmental health awareness can be meant by teaching our friends, family and other peoples whether in formal or informal way that the physical environment is fragile and indispensable we can begin fixing the problems that threaten it.

ii. Foreign workers

Foreign can be defined as situated outside a place or country; especially: situated outside one's own country. A person who migrated from their own country to another country for their own purpose such as travelling or working is called foreign people. Foreign workers are recruited by the company, recruitment

agency or hired whilst they were job seeking in the country to supplement the workforce of the country for a limited term or to provide skills on a contractual basis that the country seeks. Those workers are including skill and unskilled, legal and illegal workers.

iii. Local workers

Local can be defined as people who lived and worked in some places or country and originally are the people of that country. We can further define the local workers into a smaller scale of workforce which are located at particular area of employment which needed the manpower. Local workers can be recruited directly by the employer or can be recruited by recruitment agency. Those local workers are including skill and unskilled qualification. Local workers are being governed by Employment Law Act 1957 and Industrial Relation Act 19.

CHAPTER 2

LITERATURE REVIEW

2.1 Environmental Health

Environmental health (EH) is just one aspect of public health. It is defined as, “Freedom from illness or injury related to exposure to toxic agents and other environmental conditions that are potentially detrimental to human health” (Pope, Snyder, & Mood, 1995).

According to 2nd European Conference on Environment and Health held in Helsinki in 1994, there are two definitions are presented below, the first relating to the effects of the environment on health while the second relates to environmental health services. The definition of environmental health comprises those aspects of human health, including quality of life, that are determined by physical, chemical, biological, social and psychosocial factors in the environment.

It also refers to the theory and practice of assessing, correcting, controlling and preventing those factors in the environment that can potentially affect adversely the health of present and future generations. Meanwhile, environmental health services are those services which implement environmental health policies through monitoring and

control activities. They also carry out that role by promoting the improvement of environmental parameters and by encouraging the use of environmentally friendly and healthy technologies and behaviors. They also have a leading role in developing and suggesting new policy areas.

2.2 Environmental Education

The environment is the combination of living things which are closely related to human, animal and vegetation. One of the best ways of preserving the environment is through environmental education and creating awareness among society, especially students as they are the future leaders (Thapa, 1999). The research on environmental awareness can be vast in subjects matter as well as spatial contexts (Aishah *et al.*, 2011). Environmental awareness is one of components in achieving sustainable development globally.

Sustainable development can be defined as developments that could meet the needs of the present generation without damaging the environment or compromising the ability of future generations to meet their own needs (Bruntland Report, 1987; Dale and Hill, 2001; Giddings *et al.*, 2002). The lack of continuous and comprehensive environmental education in learning institution has caused youth to overlook the importance of the environmental protection in their daily life. According to Hansen (1991), this is because they do not have continuous exposure on environmental issues either through formal or informal education.

As the population has increased, natural ecosystems have declined and changed in the balance of natural cycles leading to negative impacts on both humans and other living things. In order to create an integration and balance between natural and built environment, an initiative called Local Agenda 21 (LA21) was proposed at the United Nations Conference on Environment and Development (UNDEC) in 1992 (Tonami and Mori, 2007). LA21 is “an agenda that set tasks and a vision in order to promote sustainable development at the local level and shows the menu of actions” (Nakaguchi, 2004).

The development of environmental awareness among the public is a key element in the formation of fundamental solutions for environmental problems that are blocking sustainability. Public awareness through educational programs is very important and an essential step towards sustainable developments (Ziadat, 2010 and Young, 2000). According to National Environmental Education Advisory Council (NEEAC) (1996), environmental education is a process that creates awareness and understanding of the relationship between humans and their environments. Environmental education is concerned with knowledge, values, and attitudes, and aims towards creating responsible environmental behavior. Palmer (1998), have emphasized that the general aims of environmental education are to support and make powerful the community to preserve the integrity and diversity of nature, and to ensure that natural resources are used in an equitable and ecologically sustainable manner.

Environmental education is “the process of helping people, through formal and informal education, to acquire understanding, skills and values that will enable them to participate as active and informed citizens in the development of an ecologically sustainable and socially just society” (ASEAN Environmental Education Action Plan, 2000-2005). Formal education can be defined as school education, while informal education is the opposite of formal learning in the classroom where knowledge can be known through advertising in mass media, office, friends and relatives. This includes any activities organized by some parties such as Non-Government Organizations (NGOs), communities or businesses. Therefore, the mass media play an important role in making a program that received wide coverage in the community.

2.2 Environmental Health Awareness

The learning environment should be taught early in school until the onset of adulthood. Thus, that knowledge of environmental awareness will be brought till the end of life. Academic subjects such as science, life science, geography, agriculture, etc. should be considered because researches claimed their significance in the development of foster environmental awareness (Goldman *et al.*, 2007). Thus, teachers need to be exposed to real environment situations to bring about change in attitude and behavior of the young individuals and the general public as well (Murdoch, 2012).

A study of Oguz *et al.* (2010) revealed respondents’ high awareness on environmental problems but argued not an assurance to increase pro-environmental

behavior. This says education must be critical for promoting environmental protection and conservation (Nagra, 2010; Nagra & Kaur, 2013) and improving the capacity of people to positive environmental management (Littleddyke, 2008) necessary for the development of knowledge, understanding, awareness, skills, attitudes, values, and commitment in the attainment of a better quality of environment and higher quality of life (Sola, 2014).

The determinants of environmental awareness among peoples in every countries are varies. Empirical evidence suggests that factors such as; gender, socio economic status, age, income, occupation, education, origin, residence, season, nationality, etc. (Hwang *et al.*, 2000; Kaiser *et al.*, 1999) are also somehow determinants of environmental awareness and ecological behavior. The demographic variable gender differences have been one of the significant factors that have been found to be inconclusive in predicting its effect on the environmental education awareness or behavior (Vipinder & Rajneesh, 2014).

Environmental education should not only serve in schools but also among workers and public. According to The Ministry of State for the Environment and the Egyptian Environmental Affairs Agency (EEAA), a Central Department for Information and Environmental Awareness was specially established. Some activities were held such as seminar and workshop with a number of scientists and journalists to come up with TV

and radio programs. Competitions on environment were also available just to increase the awareness among workers and public.

CHAPTER 3

METHODOLOGY

3.1 Study Location

This study covered the area of Klang Valley (Malay: Lembah Klang). Figure 3.1, which is an area in Malaysia which is centred in Kuala Lumpur, and includes its adjoining cities and towns in the state of Selangor. A more recent alternative reference to this would be Kuala Lumpur Metropolitan Area or Greater Kuala Lumpur, is currently home to about 7.2 million people or more than a fifth of Malaysia's total population.

The Klang Valley is geographically delineated by Titiwangsa Mountains to the north and east and the Strait of Malacca to the west. It extends to Rawang in the northwest, Semenyih in the southeast, and Klang and Port Klang in the southwest. The conurbation is the heartland of Malaysia's industry and commerce. Klang Valley is home to a large number of migrants from other states within Malaysia and foreign workers largely from Indonesia, India and Nepal.

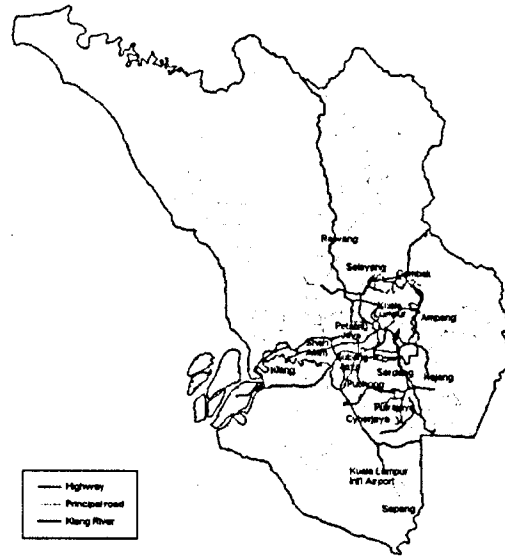


Figure 3.1: The area of Klang Valley

3.2 Study Design

This is a cross sectional comparative study which conducted from February to April 2016 among local and foreign workers at Klang Valley.

3.3 Study Sampling

3.3.1 Sampling Population

A total of 60 local and 60 foreign workers who fulfill the inclusive criteria were selected from their respective workplace at the Klang Valley.

