

# Museums in Amsterdam and their concern for environmental issues

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**MSc. Thesis Leisure, Tourism & Environment**

**SAL-80433**

**Augustus 2015**



**Wageningen University**  
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**MSc thesis Leisure Tourism and Environment**

Thesis code: SAL-80433  
Submission date: August, 18<sup>th</sup> 2015  
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## Preface

I present to you my graduation thesis for MSc. Leisure, Tourism & Environment at the Wageningen University. During my years at the university, I discovered an interest in sustainable development and tourism and I decided this is the field I would like to build a career in. As I have been living in Amsterdam for thirteen years now, I thought it would be interesting to see if this city, which receives millions of tourists each year, is concerned with sustainable development and in which way they do so. Because doing research in the entire tourism industry is too broad, I chose the museum industry. This seemed interesting, as I've done my bachelor thesis on museums as well.

The process of writing this thesis was a long and difficult one and I've had to redirect my research more than a few times, before I was able to get the full grasp of what it was I wanted to do and more importantly how I could do it best to meet the requirements of the university. In this respect I would express my lifelong gratitude to my supervisor Karin Peters. I know I could not have been able to do this without her. I would like to thank her for her patience, her guidance and advice and her constant belief in me. I also like to thank my sister, Kimberly Snoyl, for being so helpful, providing me with feedback and supporting me, as well as my mother Hanna Jap a Joe and my boyfriend Peter Kort, for being there for me and helping me through it. Also towards all my friends, I would like to say thank you for believing in me and telling me I could do it.

Last, but not least, I would like to thank the seven representatives of the museums and the representative of the Plantage, for being so willing to cooperate and contribute to this research. I hope I was able to provide insight in the ways museums are dealing with sustainability and that this will help them to contribute more, especially when it comes to education. I feel that it is important for museums to help create awareness about the issue among the general public, so we can all make the world a little bit more sustainable, one person at a time.

Ciranoush Snoyl  
August 18<sup>th</sup>, 2015

## Summary

This MSc. thesis regards the extent to which environmental concerns are featured in museums in Amsterdam. It is believed that museums can contribute to sustainable development in different ways, by playing a vital agency role in creating a greater understanding of the subject. In Amsterdam, culture is becoming increasingly important to its visitors, with continuously increasing numbers in museum visits. It is, however, not clear in which way museums in Amsterdam deal with sustainable development in general and environment issues more specifically. This research was therefore aimed at exploring to what extent environmental concerns are featured in museums in Amsterdam, in order to provide insight in the role these museums play to be able to contribute to sustainable development. Literature research has shown that museums can contribute to sustainable development in three areas: operation, collection and education. The area of operation is concerned with measures related to energy efficiency, considerations of environmental impacts, forming a green team and the construction of the building. The area of collection consists of environmentally friendly measures such as energy consumption, collection-care standards, and reducing waste, but it's also about collection management and exhibits within the collection, concerned with environmental issues. The area of education is about museum programming and activities, educational exhibits and the role of museums as forums of civil and civic engagement. Of the 51 museums in Amsterdam, seven have participated in this research: the Amsterdammuseum, the Hermitage, the Rijksmuseum, the Scheepvaart Museum, the Stedelijk Museum, the Tropenmuseum and the Van Gogh Museum. Data was gathered through interviews, observation visits and a website analysis. The data was described and interpreted based on Fairclough's Critical Discourse Analysis and analyzed by using three economic discourses by Nilsen & Ellingson (2002).

According to the findings, museums in Amsterdam contribute most in the area of operation. The most frequent measures seen is the installing of energy saving techniques, heat-and-cold storages and LED-lighting. The museum that contributes most in the area of operation was the Van Gogh Museum, with its BREEAM-NL certificate, which represents the sustainability measures of their building, management and use. In the area of collection, it could be said that only the Amsterdammuseum and the Stedelijk Museum have a collection management strategy in place. Furthermore, although nature was displayed in different ways and with different meanings, no links to environmental concerns were to be found. This indicates that the awareness of the importance of nature exhibits to inform about environmental issues is absent. When it comes to the area of education, it was clear that all museums have different educational programs and activities to offer their visitors, although very few concerned with environmental issues. The Scheepvaart Museum, who designs special exhibitions for children, displays an exhibition about whales and whale hunting and the consequences of this leading to extinction, which is a direct link to environmental concerns. The Amsterdammuseum offers an informative tour in collaboration with Provo, an organization which says to want to make the world a better place, stimulating the visitors to use free bicycles as an alternative to the polluting cars in the city. Museums are also able to contribute in the area of education by being a platform for civil and civic engagement. The findings show that the Amsterdammuseum, the Rijksmuseum, the Stedelijk Museum and the Tropenmuseum organize various activities where the museum serves as a platform for people to meet, discuss, debate, share experiences and insights, these activities are not concerned with environmental issues.

The data is further discussed in terms of three economic discourses namely: neoclassical economics, environmental economics and ecological economics. In the discourse of neoclassical economics, environmental interests are suppressed in achieving profitability. It can be said that, even though

museums are by definition not-for-profit organizations, museums in Amsterdam do not feel the need to express nature/ environmental concerns in their current collections and therefore they all fit in this discourse. It was furthermore found that the Rijksmuseum and the Hermitage fit in this discourse, as they most likely will not feel the need to change their strategy or behavior towards environmental sustainability. They assume that this will not necessarily mean an increase in visitor numbers if they do so. The discourse of environmental economics sees environmental concerns converged together with economic concerns. It can be said that five of the seven museums fit in this discourse. The Hermitage and the Amsterdammuseum integrate practices from an economic starting point, the Stedelijk Museum's reaction to integrate environmental friendly practices is receptive, following the example of the Van Gogh Museum. The Van Gogh Museum and the Scheepvaart Museum have integrated their environmental strategy and imposed this on the organization. This behavior indicates that these museums fit best in the discourse of environmental economics. In the last discourse of ecological economics, there is increasing more consciousness of environmental problems. Because all of the museums have shown their awareness of their environmental impact, it can be said that all of the museums fit this discourse as well. In addition it can furthermore be said that the Tropenmuseum, the Van Gogh Museum and the Scheepvaart Museum have shown their environmental concern in their products sold in the museum shops. The Amsterdammuseum also fits in this discourse, as it provides an environmental link to one of its activities offered to their visitors just mentioned. Based on this information, it can be said that there is no dominant discourse present.

