



## The development of green office standard: Thailand initiative

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### Abstract

Green Office encourages companies to promote the wellbeing of their personnel, for example by promoting everyday exercise and a good working atmosphere. Undeniably, the operation of all activities has required and consumed either resources or energy and at the same time emitting a certain environmental impact into the earth. Think about the consequence, all offices produce huge greenhouse gases into the atmosphere, which the main cause of climate change and global warming that is becoming a significant environmental crisis widely affecting to the quality of life of most populate around the world. The Department of Environmental Quality Promotion has collaborated with the Faculty of Environment and Resource Studies, Mahidol University conducted a study on development of Green Office Standard. Objective: To develop standards and associated criteria for assessment of Green Offices and to examine the empirical research that grounds the development methods and application of green office standards for promoting environmentally friendly activities at both public and private sectors including local administration organizations. Design, Method and Setting: The research framework is outlined grounding on an integration of 3 standard protocols; ISO14001 environmental management system, Greenhouse Gas Management, and Waste Minimization Pollution Prevention which rather beneficial for modelling the best standard of environmental management in the office. Six academic environment and energy research databases (SCImago, EnvironmentAsia, ThaiJO, UNEP-GRID, NETROnline and BBC-Science and Nature) were interrogated, the websites of 24 agencies associated with the study topic were investigated. A multi-method strategy was employed over the period March 2016 to August 2018. A major research designs are particularly using EDFR (Ethnographic Delphi Futures Research) and survey method for collecting baseline information and setting the green office standard criteria. Subjects: 10 pilot organizations where exclusively adopted the green office initiatives and first conducted in June 2016. Since these pilots to receive the assessment of standardized green office from a Commission on Certification of Green Office Standard-accredited Green Office Assessor who had the following: a master or doctoral degree, at least 5 years of monitoring and supervising environmentally friendly activities, and familiarity/experience with green initiative instruction in various settings, so then the assessment is to equip the organization managers and their staff with the information, protocols, and guidance to serve as eco-friendly building tool at their institutions. Measurements: We used panellist's critiques and ratings to make sequential revisions in a series of 3 EFDR rounds of workshop. Standards were rated as to whether they were clear, necessary, and appropriate. We rated criteria for the associated standard as to whether they were useful, helpful, clear, specific, and consistent. Results: We developed a final set of 7 criteria, 19 activities, and 88 associated indicators to measure the Green Office standards. The accepted standards include the following: Organization Management, Operations of Green Office, Energy and Resource Utilization, Office Waste Management, Indoor & Outdoor Environment, Eco-friendly Procurement, and Continual Improvement. Conclusions: The 7 standards and associated indicators developed in this research project could be used not only for the government organizations or local administrations but also to business processes, strategies and decisions in environmental management. The success of the Environmental Management System depends on the commitment of personnel at all levels and all functions in the organization led by top executives in the organization. Further research should include validating these standards/criteria among responsible citizenship within our society representing different types of environmental protection and awareness settings.

**Keywords:** Green office standard, friendly-environment, environment quality control.

**Article history:** Received 16 October 2019 Accepted 24 April 2020

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### 1. Introduction

Nature conservation at the workplace is becoming an alarming point of view of the environment, it is

significant how premises are developed and how work communities act. Green Office is a fun way of conserving the nature at the workplace. Anyone's can reduce your carbon footprint by e.g. saving energy and improving energy efficiency, making sustainable purchases, paying attention to travel and food choices

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and sorting and recycling. We are currently using 50% more natural resources than the Earth can sustain. The Green Offices initiative constantly reduce their impact on the environment as well as encouraging offices to build environmental awareness and to promote ecological and economical sustainability. [1] An effective environmental management system will show the way for your organization's climate work and guide towards wise use of natural resources. Earth's environmental issues require acting quickly. Climate change is one of our biggest global crises. Degradation of the natural environment does not threaten the nature alone; it also compromises people's health, food production, economy and well-being. Fortunately, it is still possible to change the direction. The efforts of businesses and organizations play a key role so that we can limit global warming to the 1.5 degrees agreed in the Paris Agreement and secure biodiversity. [2] As a member of the Green Office network, you will be involved in contributing to these objectives.