3.3.2 Sampling Frame

The letter of consent and ethical clearance were submitted to selected workplace for approval of recruiting local and foreign workers to participate in this study. A list of workers was received from the Human Resource Department, however, only shortlisted worker who fulfill the inclusive criteria will be recruited in this study.

i. Inclusion criteria

- Working adult
- Male
- Has at least 1 year of working experience at Klang Valley
- Age of respondents between 20-55 years old

3.3.3 Sampling Unit

The sampling unit was a foreign and local worker at Klang Valley.

3.3.4 Sampling Method

The simple random sampling was used to sample study population for the study. A face-to-face interview is conducted among study respondents by using the self-

constructed questionnaire and modified environmental health awareness checklist (Appendix C1 and Appendix C2). This will permit the non-verbal reactions of the study respondents to be observed. The advantage of this technique is closer rapport arising from the more natural setting.

3.3.5 Sampling Size

In epidemiological studies, recruitment of enough samples for the study is very important. The sample size must be adequate so that the result is reliable. The study sample size was calculated using formula of Lemeshow & Lwanga, (1990) as below:

$$n = \frac{2\sigma^2 \left[z_{1-\frac{\alpha}{2}} + z_{1-\beta} \right]^2}{(\mu_1 - \mu_2)^2}$$

Where,

σ = estimated standard deviation (assumed to be equal for each group)

μ_1 = estimated mean (larger)

μ_2 = estimated mean (smaller)

*According to a previous study by Nikhat & Nikhat Yasmin (2014), about the environmental awareness, therefore:

$$n = \frac{2(4.2085)^2 [1.96 + 0.842]^2}{(39.89 - 38.88)^2}$$

$$n = 272$$

Thus, a minimum of 272 respondents will be recruited for two groups of study population, i.e. 186 for local and foreign workers respectively.

3.4 Instrumentation

3.4.1 Approval Letter

The background of this study was briefed to the study respondents as summarized at subject information sheet (Appendix B1 and Appendix B2), only respondents who agreed to participate in this study should acknowledge their participation voluntarily by signing up the consent letter (Appendix B1 and Appendix B2).

3.4.2 Questionnaire

The questionnaire was one of the tools to acquire the information needed from the workers. There were two instruments for data collection in this study which were the self-administered questionnaire and environmental health checklist. A set of questionnaire was given to each of the respondents. The questionnaire was consists of

Socio-Demographic Status and Comprehensive Environmental Health Checklist (Community Environmental Health Assessment Toolbox for New Mexico, 2004) The flexibility of language in the questionnaire allowed the respondents to choose and answered questionnaires in the language they understand.

3.5 Data Analysis

All of the data analysis was analyze by using the statistical analysis to perform the SPSS 20 (Statistical Package for Social Science) with the Microsoft Excel 2010 for Windows 8. The SPSS program is suitable for analysis of social science data from questionnaires. Respondents were entered according to the fixed code for data screening purpose. The normality test of Kolmogorov-Smirnov test was first used to examine the normality of the study variables.

Descriptive analysis was used in this study which was the central tendencies including mean, median, and measures of dispersion including range and standard deviation were run to know and analyze the distribution of socio-demographical background and level of environmental health awareness. In addition, univariate analysis was used to compare the significant different of environmental health awareness among local and foreign workers. The Mann Whitney U test was performed to compare the difference of the level of environmental health awareness. Besides, the simple regression and multiple regression analysis were also performed to determine the relationship between socio-demographical backgrounds among study population.

3.6 Quality Control

Pre-test questionnaire was conducted for 10% of sample size before data collection was carried out. The pre-test was carried out among the workers in Selangor and Kuala Lumpur. The trial of new questionnaire with a small group of intended respondents was improved its clarity and remove any problems before the main survey. This process also allowed the questions asked in questionnaire easier to understand and answered by the respondents. The advantage of conducting pre-test was it could avoid questionnaire bias and improve or strengthen the outcome.

3.7 Ethical Consideration

This study was approved by the Board of Committee of Ethical, Faculty of Medicine and Health Sciences, Universiti Putra Malaysia (Appendix A): Ethical Approval Letter on 4/4/2014. The identity and personal information of the respondents were kept confidential and it will not going to be stated in any parts of the study or any publications. In brief, the respondents were given a brief explanation about the study such as aim of the study based on the subject information sheet (Appendix B1 and Appendix B2). By a brief explanation of what to do in the questionnaire or how to answer the questionnaire before it distributed to the respondents. Respondents then signed the consent letter to agree participate in this study voluntarily.

CHAPTER 4

RESULTS & DISCUSSION

4.1 Response Rate

In this study, a total of 120 respondents were recruited, which included 60 local workers and 60 foreign workers. All of them agreed to participate in this study, completed the questionnaires and the response rate was a hundred percent (100%). This excellent response rate was achieved due to good collaboration between respondents and researcher.

4.2 Socio-Demographic Background of Respondents

The first objective of the study was to determine the socio-demographic of local and foreign workers, which included age, nationality, living within Klang Valley, how long living in Klang Valley, level of education, marital status, distance to nearest health care services, employment status, total number of people living in the house, total income, total number of people working in the house, experienced any health-related, symptoms or diseases due to living environment, health-related symptoms or diseases due to living environment, experienced any health-related, symptoms or diseases due to

working environment, health-related symptoms or diseases due to working environment, and attend any course, seminar or workshop related to environmental health awareness.

Table 4.2 shows the distributions of socio-demographic of the respondents. For local workers all of the respondents were Malaysian (100%) while the most common nationality among the foreign workers was Indonesian (53.30%). More than half of the local workers (77%) and foreign (58%) workers were in the age range from 20 to 29 years old. The highest inhabited area in the Klang Valley by the local workers was in Hulu Langat (38.30), while the foreign workers were in the Petaling (40%). More than half of the foreign workers (95%) reported to have live in the Klang Valley for at least 1 to 10 years, while about 46.7% of local workers had stayed in Klang Valley for at least 1 to 10 years duration. The highest total income for local workers (56.70%) and foreign workers (53.30%) were in between of RM1000 to RM3000. The level of education between local and foreign workers shows that secondary school (50%) was the highest level of education among foreign workers while the highest level of education among local workers was Diploma/Degree (60%).

About 60% of local workers were single while 48.3% of foreign workers were reported to either single or married. While examining the distance of health care services, about 80% of both local and foreign workers claimed that the nearest health care services is less than 9 kilometers distance from their house. Around 65% of local workers and 98.3% of foreign workers reported to work in the private sectors, lesser of them worked in the government sector and the self-employed. The highest range of a

total number of people living in the house was in between 4 to 7 persons per house, which are 65% for local people and 55% for foreigner. Meanwhile, for the total number of people working in the house was more than 3 persons per house, which are 48.30% among local people followed by 71.6% among foreigner. The 56.7% of local workers and 53.3% of foreign workers revealed the highest total household income between RM1000 to RM3000.

In addition, around 48.3% of local workers and 71.6% of foreign workers reported to have more than 3 working persons among their household members. Meanwhile, most of local (60%) and foreign (60%) workers have no experienced of any health-related symptoms or disease related from their living environment. For local workers, the most high prevalence of health-related symptoms or diseases due to their living environment was dengue fever (11.70%) while for foreign workers was fever (13.30%). Besides, 76.7% of the local workers revealed that they have no experienced any health-related symptoms or diseases from their working environment and 63.30% of foreign workers reported that they have no experienced any health-related symptoms or diseases due to working environment. The highest prevalence of health-related symptoms or disease due to working environment was fever for both local (6.7%) and foreign (15%) workers. When the fundamental knowledge of environmental health were examined, 50% of local workers reported that they have attended course or seminar or workshop related to environmental health awareness, nevertheless, most of the foreign workers (73.3%) have not attended any course or seminar or workshop related environmental health awareness.

