Tampere University of Applied Sciences

Environmental Management Manual for Fair Green Company

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BACHELOR'S THESIS
December 2019

Degree Programme
Energy and Environmental Engineering

ABSTRACT

Tampereen ammattikorkeakoulu
Tampere University of Applied Sciences
Energy and Environmental Engineering

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Environmental Management Manual for Fair Green Company

Bachelor's thesis 53 pages, appendices 12 pages
December 2019

The purpose of this thesis was to create an environmental management manual for Fair Green, a distributor in the promotional merchandise. The thesis was carried out as a comprehensive research on the environmental performance in Fair Green following a step-by-step guidance of Environmental Management System (EMS) ISO 14001:2015 framework. Research methods mainly comprised theoretical analysis and case study with email interview. The case study focused on evaluating environmental aspects and legislations related to Fair Green at present.

It was found that there were only five over ten clauses required by the ISO 14001:2015 standard can be adapted to Fair Green context. The rest was left as general instructions for the company activities in the future. Besides, most of environmental aspects and legislations defined now depended largely on its suppliers' activities. However, evaluation on the suppliers' environmental performance was limited due to the confidentiality or restricted knowledge from the management.

Although an environmental management manual is not required in the ISO 14001, it is critical to assemble documentation including all required information that is accessible and useful to staffs when they look for guidance. Furthermore, this document can be shared with other stakeholders and third parties to have a comprehensive understanding regarding the company's EMS and the purpose of their actions. The findings also indicate that two clauses in the ISO 14001 such as the context of the organization and actions to address risks and opportunities are crucial to startup companies like Fair Green, since both requirements are usually up to date due to the constant adaptability in new product categories, ideas, size and scale of the company. Still, more substantial work should be done to ensure the company continual development. Regarding confidentiality, appendices 2-5 will not be included in the online publication. Also, names of suppliers and product range mentioned in this thesis were changed.

Key words: ISO 14001, environmental management system, environmental management manual, promotional product industry, sustainability.

CONTENTS

ABBREVIATIONS

TAMK	Tampere University of Applied Sciences
cr	credit
EMS	Environmental Management System
EMM	Environmental Management Manual
ISO	The International Organization for Standardization
B2B	Business-to-business
SDGs	Sustainable Development Goals
CSR	Corporate Social Responsibility
CO_2	Carbon dioxide
UN	United Nations

1 INTRODUCTION

Business concerns on environmental issues have increased since the late of 20th century (Zilahy 2017, 1), adding in another criterion that the customers have looked for in the organisation and product options. Many companies are starting to build positive environmental images in the market by implementing a proper environmental management system (EMS). Among many sets of EMS standards, ISO 14001 has been adopted by numerous leading corporations worldwide (Pikkarainen 2011, 9-10), making it more popular as an international EMS guidance, as well as gaining companies their customers' credibility. In 2018, more than 300,000 companies of all types and sizes in 171 countries have certified the ISO 14001:2015 (Lassus & Jääskä 2018, 30). In order to enhance the competitiveness in the field, more companies are adapting their environmental policy, practising environmental aspects following this International Standard with or without formally certifying it (Rondinelli & Vastag 2000, 1), beginning with an EMS manual.

Fair Green is a business-to-business (B2B) distributor in the promotional merchandise, based in Copenhagen, Denmark. Since the company trading engages many factors from customers, suppliers to its managers and employees, the need of a proper EMS manual to gather useful information regarding environmental commitment in its products and supply chain management is prominent.

The purpose of this thesis was to create an environmental management manual that was simple and accessible to everyone in Fair Green; and to show the customers how the company commit to its environmental activities. With the aim to design a manual following the ISO 14001:2015 standard, this thesis would take step-by-step requirements in this International Standard with appropriate modifications towards the company current scale.

While executing this thesis, specific research questions are: 1) What are EMS requirements for the latest version of ISO 14001? 2) What are major environmental aspects and related legislations in Fair Green? 3) How will Fair Green continually monitor the EMS to adapt to a sustainability goal?

2 FAIR GREEN

According to the Ministry of Foreign Affairs of Denmark (2019), Denmark has determined to dedicate itself to United Nation Environment work since the progress in the environmental part of the Sustainable Development Goals (SDGs) remained unchanged. To contribute to the government's action plan, among 17 SGDs in the United Nation's 2030 Agenda for Sustainable Development to address universal issues of environment, politic and economy (United Nations 2019, 2), Fair Green considers the 12th SDG – Responsible Consumption and Production as its mission. The company desires to reduce the material footprint per capita, which is a challenge in green promotional merchandising while enhancing the sustainability level to the customers (Fair Green 2019; UN Secretary General 2019,18).

To advocate for their commitments in green merchandises, Fair Green only chooses their Europe-based suppliers that execute environmental management system in their performance with transparency. Fair Green's product lines include pens and pencils, desk accessories, notebooks and conference pads, drink ware, and bags; with detailed descriptions of 100% eco-friendly materials in each product are displayed in Fair Green catalogue. The company also promises to deliver products made of recycled materials or sustainable plant fibres (Fair Green 2019). To add to the greenery, many designed products would destroy themselves, then reborn as plant life, which means zero waste to landfill. In general, all the research and optimal solutions developed and presented in the EMS manual are revolving around improving environmental performance.

3 METHOD

This thesis applied qualitative research methods to answer three mentioned research questions. At first, data analysing was based on BS EN ISO 14001:2015 guidance to find which requirements in the latest ISO 14001 were. Besides, environmental management manuals from other companies were reviewed for further references. The adaptation of EMS structure in the standard was remained unchanged for Fair Green manual, which was presented in chapter 4. Next, another guidance analysis from Sadiq and Khan was combined when seeking an approach for environmental aspects' identification and referring to relevant regulatory bodies' information. Then, findings for the second research question of related environmental aspects and legislations were tabulated in chapter 5. Moreover, action research such as email interview was implemented with the biggest supplier of Fair Green to gather further information. Finally, data collected through the EMS building process and interview were synthesized to deduce the plan for the last research question. The research for this thesis was restricted in drawing data sets from the third parties, which were the outsourced factories of one supplier, due to the confidentiality and limited knowledge from its management.