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## 1. Introduction

This introductory chapter presents the subject of this research and what has led to its problem statement. It includes how human actions of consumption have resulted in environmental problems, how tourism has contributed to these problems and the actions taken up to now to solve them. It will also indicate the extent to which museums are committed to this subject. Finally the problem statement and research questions will be described.

### 1.1 Environmental issues and tourism

Today, the world is facing an environmental crisis that effects all regions of the world and all levels of society (Byers, 2008). Many of these problems are associated with human actions of consumptions based on culture. The process and effects of the extraction of natural resources, and the manufacture of products out of these resources are human actions that harm the environment. This has resulted in various environmental problems such as greenhouse gas emissions raising global climate temperatures, extinction of plants, animals and eco systems, and natural disasters such as floods, hurricanes and wildfires (Byers, 2008). Scholars believe that these consequences of human actions will result in the earth's inability to support life. In order to prevent this crisis, human actions need to change.

The tourism industry also contributes to environmental problems, especially when the level of visitor use is greater than the environment's ability to cope with this use (UNEP & WTO, 2005). Enormous pressure is put on an area and leads to impacts such as the depletion of natural resources, pollution and degradation of species-rich eco systems. On a global level, this has resulted in the loss of biological diversity, the depletion of the ozone layer and climate change (UNEP & WTO, 2005).

However, being one of the largest industries and a generator of quality jobs, the tourism industry is of great importance on economic level, almost everywhere in the world (Benediktsson, 2004, Goeldner & Ritchie, 2003). According to the World Tourism Organization (2000), tourism is the worlds' largest industry, with no signs of slowing down in the twenty-first century. Next to this economic influence, greater attention is now being paid to its overall social impact which depends on how tourism is planned and managed. Tourism development that is thoughtless, inappropriate, unfinished and even tourism that is overdeveloped, can result in damages to the environment. This emphasizes the need for a coordinated overall economic development plan, which tourism will be a part of, where the challenge is placed on achieving "responsible, sustainable and universally accessible tourism" (Benediktsson, 2004, Goeldner & Ritchie, 2003).

Many different actions are being taken to integrate sustainability awareness and principles. Governments and communities worldwide are working to integrate these principles into decision-making at all levels. Business and industrial organizations are seeking new approaches to development that contribute to environment and society in present times, without degrading them for the future (MA National Council, 2002). It has been recognized that economic goals can be complemented by environmental and social targets, meaning that

all three areas can contribute to an organization's own sustainability. Increasing recognition is also being paid to cultural factors (health, income, level of education, cultural diversity and environmental quality, which determine quality of life), and now play a key role in sustainability debates. Sustainability is interdependent with a flourishing cultural life, which means that the social well-being of the human population is integral to making sustainability a reality (MA National Council, 2002).

Cultural tourism has proven itself to be the fastest growing aspect of tourism during the past decade and as tourists become more sophisticated and more people can afford to travel globally, cultural tourism will only continue to grow (Benediktsson, 2004). Today's museum appears to be one of the top attractions for the culture-seeking tourist. Amsterdam, a large and dynamic city and a highly popular cultural tourism pole with many museums, has been successful in attracting local, national and international visitors. According to a visitor's survey among 10.000 visitors, conducted by the Amsterdam Tourism and Convention Board (ATCB) in 2012, culture is becoming increasingly important to visitors of Amsterdam. Tourists that visit a museum during their stay has increased with 12% to 85% from 2007 to 2011, as had the general appreciation of the available cultural activities. 50% of the visitors visit Amsterdam because of the museums and 85% of the visitors identified visiting a museum as one of the favorite activities (ATCB, 2012). It can be said that museums are an important factor in the tourism industry of Amsterdam.

Museums can contribute to sustainable development in different ways. As cultural institutions they can help promote ideas of sustainability and contribute to decisions that stimulate social values and government policies, in relation to sustainable development. They can furthermore serve as models of good practice in their operations, activities and management and contribute to sustainable development in their management of natural and cultural heritage collections. It's important for the broad community to be able to identify and discriminate between sustainable and unsustainable practices. In order for them to do so, they will need to have a greater understanding of interdependence of the economy, environment and social and cultural issues. Museums are in a position to play a vital agency role in this process by challenging people to envisage a sustainable future in which they will know what to aim for and be able to think through the consequences of their actions and behavior (MA National Council, 2002).

## 1.2 Problem Statement and Research Questions

When it comes to sustainability, it is not evident how museums in Amsterdam deal with sustainable development in general and environmental issues more specifically. It appears that actions are increasingly being taken in the museum industry to be more sustainable. However, it is not clear if museums in Amsterdam are aware of environmental issues and, more importantly what roles they play when it comes to sustainable development. In this respect, this research aims at:

*Exploring to what extent environmental concerns are featured in museums in Amsterdam, in order to provide insight in the role these museums play to be able to contribute to sustainable development.*

To be able to realize this aim, the following research question was formulated:

*To what extent are environmental concerns featured in museums in Amsterdam?*

Sub questions:

1. What is sustainable development according to museums in Amsterdam?
2. How is nature or the concern for the environment displayed in the collections of these museums?
3. To what extent do these museums educate their audience about environmental concerns?
4. How can these museums' current contributions to sustainable development be improved?