Table 4.2: Socio-demographic of Local and Foreign Workers

Variables	Local workers (N=60)	Foreign workers (N=60)	Mean±SD
Age (Years old)			
20-29	46 (77)	35 (58)	28.27±7.13
30-39	8 (13)	19 (32)	
40-49	4 (7)	5 (8)	
50-59	2 (3)	1 (2)	
Nationality			
Malaysia	60 (100.00)		
Indonesia		32 (53.30)	
Bangladesh		10 (16.70)	
Sri Lanka		5 (8.30)	
Pakistan		7 (11.70)	
Myanmar		6 (10.00)	
Living within Klang Valley			
Kuala Lumpur	15 (25.0)	18 (30.00)	
Putrajaya	3 (5.0)		
Petaling	15 (25.0)	24 (40.00)	
Klang	2 (3.3)	7 (11.70)	
Gombak	2 (3.3)	5 (8.30)	
Hulu Langat	23 (38.3)	6 (10.00)	
How long living in Klang Valley (Years)			
1-10	28 (46.7)	57 (95.00)	10.39±10.53
11-20	10 (16.7)	1 (1.70)	
21-30	17 (28.3)	2 (3.3)	
31-40	5 (8.3)		
Level of education			
Illiteracy		1 (1.70)	
Primary school	1 (1.70)	18 (30.00)	
Secondary school	22 (36.70)	30 (50.00)	
Diploma/Degree	36 (60.00)	8 (13.30)	
Master	1 (1.70)	3 (5.00)	
Marital status			
Single	36 (60.00)	29 (48.30)	
Married	23 (38.30)	29 (48.30)	
Widow/widower	1 (1.70)	1 (1.70)	

Divorced		1 (1.70)	
Distance to the nearest health care services (Kilometer)			
0 – 9	50 (83.30)	49 (81.70)	
10 – 19	8 (13.30)	9 (15.00)	4.18±4.99
20 – 29	2 (3.30)	2 (3.30)	
Employment status			
Government	12 (20.00)		
Private	39 (65.00)	59 (98.30)	
Self-employed	9 (15.00)	1 (1.70)	
Total number of people living in the house			
1 – 3	14 (23.30)	12 (20.00)	
4 – 7	39 (65.00)	33 (55.00)	5.60±2.35
8 – 11	7 (11.70)	15 (25.00)	
Total income (RM)			
< 1000	1 (1.70)	19 (31.70)	
1000 – 3000	34 (56.70)	32 (53.30)	
3000 – 10,000	21 (35.00)	9 (15.00)	
> 10,000	4 (6.70)		
Total number of people working in the house			
One person	9 (15.00)	5 (8.30)	
Two person	22 (36.70)	12 (20.00)	
> Three person	29 (48.30)	43 (71.60)	
Experienced any health-related symptoms/diseases due to living environment			
Yes	23 (38.30)	23 (38.30)	
No	37 (61.70)	37 (61.70)	
Health-related symptoms/diseases due to living environment			
Fever	2 (3.30)	8 (13.30)	
Flu	2 (3.30)	1 (1.70)	
Air	1 (1.70)		
Dengue fever	7 (11.70)	1 (1.70)	
Cough	1 (1.70)	2 (3.30)	
Itching	1 (1.70)		
Sinusitis	1 (1.70)		
Headache	2 (3.30)	4 (6.70)	
Asthma	3 (5.00)	1 (1.70)	
Food poisoning	1 (1.70)		
Sore eyes		1 (1.70)	
Sneezing		2 (3.30)	

Lumbago		1 (1.70)
No	39 (65.00)	38 (63.30)
Experienced any health-related symptoms/diseases due to working environment		
Yes	14 (23.30)	22 (36.70)
No	46 (76.70)	38 (63.30)
Health-related symptoms/diseases due to working environment		
Fever	4 (6.70)	9 (15.00)
Asthma	2 (3.30)	
Sore eyes	1 (1.70)	1 (1.70)
Dim	2 (3.30)	1 (1.70)
Headache	2 (3.30)	3 (5.00)
Hearing impairment	1 (1.70)	
Hypertension	1 (1.70)	1 (1.70)
Heat stress		2 (3.30)
Cough		1 (1.70)
Itching		1 (1.70)
Flu		1 (1.70)
Body ache		2 (3.30)
No	47 (78.30)	38 (63.30)
Attend any course/seminar/workshop related Environmental Health Awareness		
Yes	30 (50.00)	16 (26.70)
No	30 (50.00)	44 (73.30)

4.3 Determination of Environmental Health Awareness

The second objective of this study was to examine the level of environmental health awareness among local and foreign workers. Table 4.3 shows the differences of environmental health awareness between local and foreign workers. The level of environmental health awareness among local and foreign workers was then compared by using the Mann Whitney U test. The elements of environmental health awareness level consist of ten (10) sections, i.e. (i) odor and air pollution; (ii) water quality; (iii)

sanitation; (iv) occupational safety; (v) household hazards and safety; (vi) natural hazards; (vii) neighborhood safety hazards; (viii) industrial hazards; (ix) river and irrigation canals; and; (x) roads and highways, railroads and walkways. A likert scale based awareness checklist was used in this section, respondents were advised to complete the checklist based on the scale category, such that, '1 or 2' indicate as 'small problems'; '3 or 4' indicate as 'somewhat important problem'; and '5 or 6' indicate as 'very important problem'.

For air quality and odors section is aimed to examine the awareness level related to dust (ambient and roads); smoke (local burning); pollen, mold, and hantavirus; allergies and asthma; auto emissions; sewage odors; odors from garbage; and drift from agricultural spraying (odors, eye or breathing irritation). In this study, the Z statistic showed that -2.96 where local has an increase awareness level as compared to foreign workers and the p-value was 0.003. Therefore, the null hypothesis was rejected as the result showed significant different between local and foreign workers. The awareness level related to water quality was examined based on the elements such as water quality of wells; municipal system water quality; potential contaminants; dumping of contaminants in canals, river and on-the-ground (oil and pesticides); and agricultural spraying drifts or spills. Result showed that the Z statistic of water quality was -2.03 where local has an increase awareness level as compared to foreign workers at the p-value 0.043. Thus, the null hypothesis was rejected and the result showed significant difference between local and foreign workers in this study.

The awareness level of sanitation section is to examine the septic system (functionality and problems); municipal sewage system, solid waste; rodents; and scavenging dogs or wildlife. Result showed that the Z statistic was -2.75 while comparing the sanitation awareness level among local and foreign workers. The local workers showed a significant increase (p-value at 0.006) of awareness level as compared to foreign workers. The occupational safety and health awareness level, the elements to examine consist workers safety (machinery and lifting hazards on the farm and processing facilities); pesticide management; poor medical care; no health insurance; dehydration; and sunburn and overexposure. Result showed that both local and foreign workers have an equivalent awareness level of occupational safety and health awareness performance at their respective workplace. Therefore, null hypothesis was not rejected at p-value more than 0.05.

In addition, the awareness of household hazards was examined by considering the elements such as house integrity (air and water leaks); accident and fire hazards; electrical hazards; poorly stored pesticides and solvents; cleanliness and hygiene (roaches), in-home smoking or secondhand smoke; mold, dust, mites and hantavirus; allergies and asthma; food preparations or safety; and in-home firearms. In this context, the local workers showed the significant increase awareness level ($p=0.002$) of household hazards as compared to foreign workers. On the other hand, the awareness of natural hazards were examining the questions such as sunburn and overexposure; dehydration; floods; land and debris slide; storms, wind and rain damage; wildlife,

snakes and rabies; and insects. Study showed that local workers have the significant increase ($p=0.035$) awareness level as compare to the foreign workers.

For neighborhood safety hazards, local workers have significant increases ($p=0.004$) of awareness level towards automobile traffic; lack of street lighting, aggressive dogs and rabies; open pits and broken pavement; electric transmission line hazards; and violence, crime and gunplay as compared to foreign workers. In addition, result showed that local workers have the significant increased awareness ($p=0.004$) level of the industrial hazards as compare to foreign workers. The industrial hazards section mainly examine the awareness level related to strong odors and eye irritants; industrial spills and explosion or fires; gas line ruptures and emissions; hazardous materials storage, loading or unloading, and transport; and brownfields and abandoned mines.

The river and irrigation canals was also examining by considering the falling hazards (open canals); wading and swimming (drowning); ingestion of contaminated fish; and irrigation infrastructure (dams, siphons, gates and control valves). Result showed that local workers has significant increase awareness ($p=0.009$) level related to the river and irrigation canals as compared to foreign workers. When the awareness level related to roads and highways, railroads and walkways were also examined in this study, result revealed that local workers has the significant increase ($p=0.017$) awareness level as compared to foreign workers. The main elements of this section is to investigate the

knowledge level such as speeding traffic; unskilled drunk and drivers; hazardous materials transport; broken pavement; and dangerous bridges and intersections.