4 ENVIRONMENTAL MANAGEMENT SYSTEM REQUIREMENTS OF ISO 14001:2015

4.1 Scope

Fair Green follows ISO 14001 criteria to adopt a systematic approach for managing environmental responsibilities, develop its environmental management system (EMS) and improve environmental performance. Since the company is in an ongoing change, this manual approach will be flexible to update and adjust accordingly. In this early stage of development with lacking in-house expert in the sustainability field, this EMS manual is created to help companies achieve desired outcomes conforming to the environmental policy and become pillars in environmental sustainability. In other word, the implementation can become a learning process for all participants. (BS EN ISO 2015, 1; Whitelaw 2004, 147-148.)

Figure 1 demonstrates the concept of Plan-Do-Check-Act (PDCA) in this EMS framework. Fair Green combines the PDCA model with this International Standard requirement to give all users great insight about the systematic approach as well as to achieve the continual improvement. In Fair Green, the process can be interpreted as follows.

- Plan: establishing the EMS objectives and environmental policy of Fair Green.
- Do: implementing intended processes.
- Check: determining environmental performance compared to EMS objectives and environmental policy.
- Act: taking actions to ensure continual improvement. (BS EN ISO 2015, vii; 14001 Academy 2016, 6.)

Figure 1. The Plan-Do-Check-Act cycle of process-based Environmental Management System (14001 Academy 2016, 5; Sickinger-Nagorni & Schwanke 2016, 33, modified)

4.2 Normative references

There are no normative references.

4.3 Terms and definitions

There are no terms and definitions.

4.4 Context of the organization

4.4.1 Understanding the organization and its context

Currently, Fair Green strives to build its system with the determination to challenge the traditional merchandise industry (Fair Green 2019). Since Fair Green

does not produce its own products, the implementation process will involve examining suppliers' products, services and activities to determine the environmental aspects and how they conform to relevant legislations. To ensure the complete transparency in the suppliers' environmental performance, Fair Green also looks at the environmental impacts of distribution. Hence, whether the supplier uses green delivery and sustainable shipping service or not, concerns Fair Green decision. Furthermore, Fair Green predicts pertinent issues that probably nonconform to the its environmental policy and change the EMS's intended outcomes to consider for continual improvement. Another external issue concerning Fair Green is that some suppliers using outsource factories, which makes things even more complicated to monitor and measure their environmental performance due to the deficiency in location and activity reports. Whereas Fair Green's internal expertise in this area is on high demand, to handle the EMS workload and arrange necessary training for the project team. (BS EN ISO 2015, 6; Whitelaw 2004, 148.)

4.4.2 Understanding the needs and expectations of interested parties

Fair Green's interested parties include:

- 3 current suppliers
- Target customers:
    - B2B companies with sustainable business management
    - Corporates with corporate social responsibility (CSR) policies
- Banking service
- Competitors.

Most of Fair Green's products come from the product range AB of supplier H while only two products are from supplier X and supplier Y. As environmental action becomes the image of one organization that customers seek for, Fair Green also join the community in committing its environmental activities towards the market. Moreover, individual action of every enterprise can contribute to solve the environmental issues, which is an alarm in the context of global warming and high greenhouse gases emissions.

4.4.3 Determining the scope of the environmental management system

Fair Green determined its EMS scope with the following categories, then defined prospects and limitations by SWOT analysis shown in Table 1.

- Market research and product assessment
- Web development
- Digital marketing
- Accounting and finance. (BS EN ISO 2015, 6, 20-21.)

Table 1. Fair Green SWOT Analysis

Strengths	Weaknesses
• Environmental concerns. • Product certifications.	• Internal expertise shortage. • Find challenges in case factories located outside Europe. • Limited access to information from suppliers, therefore, Fair Green products.
Opportunities	**Threats**
• ISO 14001:2015 acquisition. • Pillar in environmental sustainability. • European leader in eco-friendly merchandise.	• Fall behind due to incompetence.

4.4.4 Environmental management system

Environmental management system (EMS) has become a major part that helps Fair Green establish a systematic approach to its operations, planning, responsibilities, and resources; and achieve the continuous improvement goal. All factors listed in the EMS will help demonstrate the transparency and accountability regarding environmental aspects and legislations pertinent to Fair Green, also mitigate global growing pressures caused by environmental issues. Though it is a comprehensive methodology, a successful EMS depends on the commitment from whole Fair Green and its top management. Many requirements, goals and

objectives in the EMS will be flexible to adapt with changes in locations and preferences of different projects (BS EN ISO 2015, 7, 21; Jain, Cui and Dome 2015, 32).

4.5 Leadership

4.5.1 Leadership and commitment

In ISO 14001:2015, top management plays a major role in coordinating the EMS objectives and environmental policy. There are specific responsibilities that require direct involvements from the top management. On an ongoing basis, top management (from Fair Green) and departmental managers (from suppliers/subcontractors) are responsible for identifying changes in activities, products, and services that create new environmental aspects, or invalidate previously identified aspects. Moreover, communication is significant in leadership and commitment demonstration. If these responsibilities are assigned to others, the top management still holds the accountability to ensure these action performances. In addition, relevant training and support should be offered by the leader to ensure the task overall performance (BS EN ISO 2015, 7, 21; 14001 Academy 2016, 9.)

4.5.2 Environmental policy

According to ISO 14001:2015, environmental policy is where the top management demonstrates how the organisation commits to its principles to enhance environmental performances. The environmental policy consists of environmental objectives, actions taken to achieve intended outcomes of the EMS and continual improvement. Following commitments for the environmental policy are outlined in the International Standard.

a. Protect the environment. Environmental objectives are to protect the natural environment from harm from all activities, products, services of the organization.
b. Fulfil the organization’s compliance obligations. Some interested parties especially focus on the organization’s commitment to fulfil its compliance obligations in term of determining compliance obligations, ensuring actions

taken in accordance with these compliance obligations, evaluating, and correcting nonconformities.

c. EMS continual improvement. (BS EN ISO 2015, 7-8, 21-22.)

In Fair Green, the environmental policy outlines commitments of the management and employees working at Fair Green on the environmental activities. Fair Green also seeks to engage all its subcontractors, suppliers and customers in minimising environmental effects and achieving contents of related environmental certificates by continuous follow-ups and feedbacks, to ensure all materials used and the supply chain operated are in conformance with this International Standard. This policy is placed in Appendix 1 and available to the public.

