

**In the Light of the Money, Not the Environment:  
An Analysis of Hong Kong SAR Government's Policy on  
Light Pollution**

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**Declaration**

I declare that this project represents my own work, except where due acknowledgement is made, and that it has not been previously included in a thesis, dissertation, or report submitted to this University or to any institution for a degree, diploma, or other qualifications.

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## **Abstract**

Light pollution is growing fast in Hong Kong (HK). There is abundant literature on the adverse effects of artificial lighting to the environment, wildlife, and human health. Many European cities are armed with legislation for a clean living environment and control of light pollution. Meanwhile, excessive advertising lighting in HK has caused light pollution problem. It also poses a threat to people's health and deprives them of a basic healthy living environment.

Statutory control is long overdue but the HK Special Administrative Region (HKSAR) Government is still short of an initiative to introduce the legislation. This dissertation examines how environmental justice in HK should be upheld, giving existing circumstances.

Field observations and semi-structured interviews respectively assessed the problem in situ and collected people's views and grievances against light pollution. The findings paint a gloomy picture. In particular they sigh Government's lack of efforts to tackle the problem and present a case for rectification.

## Abbreviations

BD	Building Department
CEDB	Commerce and Economic Development Bureau
CfDS	Campaign for Dark Skies
CIE	International Commission on Illumination
Document	Document for Engaging Stakeholders and the Public
ENB	Environment Bureau
EPD	Environmental Protection Department
FoE	Friends of the Earth Hong Kong
Guidelines	Guidelines on Industry Best Practices for External Lighting
HK	Hong Kong
HKSAR	Hong Kong Special Administrative Region
HKTb	Hong Kong Tourism Board
HKU	The University of Hong Kong
IARC	International Agency for Research on Cancer
IDA	International Dark-Sky Association
LegCo	Legislative Council
LPD	Lighting power density
NSN	Hong Kong Night Sky Brightness Monitoring Network
OECD	Organization for Economic Co-operation and Development
PB	Parsons Brinckerhoff (Asia) Ltd
TaskForce	Task Force on the External Lighting
UK	United Kingdom
UN	United Nations
UNCED	United Nations Commission on Environment and Development
UNCHR	United Nations Commission on Human Rights
UNEP	United Nations Environmental Programme
US	United States
WCED	World Commission on Environment and Development
WHO	World Health Organization

## **Chapter 1 Introduction**

### **1.1 Background**

The United Nations Conference on Environment and Development in Rio de Janeiro 1992 urged world's policymakers to put sustainable development into practice and create new levels of cooperation among States and societies to protect the integrity of the global environmental and developmental systems. (UNCED, 2012)

And in 1994, the Draft Declaration of Principles on Human Rights and the Environment promulgated the right to a clean living environment for all. (UNCHR, 1994)

In his 1999 Policy Address, the former Chief Executive Mr. Tung stated that pollution had affected HK's international image and the public health. He called a fundamental change of mindset of the whole community to drive forward the sustainable development. (HKSAR Government, 1999)

Air pollution has all along been serious in HK. Given the threat on public health and global warming, energy wastage arising from external lighting was put on the government agenda in 2008. (HKSAR Government, 2008) Meanwhile, the number of complaints on light nuisance rose significantly since 2008. Most complaints are caused by private organizations from advertisement signboards and spotlights. The seriousness has earned HK the reputation of world's worst light pollution.



Light pollution can lead to a wide spectrum of problems including adverse effects on human health, the environment, and wildlife, as well as energy wastage and carbon emissions. A range of literature suggests a causal relationship between artificial lighting and human health, notably an increasing risk of various forms of cancer.

Prior to 2008, some scholars, legislators, environmental organizations and individual citizens spared no effort to arouse public awareness and to urge the HKSAR Government to introduce statutory control of external artificial lighting. The HKSAR Government set up a TaskForce on External Lighting (TaskForce) in 2011 (ISD, 2011) and announced the Guidelines on Industry Best Practices for External Lighting (Guidelines) in 2012 which aimed to regulate the use of artificial external lighting under voluntary approach. (ENB, 2012) Nevertheless, a year after the announcement, the number of light nuisance complaints increased.<sup>1</sup>

Many metropolises have already enacted mandatory regulations to control light pollution or prevent energy wastage. (Huen, 2009) Despite the seriousness of the problem, the HKSAR Government has not enacted similar legislation.

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<sup>1</sup> Please refer to Appendix A.

## **1.2 Scope**

This dissertation examines if the HKSAR Government has considered environmental justice in the handling of light pollution. The main light pollution source - advertising lighting, is targeted for this study. The major areas of focus are, 1) to study different group thinking on light pollution; 2) to identify different groups' views toward the use of advertising lighting; 3) to examine different groups' attitudes toward control light pollution; 3) to illustrate the influences to the decision-making process; and 4) to explore the views of the HKSAR Government toward control light pollution. This dissertation also examines the relative weightings which the HKSAR Government places on economic development than on environmental conservation.

## **1.3 Methodology**

A case study approach with field observation and in-depth semi-structured interviews is used for this dissertation. Mongkok is selected for field study. Direct observation precedes the actual research to acquaint the researcher of the targeted place. Ten stakeholders from academia, district councilor, green group, tourism, business and citizens are chosen for interviews with semi-structured questions. The questionnaire is designed upon environment justice with reference to reviewed literature.

#### **1.4 Justification**

Schlosberg (2007:3-5) points out “groups and movements often employ multiple conceptions of justice simultaneously, and accept both the ambiguity and the plurality that come with such a heterogeneous discourse; and crucially, movements also apply conceptions of justice not only to individuals, but to groups and communities as well.” Konow (2003:1188) reveals that there is emerging consensus in economics over the relevance of fairness. However there is no common definition on justice which means different things to different people. Therefore, this study does not mean to construct a perfect definition of environmental justice. Rather, it attempts to integrate an inclusive understanding of justice with reference to the political literature discussed over ages.

#### **1.5 Limitations**

In-depth semi-structured interviews were conducted. Due to time constraint, only a small number of stakeholders were interviewed. And, as the Environment Bureau (ENB) declined the interviews, researcher could only gather information about the government’s line from published documents. Due to technical problem, the luminosity of spotlights could not be measured for comparison with CIE.

## **Chapter 2 Literature Review**

### **2.1 Environmental Politics and Policy**

Environmental politics is what governments do, when to do, and how to do on environmental issues, that the choices to allocate resources to benefit some people or groups, and to cost and burden to others. Whilst environmental policy refers to a course of governmental action that attempts to affect environmental quality or the use of natural resources which represents a collective decision to pursue environmental goals and to use particular instruments to achieve them.

Kraft (2011:13-14) points that environmental policy is set by a diverse collection of statutes, regulations, and court precedents that govern a society, and it is affected by the attitudes and behaviour of officials who are responsible for implementing and enforcing the law. The decision-making is taken by a complex interplay between governments and a variety of organizations such as political parties, interest groups, think tanks, the media, citizens, and so on. Group influence is an important component of political representation as a crucial force foisting group creates an extra policy-making arena. It is not what governments choose to do but what they decide not to do. A decision not to act means that governments allow other forces to shape the environment and societies.

Environmental policy, nonetheless, some are principally expressive in nature,

not all are intended to solve problems but articulate environmental values and goals those are intensely held by key interest groups and the public. That might help to deliver a state's enthusiasm and commitment to the world. (Kraft, 2011)

### **2.1.1 Environment, Health, and Human Rights**

By the growing human population and economic activity, a wide range of environmental problems have been familiar to the planet. They include air and water pollution; public exposure to toxic chemicals and hazardous wastes; the production of large quantities of solid wastes that wind up in landfills; the destruction of ecologically critical lands and forests, which in turn hastens the loss of biological diversity; heavy reliance on use of fossil fuels that contributes to climate change; and over consumption of energy and natural resources could exacerbate other environmental problems.

Many world's policymakers set the global agenda attempted to reverse the trend. The first major global conference on environmental issues was held at Stockholm in 1972. It proclaimed that "both aspects of man's environment, the natural and the man-made, are essential to his well-being and to the enjoyment of basic human rights the right to life itself; ... it is the urgent desire of the peoples of the whole world and the duty of all governments." (UNEP, 1972)

Meanwhile, environmental discrimination popped evidently. In 1973, a landfill site in Warren County, North Carolina, the state government decided to dump toxic wastes on the tiny Afton community where most were black, poor and politically powerless people. (Bullard, 2004) Another case, Love Canal in New York, homes and school for low-income families were built on top of a former industrial site where tons of toxic wastes were stored underground.<sup>2</sup> (New York State Department of Health, 2013) In both cases, the vulnerable groups organized protests and joined by civil rights and environmental activists against the environmental damaging. They succeed to pressure the state governments for a better living environment after a decade of fighting. Such protests gave birth to the environmental justice movement.

Thereafter, the environment and the quality of life were declined seriously. In Ukraine, the Chernobyl nuclear disaster posed a very significant damage to the whole planet and created substantial economic and human costs.<sup>3</sup> Environmental discrimination grew continually also. In United Kingdom (UK), the communities with the lowest average incomes had the highest numbers of factories;

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<sup>2</sup> The school and houses built on the site which developers knew the site of landfill was used for the disposal of some 21,800 tons of chemical wastes. The increasing appearance of visible seepage, noxious smells and other signs of chemical contamination originating in the landfill led to its designation as an Emergency Declaration Area, and the evacuation of the residents from the surrounding area. The toxic chemicals created significant impacts on the residents' health included cancers, nervous disorders, birth defects, blood diseases, and so on.

<sup>3</sup> The Chernobyl nuclear disaster occurred in Ukraine in 1986, the explosion released an estimated fourteen terabecquerels of radioactive particles into the atmosphere which spread over other countries nearby.

in Germany, Turkish immigrants worked in unsafe conditions and subsequently lived near highly polluting factories; in Europe, companies in the more prosperous regions were outsourced waste disposal to municipalities in poorer regions in Central and Eastern Europe, and so forth. (Steger, 2007:15-16) Case after case rose that ethnic minorities, lower socio-economic status, or the least educated groups of society suffered more from exposure to environmental hazards.

Philosophers and environmentalists believe that environmental crises are at heart a consequence of human belief systems and values. Catton & Dunlap think that “human see themselves are fundamentally hold dominion over all other species on the Earth; the world is vast and provides unlimited opportunities for human; and all major problems can be solved by human.” (Kraft, 2011) Whilst Milbrath adds those are associated with the values of “a low valuation of nature; the primacy of economic well-being; the acceptability of risks associated with technologies that produce wealth; and the absence of any real limits to economic growth.” (Kraft, 2011) Human behaviours and institutional priorities would be strongly affected by these beliefs and values and constitute one of the most fundamental causes of natural resources depletion and environmental degradation.

In 1987, the famous Brundtland Report was published to promote sustainable development. It defined sustainable development as “meets the needs of the

present without compromising the ability of future generations to meet their own needs.” (WCED, 1987) It advocated a new insight of the synergy between economic development and environmental conservation that the two are not opposing issues but two sides of the same coin.<sup>4</sup> Nonetheless, there are divisive difference in attitude with economic growth and environmental protection among different States and stakeholders. Further in 1992, the United Nations Conference on Environment and Development in Rio de Janeiro, urged the world’s policymakers to put sustainable development into practice and create a new level of cooperation among States and societies working towards international agreements which respect the interests of all and protect the integrity of the global environmental and developmental systems. (UNCED, 2012) It was the largest international diplomatic conference joined with government officials from 178 nations.<sup>5</sup>

Furthermore, the Draft Declaration of Principles on Human Rights and the Environment was made in 1994 which highlighted the linkage between human rights and the environment. It states that “all persons have the right to an environment

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<sup>4</sup> The World Commission on the Environment and Development (WCED) published the Brundtland Report in 1987 which set out the elements required for achieving sustainable development in board terms, including: a political system that secures effective citizen participation in decision-making; an economic system that is able to generate surpluses and technical knowledge on a self-reliant and sustained basis; a social system that provides solutions to the tensions arising from disharmonious development; a production system that respects the obligations to preserve the ecological base for developments; a technological system that can search continuously for new solutions; an international system that fosters sustainable patterns of trade and finance; and an administrative system that is flexible and has the capacity for self-correction.

<sup>5</sup> In addition, it had more than 8,000 journalists and 7,000 representatives from non-governmental organizations participated in a concurrent Global Forum at nearby site in Rio de Janeiro.



adequate to meet equitably the needs of present generations and that does not impair the rights of future generations to meet equitably their needs;" and "all persons have the right to freedom from pollution, environmental degradation and activities that adversely affect the environment, threaten life, health, livelihood, well-being or sustainable development with, across or outside national boundaries." (UNCHR, 1994) According to Steger (2007:16), 53 nations have included the provision of such a right in their constitutions.

Although sustainable development and the right to a clean living environment have been advocating as universal values for couple decades, environmental risks and threats on human health are turning more serious, for instance, the Fukushima Daiichi nuclear disaster<sup>6</sup> and the powerful Typhoon Haiya.<sup>7</sup> The Former is criticized as a result of political influence and industry-led regulation. (Morris-Suzuki et al., 2012) And the latter is concluded as the outcome of the progression of global warming. (Gearin, 2013; Lowrey, 2013)

Increasingly, light pollution is one of the human made environmental problems growing rapidly around the world.

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<sup>6</sup> It occurred in 2011 that the nuclear power plant was hit by the tsunami and released huge amounts of radioactive materials. The lives and health of hundreds of thousands people continue to be affected. The WHO (2013) reported that in the most contaminated area, it is estimated a 70 percent higher risk of females exposed as infants developing thyroid cancer over their lifetime; a 6 percent higher risk of breast cancer in females exposed as infants; a 4 percent increased risk of all solid cancers in females exposed as infants; and so forth. Moreover, the radioactive water has leaked into the ocean, the influence is not only domestically, but the ecology system of the whole planet.

<sup>7</sup> It occurred in 2013, devastated particularly the Philippines, estimated 10,000 deaths and hundreds of thousands homeless.

## **2.2 Light Pollution**

As modernization progresses by establishing more infrastructures and buildings and supported by more economic activities, the use of artificial lighting has been increased largely and resulted in light pollution. Light pollution is described as a rapidly increasing and widespread environmental problem.

### **2.2.1 Causes, Definition and Forms**

External artificial lighting is an indispensable element of modern live for safety and recreation purposes. It is used commonly as streetlight, sports facilities lighting, domestic and commercial security lighting, advertising lighting, and decorative lighting. Those enable people to live safely and comfortably, meet the increasing demand for outdoor activities and social lives at nighttime, create attractive visual effect, and so on. However, artificial lighting in poor design, excessive illumination levels, and used when not needed and where not needed would become light pollution.