Table 4.3: The differences of Environmental Health Awareness between Local and Foreign Workers

	Median	IQR	Mean Rank	Z	p-value
Air quality & odors					
Local	30.50	14.00	69.88	-2.96	0.003*
Foreigner	25.50	21.00	51.12		
Water quality					
Local	18.00	8.75	66.93	-2.03	0.043*
Foreigner	16.00	11.00	54.07		
Sanitation					
Local	20.00	10.00	69.22	-2.75	0.006*
Foreigner	17.00	16.50	51.78		
Occupational safety					
Local	22.00	16.00	63.61	-0.98	0.327
Foreigner	22.00	18.25	57.39		
Household hazards & safety					
Local	40.00	22.00	70.30	-3.09	0.002*
Foreigner	33.50	30.75	50.70		
Natural hazards					
Local	26.50	14.00	67.20	-2.11	0.035*
Foreigner	21.00	26.00	53.80		
Neighborhood safety hazards					
Local	26.00	15.75	69.52	-2.84	0.004*

Foreigner	21.00	22.25	51.48		
Industrial hazards					
Local	20.00	15.75	69.53		
Foreigner	13.50	22.25	51.48	-2.85	0.004*
River & irrigation canals					
Local	14.50	10.00	68.74		
Foreigner	11.50	15.00	52.26	-2.60	0.009*
Roads & highways, railroads & walkways					
Local	21.00	12.00	68.05		
Foreigner	17.50	17.00	52.95	-2.38	0.017*
Mann Whitney U					

*p-value is significant at 0.05

This current study was performed on an exploratory basis to assess the awareness level among the local and foreign workers. Overall, local workers showed the significant increase of awareness level on the environmental health issues as compared to foreign workers, except on issue related to occupational health and safety. There are three main category of employment status in Klang Valley, i.e. government sector, private sector, and self-employed. The current study showed that most of the respondents worked at the private sector, where the organization highlighted practices on occupational safety and health have similarly influence the local and foreign workers.

It was also thought that knowledge of environmental health risks is a key factor in determining whether or not an individual is concerned about these issues and whether

he or she perceives exposure to be hazardous (Tempte & McCall, 2001). Even so, the overall results of this study revealed that most of the participants lacked basic awareness about environment health. One explanation may be that even though the environmental threats and hazards have contributed alarming risks to humans over many years, this could be a direct result of a lack of understanding regarding environmental health risks; and as Leventhal (1973) pointed out knowledge is directly related to specific behaviors. Unfortunately, the current study suggests that the majority of foreign workers do not engage in eco-friendly behaviors as compared to the local workers.

The Environmental Protection Agency (EPA) identified 80 studies, that consistently found that minority and low income communities face disproportionate exposure to environmental hazards (Grant Makers for Health, 2007). In this country, foreign workers tend to live and work in unhealthy environment which may cause them become unaware about the environmental health awareness than the local workers. Besides, financial unstable foreign workers tend to live and work in the least desirable neighborhoods, which are characterized by older housing stock and in close proximity to sources of environmental risk such as highways, dumps, and heavy industry (Grant Makers for Health, 2007). It contributed to the neighborhood safety hazards whereby people live in unhealthy and unsafe environment. This also explained the reason of foreign workers who have been exposed to household hazards and safety from their living environment which was not maintained properly. Besides, it is widely accepted that local workers have better education and employment status which indicate that they

have an increase awareness level towards environmental health practices, particularly there is an increasing local media attention given to environmental issues.

In addition, past study Gee and Payne-Sturges (2004) also an evident that minority neighborhoods tend to have higher rates of morbidity, mortality, and poor health outcomes compared to white neighborhoods. In the current study, minority neighborhood can be considered as foreign workers and white neighborhood can be considered as local workers. The local workers have a better environmental health understanding because most of them have high level of education who worked as white collar; whereas most of the foreign workers tend to work in private sector such as labor, cashier, and others due to their immigration and educational status. Other studies also suggested that low income and minority communities are burdened with water, noise, and air pollution, inadequate and unhealthy housing, adjacent to major highways where hazardous chemicals are transported, a lack of green space, limited access to healthy foods, and along with other environmental hazards (Centers for Disease Control and Prevention, 2011).

Research shows that indoor air pollutants such as, pesticides and, nitrogen dioxides play a role in the development of asthma. Air pollutants cause various respiratory problems including bronchitis, emphysema, and asthma (Clougherty & Kubzansky, 2009). Local workers were commonly known as more aware about air pollution such as indoor air pollution that came from the house itself. Thus, that makes

them to use better paint and furniture in their house. Most of the foreign workers were employed at the agricultural sector. Therefore, local people are more aware of the hazardous health effect caused by pesticides, especially in respiratory problems as compare to the foreign workers.

4.4 Environmental Health Awareness Level

The third objective of this study was to compare the overall environmental health awareness level among local and foreign workers. The environmental health awareness level of local and foreign workers shows a remarkable difference as shown in Table 4.4. The mean score of local workers (N=60) was found to be 241.50 with standard deviation of 85.80. The mean score of foreign workers (N=60) was found as 185.02 with standard deviation of 95.95. In other words, local workers have the significant increases ($p=0.01$) of overall environmental health awareness level as compared to foreign workers. Therefore, null hypothesis was rejected at this section.

Table 4.4: The differences of Environmental Health Awareness level between local and foreign workers

	Mean	SD	95% Confidence Interval		t-value	p-value
			Lower bound	Upper bound		
Environmental Health Awareness Level						
Local	241.50	85.80	219.34	263.66	3.40	*0.01
Foreigner	185.02	95.95	160.23	209.80		

Independent T-Test

*p-value is significant at 0.05

For the past decade, Malaysia has over dependence on the foreign workers. The number of foreign workers has increase gradually in Malaysia. According to the Economic Report 2010/2011 by the Finance Ministry, there were 1.8 million registered foreign workers in Malaysia, 38.2% were employed in the manufacturing sector, 16% in the construction and 14.2% in the plantation sectors. In this situation, challenges facing by local employees in terms of salary scale due to current Malaysian foreign workers recruitment practices which emphasis in low salary scheme. The consequences of this phenomenon have incurred stress on public amenities and services, such as health and education facilities (Ramesh, 2012).

From the far going analysis of the result, it can observed that the level of environmental health awareness among local workers was higher than foreign workers. The lower of environmental health awareness in foreign workers may be due to level of

education, employment status or wages because according to Ramesh (2012) Malaysia has been known in chronic labor migration. As discussed earlier, most of the foreign workers were working in private sector such as agriculture, mining and quarry, production, electric, gas and water, construction and commerce, services and others without high level of education and most foreign workers in Malaysia are not delivered by the human resources department to attend a course or anything related to health and environment to save cost instead of local workers. Besides, some foreign workers are unable to speak and understand English as well as Bahasa except for foreigners who have been living in Malaysia for a long time.

The living standards and wage rates in the Malaysia are the most influential factors influencing foreign workers to migrate to Malaysia in order to earn higher wages than their own country. Some companies influence employers to hire foreign workers because it is cheaper to pay wages rather than local people. Due to this local people who have better level skills and performance and level of education chose to migrate to other country to get higher pay than chose to stay in their own country. The flood of foreign workers in Malaysia arose from years to years. According to Ramesh (2012), foreign workers who can bear with lower incomes and unfavorable terms and conditions of employment are more sought by local employers, since main purpose of foreign workers is to gain sufficient income in a short period of time.

Many foreign workers live in areas that are not environmentally safe and health was threatened by various diseases such as dengue fever, food poisoning and so on

especially those who work in construction area because they live in share house. They do not have the knowledge to protect themselves from the disease because most of them live in poor conditions in their home countries. Some of them do not have adequate sanitation at home in their home countries. In fact, they do not have a safe source of water and food. Being accustomed to the unsanitary conditions in the country of origin, they also do the same in Malaysia. Unhygiene practiced may lead to unhealthy living conditions and may cause the spread of diseases. Furthermore, the large number of foreign workers is seen as a security threat as it is associated with rising crime rate and contagious diseases (Kanapathy, 2008). It has been a sensational issue not only in Malaysia perhaps the delicacy to the other nation yet many employers still lacked of awareness on giving rights and protection to the workers by allowing them joining their respective trade union (Ramesh, 2012).

Foreign laborers are employed using temporary work passes, renewable every year up to maximum of five years and further extendable to a maximum of 10 years through accreditation as skilled worker (Hamzah *et al.*, 2012). These unskilled or semi-skilled workers are more prone to recruitment and employment problems, due to their less educated mindset and the way that they are frequently cheated by illegal recruiters (Kassim, 2005; Abubakar, 2002). According to the Ministry of Human Resource Malaysia (2010), foreigners are more devoted to their job, but they are lack of awareness towards environmental health due to education constraints meanwhile, local workers have better education system but prone to choose a job. Furthermore, employers only send local employees to attend courses at work because local workers have a higher

position than foreign workers. In the other words, new arrivals who are subjected to legal, economic, and/or social exclusion can be very vulnerable to contracting disease resulting from poor living environments and exploitative working conditions, including lack of access to health care and preventive services.