Implementation of all kind activities is requiring both resources and energy, at the same time, causing environmental deterioration by garbage and waste water which is considered crucial environmental impact. Obviously, offices are the major sources in producing greenhouse gas emissions and mainly causing eventually climate change and global warming at the present time. There are widespread impacts both in the country and around the world that could bring about a global environmental crisis as well as widely affecting to the quality of life of most populate around the world. Accordingly, the Department of Environmental Quality has collaborated with the Faculty of Environment and Resource Studies, Mahidol University to establish a standardized environmental management system especially for fully operating at the workplace or office settings. A collaborative initiation is started from 2 major steps include such development of alternative criterions and then testing all these. Other enquiry steps include a trial application of green office standard at the target offices, certification of Green Office, building the capacity of various offices for effective management of environment, energy and resources, and implementing a green purchasing and procurement process. Green Office allows the officers to find out the environmental impacts of their workplaces in a blink. They will get the means for building an effective environmental management system and lots of support for engaging the work community. The certificate also tells others that your environmental issues are in order. While the Green Office programme is directly related to most of the SDGs. [3, 4] The practical measures with pay particular attention to the goals relating to the environment and wellbeing, such as fighting climate change, conserving biodiversity, and developing sustainable forms of livelihood. At Green Offices, the entire work is guided to act in an environmentally responsible way. The envi-

ronmental management system pays attention to matters such as travel, energy consumption, recycling and sorting of waste, sustainable procurement and food choices. A sustainable mind-set is incorporated into day-to-day life. [5] In addition to earning a livelihood, many people want relevance from their work and want to work in an office with values aligned to their own. At a Green Office, employees can make a difference and act ecologically also at the workplace. This way, Green Office also influences the employee experience and employer image. Accordingly, the ultimate goal of development of Green Office Standard is to promote environmentally friendly activities emphasizing on reduction of energy consumption, reducing, reusing, and recycling of wastes and eliminating of dangerous chemicals, and supporting to existence of green procurement system. [6, 7] Since, Standards are the foundations of social wellbeing in an age of globalization and convergence across traditional technology and market boundaries. Standardization provides the foundation on which technology innovation is based. It enables more complex solutions to be developed at a better cost structure. Standards drive technological innovation, fuel growth of global markets, expand consumer choice, support interoperability and help protect the health and public safety of workers and the general public. The Green Office standard development process is rooted in consensus, due process, openness, right to appeal and balance. It adheres to and supports the principles and requirements of the UNEP and Paris Agreement on Principles for strengthening the Global Response to the threat of Climate Change by keeping a global temperature rise this century well below 2 degrees. [8] In particular, the Green Office operates in active agreement with the WTO principle that standards should not create unnecessary obstacles to trade, and whenever appropriate, should specify requirements in terms of performance rather than design or descriptive characteristics. [9]

This study was realized in the key grounding of environmentally-friendly setting which is to change the personnel's behaviours for reducing especially energy consumption and to initiate eco-healthy activities such as reducing waste by reducing use, reuse, or recycling. The development of Green Office Standard will certainly help Thailand to reduce the amount of greenhouse gas emissions and environmental deterioration in the country, and more or less may be beneficial to our country preparedness to attain the international standard for environmental protection in the near future. Similar countries are using five main areas of green office management: energy management, water management, waste management, logistic management, and the procurement management. It can be summarized the various activities in the implementation of the green office management of each country as shown in Table 1.