According to the International Dark-Sky Association (IDA) (2013), light pollution is any adverse effect of artificial lighting. It is often combined and overlapping in the forms of, namely sky-glow, glare, light nuisance (trespass) and clutter. Sky-glow refers to lighting improperly directed upward into the sky that brightening the night sky

over inhabited areas. Glare is a result of direct projects excessive lighting making an environment over-illuminated and excessive viewing contrast between bright and dark. Light nuisance occurs when unwanted light enters areas where it is unwanted nor unneeded, like neighbouring homes. And, clutter is bright and excessive groupings of light source, the proliferation of clutter also contributes to sky-glow, glare and light nuisance.

### **2.2.2 Effects and Problems**

Light pollution could lead a wide spectrum of problems include adverse effects on human health, the environment and wildlife, as well as energy wastage.

Light nuisance forced people to install thick curtains, which are not only being compelled to loss of natural darkness but leading physiologically and psychologically threats on human body. Health Council of the Netherlands (2000) pointes that light nuisance could lead giddiness and sleep disruption, they in turn leading to depression and other mood disorders. Significantly, Kerenyi et al. (1990), Davis et al. (2001) & Blask et al. (2012:6-10) reveal that light at night, particularly the white or blue lighting, can disrupts circadian rhythms and melatonin secretion that reducing the production of antioxidant, they in turn increasing the risk of various forms of cancer, notably breast. The International Agency for Research on

Cancer (IARC) under the World Health Organization (WHO) has listed fluorescent lighting as a probable carcinogen in 1992. (IARC, 2014) Additionally, other diseases such as diabetes and reproductive problems may be exacerbated as well. (Blask et al., 2012:6-10)

Besides, Blask et al. (2012:4-5) indicate glare at nighttime can create hazards ranging from discomfort to frank visual disability, which the impacts are differs from person to person. Discomfort glare is subjective as it is based on a psychological response. Whilst disability glare has been fairly well-defined as unwanted and poorly directed lighting that temporarily blinds, causes poor vision by decreasing contrast, and creates an unsafe viewing condition, especially at night limiting the ability of the person to see. This is particularly an issue for road safety as it may confuse and distract drivers and create a danger for both drivers and pedestrians. Moreover, such effects dramatically worsen as the human eye ages, contributing to poor night vision and difficulty in driving at night for older drivers.

In the environmental perspective, the misdirected or excessive lighting might block out the starry sky, interfere with astronomical instruments and impede the studies of astronomers. Morgan-Taylor<sup>8</sup> (2012:266-267) says, “the most obvious

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<sup>8</sup> Mr. Martin Morgan-Taylor is the Principal Lecturer in Law at the De Montfort University, UK; and also the Board of Directors at the IDA. He is involved in the continuing review of UK planning and environmental laws so as to include light pollution. He also advises the UK central and local governments as well as the UK Campaign for Dark Skies and the Society for Popular Astronomy.

effect is the loss of night sky, and its effects could stretch for many miles away from its source of illuminated centres of population. It is not just of interest to the astronomer, but of general environmental, scientific and cultural value. The night sky is half of the night time environment and half of the view of all; nightscape perhaps, is said to be a site of special scientific and cultural interest.”

Cinzano et al. (2001) provide a nearly global picture of light pollution, it accounted into the World population about two-thirds inhabited areas where the night sky is above the threshold set of polluted status; about one-fifth have already lost naked eye visibility of the Milky Way; and about one-tenth never really experience nighttime. Light pollution, Cinzano et al. (2001) argue, “a problem whereby mankind is proceeding to envelop itself in a luminous fog.”

As light pollution is a result of overuse or over-lit lighting, which in turn leads to energy wastage, contributes to carbon emissions and global warming. Gallaway et al. (2010:659) indicate that in the United State (US), there are 72.9 million mwh of electricity needlessly being generated which contributed to an additional 66 million metric tons of carbon dioxide emissions.

Artificial lighting also disturbs the circadian rhythms of nocturnal species and brings about a broad range of ecological harm. “Artificial night lighting harm species directly by triggering unnatural period of attraction or repulsion that lead to

disruptions in reproductive cycles, by fixation, by disorientation, or by interfering with feeding and sustenance,” says IDA (2013) and stresses “all animals depend on a regular interval of daylight and darkness for proper functioning of behavioural, reproductive and immune systems.” For human, illuminated nightscapes may come comfortable and necessary, but for thousands of species, they need for natural night to survive. Health Council of the Netherlands (2000) also points that exterior lighting increases the chance of exhaustion and death of species, particularly birds, insects and amphibians. This can lead local extinction in some species with small or isolated populations. For instance, artificial lighting may confuses bats and disrupting their breeding and cycles that increases the danger to extinction;<sup>9</sup> and disorients hatchling sea turtles to head inland, and being died of exhaustion, dehydration, predation, and road traffic.<sup>10</sup>

### **2.2.3 Light Pollution in Overseas**

As light pollution is a widespread environmental problem threatening the whole planet, statutory regulation may be warranted, points Morgan-Taylor (2006) and questions “there is noise control ordinance to provide statutory controls to restrict or

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<sup>9</sup> The danger of declining numbers is particularly the issue for bats. Artificial lighting may affect bats by delaying their emergence from roosts at dusk, which is when numbers of their main food usually peak, that lessening their time for feeding and breeding, which may reduce their numbers. (Morgan-Taylor, 2012)

<sup>10</sup> Hatchling sea turtles to head inland away from the sea which may be eaten by predators or run over by cars. (Gallaway et al., 2010; IDA, 2013)

reduce the nuisance caused by environmental noise, if sleep deprivation and mental stress by noise can be accepted as giving rise to an adverse health effect, why is there apparently unreadiness to consider similar ordinance to restrict light nuisance?”

In the UK, many programmes and campaigns have been set up to counter light pollution such as Campaign for Dark skies (CfDS) and Campaign to Protect Rural England. The CfDS is formed by the British Astronomical Association since 1990 to promote “the right amount of light, and only where needed.” It works with the UK central and local governments and stakeholders, and has grown into a network of over a hundred volunteer local officers, and some hundreds committed supporters. (CfDS, 2014) Over two decades, they initiated many events to dim the lighting, organized conferences for governmental institutions and mechanical engineers, provided information on light pollution to the public, and so on. One of the great successes is publicized the problem getting more people understand light pollution. (Mizon, 2009) In 2005, intrusive lighting has become a statutory nuisance in England. They incorporated light pollution into discrete areas of existing regulation. Artificial lighting may be a criminal offence if it prejudicial to health or a nuisance that the public may possible to be protected in this respect.<sup>11</sup> Whilst their planning guidance has also added the requirement of limit the impact of light pollution into

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<sup>11</sup> The nuisance law may not addressed all problems associated with light pollution like ecological damage, the loss of the night sky and carbon emissions.

planning policies and decisions.<sup>12</sup> Accordingly, light pollution may be tackled more comprehensively and avoided in the planning stage. (Morgan-Taylor, 2012:267-274)

Later in 2010, the Council of Europe (2010) adopted a Council of Europe Resolution based upon the United Nations Declarations and Recommendations on Human Rights and the Environment, and recommended European countries to review their national legislations with respect to light pollution issues based on wider human rights considerations. Today, national legislations have been enacted in France, Slovenia, and some regions in Italy. (Morgan-Taylor, 2013:5-7)

In France, they restricted all internal lighting of premises must be turned off an hour after the last worker has left; and, external lighting of non-residential buildings including illuminated shop windows must be turned off between 1am and 7am.<sup>13</sup> Among the European countries, the French law with imposing curfews may be the best dedicated to light pollution with covering the ecological harm, energy waste, and the loss of night sky. (Morgan-Taylor, 2013:7-8)

Metropolises such as New York, Shanghai and Sydney also enacted legislation or mandatory regulations based on the recommendations of international organizations either to tackle light nuisance or prevent energy wastage caused by artificial external lighting, including lighting zone system, standards and parameters on obtrusive light

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<sup>12</sup> Which applies to new build stage or where the lighting materially changes the external appearance of the building

<sup>13</sup> Consumer floodlighting is not covered.



such as upward light ratio, lighting power density (LPD). (Huen, 2009; ENB, 2013)

Lighting zone system is to categorize different areas into various lighting zones. Different lighting zones have given different limits on light trespass, glare and luminance signboard. The International Commission on Illumination (CIE) recommends the use of four lighting zones to classify different areas according to their prevailing environmental brightness in ranking of, E1: intrinsically dark applies to national parks or protected sites; E2: low district brightness includes industrial or residential rural areas; E3: medium district brightness refers to industrial or residential suburbs; and E4: high district brightness for town centres and commercial areas. (Fisher & Pollard, 2003:10)

The CIE also has formulated a set of lighting technical parameters to give recommended limits for exterior lighting in tolerable levels those are said to be both credible to the interested parties and pragmatic in application. It suggests two sets of limits pairing with the four lighting zones, one with higher values to be applied before curfew, and one with lower values for after curfew. Where post-curfew hours should be taken as being between, and not later than, 11pm and 6am. For instance, the maximum values of illuminance on surrounding properties for E4 in pre-curfew and post-curfew hours are 25 lux and 5 lux respectively; and, for signboards the

maximum value is 1000 cd/m<sup>2</sup><sup>14</sup> which applies to both pre- and post-curfew in E4.

(Fisher & Pollard, 2003:8-10) The recommended values refer to the installation alone, the CIE reminds “if there is already significant obtrusive light from existing lighting, the designer of the installation should endeavor to achieve values of light technical parameters that are well within the recommended limits.” (Fisher & Pollard, 2003:9)

LPD<sup>15</sup> served as a code defining the maximum allowable lighting in any defined area. For instance, retail buildings are allowed 1.4 watts per square foot.

LPD are widely adopted in the US today. (Dilouie, 2011)

Yet, a universally accepted definition of and regulatory framework for light pollution have not yet established. Referring to environmental experts, considering environmental justice may be best captured for intertwining environment and social difference.

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<sup>14</sup> cd/m<sup>2</sup> represents candela per square metre, is the derived SI unit of luminance.

<sup>15</sup> It is a lighting power requirement defined in North America by various organizations including, American Society of Heating, Refrigeration and Air-Conditioning Engineers. It is expressed in watts per square foot for a given building type.

### **2.3 Environmental Justice**

Simply, environmental justice refers to justice on environmental issues among the human population. Since the formulation in the 1980s, it has expanded into a wide range of social and environmental dimensions globally nowadays. The following reviews the definitions of environmental justice those frequently used in literature.

According to United States Environmental Protection Agency (2013), environmental justice refers to “the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Everyone should enjoy the same degree of protection from environmental and health hazards and equal access to the decision-making process to have a healthy environment in which to live, learn, and work.”

Coalition for Environmental Justice states “an environmental injustice exists when members of disadvantage, ethnic, minority or other groups suffer disproportionately at the local, regional (sub-national), or national level from environmental risks or hazards, and/or suffer disproportionately from violations of fundamental human rights as a result of environmental factors, and/or denied access to environmental investments, benefits, and/or natural resources, and/or are denied access to information, and/or participation in decision-making, and/or access to

justice in environment-related matter.” (Steger, 2007:10)

Stephens et al. (2001:3) lay two basic premises, “everyone should have the right and be able to live in a healthy environment, with access to enough environmental resources for a healthy life; and second, that it is predominantly the poorest and least powerful people who are missing these conditions. Taking these two premises together suggests that a priority is to ensure that the adverse conditions faced by the least powerful people are tackled first. As well as implying environmental rights, it implies environmental responsibilities. These responsibilities are on this current generation to ensure a healthy environment exists for future generations, and on countries, organizations and individuals in this generation to ensure that development does not create environmental problems or distribute environmental resources in ways which damage other people’s health.”

Bryant (1995:6) suggests environmental justice is about “to those cultural norms, values, rules, regulations, behaviours, policies and decisions to support sustainable communities, nurturing and productive. Environmental justice is served when people can realize their highest potential, without experiencing the ‘isms’. Environmental justice is supported by decent paying and safe jobs, quality schools and recreation; decent housing and adequate health care; democratic decision-making and personal empowerment; and communities free of violence, drugs and poverty.”

In summary, environmental justice is conceived in terms of distribution of goods or resources and harm or risks; procedures in which decisions are made, who is involved and has influence; and who is given respect and who is not valued.

Schlosberg (2007:3-5) argues how one defines the 'justice' of environmental justice is important. A theoretical-based conception of environmental justice is not the whole, rather it is to reasoning, to listen and learn from environmental movements. Schlosberg (2007:5) realizes "participation is the third leg of a triad with distribution and recognition; it is a key political capability, necessary for individuals to ensure functioning." In political practice, he argues justice is articulated and understood as a balance of numerous interconnected elements of distribution, recognition, participation, and capability. Each is crucial to a satisfactory conclusion of justice.

All together, the key dimensions to environmental justice are distributive justice, justice as recognition, procedural justice, and capabilities.

### **2.2.1 Distributive Justice**

John Rawls, one of the major political philosophers, proposes a conception of justice that he called justice as fairness. Rawls (2001:39-41) views the fundamental social and economic inequalities are the differences in citizens' life-prospects as

these are affected by such things as their social class of origin, native endowments, opportunities and good or ill fortune over the course of life, where the basic structure importantly influence social and economic inequalities. Notwithstanding, such a structure citizens enter only by birth and exit only by death, citizens do not and cannot enter or leave it voluntarily. Accordingly, his idea of justice as fairness is proposed as a political conception of justice that applies to political and social institutions with focuses on the basic structure of a modern democratic society. Central to his views, there are three basic points, first, the idea of society as a fair system of social cooperation between citizens regarded as free and equal; second, how one's main political and social institutions fit together into one unified system of cooperation; and, to articulate a set of highly moral values that characteristically apply to the political and social institutions of certain special features of the political relationship as distinct from sociational, familial, and personal relationships.

Correspondingly, Rawls develops an idea of 'the original position behind the veil of ignorance'. Rawls (2001:14-16) insists in the original position, a place where we would not know our own strengths and weaknesses or our own place in the grand social scheme of things, without knowing one's station in life, we would wind up an agreement rationally from an impartial position and thus could develop a particularity fair notion of justice that everyone agree with.

Rawls (2001:42-43) argues the following two principles of justice would emerge in the original position with unanimous agreement. The first principle, “each person has the same inalienable claim to a fully adequate scheme of equal basic liberties,<sup>16</sup> which scheme is compatible with the same scheme of liberties for all;” and the second, “social and economic inequalities are to satisfy two conditions, firstly, they are to be attached to offices and positions open to all under conditions of fair equality of opportunity; and secondly, they are to be to the greatest benefit of the least-advantaged members of society.” Rawls also notes that the first principle is prior to the second whilst in the second principle fair equality of opportunity is prior to the difference principle.<sup>17</sup> This is about liberties that all can enjoy cannot be violated on grounds of the furtherance of wealth or income, or for a better distribution of economic resources among the people. Social values, income and wealth, liberty and opportunity, and self-respect, all are to be distributed equally unless an unequal distribution of any, or all, of these values is to the least-advantaged members’ benefit.<sup>18</sup>

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<sup>16</sup> Rawls (1999:53) notes that important among these are political liberties including the right to vote and to hold public office; freedom of speech and assembly; liberty of conscience and freedom of thought; freedom of the person, which includes freedom for psychological oppression and physical assault and dismemberment (integrity of the person); the right to hold personal property and freedom from arbitrary arrest and seizure as defined by the concept of the rule of law.