4.5.3 Organisation roles, responsibilities and authorities

Those who engaged in the EMS work of Fair Green should certainly comprehend their roles, responsibilities and authorities. EMS manager and relevant staffs take responsibilities for implementing the EMS, together with the company's suppliers and contractors.

- EMS Manager: represent the environmental programme at the board meeting and company meeting; compile, approve and update EMS documents; ensure all relevant legislations and requirements are identified, listed and updated accordingly; organise the programme of external audits and management reviews;
- Specific staff: collaborate with suppliers and contractors to ensure they meet the company's environmental requirements; provide the EMS Manager the operational control records.
- Suppliers/Contractors: should satisfy the operational staff in terms of relevant legislation requirements. (BS EN ISO 2015, 8, 22.)

4.6 Planning

4.6.1 Actions to address risks and opportunities

a. General

Knowledge regarding context of Fair Green, requirements of its interested parties, and its EMS scope shall be reviewed in the planning process; to determine relevant risks and opportunities affecting its environmental aspects and compliance obligations. Defined risks and opportunities are aimed to ensure intended outcomes of the EMS, as well as prevent or minimize unexpected factors to environmental conditions around the organization that against its sustainable development. Furthermore, potential environmental emergencies shall also be predicted for preparedness and response. Documentation shall be created to include addressed risks and opportunities, and process needed for the planning actions (BS EN ISO 2015, 8-9, 22-23.)

b. Environmental aspects

All environmental aspects within Fair Green's control should be considered under a life cycle view, including modifications in activities, products and services such as delivery, disposal, recycling and manufacturing from the suppliers. Next, unusual circumstances and anticipated environmental emergencies should be reviewed. Furthermore, an effective communication strategy is necessary when passing on significant environmental aspects' information. Documentation relevant to environmental aspects section shall be stored as following:

- Environmental aspects and related environmental aspects.
- Applied criteria in significant environmental aspects classification.
- Significant environmental aspects. (14001 Academy 2016, 12; BS EN ISO 2015, 9, 23-25.)

c. Compliance obligations

Fair Green did the first step of B Impact Assessment in July 2019, which was a trustworthy appliance to measure the company's impacts on its workers, community, environment, and customers (B Impact Assessment 2019). This first step was an online self-assessment that helped the top management to gain general insight about establishing a better business for employees, community, and environment. Ongoing steps in comparing and improving Fair Green process will be done after six months to see how the company performs so far and enable modifications for continually improving. Meanwhile, Fair Green seeks compliance from their suppliers through external communication. Documentation and appropriate licenses are required to ensure that the suppliers' conformity to significant environmental aspects is evident. Fair Green shall continually examine suppliers and keep track of records to achieve the compliance obligation target in all stages of development. Documentation of compliance obligations shall also be stored for evidence. (BS EN ISO 2015, 9, 25.)

d. Planning action

Plans to address Fair Green's weakness and threat:

- Offer training courses in environmental management to potential staffs and evaluate their training performance.
- Help current staffs exploit this manual; encourage them to develop new ideas and lead some tasks.
- Find outsource experts to consult.

Further, conditions of other departments such as technology, finance, operation and business shall also be discussed to find appropriate solutions for the company. (BS EN ISO 2015, 9-10.)

4.6.2 Environmental objectives and planning of actions to achieve them

Main environmental objectives in Fair Green's EMS are presented in Table 2 with suggested plans. Other updates in environmental objectives will be created at appropriate functions and levels but should remain coherent with the environmental policy. Environmental objectives shall be monitored, communicated and up-

dated as the company evolves. Documentation regarding environmental objectives shall be stored in the organization. Plans to achieve the environmental objectives should entail the actions delegated, resources, timeline, who takes responsibility and evaluation method. (BS EN ISO 2015, 10, 25-26.)

Table 2. EMS objectives and plans in Fair Green

Objectives	Plans	Responsibility	Deadline	Resources required	Other status
Mitigating CO_2 and energy emission	Suggest suppliers using sustainable shipping with fuel efficient driving technique	CEO	December 2020	Environmental Manager, suppliers' agreement and support	
Fair Green delivered products should be zero waste to landfill	Examining product information and its material packing	CEO	June 2020	Environmental Manager, suppliers' agreement and support	
Achieving 100% transparency in the environmental performance at sites/factories	Organising onsite audit; Training workforce onsite; seeking for appropriate licenses	CEO	June 2020	Environmental Manager, suppliers' agreement and support	
Having a proper code of conduct by February 2020	Looking for fully life cycle assessment on the suppliers' products	CEO	February 2020	Environmental Manager, suppliers' agreement and support	

4.7 Support

4.7.1 Resources

Environmental staff resources in Fair Green comprise the EMS manager and persons who work under its control, such as Fair Green employees and its suppliers. The EMS manager in Fair Green takes main responsibility of all EMS phases from creating, implementing, maintaining and continually improving. (BS EN ISO 2015, 10; CS Energy 2018, 18.)

4.7.2 Competence

According to this International Standard, individuals involved in the environmental performance of the organization should be guaranteed to have vital competence regarding proper education, training and relevant experiences. Determining and ensuring competence of everyone is a must. In addition, these competent individuals should benefit from extra training on environmental aspects and environmental management of the organization. Evaluation of the training performance and other evidences of individual competence shall be stored in separate documentation. (BE EN ISO 2015, 11.)

In Fair Green, the EMS manager will be selected or recruited from relevant background and experience. Appropriate training can be offered to individuals who support in any environmental related projects of the company.

4.7.3 Awareness

Environmental policy shall be presented everywhere from Fair Green's wall, website to its contract with suppliers to ensure the awareness of all individuals working under Fair Green's control. The purpose of this awareness practice is not to have everyone memorizing the environmental policy but to keep them informed of the policy, then consider the environmental aspects and the potential environmental impacts along their work. Unable to conform these environmental requirements will result in alert emails to violated individuals or open warnings in the

company meetings. These environmental matters and actions should also be repeated in every induction day and contractor briefing. (BS EN ISO 2015, 11; CS Energy 2018, 19.)