The study of Green Office Standard Development

**Table 1.** Various green office activities in each country.

Activity \ Country	Energy	Water Resource	Chemical Substances	Waste & Garbage management	Transportation & Logistics	Procurement	Building Design	Land allocation	Air Quality	Utilization of Materials in the office	Paper
India	X			X	X	X	X				
USA	X	X		X	X	X					
Canada	X	X		X					X		
Spain	X		X	X							
France	X	X	X	X	X			X			
England	X	X		X	X	X					X
Australia and New Zealand	X			X		X					
Hong Kong	X			X							
Singapore	X	X		X		X					
Vietnam	X	X		X	X	X					
Thailand	X	X			X	X	X			X	

here in Thailand is initially guided through the ten themes; management, communications and engagement, energy conservation, water conservation, waste reduction, recycling, sorting and cleaning, paper reduction, green procurement, integrated environmental management, and education and awareness. [10] Together, we assessed which measures will have the biggest impact at the workplaces and effectively reduce ecological footprint. [11]

## 2. Research Objectives

This research had overall aim to create and develop the Green Office Standard including its criteria and indicators. The special objective of this study was to promote the establishment of green office as well as to enhance integral environmental-friendly organizations nationwide. The study's destination purpose was to examine the empirical research that grounds the development methods and application of green office standards for promoting environmentally friendly activities emphasizing on reduction of energy consumption, reducing, reusing, and recycling of wastes and eliminating of dangerous chemicals, and supporting to existence of green procurement system.

## 3. Research Methods

### 3.1 Research design

This research is a qualitative study with the application of a multi-method strategy over the period March 2016 to August 2018. A major research design is particularly using EDFR (Ethnographic Delphi Futures Research) technique, a modified approach derived from a combination of EFR (Ethnographic Futures Research) and Delphi. The EDFR is quite similar to Delphi technique, but it was modified to be more flexible and applicable. [12] We used the

**Table 2.** Initial standards reviewed in Workshop 1.

Chapter	Criteria
1	Management
2	Communications and engagement
3	Energy Conservation
4	Water Conservation
5	Waste Reduction
6	Recycling, sorting and cleaning
7	Paperless/Paper Reduction
8	Green Procurement
9	Integrated Environmental Management
10	Education and Awareness

EDFR technique for systematic consensus building among a group of environmental conservation experts. This technique encourages open professional opinions without the negative effects of group dynamics such as peer-group pressure to conform to opinion. [13] [14] Responses from the panel members were anonymous to the other panel members. Using the consultative Delphi technique to determine the components of professional effectiveness improves the validity of the study from 2 aspects. [15] First, the standards identified by the experts have a high face validity because they appear to be the most relevant standards to those who are experts in environment education. Second, when the panel reached consensus, it can be argued as evidence of concurrent validity in that the experts themselves have both identified and agreed on the requisite standards. The standards development lifecycle involved 3 major stages; 1) Mobilizing the Working Group, 2) Literature reviewed and Drafting the Standard, and 3) Resolution of the Standard.

Seventeen panelists were purposively selected from the qualified pool of government and state enterprise environment-related organizations such as Fac-

**Table 3.** Final approved green office standard, criteria, indicators, and its' weight.

Chapter	Criteria/Activities	Determinants/Indicators	Weight (%)
1	<b>Organization Management</b>		15
	1.1 Environmental Quality Control Policy	1. Existence of Environmental Quality Control Policy 2. The details in the policy indicate the consistency as specified in the manual. 3. Setting the frequency for environmental policy reviews	
	1.2 Operational Planning	1. Setting up plans, strategies and responsible persons to cope with environmental problems and utilization of resources and energy. 2. The analysis of environmental issues and utilization of resources and energy are extremely required to be made covering normal and emergency events. 3. All significant environmental issues and poor resources and energy consumption must be properly and well managed. 4. The list of the legislative matters and its sources relating to the means for environmental problems control must be written and documented. 5. Determining the persons responsible for searching and finding of any relevant law items. 6. Fire drills training and its regular schedules are setting up emphasizing at basic fire drill and fire escape training. 7. Emergency plan in the office is existed. 8. Regular checking of fire management devices such as fire extinguishers, fire alarms, and staff understanding of using fire extinguishers. 9. Announcement on the appointment of Chairman, Committee or Environmental Team and include their responsibilities. 10. The appropriateness of appointing the Board or Committee or environmental team. 11. Chairman of the board or environmental team are well understood in the significances of environmentally friendly management.	
	1.3 Reviewing Process and Action by management team	1. The Chairman of the Environmental Management Committee or the concerned person knows the problems, obstacles, strengths and weaknesses of the organization and having proactive visions. 2. Attendances in the management team meeting by each executive committee. 3. Recommendations and responses from the management team meeting.	