In the next chapter, the context, I will discuss the interrelations between museums and tourism and how museums can contribute to sustainable development in general and to environmental concerns more specifically. Thereafter, I will discuss in the literature review the ways in which museums can be more sustainable, and the importance of the different roles they can play. A description will also be given of current actions that museums in the Netherlands have already taken in order to be more sustainable. In the chapter that follows, the research method will be described; how museums were selected for this research, how the data was collected and how the critical discourse analysis was used as a research tool to analyze the data. The strengths and limits of the research will be presented as well. Hereafter the findings of the research will be discussed on three different areas, followed by a general conclusion of the findings as well as recommendations.

### 1.3 Trends and developments

In order to do research about sustainable development within museums in Amsterdam, it is important to know which developments have already been taken place in this area. Amsterdam consists of 51 museums of which the following have been mentioned in the news or on their website on their developments within sustainability. First a couple of developments in the Netherlands is described.

#### Sustainable Amsterdam, 2015

Recently the municipality of Amsterdam has published a document called Sustainable Amsterdam (2015) in which the agenda for renewable energy, clear air, a circular economy and a climate-resilient city can be found. In this document it is said that a more sustainable Amsterdam is seen as a starting point to develop the city and creating opportunities. Sustainability is seen as a motor for society and a driver of the economy (Municipality of Amsterdam, 2015)

The major issues that are wished to be achieve are related to climate change, air pollution and natural resource scarcity. It is said that goals are set for the foreseeable future, stating that the current generation needs to achieve these goals. This means cleaning up pollution and tackle wastage in the city.

Amsterdam has huge potential to tackle these obstacles. Through sustainable generation and energy conservation, together with all Amsterdam's inhabitants it is possible to reduce the total energy bill of the city by 10 per cent, which will boost the local economy with 180 million euros. By reducing the kilometers driven through the city by polluting vehicles and developing smarter logistics, air pollution can be decreased and traffic circulation should be made more efficient. A circular economy can be built by following pioneers who produce raw materials, rather than waste. Rooftop gardens will help Amsterdam be considerably better equipped to deal with costly torrential rains.

Although this Sustainability Agenda is not a definitive implementation program, it does formulate ambitions, goals and directions. Climate-neutral construction will be an essential determining factor, by going from 1 to 75% planned climate-neutral construction in the city. Encouraging clean vehicles and introducing environmental zones should help improve air quality in the city. Over the next four years, the percentage of waste that is to be separated needs to be doubled.

The role of the municipality in all this:

- Set clear standards and eliminate obstructive regulations
- Intervene when financial parties fail to fund promising initiatives and innovations
- Information and support must be available and accessible for Amsterdam citizens and organizations.
- Provide a platform for emerging pioneers.
- The municipal organization must transform an underachiever into a front runner.

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The ambitions, goals and direction have been set out in 5 transition pathways. It is said that 're-thinking' is of the essence for each transition pathway, to establish new ways of production, consumption and distribution in order to enhance sustainability.

The first 4 pathways concern the city of Amsterdam:

1. Renewable energy

The ambition is to generate 20% more energy than 2013 by constructing new wind turbines, facilitating a strong growth in solar energy systems and expanding the city's heating grid. The municipality also wants to enhance the sustainability of existing housing stock, by implementing energy saving measures within homes, businesses and social real estate, and by encouraging climate-neutral construction

2. Clean air

Instead of focusing on European standards, the focus will be placed on health. The real health effects will be examined on the individual Amsterdam inhabitant and on the reduction of soot emissions – a harmful substance for which no standards or limitations have so far been set. From 2025 onwards motorized traffic should be as clean and emission-free as possible. At a certain point, the municipality will regulate and enforce agreements through increasingly stringent environmental zones. The city will remain a front runner in terms of electric transport by increasing the number of public electric charging points to 4000.

3. Circular economy

Real transition to a circular economy requires the stimulation of industriousness, research and innovation. Significant improvements must be made in terms of running separate waste collection systems and waste recycling. By 2020, 65% of domestic waste should be separated for reuse.

4. A climate-resilient city

A climate adaptation is a collaborative challenge. The municipality will need to accept water management issues, but it can start with adapting the city to greater volumes of water now as preparing for dryer periods. It further needs to be explored what means to be climate resilient, what working arrangements this entails and how this can be incorporated into the workprocess.

5. The fifth pathway addresses the sustainability of the municipality's own operational management.

In 2025 the city will have reduced its CO<sub>2</sub> emissions by 45 % compared to 2012. Through sustainable procurement, on which the municipality spends approximately 1,5 billion euros, the municipality will contribute to the sustainability of production chains. The proportion of separate waste collection by municipal offices should furthermore be increased to 75% by 2025.

## De Plantage Amsterdam

The Plantage Amsterdam is a partnership between 18 cultural institutions in the eastern part of the city: the Appel arts center, the Architectural center ARCAM, Gassan Diamonds, the Hermitage Amsterdam, The Dutch of the golden age, Hortus Botanicus Amsterdam, the Jewish Cultural Quarter: Joods Historisch Museum/Hollandsche Schouwburg/Portugese Synagoge, Koninklijk Theater Carré, Micropia, Museum Het Rembrandthuis, National Opera & Ballet, Natura Artis Magistra, the Scheepvaartmuseum, Science Center NEMO, Tropenmuseum and the Dutch Resistance museum Amsterdam (Plantage Amsterdam, 2014).