4.7.4 Communication

According to ISO 2015, Fair Green should arrange internal and external communication assemblies to pass on relevant information that ensures the EMS performance. In these meetings, delivery on important environmental aspects and compliance obligations should be precise and understandable to participants, especially interested parties. Documentation from in-and-out communication should be saved in EMS documentation as evidence. (BS EN ISO 2015, 27.)

Sample document for internal and external communication was enclosed in Appendix 4 for further guidance.

4.7.5 Documentation

Documentation built and preserved in Fair Green should aim to ensure the implementation of the EMS and environmental performance, not to establish a complicated documentation management system. Aside from documentation of specific clauses suggested in this International Standard (Table 3), other relevant EMS and environmental performance documentation with the intentions of clarity, duty, coherence and training can be developed. (BS EN ISO 2015, 27.)

Table 3. Documentation required by ISO 14001 (Sadiq & Khan 2019, modified)

In this thesis	Documents required by the Standard
4.4.3	Scope of the EMS (Clause 4.3)
4.5.2	Environmental policy (Clause 5.2)
4.6.1	Risks and opportunities that the organization needs to address (Clause 6.1.1)
4.6.1	Processes required by the risk assessment, environmental aspects, compliance obligations (Clause 6.1.1)
4.6.1	Environmental aspects and associated impacts (Clause 6.1.2)
4.6.1	Criteria used to determine significant environmental aspects (Clause 6.1.2)
4.6.1	Significant environmental aspects (Clause 6.1.2)
4.6.1	Compliance obligations (Clause 6.1.3)
4.6.2	Environmental objectives (Clause 6.2.1)
4.7.2	Evidence of competence (Clause 7.2)
4.7.4	Evidence of internal and external communications (Clause 7.4)
4.7.5	Documentation determined to be necessary for the EMS (Clause 7.5.1)
4.8	Documentation necessary to have confidence that EMS processes have been carried out as planned (Clause 8.1)
4.8	Emergency preparedness and response (Clause 8.2)
4.9	Evidence of monitoring, measurement, analysis and evaluation of the EMS (Clause 9.1.1)
4.9	Evidence of evaluation of compliance (Clause 9.1.2)
4.9	Evidence of the internal audit programme and results (Clause 9.2.2)
4.9	Evidence of the results of management reviews (Clause 9.3)
4.10	Evidence of the nature of nonconformities and subsequent actions taken (Clause 10.2)
4.10	Evidence of the results of corrective actions (Clause 10.2)

Approving authority for Fair Green documentation was enlisted in Table 4.

Table 4. Document Approval Responsibilities in Fair Green (Sadiq & Khan 2019; appendix 5, modified)

Document title	Approving authority
EMS manual	CEO
EMS policy	CEO
EMS objective and targets	CEO
EMS programmes	Environmental Manager
EMS procedures	Environmental Manager
Standard operating procedures (or work instructions)	Environmental Manager
EMS forms for recording results and/or data	Environmental Manager

Record maintenance of documentation in Fair Green was tabulated in Table 5. Besides, sample procedure for control of documentation can be found in Appendix 5 of this thesis.

Table 5. Fair Green's Record Maintenance (Sadiq & Khan 2019; appendix 5, modified)

Record no.	Record name	Maintained by	Retention period
FG-01	Environmental Policy	Environmental Manager	2 years
FG-02	External communication – Email Interview from Supplier H	Environmental Manager	2 years

4.8 Operation

This section in this manual aims at Fair Green future activities regarding operational control. At present, Fair Green business does not involve any producing

activities. Instead, appropriate measures in considering and controlling outsourced processes, which are Fair Green's suppliers and subcontractors, will be taken as identifying and evaluating environmental aspects and related legislations. These topics will be discussed in next chapter.

On the other hand, emergency preparedness and control should be approached whether the operation methods are inside or outside Fair Green, which is critical to minimize the environmental risk. Actions planned for such incident events as emergency drills and exercises include regular emergency response testing and relevant training. It is also essential to make the emergency contact such as local emergency services, local environmental agency and clean up agencies, available to everyone. (14001 Academy 2016, 18.)

4.9 Performance evaluation

Similarly, this clause remains in this manual to reserve for Fair Green future monitoring, measuring, analysing and evaluating activities. The evaluation herein requires overall measurements of significant environmental aspects, compliance obligations and operational controls. Meanwhile, Fair Green will focus on calculating environmental performance on determined environmental aspects and related legislations from the suppliers. This will be explained in next chapter.

In term of EMS management review, the whole process can be depicted as Figure 2. As a result, the internal audit will be dismissed at this stage. However, in the future, audit activity can be conducted as onsite tour depending on mutual agreements with the suppliers. Otherwise, management review should be carried out in all stages of EMS performance, not only in this phase. Additionally, complaints received from suppliers and customers must be analysed in management review to discuss room for improvement. As usual, documentation from every activity must be stored to ensure the EMS performance. (14001 Academy 2016, 20.)