**Table 3.** Final approved green office standard, criteria, indicators, and its' weight. (Cont.)

Chapter	Criteria/Activities	Determinants/Indicators	Weight (%)
2	<b>Operations of Green Office</b>		20
	2.1 Communication and Environmental Training	1. Determining the environmental communication methods using in the office and exploring the channels of communication. 2. Determining the person responsible for communication. 3. Communication on Environmental Policy for Staff. 4. Communication on environment-related problems including resource and energy uses to all concerned staff for their understanding. 5. Communication on law and environmental requirements to all concerned staff for their understanding. 6. Communication on notifications from the Executive Board or Environmental Team. 7. Making on public relations or campaign to stimulate all staffs initiating and building the cleanliness and orderliness in their offices. 8. Communication on greenhouse gas emissions issue to all staff. 9. Communication or clarification on the significances of energy control measures to all staff. 10. Communication or clarification on the significances of water use control measures to all staff. 11. Communication or clarification on the significances of resource utilization measures to all staff. 12. Communication on the target and detailed project related to environmentally friendly initiatives programs to all staff. 13. Hearing suggestions and complaints from employees including people who come in contact. 14. The appropriateness of determining the person responsible for the training. 15. Determination of necessity, work plan, assessment of knowledge and understanding of staff along with the recording of their personal histories.	
	2.2 Organizing conferences and exhibition	1. Preparation of meetings and exhibitions i.e. sending invitations to the meeting, preparation of documents and folders for the meeting. 2. Arrangement of the meeting room and the exhibition venues. 3. Preparation of food and beverage. 4. Selection of hotel or conferences venues.	

**Table 3.** Final approved green office standard, criteria, indicators, and its' weight. (Cont.)

Chapter	Criteria/Activities	Determinants/Indicators	Weight (%)
	2.3 Cleanliness and orderliness in the office.	<ol style="list-style-type: none"> <li>1. Assigning a definite timing for making cleanliness and maintaining all of-office items in a good order.</li> <li>2. The office spaces must be clean and orderly following to the standard criteria.</li> <li>3. Cleanliness of the bathroom.</li> </ol>	
	2.4 Greenhouse gas management	<ol style="list-style-type: none"> <li>1. Collecting the data relating greenhouse gas emissions from office activities. (compared to the numbers of staff)</li> <li>2. The amount of greenhouse gas emissions from office activities has decreased comparing to the past records and statistics.</li> <li>3. The assigned staff must know the information concerning the amount of greenhouse gas emissions and methods for calculation of its amount.</li> </ol>	
	2.5 Transportation and travel	<ol style="list-style-type: none"> <li>1. Existing communication through electronic media.</li> <li>2. Planning for traveling before using vehicles.</li> <li>3. Having such a campaign of walking or cycling to the office or using public transport. (For staff who are residing near the workplace)</li> </ol>	
3	<b>Energy and Resource Utilization</b>		15
	3.1 Energy use	<ol style="list-style-type: none"> <li>1. Setting-up a measure for energy saving. (Electricity and other fuels) appropriately.</li> <li>2. The amount of energy consumption (electricity and other fuels) is compared to the number of employees.</li> <li>3. Economically use of electricity in the workplace. (observe)</li> </ol>	
	3.2 Water use	<ol style="list-style-type: none"> <li>1. Setting-up a measure for water saving appropriately.</li> <li>2. The amount of water usage is compared to the number of employees.</li> <li>3. Economically use of water in the workplace. (observe)</li> </ol>	
	3.3 Other resources	<ol style="list-style-type: none"> <li>1. Setting-up a measure for paper saving.</li> <li>2. Setting-up a measure for printing-ink saving.</li> <li>3. Setting a measure for saving the usage of stationery and office equipment.</li> <li>4. Setting -up the target for office resources using.</li> <li>5. Use office equipment economically at the workplace. (observe)</li> </ol>	