4.5 Relationship of socio-demographic background and Environmental Health Awareness level among local workers

The fourth objective of this study is to determine the relationship of socio-demographic background and environmental health awareness level among local worker. The socio-demographic background to be examined in this study are age; how long living in Klang Valley; level of education; distance to nearest healthcare services; employment status; total number of people in house; household income; total people working in house; health-related symptoms or disease due to living environment; health-related symptoms/disease due to working environment; and attend any course, seminar, or workshop related environmental health awareness.

From the Table 4.5 shows that the socio-demographic background in Multiple Linear Regression which was the level of education, employment status, and household income has significant difference in affecting the level of environmental health awareness among local workers. The t statistic of local workers for level of education was -2.45 and the p-value was 0.017. Meanwhile, t statistic for employment status was 2.49 and p-value was 0.016. Other than that, t statistic for household income was 2.07

while p-value was 0.043. Thus, the p-value was <0.05 then, there was association between socio-demographic background and environmental health awareness.

From the equation, we noticed that only level of education showed negative relationship while employment status and household income showed positive relationship of socio-demographic background with environmental health awareness among local workers. Meanwhile, $R^2 = 0.211$ which means 21.1% of existing prediction factors fit the model below.

Table 4.5: The relationship of socio-demographic background and Environmental Health awareness level among local workers

Variable	SLR ^a		MLR ^b		
	b (95% CI)	P-value	Adjusted b (95% CI)	t	P-value
Age	-0.33 (-3.31, 2.66)	0.826			
How long living in Klang Valley	-0.24 (-2.07, 1.59)	0.792			
Level of education	-29.62 (-61.07, 1.84)	0.064	-36.47 (-66.31, -6.64)	-2.45	0.017
Distance to nearest health care services	-0.75 (-5.66, 4.17)	0.762			
Employment status	43.00 (6.79, 79.21)	0.021	42.74 (8.38, 77.09)	2.49	0.016
Total number of people in house	-6.28 (-17.93, 5.38)	0.285			

Household income	22.72 (-5.36, 50.80)	0.111	27.32 (0.87, 53.77)	2.07	0.043
Total people working in house	-4.61 (-32.78, 23.56)	0.744			
Health-related symptoms/ diseases due to living environment	-8.71 (-54.65, 37.23)	0.706			
Health-related symptoms/ diseases due to working environment	-29.44 (-81.74, 22.86)	0.264			
Attend any course/seminar/workshop related Environmental Health Awareness	-29.53 (-73.58, 14.51)	0.185			

* p-value significant at 0.05 level

a = Simple Linear Regression, b = Multiple Linear Regression

$R^2 = 0.211$. The model reasonably fits well. The prediction of Environmental Health Awareness (EHA) level among local workers was:

$$\text{EHA} = 223.279 - (36.47 * \text{Level of education}) + (42.74 * \text{Employment status}) + (27.32 * \text{Household income})$$

The Table above shows that there is association between socio-demographic background such as level of education, employment status and household income with level of environmental health awareness among local workers. According to Cureton (2012), there is a cycle of environmental health disparities. This cycle begins with low income and minority persons facing limited income, education, and employment, these factors then contribute to limited housing options. Available housing options in distressed communities do not promote environmental health. These communities tend

to be plagued with heavily polluting industries, contaminated water and soil, and more. It can be proved that the level of education plays an important role to increase awareness among local people especially workers.

In Malaysia, the government's emphasizes on learning to produce a progressive, knowledgeable, and skilled as a ticket to a better life in the future. There are many companies that sponsor students to study either in or outside Malaysia. It aims to provide education and human capital as well as to produce more the intelligentsia. There are many companies that sponsor students to study either in or outside Malaysia. At the same time, it can give a good job and have a high income as well as to improve the standard of living and have a better life. Through this, local workers have better environmental health awareness from the view level of education, employment status, and household income.

People who with low income were unable to have a better life like people who have a high income. This is because, when they have a high income they can choose to stay in a safe and clean area, they have a wide access to the best education and also access to the best health care. According to Cureton and Shava (2012), persons living in poverty do not have the luxury of picking and choosing where they want to live; instead their housing options are severely limited. They live in environments with heavily polluting industries, hazardous waste sites, contaminated water and soil, in old housing with deteriorating lead based paint, adjacent to major roadways where hazardous chemicals are transported in areas with limited access to healthy food and more. This is

consistent with the result showed in the current study, which showed that the increases of household income and educational level have increase the overall environmental health awareness and practices among local workers.

4.6 Relationship of socio-demographic background and Environmental Health Awareness level among foreign workers

The fourth objective of this study is to determine the relationship of socio-demographic background and environmental health awareness level among foreign worker. The socio-demographic background to be examined in this study are age; how long living in Klang Valley; level of education; distance to nearest healthcare services; employment status; total number of people in house; household income; total people working in house; health-related symptoms/disease due to living environment; health-related symptoms or disease due to working environment; and attend any course, seminar or workshop related environmental health awareness.

From the Table 4.6 shows that the socio-demographic background in Multiple Linear Regression which was the age and attend any course/seminar/workshop related Environmental Health Awareness has significant difference in affecting the level of environmental health awareness among foreign workers. The t statistic of foreign workers for age was -2.73 while p-value was 0.008. Meanwhile, the t statistic for attend any course/seminar/workshop related environmental health awareness was -2.40 and p-

value was 0.020. Thus, the p-value was <0.05 then, there was association between socio-demographic background and environmental health awareness.

From the equation, we noticed that both age and attend any course/seminar/workshop related environmental health awareness showed negative relationship of socio-demographic background with environmental health awareness among foreign workers. Meanwhile, $R^2 = 0.197$ which means 19.7% of existing prediction factors fit the model below.

Table 4.6: The relationship of socio-demographic background and Environmental Health awareness level among foreign workers

Variable	SLR ^a		MLR ^b		
	b (95% CI)	p-value	Adjusted b (95% CI)	t	p-value
Age	-4.86 (-8.39, -1.33)	0.008	-4.64 (-8.03, -1.24)	-2.73	0.008
How long living in Klang Valley	-5.82 (-11.12, -0.53)	0.032			
Level of education	14.83 (-15.02, 44.69)	0.324			
Distance to nearest health care services	0.668 (-4.01, 5.35)	0.776			
Employment status	140.32 (-51.51, 332.15)	0.149			
Total number of people in house	0.22 (-9.11, 9.55)	0.962			
Household income	2.74	0.885			

	(-35.00, 40.48)				
Total people working in house	-11.68 (-51.16, 27.79)	0.556			
Health-related symptoms/ diseases due to living environment	-9.28 (-60.66, 42.10)	0.719			
Health-related symptoms/ diseases due to working environment	-15.33 (-67.07, 36.41)	0.555			
Attend any course/seminar/workshop related Environmental Health Awareness	-65.26 (-119.15, -11.38)	0.018	-61.44 (-112.65, -10.23)	-2.40	0.020

* p-value significant at 0.05 level

a = Simple Linear Regression, b = Multiple Linear Regression

$R^2 = 0.197$. The model reasonably fits well. The prediction of Environmental Health Awareness (EHA) level among foreign workers was:

$$EHA = 358.337 - (4.64 * Age) - (61.44 * Attend any course)$$

Environmental health disparities and injustice is a public health issue and a human rights crisis (Cureton, 2011). According to Cureton and Shava (2012), in the study of social workers knowledge of environmental living conditions and health disparities, low income and minority communities live in hazardous environments and bear a disproportionate burden of environmental health disparities. Numerous studies have concluded that people who adopt a healthy lifestyle tend to be more educated (e.g., Ka He *et al.*, 2004; Divine and Lepisto, 2005). Education level can influence an individual's perception and information processing regarding the health information they

received (Grzywacz and Marks, 2001). Hawkins (2010) recognizes that oppressed people tend to live in degrading environments and have no control over resources.

Age was one factor in socio-demographic backgrounds that always been considered to almost studies. In this study, age shows that there was correlation between socio-demographic backgrounds with environmental health awareness. Perhaps older foreign workers have more education because of having more experienced rather than younger foreign workers. According to the study by M. Shayaa *et al.* (2012), it showed that the correlation between personal characteristics of respondents and their level of environmental awareness is positive and statistically significant between each of the educational level and age of the subjects and the level of environmental awareness.