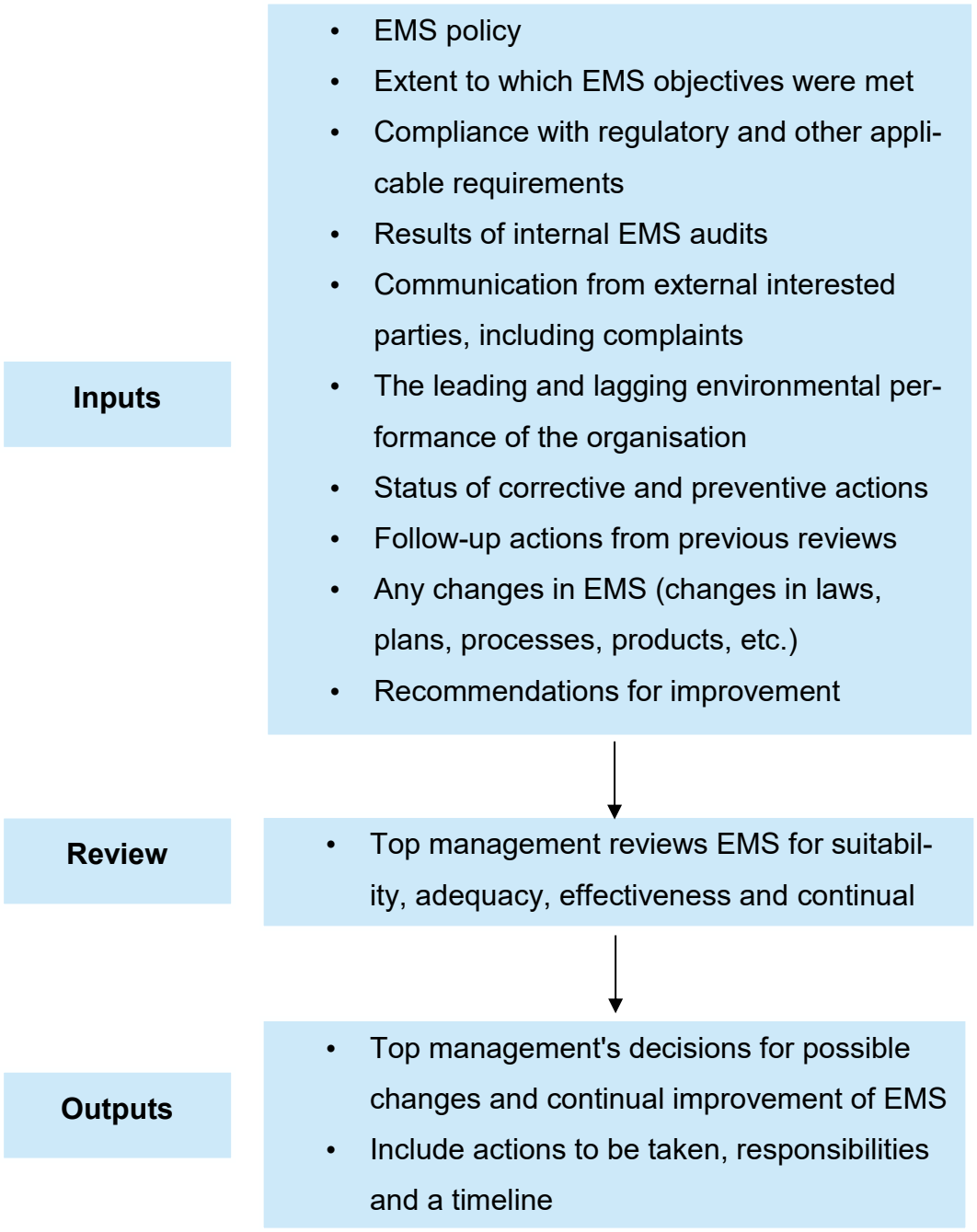

Figure 2. EMS management review process (Sadiq & Khan 2019)

4.10 Improvement

Usually, results in management reviews, internal audits, compliance obligation and performance evaluation shall enormously benefit an EMS improvement (14001 Academy 2016, 21). In Fair Green, however, improvement initiative will reflect analyses of environmental aspects from suppliers' performance. Certain

timeline for corrective actions will be agreed from all parties to ensure the continual improvement in environmental performance. (BS EN ISO 2015, 31.)

5 EVALUATION ON ENVIRONMENTAL ASPECTS AND LEGISLATIONS

5.1 Identifications of environmental aspects

As a non-industrial company, Fair Green focuses on indirect environmental aspects of its activities, comprising onsite waste management of three suppliers, chain-controlled aspects and customer-controlled aspects (Verbanac 2018). Besides, significant environmental aspects were identified through each one's manufacturing process based on the input-output approach in Figure 3. Defined activities, products and services then were classified according to categories as emissions to air, land pollution, drain water, materials / natural resources use, solid waste management, hazardous waste, and other local environmental / community matters (14001 Academy 2019, 6; Myyryläinen 2013, 27).

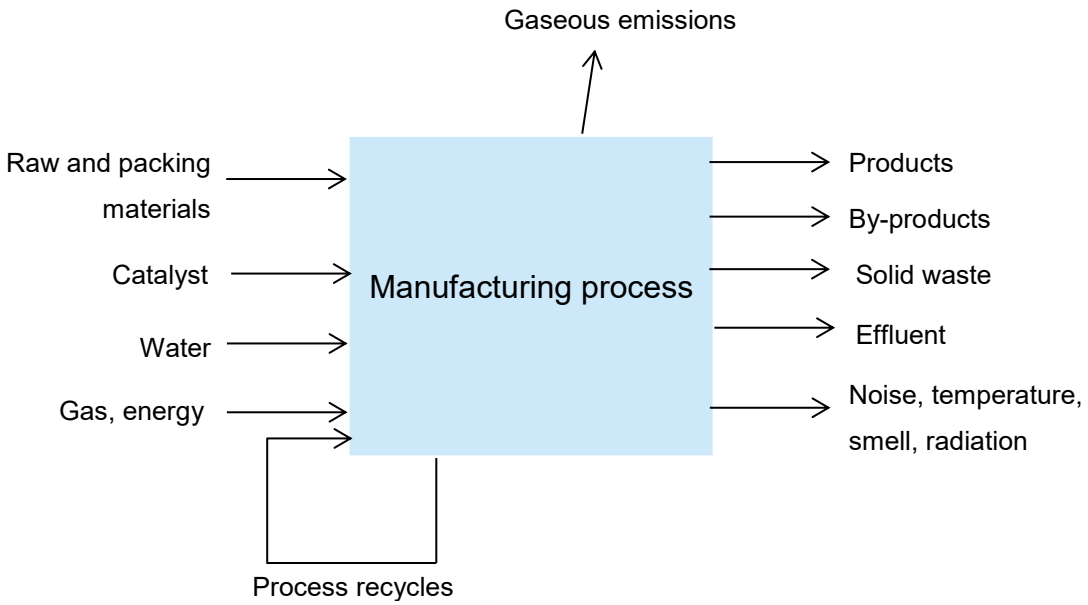

Figure 3. The input-output approach of environmental aspects identification (Sadiq & Khan 2019)

At this stage, major environmental aspects identified were emissions to air, land pollution, solid waste management and use of materials / natural resources. These came from activities/products/services at three suppliers, covering Gaseous emissions from manufacturing process, Product transportation and shipping methods, Product life cycle, and Reuse and recycling in packing materials. Criteria for ranking environmental aspects in each supplier was explained in Table 6.