**Table 3.** Final approved green office standard, criteria, indicators, and its' weight. (Cont.)

Chapter	Criteria/Activities	Determinants/Indicators	Weight (%)
4	<b>Office Waste Management</b>		10
	4.1 Disposal /Garbage management in the workplace	1. Garbage management of the organization. 2. Disposing of garbage by office staffs. 3. Location of garbage collection point before dispatch. 4. Garbage and waste disposal of the organization. 5. Means and techniques applying for garbage/waste minimization and utilization such as reuse, recycle, and reduce the amount of waste from the origin.	
	4.2 Waste water management in the workplace	1. Management of waste water from related activities. 2. Maintenance of equipment for waste water treatment. 3. Debris, food scraps, grease and dirt are well and appropriately managed. 4. The use of environmentally friendly products for cleaning in the office.	
5	<b>Indoor &amp; Outdoor Environment</b>		15
	5.1 Air	1. Maintenances of air condition, copier machine, printer, air filter, office area, floor, carpet including other equipment. 2. Assigning a smoking point and how staff using this area. 3. Air pollution from office renovation activities such as wall penetration, painting etc. 4. Management of air pollution from outside the office that affected.	
	5.2 Light	1. Light intensity. 2. The selection of high performance and environmentally friendly lighting equipment.	
	5.3 Sound	1. Establish measures to control noise pollution. 2. Management of noise from outside the office that affected.	
	5.4 Liveliness	1. Determine the responsibilities of the staff and a definite time to maintain the office cleanliness and orderliness. 2. Clearly specify the usable areas where as divided into areas for working, storage of materials, resting, eating and others as necessary with a sign indicating the titles of areas. 3. Caring and maintenance of all areas such as recreation area. 4. Control of animal carriers.	

**Table 3.** Final approved green office standard, criteria, indicators, and its' weight. (Cont.)

Chapter	Criteria/Activities	Determinants/Indicators	Weight (%)
6	<b>Eco-friendly Procurement</b>		15
	6.1 Purchasing materials and office supplies	<ol style="list-style-type: none"> <li>1. Purchasing of environmentally friendly office supplies.</li> <li>2. Clearly specify the persons responsible for purchasing environmentally friendly office supplies with his/her contact details.</li> <li>3. Documentation of amount and type of environmentally friendly office supplies using at the organization.</li> <li>4. Existence of the list of eco-friendly products.</li> <li>5. The evidence to indicate a selection process for obtaining the agencies or individuals who are environmentally-friendly employers. (if applicable)</li> <li>6. Checking the performance of agency or person who responsible for environmental care and protection work. (if any)</li> </ol>	
7	<b>Continual Improvement</b>		10
	7.1 Project and activity	<ol style="list-style-type: none"> <li>1. Establishing environmental care and protection objectives and targets.</li> <li>2. The assigned targets can be measured and consistent with objectives.</li> <li>3. Define environmental activities that meet objectives and goals.</li> <li>4. There is existed the setting of proper timeline for the operation of green office activities as well as are in accordance with the goals and objectives?</li> <li>5. Monitor and attentive to the success and achievement of green office goals and project implementations.</li> </ol>	
Total			100

ulty of Environment and Resource Studies of Mahidol University, Department of Environmental Quality Promotion, Pollution Control Department, Greenhouse Gas Management Organization (Public Organization), Center for Nature and Agricultural Ecology, The Electricity Generating Authority of Thailand, The Bangchak Petroleum Public Company Limited, etc. In addition, we informed panelists of the overall process and rationale for using the EDFR technique as well as their responsibilities in the study. Panelists were also advised of the time-intensive nature and commitment level required for this study.