The social and economic progress of African Americans continues to lag behind White America, in the areas of education, income, and health (Manning, Cornelius, & Okundaye, 2004). This also can be applied against foreign workers whereby they have lacking in knowledge and education when compared to local workers. The foreign workers have lacking in environmental health because only few of them have attended any course/seminar/workshop related environmental health awareness but still can be proved that it improved the knowledge of foreign workers. According to Cureton and Shava (2012), to raise environmental health awareness in social work practice, efforts across the micro-macro spectrum must ensure the environmental health of distressed communities. Social workers have to position themselves and tailor their work to make a consistent statement environmental injustice is not an option.

CHAPTER 5

CONCLUSION & RECOMMENDATION FOR FUTURE RESEARCH

5.1 Conclusion

In conclusion, this study asserts that environmental health awareness was needed in local and foreign workers not to mention each individual. From the results of socio-demographic background, majority of local and foreign workers were in the range of 20-29 years old and majority of the foreign workers were Indonesian. Most of the local workers were living in Hulu Langat while Petaling area for foreign workers. Other than that, majority of the local and foreign workers were living in the Klang Valley for about 1-10 years. The highest level of education was Diploma/Degree for local workers and secondary school for foreign workers while most of the respondents were single in marital status.

The distance to the nearest health care services for both groups of respondents were in the range of 0-9 kilometer. More than half of the respondents were working in the private sector with the highest total monthly household income between RM1000-RM3000. The highest total number of people living in the house for local and foreign workers were in the range of 4-7 persons per house meanwhile for the total number of people working in the house were more than 3 persons per house.

Meanwhile, most of local and foreign workers have no experienced of any health-related symptoms or disease related from their living environment. For local workers, the highest prevalence of health-related symptoms or diseases due to their living environment was dengue fever while for foreign workers was fever. Besides, majority of the local and foreign workers revealed that they have no experienced any health-related symptoms or diseases from their working environment. The highest prevalence of health-related symptoms or disease due to working environment was fever for both local and foreign workers. Majority of local workers reported that they have attended course or seminar or workshop related to environmental health awareness, nevertheless, most of the foreign workers have not attended any course or seminar or workshop related environmental health awareness.

The study shown that odor and air pollution; water quality; sanitation; household hazards and safety; natural hazards; neighborhood safety hazards; industrial hazards; river and irrigation canals; and; roads and highways, railroads and walkways shows significant different among local and foreign workers while occupational safety shows there is no significant different. The study also shows that the environmental health awareness was lower among the foreign workers than local workers. The local workers shows that level of education, employment status, and household income have association in the level of environmental health awareness, while for foreign workers, age and attend any course, seminar, or workshop related environmental health awareness indicate association in environmental health awareness level.

5.2 Study Limitation

There are several limitations in this study. This study was conducted in a limited time at the cross sectional survey basis. Next, the present study only considers about age, nationality, living within Klang Valley, how long living in Klang Valley, level of education, marital status, distance to nearest health care services, employment status, total number of people living in the house, total income, total number of people working in the house, experienced any health-related, symptoms/diseases due to living environment, health-related symptoms/diseases due to living environment, experienced any health-related, symptoms/diseases due to working environment, health-related symptoms or diseases due to working environment, and attend any course, seminar, or workshop related to environmental health awareness. Other demographic variables such as gender and race should be considered.

Besides, the results of the current study could not be generalized to a larger population. This is due to the fact that only small numbers of workers were available to participate. The sample size of 120 for both groups might not be large enough to capture significant data. Furthermore, the lack of diversity among the local and foreign workers may affect the knowledge of and experience related to environmental health awareness. Lastly, the outcome was measured by the answers from the self-administered questionnaires.

5.3 Recommendation for future research

The recommendations for future research are to include race and gender in socio-demographic background that might be associated with environmental health awareness level should be considered. In addition, increase the sample size population to be recruited in this study since there are flooding of foreign workers and also local workers in Klang Valley to generalize the whole population. The environmental health awareness is important to each individual for better living and working environment, as well as to maintain healthy condition.

Other than that, all the workers should have better understanding and knowledge about environmental health awareness. Employees should attend any course, seminar, or workshop related Environmental Health Awareness organized by the employer. Increase spontaneous participation in environment related program (Tree plantation, Environmental fair, Environmental rally, etc.) should be there for both male & female workers along with proper training to increase awareness and health and hygienic system should be maintained in the industry during working period (Shil *et al.*, 2013). Programs and strategies shall be designed to promote and improve the health of migrants and awareness varies between nations. As a result, environmental health awareness should be able to lead to better environmental health knowledge, attitude, and practice among our nations.

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APPENDIX A
(Ethical Approval Letter)

APPENDIX B1
(Subject Information Sheet – English Version)



**JAWATANKUASA ETIKA UNIVERSITI UNTUK
PENYELIDIKAN MELIBATKAN MANUSIA (JKEUPM)
UNIVERSITI PUTRA MALAYSIA, 43400 UPM
SERDANG.**

FORM B1: RESPONDENT'S INFORMATION SHEET AND CONSENT

Please read the following information carefully and do not hesitate to discuss any questions you may have with the researcher.

1. STUDY TITLE :

Assessing the environmental health awareness level among foreign and local worker at Klang Valley.

2. INTRODUCTION:

Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity (World Health Organization, 1948). Public health refers to all organized measures (whether public or private) to prevent disease, promote health, and prolong life among the population as a whole. Its activities aim to provide conditions in which people can be healthy and focus on entire populations, not on individual patients or diseases. Thus, public health is concerned with the total system and not only the eradication of a particular disease (World Health Organization, 2016).

Environmental health addresses all the physical, chemical, and biological factors external to a person, and all the related factors impacting behaviors. It encompasses the assessment and control of those environmental factors that can potentially affect health. It is targeted towards preventing disease and creating health-supportive environments (World Health Organizations, 2016). Therefore, this study aimed at assessing the environmental health awareness level among local and foreign workers at Klang Valley.

3. WHAT WILL YOU HAVE TO DO?

This study will be conducted at Klang Valley. Before the questionnaire distributed to respondents, the researchers will give a full explanation of the study to respondents. Then, the consent form will be distributed to be completed by the respondent. Respondents will only answer the questions contained in

the questionnaire only. There are two parts of information that need to be answered by the respondents in the questionnaire, Part A: Socio-demographic Status and Part B: Comprehensive Environmental Health Checklist. Respondents must answer all the questions posed. No biological samples will be taken throughout the study.

4. WHO SHOULD NOT PARTICIPATE IN THE STUDY?

Anyone who does not work in the Klang Valley will be excluded from the study. Respondents also need an adult male who had been working for more than 12 months at Klang Valley and aged between 20-55 years.

5. WHAT WILL BE THE BENEFITS OF THE STUDY:

(a) TO YOU AS THE SUBJECT?

The subject will be able to learn about the environmental problems that can cause health problems for themselves and their communities. In addition, the subject will get awareness about the importance of protecting the environment and acquire new lesson to take care of themselves.

(b) TO THE INVESTIGATOR?

The main benefit to researchers is the primary data will be obtained through this study. Then, this data can be used as a reference for further study in the future.

6. WHAT ARE THE POSSIBLE RISKS?

There will be no risks that may be associated with respondents who participated in this study.

7. WILL THE INFORMATION THAT YOU PROVIDE AND YOUR IDENTITY REMAIN CONFIDENTIAL?

All information and data obtained during this study will remain confidential.

9. CONSENT

I Identity Card No.
address.....
.....hereby voluntarily agree to take part in the research
stated above *(clinical /drug trial/video recording/ focus group/interview-based/ questionnaire-based).

I have been informed about the nature of the research in terms of methodology, possible adverse effects and complications (as written in the Respondent’s Information Sheet). I understand that I have the right to withdraw from this research at any time without giving any reason whatsoever. I also understand that this study is confidential and all information provided with regard to my identity will remain private and confidential.

I* wish / do not wish to know the results related to my participation in the research

I agree/do not agree that the images/photos/video recordings/voice recordings related to me be used in any form of publication or presentation (if applicable)

* delete where necessary

Signature Signature
(Respondent) (Witness)

Date : Name :

I/C No. :

I confirm that I have explained to the respondent the nature and purpose of the above-mentioned research.