These institutions have been working together since 2009 to promote the eastern part of the city as the Plantage Amsterdam, by undertaking marketing activities in a collaborative way. In 2010 the decision was made to cooperate towards sustainability, signing an agreement (covenant) with the municipality of Amsterdam in which common goals are set (Plantage Amsterdam, 2015). These goals are to decrease CO2 reduction with 3% each year, monitoring and sharing energy consumption numbers, cooperating in collective sustainable purchase, and sharing knowledge and information. The Plantage believes that working together makes these institutions stronger and increases brand awareness and accessibility of the neighborhood for national and international visitors. By profiling themselves as ‘The Cultural Garden of Amsterdam’, the Plantage is able to distinguish itself in the tourism market from other cultural institutions in the city, the country and internationally. The Plantage says to be an inspiring example in cultural cooperation and knowledge sharing (Plantage Amsterdam, 2015).

### Energy vision

Based on consumption records, a vision was developed on the best way to proceed to realize the goals. This common vision has led the institutions to collective sustainable purchase. The vision includes:

- Energy consumption to be structurally decreased
- Purchase of electricity by 2017 which is 100% generated by wind, water, sun or biomass, provided by suppliers who visibly practice CSR and dedicate at least 50% of their year investments to sustainably generated energy
- The intention to generate own sustainable energy where this is possible

### Sharing knowledge

Knowledge meetings are a central focus of the Plantage. Sharing knowledge alone already leads to costs savings. In the past year the technical facility departments and energy work groups of the institutions have met more than 40 times, which resulted in an overview of consumption numbers and gaining more insight.

### Cooperating with third parties

In the past years, meetings with 14 companies have been had to discuss innovation, cost savings and being more sustainable. Issues dealt with were:

- Waste

- Decrease tension
- Enlightenment
- Energy purchase
- Research
- WKO insallations
- Climate control
- Safety
- Hospitality

The year report further also provides the results achieved in 2013:

- Increase in visitors with 7%
- Decrease in electricity with 13%
- Decrease of gas emissions with 14%
- Decrease of CO2 emissions with 44%
- Costs saved about 300.000 euro

The plans for the future include:

1. Transportation
2. Waste disposal
3. Hospitality
4. ICT
5. Collective purchase strategy  
(Plantage Amsterdam, 2014)

## 2. Context

This research focuses on museums in Amsterdam and the extent to which environmental issues are dealt with. This chapter will provide a description of museum developments. This will include a short history of museums, their relationship to tourism and how they relate to environmental issues and sustainable development. This chapter should help understand the situation of museums and tourism, and their relation to environmental sustainability.

### 2.1 Museums

A museum can be defined as *“a non-profit making, permanent institution in the service of society and of its development, and open to the public, which acquires, conserves, researches, communicates and exhibits, for purposes of study, education and enjoyment, material evidence of people and their environment”*. (ICOM, 2007) According to the definition, a museum is a non-profit institution. This regards its operation, which is related to the governmental body of the museum and its financial responsibilities (Benediktsson, 2004).

The predecessors of the modern museum were the private and socially exclusive collections of Europe's aristocrats of rare or representative objects (Benediktsson, 2004). Some of the earliest museums were associated with knowledge creation and dissemination or were devoted to displaying captured treasures. The museum emerged from the private art collection of royalty and wealth buyers, to the public collection of history, anthropology, geography and technology (Barett & McManus, 2007).

During the 18<sup>th</sup> century, museum operations were shaped by the ideas of the Renaissance and Enlightenment (Benediktsson, 2004), while in the 19<sup>th</sup> century, museums were vital in the industrialization and colonial process (Barett & McManus, 2007). Used for educating and enlightening the general public, museums catalogued and presented socio-economic and technological changes in particular ways to audiences, displaying the wealth and curiosities of the colonies to citizens. These often had various and profound environmental and cultural impacts in the colonies and territories from which they were subtracted. (Barett & McManus, 2007). Museum collections consist of both tangible material or remains and intangible things like customs, folklores and traditions, displayed as material evidence of people and their environment. The selected material evidence of human activity, or the natural environment, accompanied by associated information, can be referred to as cultural heritage (Benediktsson, 2004).

Nowadays, museums have various obligations towards society. According to Benediktsson (2004) museums are facing multiple challenges such as proving their social value and the importance of their existence. For example, if museums are to be open workshops of delight and learning, they are required to have a close connection to their visitors and in doing so they offer a direct and useful service to the general public. Museums can also be effective political instruments, which can be used to control, confirm or challenge different ideas and beliefs. Museums can even be used as tools for self-reflection and self-recognition, to create and represent an individual's identity. For the general public museums can be defined as cultural

institutions for education and enjoyment, and in a commercial context it offers recreation, sociability, and experience which can be a learning, aesthetic, celebrative and an enchanting experience. The main challenge for museums is to find a balance between the conservation of their collections, the cultural heritage and the use of resources (Benediktson et al 2004).

According to Prentice (2001), museums are consumer resources, rather than agents for conservation. He says museums exist to offer experiences which are as authentic as possible, making use of objects (relics, items) with curatorial interpretation designed to inform, delight and provoke. Prentice argues that museums temper the authenticity of objects offered, due to removal of their original location, abstraction and interpretation. Therefore, museums can be seen as an early form of commodification in which they create access and understanding through their objects, conferring to them as rare and worthy of attention, conservation and celebration (Prentice, 2001). As non-profit institutions, receiving public funds, museums are under the direction of their communities. They belong to and provide a social service for the citizenry at large and they are seen as institutions of authority and keepers of the truth. This public credibility requires museums to follow a high standard of ethical conduct. Carefully crafted mission statements guide their decisions to adhere to their higher purpose of public service (Byers, 2008).