<sup>17</sup> Rawls (2001:13) claims that the principles of justice are most appropriate for a democratic society under reasonably favourable conditions. In other words, this is not appropriate for societies that even have not adequate basic necessities.

<sup>18</sup> Some philosophers and scholars criticize Rawls’s idea focusing on the ideal schemes and processes of justice in liberal societies, not directly focusing what emerged in the real world. Rawls (2001:41) explains it is not saying that a political conception of justice formulates political values that can settle

Here Rawls provides a notion of justice that a just society should distribute all resources, opportunities and freedoms equally; and the costs, risks, and unfreedoms required to maintain it should be wound up impartially in agreement. Any unequal distribution can only be to benefit the least-advantaged group.

### **2.3.2 Justice as Recognition**

Scholars include Honneth, Young and Fraser contend that “a lack of recognition in the social and political realms, demonstrated by various forms of insults, degradation, and devaluation at both the individual and cultural level, inflicts damage to oppressed individuals and communities in the social and political realms. This is an injustice not only because it constrains people and does harm them, but also because it is the foundation for distributive injustice.” (Schlosberg, 2007:14)

In respect of recognition as an element of justice, Honneth focuses the importance of self-esteem in the political realm. Schlosberg (2007:16-18) interprets Honneth’s idea that self-worth comes from recognition by others which not just from individuals, but also from culture and the state. As well, Honneth suggests three key forms of disrespect: the violation of the body,<sup>19</sup> the denial of rights, and the denigration of ways of life. Schlosberg (2007:17-18) clarifies that “recognition here is

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all legislative questions, this may not possible but desirable.

<sup>19</sup> Here the violation refers specifically to torture.



much broader than a simple tolerance, individuals must be fully free of physical threats, offered complete and equal political rights, and have their distinguishing cultural traditions free from various forms of disparagement.” In short, systemic social and cultural denigration and domination, as well as psychological condition, are crucial elements of justice.

Crucially, Young says issues of distribution are essential, but more to the point, there are key reasons why some people get more than others. Young (1990:3) argues that “where social group differences exist and some groups are privileged while others are oppressed, social justice require explicitly acknowledging and attending to those group differences in order to undermine oppression.” Central to Young’s idea, justice as recognition needs to focus more on the elimination of institutionalized domination and oppression, particularly of those who represent difference and remain unrecognized or malrecognized. Any examination of justice, Young (1990:22) insists that the structures, practices, rules, norms, language, and symbols that mediate social relations need to be included.

On other hand, Fraser emphasizes on maldistribution experienced by both the structural nature of the construction of subordinate and disrespected identities and communities. Fraser thinks “misrecognition is tied to institutional subordination and inequity, the key is to examine the cause of inequity and how the social context of

unjust distributions; whether, and how, individuals and communities are recognized is crucial.” Schlosberg (2007:15-16) agreed and says “the key to understand recognition injustice lies in understanding the social norms, language, and mores that mediate the relation between those who are denigrated and so less well-off in the scheme of justice.” In confronting the injustice of unrecognition or lack of respect, he suggests, focus on remedies based in cultural, symbolic, and ultimately, institutional change.

Here provides two dimensions to identify unrecognition or malrecognition leading to injustice: self-realization-based and structural and institutional-based. Both are calling to examine the range of social and cultural values and practices that impede the recognition of a group as an accepted member of the moral and political community, particularly to look at exactly who is left out of actual distributions.

### **2.3.3 Procedural Justice**

In accordance with Rawls’s idea,<sup>20</sup> distributive shares as a matter of pure procedural justice where such a right of participation is understood as one of the

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<sup>20</sup> Rawls (1999:74) notes that “justice as fairness society is interpreted as a cooperative venture for mutual advantage. The basic structure is a public system of rules defining a scheme of activities that leads men to act together so as to produce a greater sum of benefits and assigns to each certain recognized claims to a share in the proceeds. What a person does depends upon what the public rules say he will be entitled to, and what a person is entitled to depends on what he does. The distribution which results is arrived at by honoring the claims determined by what persons undertake to do in the light of these legitimate expectations.” These considerations suggest the idea of treating the question of distributive shares as a matter of pure procedural justice.

rights should have emerged under the imaginary original position. Rawls (1999:75) expounds pure procedural justice is “a situation in which there is no independent criterion for the right result, instead there is a correct or fair procedure such that the outcome is likewise correct or fair, whatever it is, provided that the procedure has been properly followed.” Procedural justice describes as fair and equitable institutional processes of a state, in which an independent standard for deciding which outcome is just and a procedure guaranteed to lead to it is the essential.

Referring to Young and Fraser’s ideas, they question if people are not recognized they do not participate, and vice versa. In this respect, Young (1990:23) states “justice must focus on the political process as a way to address both the inequitable distribution of social goods and the conditions undermining social recognition. Democratic and participatory decision-making procedures are then both an element of, and a condition for, social justice.” Regarding participation in deliberation and decision-making, Young (1990:34) insists “for a norm to be just, everyone who follows it must in principle have an effective voice in its consideration and be able to agree to it without coercion; for social condition to be just, it must enable all to meet their needs and exercise their freedom; thus justice requires that all be able to express their needs.”

Issues of justice are not just bivalent, but trivalent. Schlosberg (2007:28)

interprets Fraser's idea that "it is not just political and cultural institutions create conditions that hamper equity and recognition, but both distributive inequity and misrecognition hamper real participation in political and cultural institutions." He further explains "to remedy maldistribution we must focus on political-economic restructuring; but such considerations will only come along with recognition, where the remedy is in cultural and symbolic changes in how we regard the presently misrecognized. Only then will participatory parity, and procedural justice, be attained." For a parity of participation, Schlosberg (2007:28) notes two conditions should be met: "first, objective conditions include a distribution of resources to ensure participants' independence and voice; second, subjective conditions that institutionalized cultural patterns of interpretation and evaluation express equal respect for all participants and ensure equal opportunity for achieving social esteem."

#### **2.3.4 Capabilities**

Amartya Sen, a contemporary philosopher, suggests one quality of lives could not be reflected by oneself advantage in terms of income, wealth or resources, contrary, the central feature of well-being is the ability to achieve valuable

functionings.<sup>21</sup> Sen (2009:225) insists “the need for identification and valuation of the important functionings cannot be avoided by looking at something else, such as happiness, desire fulfillment, or opulence.”

Schlosberg (2007:29-30) agreed, and defines capability approach is about “a person’s opportunities to do and to be what they choose in the context of a given society with the focus on individual agency, functioning, and well-being.” Just arrangements should not be only judged by simple economic distributive indicators, but also more particularly on people specific capabilities, how economic distributions affect their well-being and that allow or assist them to translate basic goods into the functioning of human life.

Sen (2009:227) clarifies that “people have reason to be interested not only in the kind of lives they manage to lead, but also in the freedom that they actually have to choose between different styles and ways of living. Indeed, the freedom to determine the nature of their lives is one of the valued aspects of living that they have reason to treasure. The recognition that freedom is important can also broaden the concerns and commitments they have. They could choose to use their freedom to enhance many objectives that are not part of their own lives in a narrow sense.” Broadly speaking, this notion of justice concerns both the capabilities and qualities

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<sup>21</sup> Here functionings refer to various doing and beings, can be activities like eating, reading or seeing; and states of existence or being such as being well nourished, being free from disease, and so on.

held by people and the ability to express and exercise those capabilities in a functioning life. The focus is on what it is that either enables or interrupts a living system in its ability to transform primary goods into functionings.

More specifically, Sen (2009:228-230) suggests two levels of freedom, “first, more freedom gives people more opportunity to pursue their objectives, those things that they value; second, they may attach importance to the process of choice itself.” The former is concerned with people ability to achieve what they value, the actual opportunities to decide to live as they would like and to promote the ends that they may want to advance. Whilst the latter allow them to make sure that they are not being forced into some state because of constraints imposed by others.

The capability approach in justice focuses beyond what a person actually ends up doing, also on what they are in fact able to do, whether or not chooses to make use of opportunity.

## **2.4 Analytical Framework**

After reviewed the literature, the analytical framework is constructed. The variables for justifying distributive justice are the distributions of environmental hazards, living quality, liberty and opportunity, self-respect, as well as the provision of health care and governmental funds to victims who are belong to the low-income group. For recognition, the variables are social structure, practices, rules and norms. For procedural justice, the variables are representation of groups, effectiveness of expression of different groups, participation mechanism, adequacy of domestic laws, and availability of information on light pollution. And, for capabilities, the variables are the ability of victims against light nuisance, the ability of all to express and exercise their needs, and the freedom to pursue own life styles. These variables are applied to the research questions and used to examine whether the HKSAR Government handling the problem of light pollution regarded as environmental justice. Analysis of data is tested by Down's Issue-attention Cycle and the Top-down and Bottom-up models.

### Chapter 3 Light Pollution in Hong Kong

The “Pearl of the Orient” perhaps is the definitions of HK. Illumination has been important to promote tourism and retail trade. However, the excessive use of external artificial lighting caused a light pollution problem. And it has become serious despite the issue of energy wastage arising from external lighting has been put on the government agenda in 2008. (HKSAR Government, 2008)

The number of complaints about light nuisance in 2006 recorded as 35,<sup>22</sup> it rose to 82 and 213 in 2008 and 2009 respectively.<sup>23</sup> Most complaints are caused by private organizations from advertisement signboards and spotlights. Those are not just raised from local people, but tourists.<sup>24</sup> The nightly spectacle “A Symphony of Lights” which the Government is so proud of,<sup>25</sup> however, it has been described as abusive lighting and criticized by a professor at Taiwan, who writes in his book “Light Pollution” that the light show which HK is so proud of is a waste of energy. (Yung, 2007) Moreover, the nightly spectacle was picked as a cover story with the headline “Bring Back the Night” by an international astronomic magazine. (Sky and Telescope, 2010) Under this circumstance, various groups include legislators, green

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<sup>22</sup> Please refer to ISD (2007).

<sup>23</sup> Please see Appendix A, personal inquiry to EPD on the number of complaints on light nuisance.

<sup>24</sup> In 2010, two tourists complained to EPD that the advertising lighting of a cosmetics store shone like ‘raping tourists’ eyes’. (Singtao, 2010)

<sup>25</sup> It is a light show combines interactive lights of 46 key buildings on both HK Island and Kowloon with musical effects to showcase the vibrancy and glamorous night vista of Victoria Harbour. The event has been awarded the world’s ‘Largest Permanent Light and Sound Show’ by Guinness World Records. (Tourism Commission, 2005)



organizations, academia, and individual citizens have urged the HKSAR Government to legislation against light pollution.

The University of Hong Kong (HKU) conducted the first light pollution survey in 2007 with funded by the Government under the Environment and Conservation Fund. The survey completed in 2009 and concluded that light pollution in HK is severe, urban night sky in the worst polluted areas, such as Mongoko, is at least 500 times brighter than some rural sites. (Pun & So, 2012). Afterward, they have formed a light pollution team<sup>26</sup> and a Hong Kong Night Sky Brightness Monitoring Network (NSN) continuing to monitor the light pollution. Further in 2013, they reported that Tsim Sha Tsui night sky is on overage over 1,000 times brighter than the International Astronomical Union standard. It is described as the worst on the planet. Moreover, some rural areas such as Lantau Island and Wetland Park where a world famous staging post for migratory birds is, also being affected by artificial lighting. (HKU, 2013; Cheung, 2013) The findings have been widely reported and received much public attention with at least 30 pieces of media coverage are produced in a short time. (NSN, 2014)

Friends of the Earth (FoE) (Hong Kong) is one of the green groups given much efforts in solving the problem. They released the first book of light pollution in HK

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<sup>26</sup> It is organized by Department of Physics of the HKU and collaborated with organizations including the Hong Kong Space Museum, Hong Kong Astronomical Society, Ho Koon Nature Education cum Astronomical Centre, and so forth.

which publicized some stories of citizens who affected by light nuisance; launched the first large-scale lights-out activity; initiated the “Dim It Brighten up” campaign calling businesses dim their light for two hours which organized more than 3,500 buildings participate; launched the “Dim It Charter” calling enterprises turn off advertising light at midnight which organized over 3,000 buildings participate, and so on. (FoE, 2013)

Some victims seek assistance from green groups, and some had given silent complaint to the community. A resident Mr. Wai who lived in Sai Yeung Choi Street South and affected by light nuisance for a long period. He produced two videos of light pollution in Mongkok and uploaded onto YouTube, namely “The Lucifer Effect, Mongkok”. The videos describe the poor living environment mixed with the excessive advertising lighting, noise and crowds that would turn people to evil. (Wai, 2013)

Meanwhile, owners of luxury homes at Tsim Sha Tsui held a press conference accusing the signboard of the opposite shopping mall which flashing till mid-night and affected their daily life severely. (Oriental Daily, 2011) They complained to governmental department and negotiated with the business, but no improvement was made. Hence one of the owners issued solicitor letter that triggered the business to response quickly, and then dim the lighting and turn it off before mid-night. (Chu, 2011)

After the HKU's first light pollution report, the Government commissioned consultancies to collect views from different sectors and identify feasible measures. The Policy 21<sup>27</sup> (2010) conducted a survey with a total of 2,672 respondents from residents, neighbours of sports and recreational facilities and light sensitive groups, shop owners, customers, shop goers, tourists, passers-by, and relevant interest groups. The findings showed that 76 percent of respondents think that external lighting in HK is too excessive, and caused light nuisance and energy wastage. In the areas with more intensive external lighting, 40 and 36 percent of residents have adverse effects on daily life and mental and physical health respectively. In which, only a small proportion has lodged complaints with governmental departments, because they do not think lodging a complaint would help. The consultancy therefore recommended the HKSAR Government should consider establishing a one-stop mechanism for dealing with complaints arising from external lighting; implementing publicity measures and education stressed on how to use external lighting; further investigate the need and practicality of enacting legislation to control the installation and use of external lighting; and so forth.