### 3.2 Procedures and instrumentation

This study presented the potential standards and criteria in the form of a checklist. Each checklist dissemination and response were occurred through "Workshops." [16, 17] Panelists received, via electronic mail,

instructions for completing before meeting in a particular workshop. Both before and after the workshops conducted we regularly used electronic mail and telephone correspondence to help keep the panelists on task and to answer their questions as they arose. Each workshop lasted approximately 1-2 days, with 4 weeks interval for the data to be processed and to create the next modified checklists.

### 3.3 Workshop 1

The first round largely involved guided exploration and was designed to engage panelists in brainstorming. [18] To initiate the brainstorming process, we provided the panelists with 10 initial potential standards criteria (Table 1) that generated from a review of the eco-healthy workplace and friendly environment literature. They were also persuaded to propose any additional standards and criteria they criticized and judged



essential for initiating the green office standards in Thailand.

These initial potential standards and associated criteria were adapted from the expert panellist group consists of scholars from government, state enterprise and non-government organizations. These experts have been appointed by the Department of Environmental Quality Promotion. Using an open-ended format, we instructed panelists to carefully consider the clarity, necessity, and appropriateness of each of the 10 potential standards and associated criteria as well as the consistency of the criteria with the associated standard. This initial set of potential standards and criteria was opened to discussion and interpretation, thus facilitating comments and revisions from the panelists are highly accounted and focused in this workshop.

### 3.4 Workshop 2

The second workshop consisted of a second checklists created through the synthesis of panelists' comments from the first workshop. This input regarding the initially reviewed and additional standards and criteria proposed by the panelists was compiled, summarized, and used to reformulate the standards/ criteria.

### 3.5 Workshop 3

The third workshop consisted of a third checklists based on the analysis and critical comments from workshop 2. Additional consensus to retain those standards and criteria was not reached during round 2 were also revised based on panelists' comments and reappraised in this round. A summary of the standards and criteria for which consensus included 7 categories as follows:

- Chapter 1: Organization Management
- Chapter 2: Operations of Green Office
- Chapter 3: Energy and Resource Utilization
- Chapter 4: Office Waste Management,
- Chapter 5: Indoor and Outdoor Environment
- Chapter 6: Eco-friendly Procurement
- Chapter 7: Continual Improvement.

## 4. Results

The standards developed in this study were considered by a panel of environmental management education experts to be necessary, clear, and appropriate for the development of the Green Office Standards and assessment of the 10 pilot green offices. All these standards are consistent with the intents of ISO14001 environmental management system, Greenhouse Gas Management, and Waste Minimization Pollution Prevention protocols. What follows is a discussion of each of the environment-related scholar and instructor standards developed in this research. Our results and the literature fully support the qualities, characteristics, and skills associated with these standards and

their necessity and appropriateness in environmental management education.

From 3 workshops, the EDFR panel reached consensus on the potential standards and criteria necessary to illustrate and assess the green office management. A total of 7 standard chapters, each with 1 to 5 criteria and 5 to 28 indicators, was ultimately developed (Table 2). Each of the 3 workshops yielded numerous valuable comments from the panelists regarding the visibility, necessity, and reasonableness of each of the potential standards and associated indicators as well as the consistency of the criteria with the corporate standard. For example, there was one essential comment arose during workshop 2 to add a criterion to further clarify the Environment Quality Indoor and Outdoor standard: "It should be added a more applicable assessment of both indoor and outdoor environment quality to following the suitable appraisal standards as outlined by WWF Green Office Program." Panelists also provided general comments in support of the development of manuals for Green Office Standard implementation. For example, 1 panelist indicated "I am realized a good job with the standards. We utilize many of these criteria already in the carbon footprint assessment process, where many organizations evaluate the eco-friendly atmosphere at their offices."

Absolutely, the green office standards development lifecycle involved 3 major stages; 1) mobilizing the working group, 2) literature reviewed and drafting the standard, and 3) resolution of the standard. The study found the criteria and indicators suitable for the Green Office management in seven categories, each of the weight percentages are different as shown in Table 2.