According to Burroughs (2012) museums not only have the responsibility to educate the public about the environment, but to serve as examples to the community. Museums have the ability and the chance to change the way people think about the natural world and in doing so enabling a shift in society's behavior towards resource conservation (Burroughs, 2012). There is a clear need for individual and collective experiences that encourages not only environmentally protective behaviors, but also shifts, values, beliefs and attitudes. Museums should encourage pro-environmental behavior, which is "any behavior that directly minimizes human-mediated threats to the natural environment, such as climate change and biodiversity loss" (Arbuthnott, 2014, p. 103). Museums can influence environmental knowledge, values, identity, affective responses to nature with thoughtfully created museum displays (Arbuthnott, 2014). Targeting cities through environmental education and conservation efforts is important here, as they have an enormous impact on pollution, development and society. Positive changes can be only made if the public sees the immediate effect of conservation strategies upon their own local communities. By showing them how certain actions can result in positive effects on the environment, museums have the ability to create this change in their communities. In addition, they should also point out why it is important, on both local and global level (Burroughs, 2012).

Black (2010) relates museums to the urban environment and claims that the best museums should inspire, excite, empower, give confidence and help individuals and communities to grow. Communities recognize strong institutions like museums as essential to a community's well-being, while a key element in helping communities understand their uniqueness is the 'sense-of-place' that can be conveyed through history museums and historic preservation. Museums can make a difference in people's lives, which means that they have to play a civil engagement role as a duty to the communities they serve and to those who fund them.

Museums can prove themselves relevant to public bodies, can help to build sustainable audiences and prevent the marginalization of museums within their localities (Black, 2010).

Museums do not only have obligations towards their own environment. By their nature and function, museums confront the multicultural dimensions of human cultures across time and space and in this they serve as platforms or neutral grounds for different cultures to meet on equal level. This means that their role within society also has a more global dimension and should aim to foster an informed appreciation of the rich and diverse world that is inherited and to preserve this inheritance (Benediktsson, 2004).

## 2.2 Sustainable development and culture

The most commonly used definition of sustainable development is given by the World Commission on Environment and Development (1987) and states “*Sustainable development is a process to meet the needs of the present without compromising the ability of future generations to meet their own needs*” (UNEP & WTO, 2005, p.8). It can be said that sustainable development is about finding viable ways for now and in the future to create a better life for all people (UNEP & WTO, 2005).

Since the definition proposed by the WCED, the concept of sustainable development has evolved in many ways. First through the plan of action called Agenda 21, which emerged from the UN Conference on Environment and Development in Rio in 1992, later on through the plan of implementation from the World Summit on Sustainable Development in Johannesburg in 2002. Here three dimensions or pillars of sustainable development are recognized: economic, social and environmental sustainability, which are in many ways interdependent and can be both mutually reinforcing or in competition:

- Economic sustainability is about generating prosperity at different levels of society making sure that the cost effectiveness of all economic activity is addressed. The focus is on enterprises, making sure that their activities are viable and that they can be maintained in the long term.
- Social sustainability is focused on respecting human rights and equal opportunities for all in society. Poverty alleviation is the main aim, making sure the distribution of benefits happens in an equal manner and on local communities and their quality of life, respecting different cultures and avoiding exploitation.
- Environmental sustainability is concerned with conserving and managing precious resources in terms of life support. The focus is on minimizing pollution of air, land and water and conserving biological diversity and natural heritage (UNEP & WTO, 2005).

In order to deliver sustainable development, it is important to strike a balance between these three pillars (UNEP & WTO, 2005).

Next to the three pillars of sustainability, the importance of culture within the sustainable development discussion seems to get more and more attention. Hawkes (2001) argues that cultural vitality is as essential to a healthy and sustainable society as social equity,

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environmental responsibility and economic viability (Hawkes, 2001). Culture frames people's relationship to others in their society and the world around them, including the natural environment and conditions people's behaviors. In achieving sustainability, culture should therefore be placed at the center of development strategies and should be integrated into development programmes at global and national levels (Duxbury & Gillette, 2007). Culture can be defined as "... *the set of distinctive spiritual, material, intellectual and emotional features of society or a social group, and that encompasses, in addition to art and literature, lifestyles, ways of living together, value systems, traditions and beliefs*" (Whitbread, 2012).

Based on this definition, Whitbread (2012) explains the importance of culture for sustainable development through the following:

- The importance of biological and cultural diversities, which are intrinsically and inextricably linked and together hold the key to sustainable development.
- The importance of culture at the heart of development policies, which means investing in the potential of local resources, knowledge, skills and materials to foster creativity and sustainable progress, in order to prevent the process of homogenization due to globalization.
- The importance of protecting local cultures in reconciliation with human rights, while respecting cultural diversity and the uniqueness of cultures.
- The importance of the 'softer' dimensions of development implemented in development programmes, such as local specificities, cultural identities and values, which are crucial for sustainability (Whitbread, 2012).

Next to these factors, culture can also be seen as a contributor to sustainable development in different ways. Whitbread (2012) expresses that the role of culture is truly major and irreplaceable in:

- creating green jobs,
- reducing poverty,
- making cities more sustainable,
- providing safe access to water and food,
- preserving the resources of oceans and forests and
- strengthening the resilience of communities in the face of disasters (Whitbread, 2012).

Duxbury and Gillette (2007) talk about the concept of cultural sustainability and define this concept as "*the ability to retain cultural identity, and to allow change to be guided in ways that are consistent with the cultural values of people*" (defined by the Sustainable Development Research Institute, 1998, p.1, Duxbury & Gillette, 2007, p. 4).

Cultural sustainability can be seen as:

- Sustainability of cultural capital: which can be defined as traditions and values, heritage and place, the arts, diversity and social history. The stock of cultural capital is what we inherit from past generations and what we will pass on to future generations. (Whitbread, 2012; Roseland et al, 2005)
- Sustainability of cultural resources in the philosophical sense: which means an increase overtime of a better quality of life (which can also be defined as a better knowledge of ourselves). (Whitbread, 2012; Pilotti & Rinaldin, 2004)
- Cultural development in a policy perspective is related to social policy and encompasses goals such as fostering social inclusion, cultural diversity, rural diversity, rural revitalization, public housing, health, ecological preservation and sustainable development (Whitbread, 2012).