Another consultancy study was conducted by desktop research and site surveys and measurement. It reported that in Sai Yeung Choi Street South, over 70 percent of

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<sup>27</sup> It is prepared for the Electrical and Mechanical Services Department in 2010.

units affected by light nuisance with a very significant level before 11pm and significant after 11pm. In which, the worst polluted case recorded with vertical illuminance over 1,200 lux, about 40 times exceeding the level recommended by the CIE. Accordingly, the consultancy recommended the HKSAR Government to educate or encourage shop operators to switch off needless lighting and to adopt a curfew time for turning off or dimming down lighting at night when not in use and after business hours. (PB, 2011)

In respond to the increasingly light pollution problem, the HKSAR Government set up a TaskForce<sup>28</sup> in 2011 with 19 appointed members drawn from professional bodies, relevant trades and green groups. It is aimed to forge stronger community consensus and develop technical standards for tackling external lighting. (ISD, 2011)

Later in 2012, ENB announced the Guidelines which served to provide some general good practices on design, installation and operation of external lighting for the reference of both private and public sectors with a view to minimizing the adverse impacts arising from external lighting. It recommends switch off external lighting when not needed or after business hours, or after 11pm; incorporate automatic control to switch off external lighting when not needed; use lighting with appropriate shields, baffles, louvers and cut-off features; and so forth. (ENB, 2012)

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<sup>28</sup> The membership of TaskForce listed at Appendix F.

Later, the TaskForce studied the experience of other metropolises and hence announced a consultation paper, “Document for Engaging Stakeholders and the Public” (Document) to invite public comment on their findings and recommendations. The Document stated that most mandatory regulations adopted by other cities and the measurements recommended by CIE or other international organizations all are not practicable for HK due to the high density of buildings and the close proximity of commercial and residential buildings of the city. The Document concluded that the requirement to switch off external lighting after a preset time would be the most tenable option. Therefore, the TaskForce proposed to implement a switch-off requirement whether at 11pm or 12pm, by voluntary approach or legislation; and, to consider granting exemptions to certain types of entertainment facilities. (ENB, 2013)

For encouraging public participation in the deliberations, the TaskForce arranged a two-month public engagement exercise and a two-hour public forum.

Meanwhile, some TaskForce members criticized some members within the team are not intended to solve the problem but pursuit vested interests. The HKSAR Government has no enthusiasm to solve the problem as well. (Mingpao, 2013; RTHK, 2013)

Another major group, legislators also questioned the administration about her

intention to solve the problem.<sup>29</sup> However, there are different voices within the Legislative Council (LegCo). Some Pan-Democrat, Civic Party and Civic Act-up lawmakers favour specific laws to curb light pollution, whilst legislators representing the tourism and retail sectors think these industries relying on lighting to attract business so they backed voluntary approach. (Cheung, 2011) Whereas air pollution has long been an intractable problem, the impacts on public health have increased significantly by adding with light pollution. The Panel on Environmental Affairs of the LegCo (Panel) decided to study the issue in the late 2012. (LegCo, 2014)

Following the Panel questions, ENB answered that there have not a conclusive view on any direct relationship between light exposure and health problems from research studies conducted in different countries, possible health effects of light pollution, if any, may include glare, nuisance and sleep problems. (ENB & EPD, 2013:5)

For the concern about suppression of melatonin release and disruption of circadian rhythms, ENB said “an overseas study has noted that the amount of light required to cause such an effect has to be of a high level and the exposure has to be for a sufficiently long time. It has concluded that light trespass through residential windows is an unlikely cause of melatonin suppression given its low light level, particularly with the eyes of the residents closed.” (ENB & EPD, 2013:5)

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<sup>29</sup> See the LegCo questions in various press releases. (ISD, 2008, 2009, 2010)

The number of light nuisance complaints has increased to 259 in 2013,<sup>30</sup> but the HKSAR Government has stay put after the Panel's Study. Although the local law has not included the right to a clean living environment,<sup>31</sup> Noise Control Ordinance has established since 1989 with accepted sleep deprivation and mental stress by noise as giving rise to adverse health effects. Why is there apparently unreadiness to consider similar ordinance to protect citizens from light nuisance?

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<sup>30</sup> Please see Appendix A.

<sup>31</sup> Declarations and Recommendations on Human Rights and the Environment has not found is included into the laws of HK. (Department of Justice, 2014)

## **Chapter 4 Methodology**

This dissertation examines if the HKSAR Government has genuinely applied environmental justice in the handling of light pollution. Researchable questions are:

1. What are people thinking on light pollution?
2. What are people's views on advertising lighting?
3. What are people's attitudes toward control light pollution?
4. What were people's considerations in deciding way to deal with light pollution?
5. How were the Guidelines formulated?
6. How were the recommendations of the TaskForce wound up?
7. Who and how people influenced the formulation of the Guidelines and the recommendations of the TaskForce?
8. What have people done regarding the problem of light pollution?

Now turn to the design of research method.

Creswell (2013:47-48) suggests quantitative measures may not be sensitive to issues such as race, economic statue, and individual differences. Contrary, qualitative research may be relevant to social relations, and identifies variables which cannot be easily measured, or heard.

Creswell (2013:43-44, 97-105) indicates that qualitative research data include



field notes, interviews, observations, photographs, recordings, and memos, which are instrumental to an in-depth understanding of real-life cases.

Open-ended questions are effective when the response domain is unknown or in seeking in-depth information or in eliciting interviewees' feelings, suggestions, or explanations of events. However, Colton & Covert (2007:227-228) point out these questions may not be effective as interviewees may not wish to spend the time to carefully think through and phrase an adequate response. These lead to diverse responses, which may be difficult to assemble or analyze, not to mention time consuming.

Besides, Creswell (2013:101-102) reminds the problem of generalizability. There might be criticizing the purposeful sampling for selecting the case and for gathering information about the case, and those might be constrained in terms of time, events, and processes. Flick (2009:13-14) explains a study conducted with a large sample size should have guaranteed the objective and validity of the findings by largely eliminated the subjective views of researcher and respondents. However, such findings often remain too far removed from everyday questions and problems, not carried over into political and institutional practices as widely than expected. Flick (2009:31) borrows Weber's proclamation, "science's task is the disenchantment of the world," and suggests "numerical generalization is not

necessarily the right one, as many qualitative studies aim at developing view insights and theories. The more relevant question is how to generalize qualitative findings on a solid theoretical background. It is less the number of cases that are studied, but rather the quality of sampling decisions on which the generalization depends.”

Literature aside, the assessment of a policy calls for an in-depth examination of interaction between the Government and stakeholders. Given the strengths and weaknesses of the case study approach, an informal and direct dialogue with stakeholders at their preferred times and venues with no formal survey questions should allow a free flow of ideas. The pros for this method clearly outweigh the cons. For quality results, three major stages are designed: field observation, semi-structured interviews, and data analysis.

#### **4.1 Field Observation**

Creswell (2013:101) holds that the selected case must be worthy of study. Mongkok being the perceived ‘black spot’ is targeted for study of light pollution. Direct observation precedes the actual research to acquaint the researcher of the ‘targeted place’. The subjects observed are the use of external artificial lighting and the living environment. Since the Guidelines suggest switching off external lighting after 11pm, observations are set before and after 11pm to examine the effectiveness

of the Guidelines. Details of observation sessions are listed at Appendix B.

## **4.2 Semi-Structured Interviews**

Due to time constraint, only a small number of stakeholders were interviewed. Invitation letter and a copy of research question are sent to each interviewee prior to the interview. Interviews are conducted in Cantonese and in venues convenient to the interviewees. To protect privacy, data are recorded by hand notes and access restricted to the researcher and the supervisor only. Interviewees are placed at ease and are free to express themselves, even on matters not specifically covered in the questions.

### **4.2.1 Semi-Structured Questions**

The first part of questions focuses finds out people's perception of light pollution.

The second part collects people's views on the use of advertising external lighting and its influence on their daily life. It attempts to construct a distribution of primary and social goods by living quality, environmental hazards, individuals functioning and freedom, having regard to different views and experiences from different groups. These findings will also reflect factors for

consideration by decision-makers.

The third part of questions explores people's attitudes toward control light pollution. These answers may identify the disparities of social and political values on environmental protection and economic development for different social status, which in turn, may discover the dominant rules and symbols that mediate the problem.

The fourth part of questions examines how the Guidelines and the recommendations of the TaskForce are formulated and people's response to the control of light pollution. These questions help to understand the participatory mechanism which represents interaction between the government and the community.

The design of research questionnaire<sup>32</sup> is followed the above structure, and different sets of research question have created for different groups of interviewees.

#### **4.2.2 Interviewees Identification**

In the preparatory stage, major stakeholders from governmental institution, academy, green group, tourism, business, and residents were identified for interview, with their standing in the field, it was anticipated that the interviewees would

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<sup>32</sup> Please refer to Appendix C.

contribute positively to this research. Arising from the field observation, two of the businesses with large per capita stake were chosen for interview also. The details are specified at Appendix D.

## **Chapter 5 Findings and Data Analysis**

This chapter summarizes the findings of field observations and semi-structured interviews. Ten persons participated at the interviews. They are Mr. Morgan-Taylor and Mr. Leung (from academia); Mr. Lau (representing green group); Mr. Chow (is a District Councilor); spokesperson of the HKTB (tourism); Ms. C and Mr. S (salesperson from business sector); and Mr. Wai, Ms. W and Mr. Lee (the residents).

The interviews findings are categorized by Perception of light pollution, Views on artificial advertising light and its impacts, Attitude toward control light pollution, and Procedure of policy-making process, being compatible with the questionnaire design. These findings will be compared and contrasted.

Analysis of the data is tested by Downs's Issue-attention Cycle and the Top-down and Bottom-up models.

### **5.1 Findings**

#### **5.1.2 Field Observation**

There are many commercial-cum-residential buildings in the observation area. Shops are intermingled between street level and upper floors. Advertising illuminated signboards, spotlights and video walls total nearly 2,000. They are installed densely in front of shops at street level and above.

Artificial lighting of advertisements commonly shine until 11pm when the shops are closed. Between 11pm to 12am, the external lighting of nearly 80 percent of the shops is still turned although half of them are closed already.<sup>33</sup> Between 12am to 1am, one-fifth of spotlights and illuminated signboards are switched on whilst most of the shops are closed.<sup>34</sup>

More significantly, businesses using five number or above intensely bright spotlights together to irradiate one signboard is seen very usual. Many of them are fixed nearby residential or commercial-cum-residential buildings, some are installed opposite to residents' homes and some are just next to their windows. Most windows of such buildings are covered by curtains or other materials like slabs. For instance, Sai Yeung Choi Street South No. 62-64<sup>35</sup> is being brightened by 21 spotlights from 6pm to 11pm, all the windows are covered by thick curtains or other materials when the spotlights lit up; another commercial-cum-residential building Sai Yeung Choi Street South No. 50-52,<sup>36</sup> which is bathed in 32 spotlights, 22 are on the walls of the opposite during 6pm to 11pm and a signboard with 10 spotlights mounted on its wall which still illuminated at 1am. These commercial-cum-residential buildings are not the only cases, but two of the worst.

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<sup>33</sup> Approximately 280 shops located at street level, in which 107 shops are still opened with external lighting, 106 shops are closed but not switched off their external advertising lighting, only 67 shops are closed and turned off their advertising light.

<sup>34</sup> Approximately 400 spotlights and illuminated signboards still switched on.

<sup>35</sup> Please refer to pictures 7, 14, 18 and 22 in Appendix B.

<sup>36</sup> Please refer to pictures 5 and 6 in Appendix B.

Flashing LED signboards are also common. There of 82 flashing LED signboards for 42 shops, 34 belong to 15 pharmacies.

### **5.1.2 Perception of Light Pollution**

Except those from business sector and resident Mr. Lee, most interviewees think that HK has a serious light pollution problem.

Interviewees from academia, district council and green group have rich knowledge in light pollution. Resident Mr. Wai also understands what is light pollution and its adverse effects on human and the environment. Except HKTb, the remaining interviewees have no knowledge of light pollution. They simply say they pick up 'light pollution' from TV programme, but cannot relate it to advertising lighting in Mongkok. Nor do they know the adverse effects of artificial lighting; or whether light pollution is an environmental problem.

Of a more macro note, Mr. Leung is concerned with the conservation of night sky and stars, carbon emission and energy waste. Mr. Wai thinks the poor living environment and its ensuing health hazard should be tackled first. Mr. Lau thinks the major problems are wasting energy and creating light nuisance that will affect humans and wildlife. Mr. Morgan-Taylor and Mr. Chow recognize all the above problems; Mr. Chow adds the responsibility to the future generations;



whilst Mr. Morgan-Taylor adds the harms to ecology, safety and security due to glare and over-reliance on lighting as a crime deterrent, and the loss of 'night'.

### **5.1.3 Views on Artificial Advertising Light and Its Impacts**

Interviewees from academia, green group, district council, and resident Mr. Wai agree that advertising lighting is the main cause for serious light pollution in HK.

Mr. Morgan-Taylor believes that the brighter the signs, the better businessmen will fare in competition. Accordingly the gravity of advertising external lighting is likely to be out of control.

Mr. Lau and Mr. Chow agreed, pointing out that a lack of mandatory control induces advertisers to compete for business through 'brighter' signboards. They receive 3 to 5 complaints about light nuisance from the public in monthly average. Mr. Lau quotes residents in Mongkok are affected by severely light nuisance and caused insomnia and depression. Those victims negotiated with the businesses and lodged complaints to governmental departments, but had no improvement at all. Victims were either moved out Mongkok or endured in silence.<sup>37</sup> He says the worst case is an old lady suffered from light nuisance from an illegal signboard. She complained to governmental departments but it took over a year for illegal

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<sup>37</sup> Please refer to Chu & Chan (2008), as quoted by Mr. Lau.

signboard to be removed. In the event, she died of adverse effects on her health.

Mr. Lau thinks not many of businesses follow the professional opinions from lighting or advertisement signboard designers for the level of brightness for their signboards, businesses just ask designers to make it brighter or even larger. Mr. Chow reveals the lighting of signboards not only force residents to install thicker curtains, but closing windows and turning on air-conditioners by due to the heat of lighting. However, old people probably cannot stand the cold. He says many owners bought their properties when light pollution was not serious. With changing physical and economical circumstances, they cannot move to new homes nowadays.

Mr. Chow points with a puzzled frown that the advertising lighting caused a very awful living environment to residents, everyone should in all conscience bring back the natural living environment to them. Mr. Chow says lighting as an advertising tool is overused to the detriment of the community, therefore, it unfair to exempt business from switch-off requirement. He wonders, the aim to implement the switch-off requirement is to control advertising lighting, so what is the rationale to implement in sync with granting exemption?

Mr. Leung plays a video<sup>38</sup> showing how people misuse advertising lighting and sighs for the wasting-oriented energy consumption. He recalls his seniors saying the

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<sup>38</sup> The video is produced by the HKU's Light Pollution Team and available at [http://www.youtube.com/watch?v=ytaZHwC6Avo&list=PLOEg5xF0ZQJclC5i8\\_BjmedVtDYUds9ac](http://www.youtube.com/watch?v=ytaZHwC6Avo&list=PLOEg5xF0ZQJclC5i8_BjmedVtDYUds9ac). (NSN, 2014)

sky in HK was visibly starry in the 1980s, but it has changed since HK has dubbed the “Pearl of the Orient”. He says there are more and more taller luxury residential buildings around the HKU (where their laboratory located), the homes’ lighting affect their studies as well. He refers to their search findings<sup>39</sup> that there are clear drops on energy consumption at 11pm and 12am, saying light off signboards at 11pm or 12am is not the main point to the solution of the problem, but the way people use lighting.