Date Signature
(Researcher)

APPENDIX B2

(Subject Information Sheet – Bahasa Melayu Version)



**JAWATANKUASA ETIKA UNIVERSITI UNTUK
PENYELIDIKAN MELIBATKAN MANUSIA (JKEUPM)
UNIVERSITI PUTRA MALAYSIA,
43400 UPM SERDANG,
SELANGOR, MALAYSIA.**

BORANG B1: PENERANGAN DAN PERSETUJUAN RESPONDEN

Sila baca maklumat berikut dengan teliti. Sekiranya anda mempunyai sebarang pertanyaan, sila kemukakan kepada penyelidik.

1. TAJUK KAJIAN

Menilai tahap kesedaran kesihatan alam sekitar di kalangan pekerja asing dan tempatan di Lembah Klang.

2. PENGENALAN

Kesihatan adalah keadaan fizikal yang lengkap, mental dan kesejahteraan sosial dan bukan hanya ketiadaan penyakit atau kelemahan (Pertubuhan Kesihatan Sedunia, 1948). Kesihatan awam merujuk kepada semua langkah-langkah yang dianjurkan (sama ada awam atau swasta) untuk mencegah penyakit, menggalakkan kesihatan dan memanjangkan jangka hayat di kalangan penduduk secara keseluruhannya. Aktivitinya bertujuan untuk menyediakan keadaan di mana orang boleh sihat dan menumpukan kepada keseluruhan populasi, bukan pada pesakit individu atau penyakit. Oleh itu, kesihatan awam itu terlibat dengan keseluruhan sistem dan bukan sahaja pembasmian penyakit tertentu (Pertubuhan Kesihatan Sedunia, 2016).

Kesihatan persekitaran menangani semua fizikal, kimia, dan faktor-faktor biologi luar untuk seseorang, dan semua faktor-faktor yang berkaitan memberi kesan tingkah laku. Ia merangkumi penilaian dan kawalan faktor-faktor alam sekitar yang berpotensi boleh menjejaskan kesihatan. Ia disasarkan ke arah mencegah penyakit dan mewujudkan sokongan-kesihatan persekitaran (Pertubuhan Kesihatan Sedunia, 2016). Oleh itu, kajian ini dijalankan dengan bertujuan untuk menilai tahap kesedaran kesihatan alam sekitar di kalangan pekerja asing dan tempatan di Lembah Klang.

3. APAKAH YANG PERLU ANDA LAKUKAN?

Kajian ini akan dijalankan di kawasan sekitar Lembah Klang. Sebelum borang soal selidik diedarkan kepada responden, penyelidik akan memberi penjelasan penuh mengenai kajian kepada responden. Kemudian, borang persetujuan akan diedarkan untuk dilengkapkan oleh responden. Responden hanya akan menjawab soalan yang terdapat di dalam borang soal selidik sahaja. Terdapat dua bahagian maklumat yang perlu dijawab oleh responden di dalam borang soal selidik iaitu Bahagian A: Status Sosio-demografi dan Bahagian B: Senarai Semak Komprehensif Kesihatan Persekitaran. Responden perlu menjawab semua soalan yang dikemukakan. Tiada sampel biologi akan diambil sepanjang kajian ini.

4. SIAPA YANG TIDAK BOLEH MENYERTAI KAJIAN INI?

Sesiapa yang tidak bekerja di sekitar Lembah Klang ini akan dikecualikan daripada kajian. Responden pula perlu seorang lelaki dewasa yang mempunyai pengalaman bekerja selama lebih dari 12 bulan di Lembah Klang dan berumur antara 20-55 tahun.

5. APAKAH FAEDAH MENYERTAI KAJIAN INI?

a) KEPADA ANDA SEBAGAI PESERTA?

Subjek akan dapat mengetahui tentang masalah alam sekitar yang boleh menyebabkan masalah kepada kesihatan diri sendiri dan komuniti. Selain daripada itu, subjek akan mendapat kesedaran mengenai kepentingan menjaga alam sekitar dan memperoleh pelajaran baru bagi menjaga kesihatan diri.

b) KEPADA PENYELIDIK?

Faedah utama kepada penyelidik ialah data primer akan diperolehi melalui kajian yang dijalankan ini. Kemudian, data ini boleh digunakan sebagai bahan rujukan untuk kajian lanjut di masa hadapan.

9. PERSETUJUAN

Saya..... No Kad Pengenalan.
beralamat.....
.....dengan ini bersetuju untuk mengambil bahagian secara sukarela dalam penyelidikan yang tersebut di atas *(kajian klinikal/percubaan ubat-ubatan/rakaman video/kumpulan sasaran/temuduga/ soal selidik).

Saya telah diberi penjelasan secara menyeluruh mengenai penyelidikan ini dari segi metodologi, risiko dan komplikasi (seperti tertulis pada Helaian Penerangan Responden). Saya memahami bahawa saya berhak menarik diri dari penyelidikan ini pada bila-bila masa tanpa memberi sebarang alasan. Saya juga memahami bahawa sebarang maklumat yang berkaitan identiti saya akan dirahsiakan.

Saya* berminat / tidak berminat untuk mengetahui keputusan kajian yang melibatkan saya.

I setuju/tidak bersetuju untuk imei/gambar/rakaman video/ rakaman suara digunakan dalam apa jua bentuk penerbitan atau pembentangan. (sekiranya berkaitan).

*potong yang tidak berkenaan

Tandatangan Tandatangan
(Responden) (Saksi)

Tarikh : Nama :
No. K/P:

Saya mengesahkan bahawa saya telah menerangkan kepada responden ini sifat dan tujuan penyelidikan yang tersebut di atas.

Tarikh Tandatangan
(Penyelidik)

APPENDIX C1
(Questionnaire Form – English Version)

SERIAL NO: _____



QUESTIONNAIRE FORM

**ASSESSING THE ENVIRONMENTAL HEALTH AWARENESS AMONG LOCAL AND
FOREIGN WORKER AT KLANG VALLEY**

**FACULTY OF MEDICINE AND HEALTH SCIENCES
DEPARTMENT OF ENVIRONMENTAL AND OCCUPATIONAL HEALTH**

PART A: SOCIO-DEMOGRAPHIC BACKGROUND

INSTRUCTIONS: This questionnaire form is self-constructed questionnaire for research purposes. Answer all the questions provided in this form and circle the suitable answer.

1) Age: _____

2) Nationality:

1. Malaysian

2. Non-Malaysian: Which country? _____

3) Which part of Klang Valley do you live in?

4) How long have you lived in Klang Valley?

5) What is your highest level of education?

1. Illiteracy

2. Primary School

3. Secondary School

4. Diploma/ Degree

5. Masters

6. PHD

6) What is your marital status?

1. Single

2. Married

3. Divorced

4. Widow/Widower

7) Distance to nearest health care services (Kilometer)?

8) What is your current job position?

1. Government
2. Private
3. Self-employed

9) How many people currently live in your home, including yourself?

_____ Number of people

10) What is your total household income?

1. Less than RM1000
2. RM1000-RM3000
3. RM3000-RM10,000
4. More than RM10,000

11) How many people are working in your household?

1. One
2. Two
3. More than 3

12) Have you ever experience any health-related symptoms/diseases which you think it is most likely due to the living environment?

1. Yes
2. No

If Yes, what kind of symptoms/disease have you developed?

13) Have you ever experience any health-related symptoms/diseases which you think it is most likely due to the work environment?


1. Yes
2. No

If Yes, what kind of symptoms/disease have you developed?

14) Do you ever attend any course/seminar/workshop related to Environmental Health in your workplace?