### 2.3 (Cultural) Tourism, sustainability and museums

Tourism can be defined as *“the process, activities, and outcomes arising from the relationships and the interactions among tourists, tourism suppliers, host governments, host communities and surrounding environments that are involved in attracting and hosting of visitors”* (Benediktsson, 2004, p.12). One of the most important resources are tourism attractions, the main motivation for traveling, and which makes tourism a commercial and demand driven activity (Benediktsson, 2004).

The United Nations Environment Program and the World Tourism Organization (2005) state that tourism is in a special position in making contributions to sustainable development and its challenges. Tourism differs from other sectors in the fact that the consumer (the tourist) travels to the producer and the product, which leads to important and unique aspects of the relationship between tourism and sustainable development: The first aspect is the nature of tourism. This involves a considerable amount of both direct and indirect interaction between visitors, host communities and local environments. Another aspect is the fact that both visitors and hosts are made aware of environmental issues and differences between nations and cultures, which can affect attitudes and concerns for sustainability issues. Furthermore, the tourism industry depends on intact and clean environments, attractive natural areas, authentic historic and cultural traditions and welcoming hosts, which visitors are continuously seeking to experience. Recognizing the importance of tourism for sustainable development is a huge responsibility of all those involved in the industry (UNEP & WTO, 2005).

Thus, important within tourism planning and management, is the ideology of a responsible use of resources and a sustainable tourism development. This addresses the use of cultural heritage as a resource for tourism (Benediktsson, 2004). As said before, culture is now being recognized as having a separate, distinct and integral role in sustainable development and can be defined in terms of cultural capital, as traditions and values, heritage and place, the arts, diversity and social history. Cultural capital is both the tangible and intangible material that we inherit from past generations, and which will be passed onto future generations (Duxbury & Gillette, 2007).

Tourism that markets cultural products to tourists as cultural experiences is referred to as cultural tourism. Cultural tourism can be defined as “*tourism constructed, proffered and consumed, implicitly or explicitly as cultural appreciation, either as experiences or schematic knowledge gaining*” (Prentice, 2007, p.8). Initially, cultural tourism was referred to the people who travelled specifically to gain a deeper understanding of the culture or heritage of a destination (Benediktsson, 2004). Now it is as popular as beach- and poolside tourism and represents a major tourism market. Popular cultural tourism is essentially experiential, the accumulation of experiences and it is driven more by the desire for understanding as insight rather than for understanding as formal learning (Prentice, 2007). It enables people to gain deeper knowledge on the society that is visited. It can be said that one visits for further self-recognition and understanding. For the host society, cultural tourism broadens the local cultural horizon and is important for promoting cultural relations and international cooperation. For this reason, tourism is often taken into account in developing regions’ cultural policies, to promote a certain image of the place. This development is important for strengthening the regions’ infrastructure, reinforcing the preservation of heritage and traditions, and strengthening the local self-identity (Benediktsson, 2004).

Both museum and tourism businesses contribute to society by providing and promoting experience, education, recreation and developing cross cultural-understanding (Benediktsson, 2004). Museums today are immersed in a wider commodification of culture. Initially their traditional focus upon the objects they collect was seen as their distinctive contribution to human understandings. Cultural tourism is often experiential and embraces both object-centered appreciation as consumption, including other forms of insight-gaining, conversation, music and dance for example. This form of (cultural) tourism offers the real and direct experience, the evocation of the authentic to its consumers. It is also often non-participative and involves insight through observing and imagining at a place, rather than communal doing. It is furthermore not always exotic, it can also be offered to a domestic market (Prentice, 2001).

In general museums have been required to become more market-driven and innovative organizations, responsible for satisfying the needs of an expanding array of salient stakeholder groups. This resulted in non-profit museums becoming more similar to for-profit organizations in competing for market share, customer patronage and long term economic and social sustainability. The focus on sustainability mirrors the increasing concerns and priorities of museum stakeholders. Funding bodies may require evidence of sustainability practices in relation to resource allocation. Accrediting bodies may require adherence to both government and industry regulations and benchmarks. Visitors as consumers may increasingly be expecting organizations to be conscious of their environmental responsibility (Wickham & Lehman, 2015).

## 2.4 Environmental issues and museums

Humans are utilizing the earth's resources faster than it can replenish them, threatening the entire planet (Burroughs 2012). The issues that threaten sustainability are:

- Global warming, also known as the greenhouse effect, caused by the excessive emission of carbon dioxide, and the rise of global temperatures;
- The rapid process of deforestation, increasing carbon emission and reducing the earth's carbon-absorbing capacity, causing soil erosion and land desertification;
- The amount of toxic chemicals wastes emitted to the air, involving the disposal of deadly gases, which are directly harmful to human health and human development,
- The depletion of the earth's ozone layer, caused by the emission of chlorine and bromine, which constitutes a formidable ecological threat; and
- The depletion of non-renewable resources, caused by the diminishing of cultivable land which also effects fresh air and clean water.

These environmental challenges to sustainable development reveal the implication of the critical relationship between environment and development and has led to the emergence of sustainable development that pays special attention to environmental concerns (Burroughs, 2012; Haque, 2000).

For humans to survive on this planet, we must realize the planet's current environmental state, preserve flora and fauna upon it and act to conserve our resources by living in harmony with nature. A more sustainable society needs to be created, one in which humans can provide long-term maintenance and stewardship of the environment. For this to happen, a change in practices and attitudes is required. Museums can encourage a shift in a society's actions to one of environmentally sustainable practices (Burroughs, 2012).