Resident Mr. Wai describes living in Sai Yeung Choi Street South similar to frogs being boiled to death in warm water as advertising lighting was bleeding into his bedroom that led to insomnia and nerves, despite the ‘insulation’ with thick curtains. Lamentably, due to high property prices, he says he had few choices but stay there. He thinks businessmen just maximize their profit, transfer their cost to become public cost by all means.

Resident Ms. W is an old lady, usually cannot fall into deep sleep. She uses curtains and cupboards to cover all windows, but cannot relate these to light nuisance. However she tends to accept ‘over-bright’ advertising lighting, because lighting is a basic necessity for businesses. She also says she is not able to moving to new place economically and physically.

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<sup>39</sup> The search findings available at [http://www.scifac.hku.hk/file/news/1965/NSN\\_press\\_release\\_eng\\_revised\\_20\\_March\\_2013\\_.pdf](http://www.scifac.hku.hk/file/news/1965/NSN_press_release_eng_revised_20_March_2013_.pdf). (NSN, 2014)

Resident Mr. Lee does not think the degree of advertising lighting is excessive despite he used thick curtains to keep the light of nearby signboards out. He says he is used to live with 'light nuisance', anything has adverse effects, sneezing can spread diseases and lead to die also. He has never raised complaint, he explains Mongkok is not comparable with luxury residential areas, glitzy is the symbol of Mongkok, light off Mongkok will definitely lessen the steam of people and thus affect the income of businesses.

Salespersons Ms. C and Mr. S have no idea whether the degree of advertising lighting in Mongkok is excessive. They live in Tin Shui Wai and Tai Po where light nuisance has not occurred at their places. They agree businesses need signboards to attract potential customers, turning off advertising lighting at 11pm must affect the income as their shops are close at 11:30pm and 12am. Particularly they both sell skin care and cosmetics, they say lighting is the basic necessity. They both do not recognize all advertising signboards and spotlights of their shops are still turning on after business hour. Mr. S wonders if the external advertising lighting of his shop can spill into bedrooms nearby. Ms. C points that visitors like to experience 'HK's nightlife', as long as there is a cinema nearby, steam of people is quite big even at midnight. Ms. C explains foster pleasant shop environment with lighting and music is their company cultural, however all staff in shop do not know the lighting system,

they just turn on or off all buttons, except one set of internal lighting used to keep room temperature which will never be turned off.

HKTB states that external lighting promotes tourism and beautifies the “night in HK”, which are highly acclaimed by visitors. Also, external lighting installations should not be required to be switched off before the midnight, lest the tourist industry, retail business and catering industry would be affected.

Mr. Lau says green groups are requesting businesses to turn off their lighting when their shops are closed, therefore no business income would be affected. Besides, he suggests to carry out curfew hours, lighting intensity limits, and different control zones. Mr. Morgan-Taylor thinks the curfews (1am to 7am) in French law are very good idea that avoid having to quantify and balance the advantages of night lighting and advertising in the middle of the night, against the environmental harm and energy waste. He believes the influence on businesses’ benefits are slight (if any) as between 1am to 7am for almost customers will be asleep.<sup>40</sup> However, he thinks HK perhaps needs a curfew of 11pm because illuminated signboards are often nearby residences.

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<sup>40</sup> Extracts from Morgan-Taylor (2013), as quoted by Mr. Morgan Taylor.

#### **5.1.4 Attitude toward Control Light Pollution**

HKTB thinks the switch-off requirement should be implemented in phases to allow adequate time for operators or owners of external lighting installations to make corresponding adjustments to their lighting policies. Other measures such as lowering lighting intensity, particularly for commercial operations on the second and third floors, could be explored to mitigate light nuisance to residents nearby.

Salespersons Ms. C and Mr. S support legislation to control the use of external artificial lighting after knowing the possible ensuing adverse effects. They say it is practicable and worthy to dim the light or turn off needlessly lighting for minimizing the risks on human health. Mr. S says further he will use less energy from now on because he likes seeing stars.

Resident Mr. Lee does not support light control ordinance. He believes mandatory control will only create confronting positions between the public and businesses. He explains our society is not that harmony and tolerance nowadays, anything has no room for negotiation but call police, like noise nuisance, some people may harbouring some sort of grudge against business and misuse the rights provided by the law. He knows some residents may affected by advertising lighting, he explains there are conflicts of interest as many owners or residents in Mongkok also operate their businesses here, like him. He reveals many signboards

are installed illegally by an advertising agency which is smart in playing legal loopholes and some of the illegal erections are rented by a partial of owners whilst the owners are not living there. Nevertheless, he agrees advertising lighting must not affect residents. He suggests the HKSAR Government to consider decentralize authority to frontline governmental staff to deal with complaint cases individually.

Except no idea from resident Ms. W, the remaining interviewees think that to regulate the use of external artificial lighting by legislation with a curfew is recommended.

Mr. Lau advocates use legislation with curfew hours, light intensity limits, and different control zones; in which the curfew hours should be the same as the existing noise control ordinance to make it easy for all to remember, and different control zones setting with different levels of control to consider the needs of the commercial sector and the public at large.

Resident Mr. Wai suggests curfew should be set at 11pm. Notwithstanding, Mr. Wai believes the fundamental problem is the landlord-oriented public policies. He says people should have a 'descent' home instead of living in a poor environment. However, the HKSAR Government always favours the landlords driving crazy the land value of HK.

Mr. Leung calls a change of the 'wasting' underlying mindset of businessmen and consumers. He also thinks that flashing LED lighting should be regulated.

Mr. Chow agreed and says, the effects of flicker can decrease visual performance, pose danger to road driver, and cause to the onset of some forms of epilepsy. Many foreign countries already restricted the use of flashing LED lighting, he comments the law and regulatory in HK have failed to catch up with the times. He also says the reasons the TaskForce stated on the Document that the overseas practices are not practicable in HK are unreasonable. He suggests all advertising lighting should off at 11pm, except those use for medical or emergency.

Mr. Morgan-Taylor recommends three things, first, to educate the business sector and consumers on the use of lighting and that brighter is not always better. Legislation or regulation is best based on education, otherwise it may be ineffective. Regulators and enforcers should fully realize that it is not just about protecting night sky. It is need to get rid of the 'fit thicker curtains' attitude of putting the blame and cost of a nuisance onto the victim. Second, introducing a 'soft law' in the form of guidance, agreed with business and the lighting industry to control the use of lighting; and then, make legislation with a curfew, all external lighting not on sensors to be switched off to a curfew, say between 11pm and 6am.



### **5.1.5 Procedure of Policy-making Process**

All interviewees of residents have never complained nor given opinion to the government. Mr. Wai insists the Government will never answer the public but the “in-group rich men”. He believes it is the result of the fundamental social policy, the HKSAR Government would always favours the landlords only. As so, only such in-group friends have effective voices on the Government. Yet, he gives interviews to the media to expose his experience thus to arouse public concerns.

Salespersons Ms. C and Mr. S say they do not know that the Guidelines has been formulated. They have never received any information about light pollution, nor asked to dim their external lighting or turn off needless lighting.

Mr. Leung says the administration seldom solicits recommendation from their team. He recalls their team has been invited once to present their research findings in the LegCo before the publication of the Document. He does not believe the HKSAR Government is enthusiastic in solving the problem. However he thinks HK people like to follow new stuff, their team alone can only make an impotent noise. Recently, they grouped with entomological and bird watching organizations to pushing public awareness thus to pressure the Government.

Mr. Chow says he suggested to the Government at District Council meetings that voluntary approach is ineffective to curb light pollution and urged to legislation

before the formulation of the Guidelines and till now. In the meetings, he says support legislation was the majority. However, he thinks the Government is too short-sighted, focus only on the contemporary economic development. He believes there are channel for the public to voice out, nevertheless, their voice maybe weak. He reveals businesses must voice out on issues those affect their interests, whilst the public either aged or busy on work that probably keep silent, that in turn, the pool of business will always bigger than the public. Moreover, somehow the Government is inefficiency, currently still sticks in whether use voluntary approach or legislation despite the five-year discussion, the public may not have capability in term of time to deal with the Government. He suggests the HKSAR Government to enhance the public consultation mechanism like the method the Population Census used, scientific sampling and by home-visit consulting.

Mr. Lau says he participated in the formulation of the Guidelines and the Document. He comments such guidelines are too vague so not very useful, he is not fully agreed with the recommendations on the Document as well, however, the business's voice is dominant within the TaskForce in some ways. He says the Government did not give any response on his recommendations, moreover he reveals economic factor is the obstacle in defending objectives. He observes the Government is not keen to make a law to control light pollution as this is a very

lengthy process for her to go via; besides, the previous term of Government has already selected the people to join the TaskForce with only a few from green groups, so the Government will know the outcome. He also notes so far the policy-making processes are not very transparent, public has little say.

As ENB replies,<sup>41</sup> the members of the TaskForce for the first term consists ten from academia and professional, seven from commercial, and two from green and conservative organizations. The number of current term members is decreased from nineteen to fourteen<sup>42</sup> in which seven from academia and professional, five from commercial, and green and conservative organizations remain two.

Besides, Building Department (BD) replies<sup>43</sup> most signboards in Appendix B are illegal erections, however, they do not have authority to deal with light-based complaint. Yet, there is no one-stop mechanism available for public lodging complaint against light pollution.<sup>44</sup>

In summary, most businesses use excessive advertising lighting vying more business opportunities and do not comply with the Guidelines that lead the serious light pollution problem and affect people daily life and their health. Various groups support light control ordinance and have urged the HKSAR Government to legislate.

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<sup>41</sup> Personal request for information to the Access to Information Officer of ENB, details are listed at Appendix F.

<sup>42</sup> Those have quitted the TaskForce are remarked at Appendix F.

<sup>43</sup> Personal email inquiries to BD on 27 January and 24 March 2014.

<sup>44</sup> Personal telephone inquiries to BD and ENB on 4 February and 11 March 2014 respectively.

Whereas the business sector is more powerful in the community and in the dominant position within the TaskForce, the public has little say on the policy-making process. Generally, the polluters and the public are lack of knowledge in light pollution, provision of information and notification about the issue are insufficient.

## **5.2 Data Analysis**

Top-down and bottom-up approaches are typical, cyclic *modus operandi* of government policy. Top-down refers to policy information and procedures from government. Whilst Bottom-up is a process through which stakeholders from grass-root or street levels to higher levels influences top level decision-makers. Sabatier (1986) suggests an advocacy coalition framework in which “actors from various public and private organizations who share a set of beliefs and who seek to realize their common goals over time,” as a very important process to the greater extent of policy-oriented learning. A synthesis of policy-oriented learning and the top-down and bottom-up approaches would lead to better policy outcome.

Downs (1972) believes public interest wax and wane strongly influence public attitudes and behaviour upon social issues, particularly environmental problems. He reveals the five stages of his celebrated issue-attention cycle: the pre-problem stage, alarmed discovery and euphoric enthusiasm, realizing the cost of significant

progress, gradual decline of intense public interest, and the post-problem stage.

The cycle describes most people are not aware a problem until it jumps up suddenly into prominence; public interest remains sharply for a short time, but gradually fades from the center of public attention. He considers the longer and higher public attention stays the greater will be the political pressure make effective policy change.

The follow analyzes the loops of the top-down and bottom-up and the issue-attention cycle in the issue of light pollution. It is argues the HKSAR Government is economical-oriented, the policy-making process and decisions are not in the environmental justice context.

### **5.2.1 Environmental Justice**

Prior to 2007, HKU and FoE (HK) were aware of light pollution. They alerted the public of the growing problem through surveys or organized events. Legislators and District Councilor conveyed victims' complaints and opinions to governmental departments, and press for the enactment of a Light Control Ordinance. Apart from providing funds, the Government did not take any action.

In 2008, FoE (HK) released the first book of light pollution which publicized several stories of residents in Mongkok who were suffered insomnia and depression from light nuisance. Although lodged complaints to governmental departments,

government officials only buck-passing, had no improvement at all. Victims were either moved to new home or endured in silence. However the stories did not attract media or public interest, nor attract the decision-makers' eyes on victims.

The number of light nuisance complaints boomed in 2009. HKU reported Mongkok night sky was at least 500 times brighter than the darkest rural sites. The issue then leaped into prominence, attracted media attention and alarmed the public. The Government was pressed to commission consultancies to study the issue.

One of the studies explored the actual living environment of Sai Yeung Choi Street South and reported that the residents were significantly affected by light nuisance. Another consultancy study collected over 2,600 citizens' opinions. Most of them thought external lighting was excessive and had adversely affected residents. Victims of light pollution did not complain to governmental departments because they believed the latter would not assist. The consultancies recommended the HKSAR Government to establish a one-stop mechanism on light nuisance complaints; educate shop operators to turn off or dim the light after business hours; further investigate the need to legislate control of external lighting; and so forth. Whilst a professional from Taiwan and an American astronomic magazine commented HK had lost the night. Light pollution in HK has become an issue, domestically and internationally.

The consultancies findings did exert pressure to the HKSAR Government initially. However the latter's inaction did not move the discussion forward. Also, the novelty of the issue faded out in the eyes of the media and the Government advanced no tangible solutions.

In 2011, owners of luxury homes held a media conference accusing the ill-effects of advertising lighting to everyday life. A victim Mr. Wai uploaded two videos of light pollution in Mongkok onto YouTube expressing the terrible living environment had driven people to crazy. These accusations attracted media reports. Luxury homes owners told reporters the advertising lighting disrupted their sleep, created hurdles on the letting of their properties, thereby caused great economic losses. Mr. Wai compared residents in Sai Yeung Choi Street South to "frogs being boiled to death by warm water". Nevertheless, they had to stay put because of the high property prices. Media coverage placed the issue under the limelight again. The public suddenly resumed their alarm of the poor living environment caused by the advertising lighting. This aroused the public, environmental organizations and legislators' euphoric enthusiasm again pressed Government to alleviate the problem.

The HKSAR Government then set up the TaskForce with appointed members. Notwithstanding, the business sector occupy more seats<sup>45</sup> including advertising,

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<sup>45</sup> Please see last sub-section.

electrical and mechanical contractors, real estate, food and beverage, and the two General Chambers of Commerce. The green group has only two seats. Representation on the group is clearly biased.

At the Yau Tsim Mong District Council meetings, District Councilors urged the Government to introduce Light Control Ordinance. At the TaskForce meetings, the director of FoE (HK), Mr. Lau reported that victims of light nuisance could not seek redress because the Government lacked legal “teeth”. Thus he advocated legislation with curfew hours, lighting intensity limits, and different control zones. Members from green, academia and professional groups supported legislation. This suggestion was understandably resisted by the business group who considered mandatory controls would affect their profits and would turn HK into a dark city at night. No agreement was reached by the TaskForce and the HKSAR Government did not take legislation proposal forward.