Finally, results of the evaluations for suppliers H, X and Y were evaluated in Table 7, 8, 9 respectively.

Table 6. Ranking Scale of Impacts (Sadiq & Khan 2019)

Significance criteria	**Rating Scheme**
(a) Legal liabilities: is the aspect regulated?	Low (1): not regulated High (4): regulated
(b) Reputational concerns	Low (1) Medium (2) High (3) Very high (4)
(c) Difficulty or cost of changing the impact	Low (1) Medium (2) High (3) Very high (4)
(d) Frequency: what is the frequency of occurrence of this environmental aspect?	Low (1): could be once in 10 years Medium (2): less than once a year High (3): every few months Very high (4): occurs monthly or more frequently
(e) Severity: what is the overall severity (scale, harm to environments, duration)?	Low (1) Medium (2) High (3) Catastrophic (4)
(f) Degree of controls already in place	High degree of control (1) Medium degree of control (2) Moderate degree of control (3) Slight degree of control (4)

Table 7. Register of Significant Environmental Aspects in supplier H

Activity / product / service	Gaseous emissions from manufacturing process	Product transportation and shipping methods	Product life cycle	Reuse and recycling in packing materials
Aspect	Emissions to air	Emissions to air	Pollution of land; Solid waste management	Use of materials / natural resources
Impact	Emit greenhouse gases, produce environmental footprint	Traffic flow; safety risk; emit greenhouse gases, produce environmental footprint	Waste to landfill	Impact to natural resources; contaminate soil and groundwater
(a)	1	4	4	4
(b)	3	3	3	3
(c)	3	2	2	2
(d)	2	2	3	3
(e)	2	2	2	2
(f)	3	2	2	2
Overall score = Average (a:f); Significant if score > 2	2.3 Significant	2.5 Significant	2.67 Significant	2.67 Significant

Table 8. Register of Significant Environmental Aspects in supplier X

Activity / product / service	Gaseous emissions from manufacturing process	Product transportation and shipping methods	Product life cycle	Reuse and recycling in packing materials
Aspect	Emissions to air	Emissions to air	Pollution of land; Solid waste management	Use of materials / natural resources
Impact	Emit greenhouse gases, produce environmental footprint	Traffic flow; safety risk; emit greenhouse gases, produce environmental footprint	Waste to landfill	Impact to natural resources; contaminate soil and groundwater
(a)	4	4	4	4
(b)	4	4	4	4
(c)	1	1	1	1
(d)	1	1	1	1
(e)	1	1	1	1
(f)	1	1	1	1
Overall score = Average (a:f); Significant if score > 2	2 Good	2 Good	2 Good	2 Good

Table 9. Register of Significant Environmental Aspects in supplier Y

Activity / product / service	Gaseous emissions from manufacturing process	Product transportation and shipping methods	Product life cycle	Reuse and recycling in packing materials
Aspect	Emissions to air	Emissions to air	Pollution of land; Solid waste management	Use of materials / natural resources
Impact	Emit greenhouse gases, produce environmental footprint	Traffic flow; safety risk; emit greenhouse gases, produce environmental footprint	Waste to landfill	Impact to natural resources; contaminate soil and groundwater
(a)	4	4	4	4
(b)	4	4	4	4
(c)	1	1	1	1
(d)	1	1	1	1
(e)	1	1	1	1
(f)	1	1	1	1
Overall score = Average (a:f); Significant if score > 2	2 Good	2 Good	2 Good	2 Good

5.2 Related environmental legislations

Fair Green also referred to some Danish environmental regulations concerning the identified environmental aspects above. Since Danish legislations are usually adopted from EU law and policy, the conformance to environmental legislations should be the same to all Fair Green' suppliers within Europe. According the EU environmental implementation review (2019), Denmark opens to radical solutions and proposals to the emission issue of air pollutants in the years 2020-2030. Danish legislation for air quality is always in accordance with the EU environmental law, with the recent version of Statutory Orders. In general, this Orders helps identify target and restricted amount of air pollutants (The Danish Environmental Protection Agency 2019).

Next, the Contaminated Soil Act and the EU Directive 2008/98 are two suggested environmental legislations that Fair Green and all its parties should reviewed in terms of land pollution and waste aspects. Besides, the Danish EPA also released two handbooks of waste prevention strategy, which were Denmark without waste 1 and Denmark without waste 2, to raise residents' awareness of the world's natural resources protection. Legitimate tactics to minimize the environmental impact from packing activities were elaborated in the Denmark without waste 2. (The Danish Environmental Protection Agency 2019; Denmark without waste 2 2015, 48.)

Significant environmental regulators that Fair Green and its suppliers can access in the UK and Denmark were listed below. Also, websites to further information about environmental laws in some other countries can be found in Appendix 2.

- The Environmental Agency for England and Wales (EA)
- The Scottish Environmental Protection Agency (SEPA)
- The Environment and Heritage Service Northern Ireland (EHS NI)
- Danish Environmental Protection Agency (Danish EPA)

Finally, environmental legislations recommended by Fair Green to defined environmental aspects were summarized in Table 10.

Table 10. Recommended environmental legislations

Activity / product / service	Gaseous emissions from manufacturing process	Product transportation and shipping methods	Product life cycle	Reuse and recycling in packing materials
Aspect	Emissions to air	Emissions to air	Pollution of land; Solid waste management	Use of materials / natural resources
Legislation suggested	The Danish EPA's Statutory Orders	The Danish EPA's Statutory Orders	The Contaminated Soil Act; The EU Directive 2008/98	Denmark without waste 2

6 CONTINUAL IMPROVEMENT IN FAIRGREEN EMS

Fair Green is in its initial stages of development. This will result in inevitable changes regarding products, ideas, as well as the size and scale of the company. Thus, it is essential that the EMS management review process (Figure 2) should be reviewed every six months by CEO and EMS manager to cover all shortcomings and opportunities for continual improvement. Documentation on environmental aspects and related regulatory compliance should be updated regularly to ensure the consistency with registered legislation in every activity, product and service. Ongoing updates and modifications shall be revised in EMS manual and recorded in EMS documentation accordingly by top management. Next, meetings and necessary trainings should be arranged internally and externally to keep abreast of the amendments. It is Fair Green top management's responsibility to ensure that everyone working under Fair Green's control becomes environmentally aware of sustainability practices in daily decisions. (Sadiq & Khan 2019.)