By each of these determinants/indicators, rating will be considered relying on attribution of the area, environmental care and practices, office staff's knowledge and understanding, the amount of greenhouse gases discovered and the reduction of greenhouse gas emissions in the office. The assessment criteria in each sub-item is provided for the committee make a rating at 5 levels from 1 – 5.

## 5. Conclusions and Discussions

The Green Office initiative will help offices carry their environmental responsibility and motivates staff to sustainable solutions in every day office work. The Green Offices comprise a fantastic network of organizations with ambitious ecological objectives and realistic ways of achieving the criteria. The purpose of the Green Office scheme is to reduce the consumption of natural resources by improving offices' environmental efficiency, promoting sustainable practices by increasing environmental awareness of employees, and promoting climate change mitigation by requiring energy-saving and use of renewable energy sources. [19] The Green Office scheme supports offices in sys-

tematic improvement of their environmental performance. Since, an increasing need has been identified within the profession of eco-friendly concern to provide standard guidelines and development for building our world grow green. Consequently, under the direction of the Department of Environmental Quality Promotion and Faculty of Environment and Resource Studies, Green Office Standard was developed including a guideline that certified organization complete and achieve environmentally friendly establishment and first introduced to 10 pilot organizations from all regions of Thailand. The main asset of Green Office Standard is its concreteness. There are 7 criteria categories, 19 activities, and 88 indicators as follows;

(1) Organization Management 3 Activity 17 Indicators

(2) Operations of Green Office 5 activities 28 indicators

(3) Energy and Resource Utilization 3 Activities 11 Indicators

(4) Office Waste Management 2 activities 9 indicators

(5) Indoor & Outdoor Environmental 4 Activities 12 Indicators

(6) Eco-friendly Procurement 1 Activity 6 Indicators

(7) Continual Improvement 1 Activity 5 Indicators

These anticipated criteria require a more standardized approach to environment-friendly management contents and increased accountability in the nature conservation proficiencies. Although the developed green office standard is part of the evolutionary process of mitigating climate change and reducing ecological footprint, it has placed more environmentally friendly learning and evaluation responsibilities on certified green offices where may have required for promoting sustainable lifestyle and improving environmental awareness in their resource's preparation and management. The success of the Environmental Management System depends on the commitment of personnel at all levels and all functions in the organization. Led by top executives in the organization. Coincidentally, since the environmental commitment varies with standards, expectations of producers and buying power of the consumers, then the environmental issues are integrated into the corporate culture in order to tackle cost and profit aspects in business. Firms have started finding end solutions caused by the trade effluents to the environment by converting such waste itself to be the input for further production. [20] It depends on the level of responsibility of each department to eliminate and reduce the environmental impact and conserving the world's biological diversity, especially the application of strategies.

Subsequently, assessment of the 10 pilot organizations were exclusively adopted and first conducted in June 2016. An overriding goal of the assessment is to equip the organization managers and their staff with

the information, protocols, and guidance to serve as eco-friendly building tool at their institutions. Environmental management academic and expertise existed among the assessor team contributed to effectively learn and apply the environmentally friendly proficiencies. In order to bring reliance and validity to the environmental initiatives of organizations' members, it is mandatory that expectations for eco-friendly practices be established and investigated by the upright professionals rather than just borrowing and adapting practices from other allied professions.

Identically, the presentation of success in environmentally-friendly management depends on the suitability of the person and the organization concerned. The application of this model standard at any settings may not guarantee that an organization can properly control and manage their environment, such as two organizations with similar activities, but may have different legal compliance capabilities. Commitment to compliance and utilization of existing technologies that will make the efficiency of environmental management and meet the specified requirements of the organization.