Soon the HKSAR Government formulated the Guidelines to regulate external artificial lighting, but on a voluntary basis. The Government insisted to strike a balance between environmental harm, safety and security, and the needs of HK as a business centre and tourism destination. Policy-makers did not step forward for legislation, either because they did not fully appreciate the victims’ voices or had displayed favouritism to the business sector. In due course public interest faded away



provided the Government an opportunity to stay put on the policy.

But the victims' grievances remained high. Mr. Wai is not surprised with the HKSAR Government's inaction to legislate against light pollution. He believes that land sale constitutes the lion's share of government revenue. In other words, the higher the land price, the higher the property price and the higher the profits for developers. It is therefore reasonable to assume, the HKSAR Government always favours land owners and "in-group" friends, at the expense of the ordinary public. Mr. Wai realizes unrecognized in the political and social realm. Therefore, he never complains or gives opinion to the Government.

The situation had not improved at the "first anniversary" of the Guidelines. Most businesses still use excessive advertising lighting and keep them shine until mid-night or after business hours.

From the business point of view, glitzy is the symbol of Mongkok, signboards attract potential customers, whilst light off at 11pm definitely weakens people's steam thus affects income. Indeed most businesses and polluters have not given notice about the Guidelines. Most of the businessmen and advertisers are not guilty conscious of adverse effects caused by light pollution. Some innocent victims think sneezing can spread deadly diseases, so that think curtains insulating the lighting should be safe. The position is that the Guidelines exist in paper only.

The effectiveness of the Guidelines is obvious: they are simply ineffective. Just walk around the area of Sai Yeung Choi Street South, one gains a first-hand information of the adverse conditions faced by the low-income class as a result of light pollution. The media on the other hand are landed with competing priority issues every minute. Light pollution obviously is not on the media's priority agenda.

Hence the Panel decided to study the issue. However, the ENB replied that "if there were any possible health effects of light pollution, it might include glare, nuisance and sleep problems," which reflected the Government's lack of understanding on light pollution.

In 2013, HKU reported that the Tsim Sha Tsui night sky is on average over 1,000 times brighter than the international standard and described it as the worst on the planet. The problem caught public attention again with over 30 news coverages in one day. Once more, the HKSAR Government was under pressure to solve the problem as soon as possible.

The debate on Light Control Ordinance was revived. The TaskForce studied the regulatory regimes in overseas cities and held several meetings with the Government. The latter listened to Yau Tsim Mong District Councilors' opinions at District Council meetings; and discussed with legislators, the HKU's Light Pollution Team and other groups at LegCo meetings. Soon, the TaskForce announced the Document which

discarded the feasibility of most measures on control of external lighting as recommended by CIE or other international organizations or adopted by other metropolises. The reason was that the high density of buildings in HK rendered it less practicable to identify the contributing light sources and apportion the amount of light received by a complainant among these sources in a fair and objective manner; the close proximity of commercial and residential buildings making impracticable to adopt the zoning concept or to define the appropriate luminance level; the lack of objective reference to determine the appropriate LPD standards for building façade and illuminated signboards making practical difficulty in apply the LPD parameters; and so forth. Therefore, the TaskForce recommended a switch-off requirement at 11pm or 12pm, by voluntary approach or legislation.

Recalling the CIE recommendations, “the designer of the installation should endeavor to achieve values of light technical parameters.” Ironically, the TackForce rejected to set brightness limits for external lighting due to it is less practicable to identify the contributing light sources and apportion the amount of light received by a complainant. Moreover, the close proximity of commercial and residential buildings precisely is one of the major factors of light nuisance. The TaskForce borrowed the “factor” as a “reason” neglected the feasibility of lighting zones system. It became apparent that the HKSAR Government and most TaskForce members were not

enthusiastic in solving the problem because of their vested interest. This alarm accompanied disillusionment and some members resigned from the TaskForce.

Both the Guidelines and the recommendations were not unanimously agreed within the TaskForce. The opinions from academia and professional, environmental conservation, District Councilors, and victims had not been taken into account by the Government. The Guidelines did not set a limit to the amount of external artificial lighting. Light pollution and its adverse effects continued as before particularly in commercial-cum-residential areas such as Mongkok. Business owners continued to make money whilst victims' burdens were not lifted. The distributions of self-respect, and liberty and opportunity to have a clean living environment are unequal. These unequal distributions not only did not benefit the least-assisted members, but burdened their daily life and health. There is no evidence show the HKSAR Government has an intention pulling more environmental hazards to a specific group of people. Light pollution also affects people in luxury homes and impedes the astronomical studies of HKU where the campus is located in the mid-levels in HK Island, an expensive and prestigious residential area. However, rich people have greater ability to make change, whilst victims from grass-roots families or old aged can only endure in silence or until they can afford to move home. Rich people may enjoy more free and fair than the low-income class. Nevertheless,

the Government has not provided governmental funds or any instrument for victims who are least-assisted in the community. The distributions of social, economic, and political goods are institutionally and socially unjust.

The deliberation on light pollution started five years ago. It was argued time and again that the key industries of finance, tourism, retail trade, and services were HK's driving force with which the HKSAR Government attached great importance. These industries squarely covered excessive advertising lighting operators. The Government likely sided with her "in-group" friends but not the victims of light pollution from grass-root level. The situation remained status quo at the end of this long five-year period and those victims remained institutional and structural unrecognized.

The group representation of the TaskForce is unequal, so is its deliberation. With an increasing light nuisance complaint, the Government remains close her eyes and ears and has not set up a proper complaints mechanism. It is not only distributive inequity and unrecognition hamper the public participate in deliberation, but the HKSAR Government remains to take the passive role making the public unable to exercise their freedom and express their needs. Furthermore, the need for sustainable development and the right to a clean living environment have been on the global agenda for some decades. Many countries or cities have incorporated such

a right to their constitutions, or set up legislation against light pollution or prevent energy wastage. In this respect, HK is out of step with the international standard. On the above grounds, it is injustice in recognition and procedure.

The case of Mongkok substantiated that light pollution is severe and hinders the functioning and well-being of residents' life. Residents are forced to close the windows and install thick curtains to insulate themselves from the heat and the external lighting nearby. The point is not so much whether such insulations are effective. The residents simply have no freedom to choice. The low-income class and old people can choose the place and way of living theoretically, but the choice is impracticable because of the high property prices, or the physical and psychological conditions do not allow them to change to a new living environment. For those accepting "insulations", firstly, their so-called choice was made after lighting bled into their windows. Secondly, they were ignorant of the ensuing adverse effects and made their choice without full information. As a result, they were not the masters of their own to choose their life style.

Similarly, for astronomy-enthusiasts, seeing astronomical events or stargazing is a valued aspect of life. An example is the 25 aged stargazer Will Cho, who won the Viewer's Favourite Award of the Nat Geo Awards 2013<sup>46</sup> with a picture of Milky Way

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<sup>46</sup> Nat Geo Award is launched annually by the National Geographic Magazine and sponsored by National Geographic Society which is one of the largest nonprofit scientific and educational

taken at Lantau Peak. (Ong, 2014) He has become popular and gained many opportunities such as sponsorship from a famous camera brand and invited to talk at the Hong Kong Observatory. He brings all people a chance to see the beautiful Galaxy of HK and making people believe the paradise-like miraculous sea of clouds and splendid Milky Way can be seen in HK. Moreover, the nature and stargazing make him happy that widen the outlook on life and develop a strong belief that “anything will come true if you try”. (Wong, 2013) The value of the night sky is not merely about people seeing stars, but also the opportunities it offers to people. Although people are free to pursue their interest, the actual opportunities are getting fewer under light-polluted sky and that weaken their capabilities to fulfill their aspirations.

### **5.2.2 The Responsibility of the HKSAR Government**

This case study show, various groups have been trying hard to make their views, including the HKU research findings, adverse effects from advertising lighting, techniques and experiences from international organizations and other metropolises, and professional opinions known to the top policy-makers. However, the major advocacy coalition, the TaskForce which members are selected by the HKSAR

Government is lop-sided to the business sector. Up to now, it has not been possible to achieve a consensus among members on important issues. This makes a mockery of the Guidelines and recommendations which are for voluntary implementation only. The question uppermost in citizens' mind is "has the HKSAR Government fully gauged the problem" or "is the HKSAR Government playing government-business collusion?"

Look at the observation area, those illuminated signboards and spotlights mounted just next to residences windows. Firstly, businesses not only disregard the professional opinions and international recommendations on the brightness of signboards, but mount signboards next to residents' windows illegally despite the Guidelines being introduced for a year. Secondly, businessmen and some property owners maximize their profits by infringing the living quality of others. Thirdly, illegal signboards have long been a problem, however, the BD appears powerless with light-based complaints, thereby providing legal loopholes to some businessmen and advertising agencies.

On other hand, large quantities of research materials on health hazards from artificial lighting have been published. The IARC has already listed fluorescent lighting as a probable carcinogen in 1992. However, apart from "direct view of bright luminaries causing annoyance, distraction or discomfort," the Document has not mentioned other health impacts. Furthermore, the increasing trend of the use of



flashing LED lighting is another hiding threat to public health. How can the Government turn a blind eye on these adverse effects?

“The only purpose for which power can be rightly exercised over any member of a civilized community against his will, is to prevent harm to others,” Mill (1991:9) writes in his book ‘The Liberty’.

Mill suggests everyone should be free to do whatever they want, provided they do not harm others. An apparent logic from this suggestion is that harming the actor oneself government should have no right to intervene. However Mill takes a deeper view that in any society, no one exists in isolation. Harm done to oneself may harm others and damage community and should therefore be prevented. Mill insists that the authority of governing institutions and the liberty of individual action are limited to harm others, to produce evil to others.

Promote prosperity is not the only role of the HKSAR Government. This is also her duty, and responsible for, to prevent the public from harming and be harmed. Public education and information on this major duty should be given widest publicity. Anti-smoking legislation is a good analogue. The Government widely publicizes the health hazards of smoking, actively educates against smoking and the harming of others through secondhand smoke. People still will have their freedom to smoke based on full understanding but restricted the area that to minimize the influence

and harm to others. Whilst nonsmokers possible to avoid secondhand smoke by not getting close to smoking areas. Regarding the issue of light pollution, it is the HKSAR Government failure to protect the public from harm and her failure turning the public to be blind to the ill-effects of artificial lighting.

This study provided irrefutable evidence that external advertising lighting is excessive and affects the public health and weakens their capabilities in functioning life, particularly in the commercial-cum-residential areas. Indeed, the social structure steers people's attitude towards economic profits that depreciated the order of the nature and the human right to a clean living environment. Policy-makers failed to learn and synthesize a wider spectrum of views and feedbacks, only looped with business's opinion in the policy-making process. Based on this study, the HKSAR Government has not practiced justices in all the areas of distribution, recognition, procedural and capabilities. It is concluded that the HKSAR Government places greater priority on economic development rather than environmental conversation in the problem of light pollution, and the handling has not incorporated environmental justice consideration as well.

The problem has experienced ups and downs in the issue-attention cycle that public interest wax and wane have generated pressure to the Government to do something. Notwithstanding, public attitudes and behaviour are subject to social

structure rather than to public interest. Yet, various groups need to rely on the media to help expose the problem and to pressure the HKSAR Government to step forward to legislation, however, the adverse effects arising from light pollution are not visible to all, and HK people like follow new stuff, it is heavy going to remain high-intensity public attention on the issue. The road to mandatory approach may be rough and long. Perhaps any misfortune caused by external lighting leap in future may get the problem move and to generate enough political pressure to cause effective change.

## **Chapter 6 Discussion**

### **6.1 The Market, Moral and Trends**

“It is not from the benevolence of the butcher, the brewer, or the baker that we expect our dinner, but from their regard to their own interest.

We interest ourselves, not to their humanity but to their self-love.”

(Smith, 1976 cited in Sen, 2010)

Smith points out the underlying motivation people seek exchange in a market economy. The butcher, the brewer, and the baker want to make money in exchange for the meat, the beer, and the bread they make, and consumers want their food, and are ready to pay for them. The exchange benefits all them, and they do not have to be raving altruists to seek exchange. (Sen, 2010:55) Smith argues at the moment of exchange it is not only with the sufficiency of self-interest but also the wider moral motivations and institutions required to support economic activity in general.

The success of HK as a world financial centre does not depend on advertising lighting per se, but from the open and competitive business environment, with strong and mature financial and banking system, advanced infrastructure, an efficient civil service, well-developed legal system with respected rule of law and freedom of press, and talents. These are the core values from which HK gains her reputation. People visit, shop or trade in HK not because of a brighter lighting.

In other words, the core values of HK always rank first in her competitiveness and opportunity whilst the size and brightness of signboards are only secondary. Think about the Mainlanders come over HK to buy infant milk powder, they are not only paid for the powder, but business ethics and justice, and the comprehensive governmental check and control system.

Regrettably, businessmen turned the residence walls into opportunities for profit at the expense of the residents. Is it then a pursuit of market economy or a market society? When money becomes the major determinant in the market, the distribution of social and political goods would loom larger and larger, the capabilities of functioning human life would further weakened. Make more money to make oneself better off is always true. But money is not the sole determinant. Whilst economy is vital in any country or community, it must not depart from ethics and justice.

HKSAR Government announced that HK could receive over 70 million tourists in 2017, a 44 percent increase to the number of 2012.<sup>47</sup> (CEDB, 2013) Having said that the gravity of advertising external lighting is likely to be out of control, by the Government intended to vying more visitors but without effective measurement to control light pollution on the other hand, the problem would only be more serious.

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<sup>47</sup> In 2012, visitor arrivals reached 48.6 million.

Besides, electronic trading is expanding rapidly. For instance, Taobao.com, except food all you can shop there. Many international brands are now available online as well. Recently, Hong Kong Broadband Network is also planning for a 24-hour shopping channel. (HKET, 2014) Online shopping are likely to alter the global consumption and retail patterns in the near future, it is hardly surprising that one day advertising lighting may become redundant. Why the HKSAR Government and the experts of the related industries cannot forecast a long term and distinctive development?