Traditionally, museums have been windows to the past and a key objective of their activities is the visual or experiential feast, engaging with current issues. The imperative of climate change provides a key opportunity for museums to become more socially relevant, as a place to see and read about things and to engage meaningfully in the most vital challenge of our time. Museums can play a central role in addressing the fundamental question of the excessive size of humanity's footprint on the face of the earth (Hebda, 2007). They have the potential to create a personal connection between the communities within its boundaries and can become agents of change if they utilize their resources efficiently. They also have the ability to combat environmental illiteracy and empathy, which involves the many people unfamiliar with natural history, due to their minimal interaction with and education about the natural world. This results in a lack of empathy with the environment and they will need to learn more about it (Burroughs, 2012).

Museums are often responsible for promoting scientific and cultural advancement and have been influential in the promulgation of ideas about nature. The 19<sup>th</sup> century brought a growth in the number of natural history museums and the expansion of individual museums, both reflected and shaped a concern with nature and questions about human existence. Scientific inquiry led to new understandings of nature; concepts in areas such as biodiversity, climate

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change and ecosystems were incorporated into research and exhibitions in natural history museums and used as a theme to attract visitors. Three examples of the diversity of environmental reconstructions and representations in contemporary museums in Australia provide snapshots of the changing relationship between museums and nature overtime and highlight the complexities of museum-nature interactions (Barrett & McManus, 2007):

- The exhibition *Biodiversity* in the Australian Museum in Sydney, integrated science and popular environmental concerns and embodied four dominant discourses in contemporary environmental thought: the sense of loss, the sense of ongoing vulnerability, and the urgency of a race against time to both slow the rate of loss and to repair damaged environments. This display was based on the principles of scientific ecology (rather than biology) and incorporated concern about the importance of biodiversity, the vulnerability of it and the loss of it in various parts of the world.
- The exhibition *Ecologic* in the Powerhouse Museum in Sydney is concerned with the way the world is used by humans and presented the environment as something that is part of the daily lives of people in their domestic space, rather than being presented as surroundings or as a collection of curiosities. The exhibition also highlights the importance of consumption, where people are connected to nature through their lifestyles. Information about sustainable living and the way the world is used by humans is displayed by presenting new ideas and technologies that can reduce our individual and collective impact on the planet. Interactive displays on issues such as hot water provision in the dwelling are advocacy-oriented in informing people of more sustainable options.
- The environmental displays at the National Museum of Australia show the importance of the connection of the environment with people. The display presents key themes such as the variation in Australian environments, the diversity of environmental ideas and beliefs and the heterogeneity of the Australian population. Also other crucial themes are included, such as human reliance on the environment, the belief that the actions of environmentalists are preserving the environment for future generations and by showing respect for animals, people are respecting themselves (Barrett & McManus, 2007).

Museums are now part of a more interdisciplinary study of a disordered, self-organizing natural world in which our species is one of many co-dependent actors (Barrett & McManus, 2007). The relationships between museums and the environment are negotiated processes and outcomes, which are influenced by ideas, individuals, the mandate of the museum, perceptions of audience desires, museum culture, politics and other factors, varying between institutions (MA, National Council, 2002). Museums are in a position to play a vital agency role by challenging people to envisage a sustainable future in which they will know what to aim for and be able to think through the consequences of their actions and behavior. It's important for the broad community to be able to identify and discriminate between sustainable and unsustainable practices. In order for them to do so, they will need to have a greater understanding of interdependence of the economy, environment and social and cultural issues (MA, National Council, 2002).

People hesitant to make effective changes and who are resistant to believe in the urgency of potentially catastrophic environmental changes first need to be introduced with the facts they can identify with, in order to convince them to change. This resistance to environmental education and conservation can be tackled by museums by shifting the focus. Instead of telling people to uproot their way of life, they should be helped to learn how to live in tune with nature. Only by changing the way society thinks about conservation, will it be able to shift to a more environmentally sustainable one. The immersive quality of exhibitions and collections form the best place to foster this ideal (Burroughs, 2012). Through exhibits about nature and emerging environmental issues, natural history museums can influence connection to, as well as knowledge about, nature. “Experiences that foster cognitive or emotional connections with nature may provide one basis for motivating increased pro-environmental behavior” (Arbutnott et al, 2014, p.103). Their research shows that increasing contact with nature and even virtual nature, can result in an increase in nature connection, which also increases the motivation for people to engage in pro-environmental behavior. Natural history museums have proven to “provide a public setting in which people are more likely to be receptive to information about environmental concerns and to reflect on options for personal and collective action” (Arbutnott et al, 2014, p 117).

### 3. Literature Review

This chapter will describe the different conceptions of sustainable development in relation to museums. It is furthermore explained how museums can contribute to the different overarching aspects of sustainability. This chapter includes a literature review that elaborates on the ways in which museums can make a difference and what roles they can play in raising awareness for environmental issues.

#### 3.1 Sustainable development

Sustainable development has many different conceptions. According to Ospina (2000), sustainable development can best be understood as an evocative vision rather than a neatly defined concept. He believes that the concept is primarily a matter of culture, which is connected with values people cherish and the ways in which they perceive their relationships with others. New approaches need to be developed to relations between peoples and a new understanding of habitat, which is the foundation and nourishing source of human existence. As humans and the environment are interdependent, sustainable development requires the refusal of any single development or environmental objective that is harmful to others. Essential in sustainable development is acknowledging the relationship between human needs and the natural environment in which humanity is placed in the forefront (Ospina, 2000).

Sustainability can also be seen as a set of structures and processes that build the civil commons. Developed by John McMurtry (2001), the civil commons is based on values that promote life first and foremost. Rather than being competitive, the civil commons is co-operative in its engagement with the world and enables access of all members of a community to life goods. These life goods range from nutritious food, clean water and adequate shelter and education, healthcare, open spaces and a safe workplace. The community that gains access includes the local, the national and the global community. examples of the civil commons are public education, universal healthcare, parks, environmental legislation, health and safety regulations, and public broadcasting. Being at the heart of sustainability, the civil commons works from a life values perspective rather than a money-values perspective, that includes structures as government, co-operatives, educational institutions as well as corporations. It also includes processes such as dynamic interactions as decision-making, teaching and researching (Sumner, 2005; McMurty, 2001).