In the meantime, certain environmental aspects of the products in Fair Green catalogue concerning the clarity in materials used are depending on the suppliers' circumstances. Therefore, top management from Fair Green should verify whether all listed licenses and certifications of materials and products selling below are enough and valid.

Supplier H

- Forest Stewardship Council (FSC). Global Forest Certification
- Fairtrade Certified Cotton
- Global Organic Textile Standard (GOTS)
- Bio Mark. Organic Certification
- The EU Ecolabel. A commitment scheme to environmental sustainability
- Blue Angel. A label for the environment
- Programme for the Endorsement of Forest Certification (PEFC).

Supplier X

- Forest Stewardship Council (FSC). Global Forest Certification
- Programme for the Endorsement of Forest Certification (PEFC)
- Non-GMO product
- EN-71 testing certificate for the safety of its product on children.

Supplier Y

- Non-GMO product
- PaperFoam shell with following certifications
    - Biobased
        - USDA Certified Biobased Product
        - Vinçotte OK Biobased. Measurement of Biobased Carbon Content)
    - Biodegradability/compost ability
        - EN13432
        - ASTMD6868
        - Vinçotte OK Compost
        - Vinçotte OK Home Compost
    - Paper recyclability
        - UL Validated (PaperFoam 2018.)

Further, reviewing the operational controls (Figure 4) is another part of the continual improvement process. Since Fair Green's operational activities mainly depend on the suppliers, the last step of this diagram needs to be handled efficiently to not only enhance the environmental performance goal, but also maintain the long-term business relationship. Otherwise, the implementation in this step of operational control can become inert or nonconform to Fair Green EMS objectives and policy if it is neglected. At last, PDCA cycle should be reviewed in each approach to maintain the steady improvement of Fair Green EMS. By tackling identified risks and opportunities, it will take Fair Green EMS to adaptation to better version (Sadiq & Khan 2019).

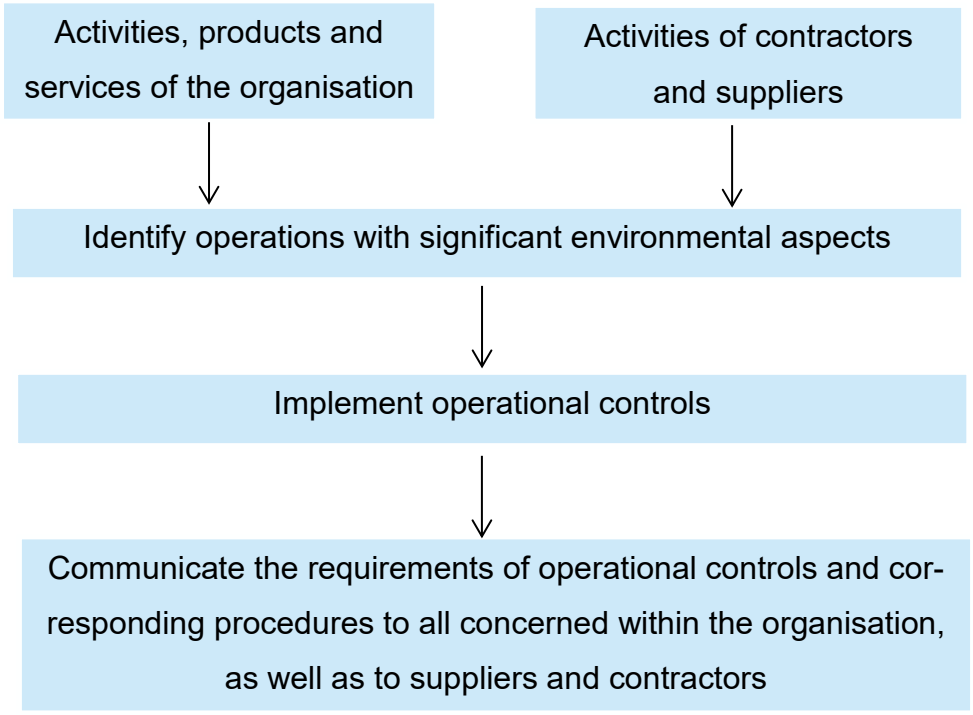

Figure 4. Operational controls (Sadiq & Khan 2019)

The management system guidance of Table 11 also elaborates a comprehensive work for Fair Green's continual control and improvement, with intensive tasks filled in the grey shade that are worth considering. In other words, an effective means of achieving the sustainability goal in Fair Green is to conduct enquiries into these grey sections thoroughly.

Table 11. Management system guidance - PDCA (Vanguard Management Systems Ltd 2019, modified)

Planning		
4.4.1 Understanding Fair Green context	4.4.2 Needs and expectations of interested parties	4.4.3 Determining EMS scope
4.4.4 Management system processes		
4.5.1 Leadership and commitment	4.5.2 Policies	5.3 Roles, responsibility and authority
4.6.1 Address risk and opportunity	4.6.2 System objectives and planning	4.6.3 Planning for change
Doing		
4.7.1 Resources	4.7.2 Competence	4.7.3 Awareness
4.7.4 Communication	4.7.5 Documentation	
4.8.1 Operational planning and control	4.8.2 Requirements for products and services	4.8.3 Design and development
4.8.4 External provided products and services	4.8.5 Product and service provision	4.8.6 Release of products and services
4.8.7 Non-conforming outputs	4.8.8 Emergency preparedness	4.8.9 Accident and incident investigation
Checking		
4.9.1 Monitor, measure, analyse and evaluate	4.9.2 Internal audit	4.9.3 Management review
Acting		
4.10.1 Improvement – General	4.10.2 Non-conformity and corrective action	4.10.3 Continual improvement

7 DISCUSSION

The thesis achieved the purpose of establishing a simple environmental management manual that benefits Fair Green and all its suppliers, subcontractors and customers while answering three mentioned research questions. There were ten requirements following EMS ISO 14001:2015 demonstrated in chapter 4, which was also the EMS manual for Fair Green. The EMS was adapted partly due to information deficiency at Fair Green current status and remained flexible for Fair Green future modifications in its scales, products, services and activities.