1. Yes
2. No

PART B: COMPREHENSIVE ENVIRONMENTAL HEALTH CHECKLIST

<p>Indicate which categories you think are the most important environmental health problems in your community by putting '1 or 2' for small problem, '3 or 4' for somewhat important problem, and '5 or 6' for very important problem.</p> <p>Note: Only mark numbers for categories for which you feel there is a problem. You have to mark one only.</p>						
	Small problem		Somewhat important problem		Very important problem	
	1	2	3	4	5	6
Air Quality & Odors						
• Dust (ambient, roads)						
• Smoke (local burning)						
• Pollen, mold, hantavirus						
• Allergies & asthma						
• Auto emissions						
• Sewage odors						
• Odors from garbage						
• Drift from agricultural spraying (odors, eye or breathing irritation)						
Water Quality						
• Water quality of wells						
• Municipal system water quality						
• Potential contaminants						
• Dumping of contaminants in canals, river & on-the-ground(oil, pesticides)						
• Agricultural spraying drift/spills						
Sanitation						
• Septic system (functionality & problems)						
• Municipal sewage system						

• Solid waste						
• Rodents						
• Scavenging dogs or wildlife						
Occupational Safety						
• Worker safety (machinery & lifting hazards on the farm & processing facilities)						
• Pesticide management						
• Poor medical care						
• No health insurance						
• Dehydration						
• Sunburn & overexposure						
Household Hazards & Safety						
• House integrity(air/water leaks)						
• Accident & fire hazards						
• Electrical hazards						
• Poorly stored pesticides, solvents						
• Cleanliness & hygiene (roaches)						
• In-home smoking/2 nd hand smoke						
• Mold, dust mites, hantavirus						
• Allergies& asthma						
• Food preparations/safety						
• In-home firearms						
Natural Hazards						
• Sunburn & overexposure						
• Dehydration						
• Floods						
• Land & debris slides						
• Storms, wind & rain damage						

• Wildlife, snakes, rabies						
• Insects						
Neighborhood Safety Hazards						
• Automobile traffic						
• Lack of street lighting						
• Aggressive dogs, rabies						
• Open pits & broken pavement						
• Electric transmission line hazards						
• Violence, crime & gunplay						
Industrial Hazards						
• Strong odours, eye irritants						
• Industrial spills, explosions/fires						
• Gas line ruptures & emissions						
• Hazardous materials storage, loading/unloading & transport						
• Brownfields, abandoned mines						
River & Irrigation Canals						
• Falling hazards (open canals)						
• Wading & swimming (drowning)						
• Ingestion of contaminated fish						
• Irrigation infrastructure (dams, siphons, gates & control valves)						
Roads & Highways, Railroads & Walkways						
• Speeding traffic						
• Unskilled & drunk drivers						
• Hazardous materials transport						
• Broken pavement						
• Dangerous bridges & intersections						

APPENDIX C2
(Questionnaire Form – Bahasa Melayu Version)

NO. SIRI: _____



BORANG SOAL SELIDIK

**MENILAI KESEDARAN KESIHATAN ALAM SEKITAR DI KALANGAN PEKERJA
ASING DAN TEMPATAN DI LEMBAH KLANG**

**FAKULTI PERUBATAN DAN SAINS KESIHATAN
JABATAN KESIHATAN PERSEKITARAN DAN PEKERJAAN**

BAHAGIAN A: LATAR BELAKANG SOSIO-DEMOGRAFI

ARAHAN: Borang soal selidik ini adalah soal selidik yang dibina sendiri untuk tujuan penyelidikan. Jawab semua soalan yang telah disediakan dalam borang ini dan bulatkan jawapan yang sesuai.

- 1) Umur: _____

- 2) Warganegara
 1. Malaysia
 2. Bukan Warganegara. Negara asal? _____

- 3) Di bahagian Lembah Klang manakah yang anda tinggal?

- 4) Sudah berapa lamakah anda tinggal di kawasan Lembah Klang?

- 5) Apakah tahap pendidikan anda yang tertinggi?
 1. Berhenti sekolah
 2. Sekolah rendah
 3. Sekolah menengah
 4. Diploma/Ijazah Sarjana Muda
 5. Ijazah
 6. PHD

- 6) Apakah status perkahwinan anda?
 1. Bujang
 2. Berkahwin
 3. Bercerai
 4. Balu/Duda

7) Jarak ke perkhidmatan penjagaan kesihatan yang terdekat (Kilometer)?

8) Apakah status pekerjaan anda sekarang?

1. Kakitangan kerajaan
2. Swasta
3. Bekerja sendiri

9) Berapa ramai orang yang kini tinggal di rumah anda, termasuk diri sendiri?

_____ Jumlah orang

10) Berapakah jumlah pendapatan isi rumah anda?

1. Kurang daripada RM1000
2. RM1000 – RM3000
3. RM3000 – RM10,000
4. Lebih daripada RM10,000

11) Berapa ramai orang yang bekerja di rumah anda?

1. Seorang
2. Dua orang
3. Lebih daripada 3 orang

12) Adakah anda pernah mengalami sebarang gejala/penyakit yang berkaitan dengan kesihatan yang anda fikir ia adalah yang paling mungkin disebabkan oleh persekitaran hidup?

1. Ya
2. Tiada

Jika Ya, apa jenis gejala/penyakit pernah yang anda alami?

13) Adakah anda pernah mengalami sebarang gejala/penyakit yang berkaitan dengan kesihatan yang anda fikir ia adalah yang paling mungkin disebabkan oleh persekitaran pekerjaan?

1. Ya
2. Tiada

Jika Ya, apa jenis gejala/penyakit pernah yang anda alami?

14) Adakah anda pernah menghadiri kursus/seminar/bengkel yang berkaitan dengan Kesihatan Persekitaran di tempat kerja anda?

1. Ya
2. Tidak

BAHAGIAN B: SENARAI SEMAK KOMPREHENSIF KESIHATAN PERSEKITARAN

<p>Nyatakan kategori yang anda fikir adalah masalah kesihatan alam sekitar yang paling penting dalam komuniti anda dengan meletakkan '1 atau 2' untuk <u>masalah kecil</u>, '3 atau 4' bagi <u>masalah agak penting</u>, kemudian '5 atau 6' bagi <u>masalah yang sangat penting</u>. Nota: Hanya tandakan (/) nombor bagi kategori yang mana anda rasa ada masalah. Anda perlu menandakan salah satu sahaja.</p>	→					
	Masalah kecil		Masalah agak penting		Masalah yang sangat penting	
	1	2	3	4	5	6
Pencemaran Udara & Bau						
• Habuk (persekitaran, jalan raya)						
• Asap (pembakaran tempatan)						
• Debunga, kulat, hantavirus						
• Alahan & asma						
• Pelepasan auto						
• Bauan kumbahan						
• Bauan dari sampah						
• Melayang dari semburan pertanian udara (bau, mata atau kerengsaan pernafasan)						
Kualiti air						
• Kualiti air telaga						
• Sistem kualiti air perbandaran						
• Bahan cemar yang berpotensi						
• Pembuangan bahan cemar di dalam terusan, sungai & ke-atas-tanah (minyak, racun perosak)						
• Hanyutan semburan/tumpahan pertanian						
Sanitasi						

• Sistem septik (fungsi & masalah)						
• Sistem kumbahan perbandaran						
• Sisa pepejal						
• Tikus						
• Memerangkap anjing atau hidupan liar						
Keselamatan Pekerjaan						
• Keselamatan pekerja (jentera & mengangkat bahaya di ladang & kemudahan pemprosesan)						
• Pengurusan racun perosak						
• Kekurangan rawatan perubatan						
• Tiada insurans kesihatan						
• Dehidrasi						
• Kulit terbakar & pendedahan yang terlalu lama						
Keselamatan & Bahaya Rumah						
• Integriti rumah (udara / kebocoran air)						
• Kemalangan & bahaya kebakaran						
• Bahaya elektrik						
• Penyimpanan racun perosak, pelarut kurang baik						
• Kebersihan diri dan kebersihan (lipas)						
• Merokok dalam rumah / perokok sekunder						
• Debunga, kulat, hantavirus						
• Alahan & asma						
• Penyediaan/keselamatan makanan						
• Senjata api dalam rumah						
Bencana Alam						
• Kulit terbakar & pendedahan yang terlalu lama						
• Dehidrasi						

• Banjir						
• Serpihan & tanah runtuh						
• Ribut, angin & kerosakan hujan						
• Hidupan liar, ular, anjing gila						
• Serangga						
Bahaya Keselamatan Kejiranan						
• Lalu lintas kenderaan						
• Kekurangan lampu jalan						
• Anjing agresif, penyakit anjing gila						
• Lubang terbuka & kaki lima pecah						
• Bahaya talian penghantaran elektrik						
• Keganasan, jenayah & perkelahian						
Bahaya Industri						
• Bau kuat, iritasi mata						
• Tumpahan, letupan / kebakaran perindustrian						
• Talian gas pecah & pelepasan						
• Penyimpanan, muatan / memunggah & pengangkutan bahan-bahan berbahaya						
• Peninggalan lombong						
Sungai & Pengairan Terusan						
• Bahaya jatuh (terusan terbuka)						
• Meranduk dan berenang (lemas)						
• Memakan ikan yang tercemar						
• Infrastruktur pengairan (empangan, sifon, pintu & injap kawalan)						
Jalan & Lebuhraya, Landasan & Laluan pejalan kaki						
• Lalu lintas dipandu laju						
• Pemandu tidak mahir & mabuk						

• Pengangkutan bahan-bahan berbahaya						
• Turapan pecah						
• Jambatan berbahaya & persimpangan						