## **6.2 Environmental Conservation and Competitiveness**

The increasing numbers of environmental disaster such as the Fukushima Daiichi nuclear disaster and the powerful Typhoon Haiya are alarming around the world. Issues such as over energy consumption, global emission and climate change are of the endangered earth umbrella along with light pollution problem. With this problem, HK's reputation ranks lower in the world. Nevertheless, that could not sustain enough political pressure to the HKSAR Government to change their mindset and drive forward the sustainable development. Having said that the HKSAR Government attaches much importance on economic development, ironically the

overall competitiveness of the city is declining.<sup>48</sup>

Z/Yen defines twenty essential factors in rising competitiveness of global financial centres. Political stability and rule of law, environmental care and sustainability, and quality of life are three of the essentials. (Yeandle & Danev, 2014)

Moreover, OECD points out that HK has lost her market share in the global port market, but also a regional leader in green port policies. OECD also underlines the quality of life, particularly air quality, is an important element that could underpin the competitive of HK as an international maritime cluster. (Merk & Li, 2013)

Environmental conservation and sustainability are the other side of competitiveness and economic development of the same coin. Moreover, talents are the precious resources, and perhaps the only resources in HK, how could talent be well nurtured under poor living environment?

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<sup>48</sup> In the 2013 World Competitiveness Yearbook released by the International Institute for Management Development of Switzerland, HK slipped to the third in its global competitiveness ranking from the second place. (IMD, 2013) OECD also reported that HK has declined in the competitiveness of global port-cities. (Merk & Li, 2013)

## Chapter 7 Conclusion

Artificial lighting is now an integral part of daily life. Nevertheless, excessive lighting causes pollution which in turn gives rise to environmental problems of a global magnitude.

There is abundant literature on the impacts of artificial lighting. These cover a simple blockade of the starry sky, ecological harm, threats to human health, and energy wastage and carbon emissions. These adverse effects are widespread and intergenerational, serious than commonly realized.

As described in Chapter 5, there is the usual observation of external advertising lighting being switched on after 11pm and after the close of business hours. Against this there is the unusual observation of zero dissuasion by the Government. Such observation, plus the increasing number of complaints, prompted surveys, victims' grievances and professional opinions are indicative of the seriousness of light pollution in HK. Such indicators call for one solution: mandatory control.

Membership within the TaskForce is unequal that the HKSAR Government offers more seats to the business sector. Instead of being an *esprit de corps*, members are in split loyalty as they have different vested interests. The findings show that members of the TaskForce are not unanimously agreed on the Guidelines and the recommendations. Obviously the balance is tilted towards the business sector and



public outcry against lighting pollution has fallen on deaf ears. The rules that govern distribution are unfair that liberty and opportunity and self-respect are distributed unequally. The business sector remains the beneficiary whilst the victims of light pollution remain unrecognized. The HKSAR Government made no attempt to discourage business from crossing the ethical line in the display of artificial lighting, nor promote civic education on the repercussions of light pollution; let alone offer assistance to the least-assisted group who are forced to move homes. Injustice exists in distribution, recognition and procedural that weakened the victims and astronomy fans' abilities in expressing their needs and freedom to choose own lifestyle. Based on this study, it is concluded that the HKSAR Government has not considered environmental justice and places economic development greater priority than environmental conversation on the problem of light pollution.

There is no dispute that illumination may contribute to tourism which in turn generates income, business and employment opportunities. A balance however must be maintained between business prosperity and the collective interests of ordinary residents. In the age of climate change, the over bright "Pearl of the Orient" may only show the arrogance of the HKSAR Government: human hold dominion over the environment and all other species that she would be immune from environmental crisis.

## **Chapter 8 Way Forward**

The road to regulate the excessive use of external artificial lighting has received a strong resistance from the business sector. Getting the major stakeholders on side, the society need to break the assumption that the more brilliant the more thriving, and there could be a review of what lighting is needed and when.

### **Public Education**

The HKSAR Government should set up a fund to promote public education on health hazards and environmental harm of artificial lighting that getting more people understanding the use of lighting and that brighter is not always better.

The administration and regulators need a full understanding of the problem. It is not just about turning off the lighting at 11pm or 12pm. The society need to get rid of the “fit thicker curtains” attitude of putting the blame and cost of a nuisance onto victims. Also, regular functions and activities should be organized to keep the issue lively.

### **In-depth Study**

It is worthwhile for the HKSAR Government to further examine in-depth view-point of stakeholders and the public. A full public consultation should be

conducted in a proactive manner and the target population should be scientifically and carefully selected. It may be good to explore the possibility of applying the “by home-visit consulting” to all public policies. Improving the mechanism to a parity and democratic participatory mechanism should enable the Government to acquire opinions and feelings of the citizenry which is an essential to good governance. This would be great benefited to the HKSAR Government for the long run.

### **Legislation**

The HKSAR Government should start the process of making a legislation to control light pollution with curfew hours, brightness limits and lighting zones system. Restriction should be covered the use of flashing LED lighting. Ordinance and guideline on advertising signs and installments should be reviewed also, that to re-open the discussion on prohibition of such installments.

### **Environmental Management Philosophy**

After all, to improve the environment and the quality of life required the Government genuine commitment and enthusiasm to drive forward the sustainable development. It is strongly anticipated that the above Way Forward, if realized, may take HK to a milestone in environmental justice.

## Appendix A      Number of Complaints about Light Nuisance from 2008 to 2013 received by Environmental Protection Department

### Inquiry on number of complaint about light pollution

hq-hotline@epd.gov.hk <hq-hotline@epd.gov.hk>

7 February 2014 11:19

Dear S.Chan,

Thank you for your email dated 6.2.2014. Please see the following information as requested.

1. No. of light nuisance complaint cases received by the Environmental Protection Department from 2008 to 2013.

Year	2008	2009	2010	2011	2012	2013
No. of light nuisance complaints	82	213	226	234	225	259

2. No. of complaint cases with breakdown by source.

Category	2008	2009	2010	2011	2012
Advertisement Signboard	24	53	115	94	101
Spot Light	27	46	67	54	45
Other*	29	97	43	81	67
Video Wall	2	17	1	5	12
Total	82	213	226	234	225

\* Other included complaints against light emission from within various buildings, and with a few cases of street lamp and light reflexion.

3. Light nuisance complaint cases related to government facilities from 2008 to 2012.

Year	2008	2009	2010	2011	2012
No. of light nuisance complaints (total)	82	213	226	234	225
No. of complaints related to government facilities	5	20	17	13	29

If you have further enquiry, please feel free to contact our Customer Service Centre by phone and fax at 2838 3111 or email to us at [hq-hotline@epd.gov.hk](mailto:hq-hotline@epd.gov.hk)

Regards,

Customer Service Centre  
Environmental Protection Department.

## **Appendix B      Field Observation Design and Notes**

Four sessions of observation are conducted and listed as follow:

27 Jan 2014	6-8pm	Mongkok
9 Feb 2014	12-1am	The area around Sai Yeung Choi Street South
23 Feb 2014	3-4pm	The area around Sai Yeung Choi Street South
24 Feb 2014	11pm-12am	The area around Sai Yeung Choi Street South

All four sessions are directed at the use of external artificial lighting vs the living environment. The first session aims at a full picture of light pollution in Mongkok. It covers the square of Fife Street, Shanghai Street, Dundas Street and Fa Yuen Street. Whereas it is observed serious light pollution in Sai Yeung Choi Street South No. 1 to 158, Soy Street No. 24 to 50, Shantung Street No. 40N to 63A, Nelson Street No. 6 to 15E, and Argyle Street No. 28 to 83, so the rest sessions are focused within that area. The third session observes the circumstances in daytime.

Several groups of shops leave their advertising external lighting on after business hours. Bonjour has four shops, in which advertising lighting in one of their shops is found with vertical illuminance over 550 lux<sup>49</sup> Chow Tai Fook has three shops, one of them is recorded with vertical illuminance over 800 lux. Luk Fook, The Body Shop and Etude House have two shops each. One of Luk Fook and The Body Shop are measured with vertical illuminance over 400 lux whilst Etude House is found nearly 250 lux; among these shops, The Body Shop and Etude House are the two still light up their signboards after 12:30am when not in use. Besides, the use of external advertising lighting of each company is varied in their branches. Therefore, the direct lighting operators, id est shop salespersons of these shops are targeted for interview.

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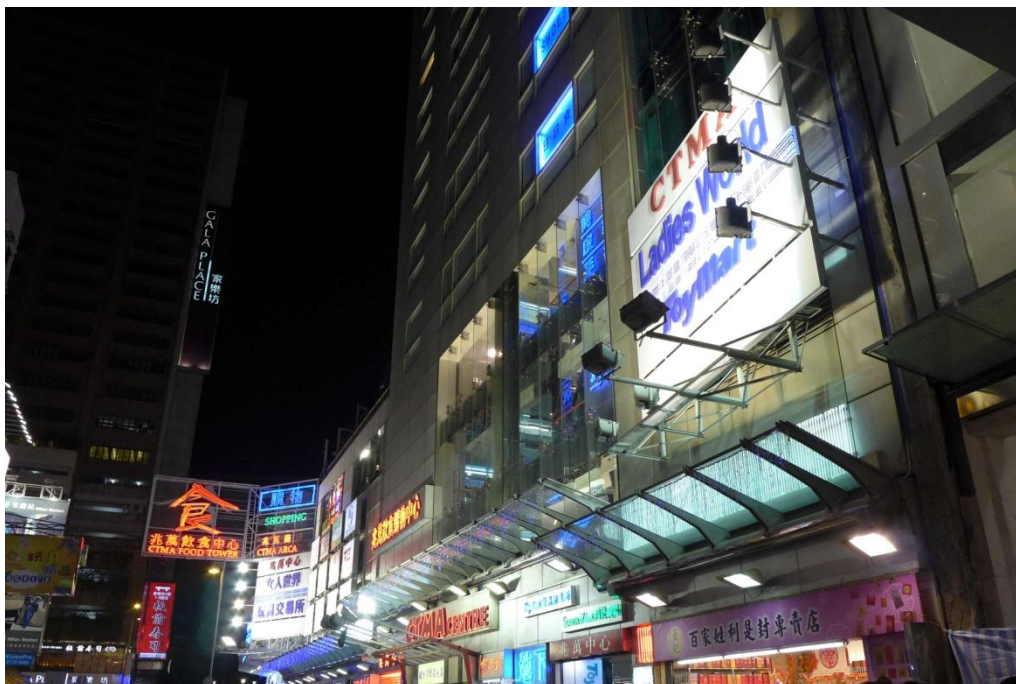
<sup>49</sup> All illuminance are measured by a smartphone apps, namely Light Meter.



Picture 1. Map of Mongkok, the observation area is bold in blue. All shops and buildings located on the both sides of the blue lines are included to the field observation.



The first session on 27 January between 6-8pm



Picture 2. CTMA Centre, Sai Yeung Choi Street South No. 1 to 2Y. Two signboards with 8 spotlights each.

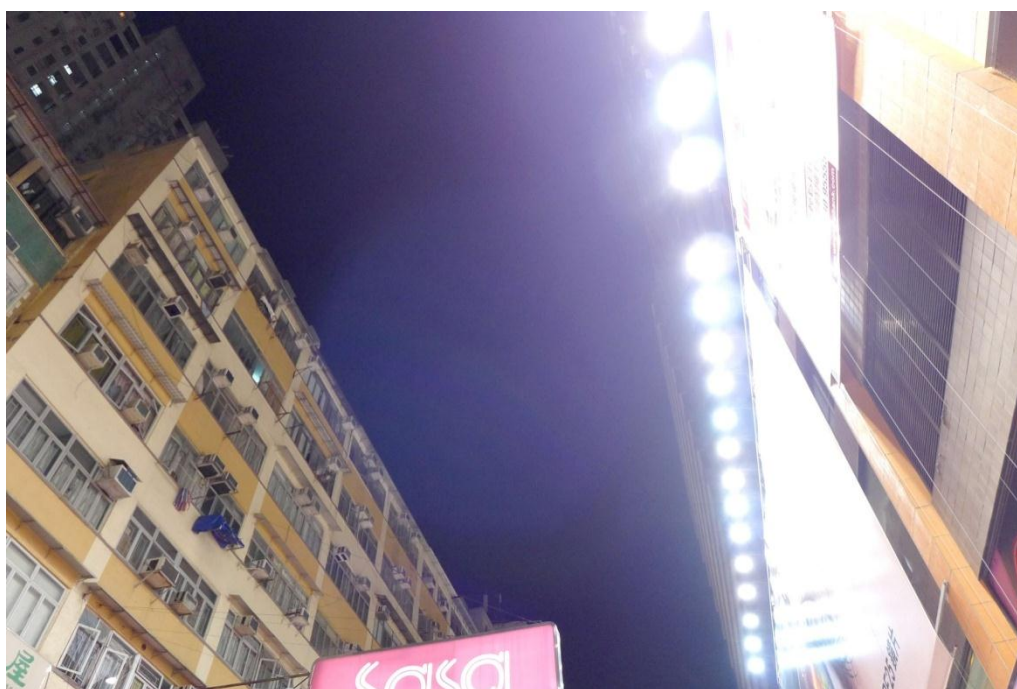


Picture 3. Soy Street No. 25 to 33, the lighting of Lucky Dessert Sign spills onto residences; and the pharmacy on the ground has 3 flashing LED signboards with vertical illuminance over 550 lux.





Picture 4. The crossroad of Shantung Street and Fa Yuen Street, a pharmacy with flashing LED signboards.



Picture 5. No. 25 to 60 of Sai Yeung Choi Street South, the left side is commercial-cum-resident buildings where most windows are covered.



Picture 6. The same buidlings in picture 5, they are bathing in 37 spotlights. 15 numbers mounted on its wall and 22 on the opposite.

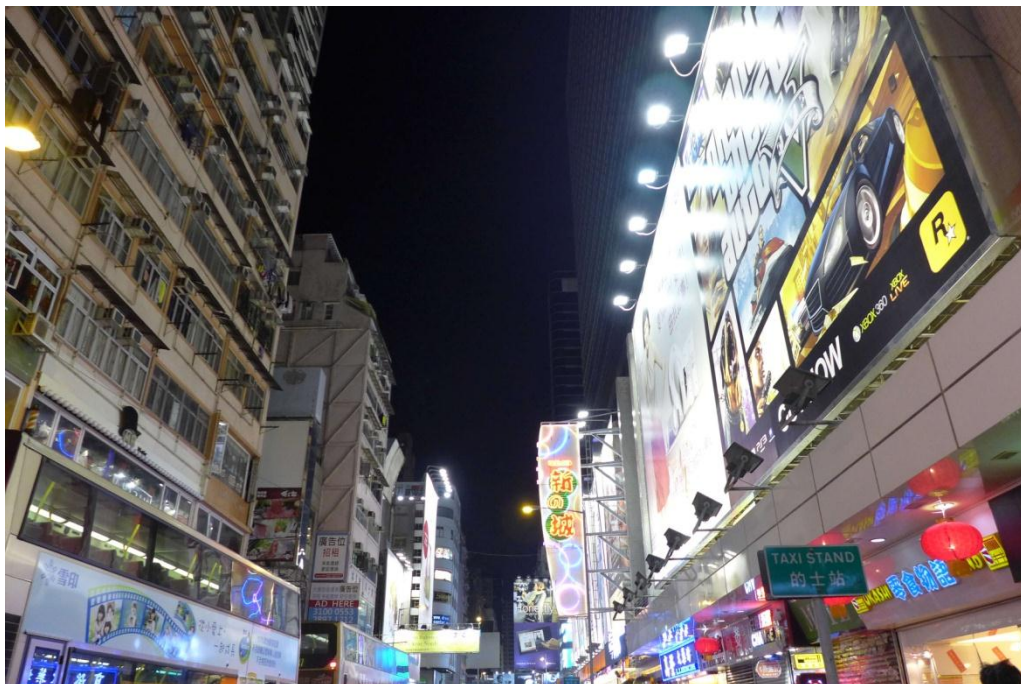


Picture 7. Sai Yeung Choi Street South No. 62-64, a commercial-cum-resident building surrounded by four signboards with 19 spotlights, all windows are covered with curtains.