Next, this thesis also succeeded in determining Fair Green significant environmental aspects and pertinent legislations from its suppliers, since Fair Green business does not involve any production activities. Evaluations were done to determine which supplier affected the environmental performance the most according to their activities, products and services explained in chapter 5. As a result, supplier H with the most influence on the overall environmental performance of Fair Green also showed to be the most complicated one to conform all related environmental legislations.

Meanwhile, the proper execution plan for the continual improvement of Fair Green's EMS was detailed in chapter 6 with the demand of tremendous work. As ISO 14001:2015 puts top management as an active and responsible element for all the International Standard requirements, Fair Green top priority currently is to assign an Environmental Manager with pertinent knowledge and experience in the field to handle the EMS workload. As it can be seen in Table 11, the Planning and Doing phases demand an enormous effort to lay a foundation at the beginning to run the EMS smoothly. Notwithstanding, understanding the company context and interested party is preliminary to determine the environmental aspects existing, then set environmental objectives to achieve the intended outcome.

Beside leadership, an effective communication strategy is another main factor that ensure a smooth EMS performance. As a small-scale company, Fair Green has advantages in its internal communication, meaning simpler in mutual understanding between staffs and more effective in task assignments. Moreover, com-

munication proceedings in and outside Fair Green will help guarantee the information delivery to the right duties. Both Fair Green and interested parties can inquire relevant matters regarding environmental management system and environmental performance in details. Beyond, complaints received are critical point that each other need to review for EMS improvement opportunities. (BS EN ISO 2015, 27.)

When it came to environmental aspects identifications, significant findings might outweigh the other minor impacts. However, the first intention to identify and evaluate current imminent environmental aspects in these suppliers was achieved. There were many matters have been neglected regarding external manufacturer of supplier H. It could be inferred from the email interviews (Appendix 3) that no specific strategy in environmental management was established there to control the environmental performance, especially there was no expert in sustainability field. Therefore, it was reasonable that the environmental aspects evaluation from this supplier revealed all high results than standard of 2 points.

Since supplier X and supplier Y focus on developing one kind of product, both seem to have no issues regarding the transparency in their manufacture activities, products, and services. There is a whole story behind each of their products as well as detail information on product history, materials and how it was made. The same things become more complicated with supplier H due to the diversity of its product ranges. Next, while some of products from supplier H are own made, others are produced in many places inside and outside Europe, which causes more efforts in controlling the manufacturing activities and legislations. It looks, therefore, the supplier's concern for the CO_2 footprint of each product is riddled with uncertainty. Regarding Fair Green's mission of minimizing material footprint per capita in the 12^{th} SDG, top management should pay more attention on the material needs in each selling product from this supplier.

Furthermore, the part of determining pertinent legislations was tough since each country has its own regulation bodies and varies for each type of products or materials. Among many licenses that the supplier published on their websites, it was confirmed by supplier H that the company did not continue registering FSC license this year (Appendix 3), which made Fair Green more confused in the

product quality from this supplier as FSC license presented in many of its products. Yet, the supplier mentioned that it would consider this issue. Otherwise, there were no hindrances in conforming to environmental pertinent licenses from suppliers X and Y.

At this stage of development, Fair Green can only adapt partly of the EMS requirements following the ISO 14001:2015 framework. Therefore, many sections in the manual cannot be fully specified due to undefined status in Fair Green and information deficiency from suppliers. Though the manual went through all the requirements, it is difficult to resolve all the demands currently due to the lack of skilled human resources in this area to enact the audit, and the suppliers refuse to disclose information regarding the transparency of the manufacture activity. In case of supplier H, among the activities which are within the supplier's control, there are some products that it manufactures outside the country and have no further audits on that side except the license brands. The same with ISO 14001 standard, other license registration are not panaceas for the company to live up to. That explains why the need of Environmental Manager is eminent to monitor, control, and audit the EMS in a comprehensive and systematic way. To much of Fair Green surprise, a representative from supplier H mentioned eco-friendliness and sustainability in each product was a very objective issue. This led to the need of implementing a proper environmental management system to solve this complicated issue.

Sustainability will continue in all the rage in 2020 that every customer will have great care on each response from their beloved brands. Meanwhile, the UN goal of mitigating greenhouse emissions in the Paris Climate Agreement should also be reached by next year (Lassus & Jääskä 2018, 36). Fair Green will commit to adapt this manual into action, to become trustworthy in their consumption decisions, and contribute to solve the world issue.

8 CONCLUSIONS

Environmental management manual for Fair Green, as the purpose of this thesis, was successfully created following step-by-step requirements of the international EMS standard ISO 14001:2015. After identifying the ISO prerequisite, content for each clause in the manual was adapted based on Fair Green current context. Meanwhile, the defined environmental aspects as well as related legislations were conducted in Fair Green's suppliers to evaluate the overall environmental performance. In Fair Green continual improvement step, it was suggested that Fair Green EMS manager should review the operational control every six months to concentrate on all pros and cons to reach the sustainability goal.

The thesis findings also link to tremendous work that needs to be done regarding external factories of the supplier. It is expected that Fair Green can organise on-site visits and worker interviews in the future for further evaluations on its suppliers' facilities and practices. Data collected from these audit activities can reflect enormous improvement in Fair Green environmental management manual on its constant change.

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APPENDICES

Appendix 1. Fair Green – Environmental Policy

Fair Green

ENVIRONMENTAL POLICY

All employees at Fair Green are committed to be responsible for their environment performance and the prevention of pollution in all working phases.

Fair Green assures that all its projects are implemented in conformance with the relevant environmental legislation.

Fair Green pursues an aim in utilising eco-friendly materials for responsible production and consumption of promotional products which are usually underestimated/not considered by the producers and end-users. Furthermore, Fair Green cooperates with suppliers who agree on the same environmental policy.

To obtain the environmental improvement in Fair Green activities, all targets are set and published throughout the company so that all employees can follow and commit to the achievement.

Above commitments are established and regularly reviewed by implementing an environmental management system which satisfies the requirements of BS EN ISO 14001:2015.

This Policy has been communicated to all employees and is available to the public on request.

Managing Director Date 5/6/2019

Emmanuelle Dyer