## References

- [1] Green Office Environmental Management System for Sustainable Organizations, <https://wwf.fi/mediabank/1414.pdf>, 2016 (accessed 20 October 2016).
- [2] Department of Environmental Quality Promotion (LLP), A handbook for Thai people with green hearts, [http://www.rs.mahidol.ac.th/rs\\_green/images/knowledge/Green\\_Office.pdf](http://www.rs.mahidol.ac.th/rs_green/images/knowledge/Green_Office.pdf), 2016 (accessed 20 October 2016).
- [3] A Guide to greening your bottom line through a resource-efficient office environment, [http://www.oregon.gov/ENERGY/CONS/BUS/docs/Green\\_Office\\_Guide.pdf](http://www.oregon.gov/ENERGY/CONS/BUS/docs/Green_Office_Guide.pdf), 2016 (accessed 20 October 2016).
- [4] Comfortdelgro awarded green office label by the Singapore Environment Council, <http://www.comfortdelgro.com.sg/uploads/pr/256.pdf>, 2016 (accessed 20 October 2016).
- [5] Green office: A guide to running a more cost-effective and environmentally sustainable office, <http://www.wrap.org.uk/sites/files/wrap/WRAP%20Green%20office%20guide%20Mar2015.pdf>, 2016 (accessed 20 October 2016).
- [6] Care international in Vietnam's (n.d.), Green action handbook, [http://www.careclimatechange.org/files/CARE\\_docs/CAREVN\\_Green\\_Action\\_Handbook.pdf](http://www.careclimatechange.org/files/CARE_docs/CAREVN_Green_Action_Handbook.pdf), 2016 (accessed 20 October 2016).
- [7] Green office guide, <https://www.cnb.com/about/Green-Office-Guide.pdf>, 2016 (accessed 20 October 2016).
- [8] Queensland health green office resource guide for climate smart buildings, [https://www.health.qld.gov.au/carbon\\_management/green\\_office\\_guide.pdf](https://www.health.qld.gov.au/carbon_management/green_office_guide.pdf), 2016 (accessed 20 October 2016).
- [9] Green office handbook, how to start your own green office, [https://umanitoba.ca/campus/sustainability/media/GreenOffice\\_Form.pdf](https://umanitoba.ca/campus/sustainability/media/GreenOffice_Form.pdf), 2016 (accessed 20 October 2016).
- [10] Green Office Management, <http://www.gov.hk/en/residents/environment/public/green/greenoffice.htm>, 2016 (accessed 20 October 2016).
- [11] Green office: A guide to running a more cost-effective and environmentally sustainable office, <http://www.wrap.org.uk/sites/files/wrap/WRAP%20Green%20office%20guide%20Mar2015.pdf>, 2016 (accessed 20 October 2016).
- [12] C. P. Phatthana, Future research with EDFR, Journal of Educational Administration Khon Kaen University 1(2) (2005) 19–31.

- [13] B. F. Beech, Changes: The Delphi technique adapted for class-room evaluation of clinical placements, *Nurse Education Today* 11 (1991) 207–212.
- [14] P. L. Williams, C. Webb, The Delphi technique: a methodological discussion, *Journal of Advanced Nursing* 19 (1994) 180–186.
- [15] N. Reid, The Delphi technique: Its contributions to the evaluation of professional practice, In: Ellis R, editor. *Professional Competence and Quality Assurance in the Caring Professions*. New York, NY: Routledge, Chapman and Hall, 1988.
- [16] Linstone & Turoff, *The Delphi Method: Techniques and Applications*. Addison-Wesley Publishing Company, London, 1975.
- [17] A. Harkins, R. Kurth-Schai, OSCAR: An applied social technology variant of the Delphi method, *Futurics* 7(3) (1983) 1–7.
- [18] R. B. Textor, The natural partnership between ethnographic futures research and futures education, *Journal of Cultural and Educational Futures* 1(1) (1979) 13–19.
- [19] Care International in Vietnam's (n.d.) Green action handbook, from: [http://www.careclimatechange.org/files/CARE\\_docs/CAREVN.Green.Action.Handbook.pdf](http://www.careclimatechange.org/files/CARE_docs/CAREVN.Green.Action.Handbook.pdf), 2016 (accessed 20 October 2016).
- [20] Pradeep, A. S. A. Kuckian, Going green in business - A study on the eco-friendly initiatives towards sustainable development in India, *International Journal of Applied Engineering and Management* 1(2) (2017) 15-23.