Picture 8. Citibank, the crossroad of Argyle Street and Sai Yeung Choi Street South, video walls are turned on after business hours.



Picture 9. Argyle Centre and New Town Mall, Sai Yeung Choi Street South No. 131 to 158, the left side is commercial-cum-resident buildings.

The second session on 9 February between 12-1am



Picture 10. Etude House, at the corner of Soy Street and Sai Yeung Choi Street South. It is closed at 12am whilst all lighting is still turned on at 12:40am.



Picture 11. No. 21 to 50 of Soy Street. Many signboards are still turned on, included the Lucky Dessert Sign.

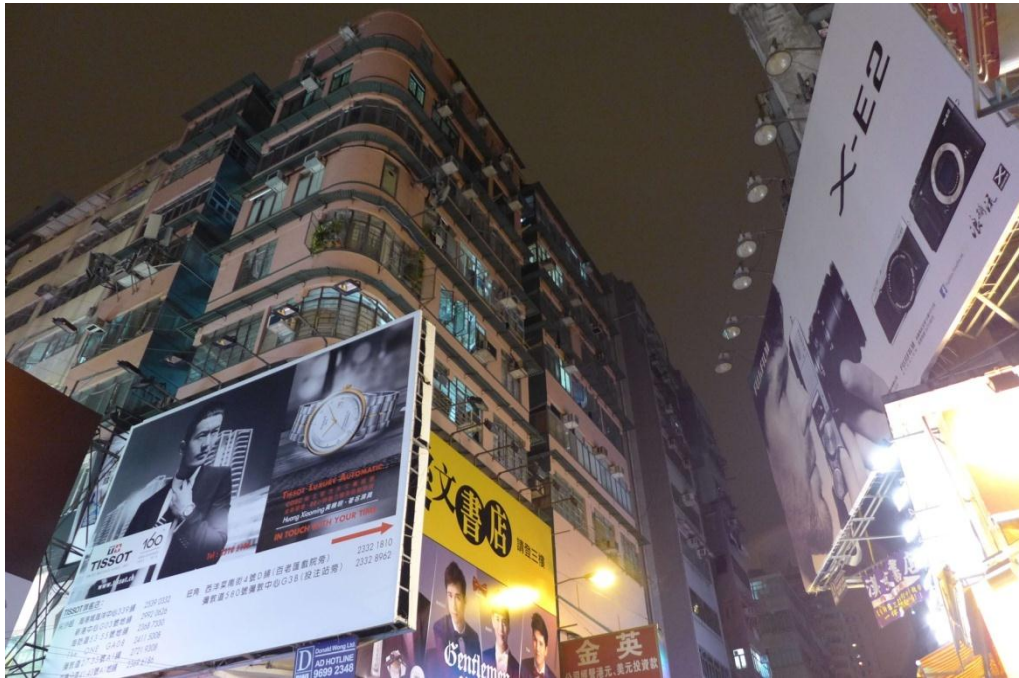




Picture 12. No. 5 to 24 of Sai Yeung Choi Street South, most shops are closed but leave the lighting.



Picture 13. The spotlights of HK JEBN sign keep shining at 1am.



Picture 14. Sai Yeung Choi Street South No. 62-64, the surrounded spotlights are turned off and some windows are opened.



Picture 15. No. 51 to 88 of Sai Yeung Choi Street South. The Body Shop is closed at 12am whilst its lighting still switched on at 1am.



The third session on 23 February between 3-4pm



Picture 16. No. 21 to 23 of Soy Street, 12 spotlights shining two signboards on above.



Picture 17. No. 25 to 60 of Sai Yeung Choi Street South. Shops turn on their massive external lighting from daytime is very common.



Picture 18. Sai Yeung Choi Street South No.62-64, spotlights shinning from afternoon.



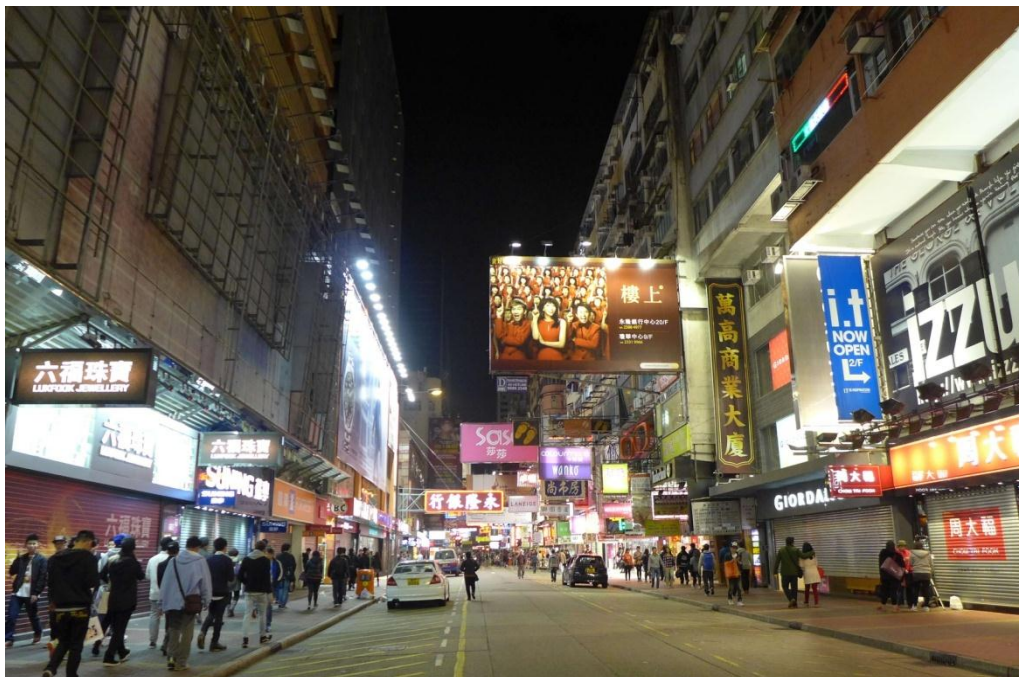
Picture 19. New Town Mall, spotlights shinning from afternoon.



The fourth session on 24 February between 11pm to 12am



Picture 20. Spotlights of CTMA Centre keep shining at 11:10pm, the lighting may directed to passers-by and drivers.



Picture 21. No. 26 to 60 of Sai Yeung Choi Street South. Most advertising lighting is turned on whilst many shops are closed.



Picture 22. Sai Yeung Choi Street South No. 62-64 is brightened by 21 spotlights.

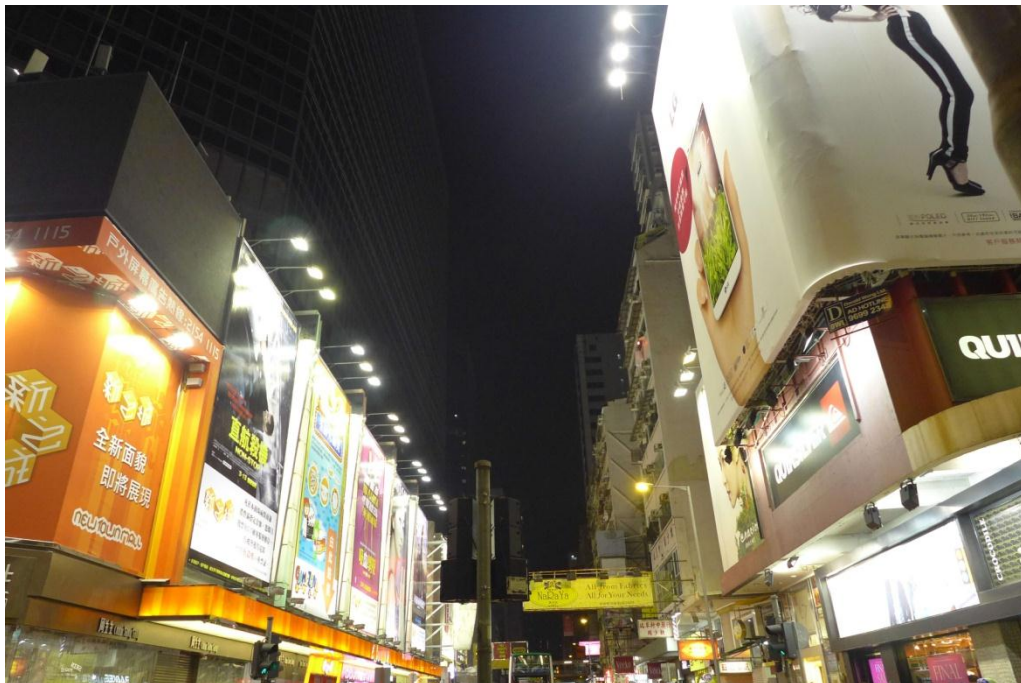


Picture 23. Nelson Street No. 6H, all Bonjour's external lighting still switched on at 12am whilst it closed at 11:30pm.





Picture 24. Luk Fook Sign shining on above.



Picture 25. No. 131 to 158 of Sai Yeung Choi Street South. It is 12am.

## **Appendix C      Research Questionnaires Design**

### Part One

- In your opinion, how serious is light pollution in HK?
- Is light pollution having a significant impact on the environment?
- Is light pollution a significant problem affecting people?
- In your opinion, what is the biggest problem of light pollution? What is the major cause of it?

### Part Two

- How would you describe the practice of business sector on the usage of external lighting?
- There are voices from business sector that exemption to switch off advertising artificial lighting at 11pm should be granted to them. What would you say about this subject?
- What do you think about dimming advertising lighting or turning them off at 11pm affect the income of a business in HK?
- Could you tell about any experience you have had with light pollution?

### Part Three

- Many metropolises already established mandatory regulations to control light nuisance or prevent energy wastage. In your opinion, is statutory control appropriate for HK?
- Would you support Light Control Ordinance?
- In your opinion, what are the considerations for setting up regulations against light pollution?
- HK is well known as the “Pearl of the Orient”, however, advertising lighting caused light pollution. Under this circumstance, what would you recommend on the balance between economic growth and environmental protection?
- Before setting up the Guidelines, did you urged the HKSAR Government to set up mandatory regulations?

### Part Four

- Did you know the Government has formulated the Guidelines? Did the Government inform you?
- Did you participate in the formulation of the Guidelines and the recommendations of the TaskForce?
- Did the Government invite you for recommendation?

- Do you agree with the findings and recommendations of the TaskForce?<sup>50</sup>
- Did you give any advice or suggestion to the Government regarding light pollution?
- Did you experience any obstacles in expressing opinion?
- What are your objections?
- How would you defend your objectives?
- Some TaskForce members criticized team members are intended to pursuit business interests and the HKSAR Government lack of enthusiasm to solve the problem. What would you say about this subject?
- Would you tell more about what you have done regarding control light pollution?

#### Ending Question

- What would you suggest to the HKSAR Government regarding light pollution?
- Are there any other areas of light pollution I should have explored?

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<sup>50</sup> Here refer to the Document pp7-18.

## **Appendix D List of Interviewee**

### Academia

- Mr. Martin Morgan-Taylor

Principal Lecturer of School of Law at De Montfort University, UK

Board of Directors of the International Dark Sky Association

- Mr. Leung Wai-yan

Research Assistant of Light Pollution Team of the University of Hong Kong

### District Council

- Mr. Chow Chun-fai, BBS, JP

Member of Yau Tsim Mong District Council, serving Mongkok South

### Green Group

- Mr. Edwin Lau Che-feng

Director of Friends of the Earth Hong Kong

Member of the Task Force on the External Lighting

### Tourism

- Hong Kong Tourism Board Spokesperson

### Business Sector

- Ms. C

A saleslady of Etude House

- Mr. S

A salesman of Bonjour

### Residents

- Mr. Wai

A resident lived at Sai Yeung Choi Street South for nine years

- Ms. W

A resident lives at Sai Yeung Choi Street South No. 62-64

- Mr. Lee

A resident lives at Nelson Street No. 15C-D



**Appendix F      Membership of the Task Force on External Lighting (for the first Term from 1 August 2011 to 31 July 2012)**

- Professor LAM Kin-che

Adjunct Professor, Department of Geography and Resource Management of the  
Chinese University of Hong Kong

- Dr. Stefan AL

Director of the Urban Design Program and Assistant Professor of the Department  
of Urban Planning and Design of the University of Hong Kong

- Mr. Charles Nicolas BROOKE

Hong Kong General Chamber of Commerce

- Ir. Cary CHAN Wing-hong

Engineer by profession

- Dr. Albert CHAU Wai-lap

Dean of Student Affairs of the University of Hong Kong

- Ms. Catherine CHEUNG

Food and beverage sector

- Ir. Simon CHUNG Fuk-wai

Hong Kong Institution of Engineers

- Dr. CHUNG Tse-ming

Professor, Department of Building Services Engineering of the Hong Kong  
Polytechnic University

- Mr. Mason HUNG Chung-hing

Hong Kong Tourism Board

- Mr. LAM Kin-lai

Conservancy Association

- Mr. Edwin LAU Che-feng

Friends of the Earth (Hong Kong)

- Mr. Eric LAU Kim-wai

Hong Kong Association of Energy Engineers

- Mr. Alfred LEE Tak-kong

Chinese General Chamber of Commerce

- Mr. Andrew LEE Chun-lai

Hong Kong Association of Property Management Companies

- Dr. MAK Siu-tong

Association of Accredited Advertising Agencies of Hong Kong

- Mr. Ellis WONG Chuen

Hong Kong Federation of Electrical and Mechanical Contractors Limited

- Mr. Rex WONG Siu-han

Architect by profession

- Mr. Bill YEUNG

Hong Kong Astronomical Society

- Mr. YU Hon-kwan

Real Estate Developers Association of Hong Kong

The appointment of the TaskForce had extended one year after 31 July 2012.

Dr. Albert Chau Wai-lap was also an Associate Professor of the Department of Psychology of HKU. (HKU, 2008)

Total member of the current term has decreased from nineteen to fourteen, in which Professor Lam Kin-che, Dr. Stefan Al, Ms. Catherine Cheung, Dr. Mak Siu-tong, and Mr. Bill Yeung resigned.

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