The Museums Association in London (2008) has issued a discussion paper to encourage museums to think about sustainability. According to the MA, their code of Ethics states that museums 'enhance the quality of life of everyone, both today and in the future', in which they balance the interests of different generations. There is a duty to respect the contributions of past generations, benefactors, communities and creators of the objects which museums now safeguard, as well as having the responsibility to provide access to current and future generations. It is believed that the concept of sustainability has the potential to help museums improve their service to society, making decisions about collection management, securing long-term financial stability and serving future generations appropriately (MA London, 2008).

Worts (1998) believes that a sustainable future for the world can only happen through a conscious participation in the issues confronting the global population. For people to be able to gain a functional and responsible perspective on these issues, they will need to have a good grounding in local, regional, national and community dynamics. Museums need to see their main objectives in relationship to using symbolic and historic objects in facilitating healthy community dynamics. Only then will it be possible for them to reinvent themselves in a much more relevant form. For this to take place, a couple of changes are necessary. Most museums will need a serious diversification in their public communication modes. Exhibitions have the potential to provide certain types of experiences. For museums that have already embraced the interactive forum-based exhibit experience, there is a commitment to engage visitors in a knowledge-building process that negotiates beliefs, rather than declaring them. Exhibitions need to be powerful and convenient enough to foster an integrated, ongoing and frequent-contact relationship between museum and the public. In order for museums to fulfil this integrated role, they need to re-evaluate the place of exhibits in their public programming activities. Furthermore, it is important that people need to feel that they are connected to the world they live in, instead of being helpless receivers of information. This calls for a serious expansion of alternative communication vehicles (community satellite programming, television, radio, internet, popular press, schools, etc). This change of direction is seen as a revolution for museums (Worts, 1998).

An example of a museum exhibit about climate change is provided by Hebda (2007), who attempted to enlighten his museum audience about these issues in the Royal British Columbia Museum. The aim was to integrate two solitudes of human and natural history in a compelling manner. He states that this is a central challenge in the sustainability debate, because of the progressive separation of humanity and nature, which is at the core of the problem that society is facing today. The exhibit was to help the visitor to develop a background context about climate and weather and how they influence the world. He claims that socially relevant museums need to be more than simply a reflection or summary of what is known at the time, but instead include fresh material, new discoveries and new ways of seeing things. The exhibit itself needs to be original to become newsworthy and to attract attention to the subject. What made the exhibit powerful and influential, was its mapping of future conditions, future temperatures, precipitation and the distribution of selected species and economic elements such as heating and cooling costs. The exhibit and maps were viewed by more than a million people and appeared to be effective in changing people's minds and sowing seeds of unease about the future and our role in shaping that future (Hebda, 2007).

### **3.2 Museums' contribution to sustainable development**

Museums furthermore have great potential to contribute to the three overarching aspects of sustainability: the economic, social and environmental pillars. According to Merriman (2008), the three dimensions of sustainability overlap and mutually influence one another in, what he calls, a dynamic museum eco-system. "A truly sustainable museum does not only address one area, but sees all of these areas as interwoven in an overall approach to sustainability" (Merriman, 2008, p.10). A museum can be socially sustainable through working in dialogue with its communities, which will enable it to be more economically sustainable through increased perception of value. By taking environmental sustainability seriously, with its implications of equity, the museum will be more likely to address issues of social and economic sustainability. The mutually enforcing interaction of the commitment of museum's governing body and the quality of leadership displayed by its direct and senior staff will determine whether a museum is sustainable or unsustainable (Merrimann, 2008).

#### Economic sustainability

When it comes to economic sustainability, museums are required to take the long view. Even though museums have proved to be adaptable and resilient, forced museum closures can lead to dispersal or complete loss of collections, expertise, knowledge, information and services. Future funding can be uncertain and unpredictable, which has resulted in many museums diversifying their sources of income to avoid over-reliance on a single source of public funding. There is increasing potential of private generosity, complemented with public and charitable funding, sponsorship and earned income, or by operating as social enterprises. However, as sustainability requires a long-term approach, museums have to step away from short-term thinking about money due to uncertainty about funding, and instead focus on a longer-term vision around purpose. To be sustainable means to be efficient with a conscience. In order to achieve the maximum possible impact, it is key for sustainable operation to use the available resources efficiently. Close partnerships with other museums or other types of organizations might be best to achieve economic sustainability. It might also be a strength to address financial strains on the arts sector as a whole, rather than on an individual organization basis (MA, 2008).

According to Friedman (2007), sustainability will be a great challenge for many cultural institutions. The sustainability of museums and other cultural institutions is challenged by changing patterns of government, corporate and individual support, new demographics and new ways of creating, preserving and sharing information. After a meeting in 2001 in Bristol, it was concluded that the financial aspect of an institutions sustainability is one out of three. Although lack of money is often the first symptom and the final straw of a sustainability crises, being sustainable is not just a matter of money. Also intellectual and social sustainability is of importance. For this chapter, only the financial aspect is relevant. Financial sustainability on the surface is straightforward and involves equal measurements of income and expenses and reserving capital to sustain occasional unexpected costs. However, secured financial health must not be at the expense of the other two dimension (Friedman, 2007).

## Social sustainability

Museums have always contributed to society as part of the public realm, by helping to create a sense of place. To be able to increase their social sustainability, museums need to deepen and diversify their relationships with their local communities and audiences, aiming to reflect the diversity of society in all that they do. With a long-term attitude to audiences, museums need to find ways to maintain relationships with new audiences, beyond the limits of a short-term audience development projects. By paying more careful attention and becoming more responsive to peoples' interests and needs, museums can take fuller account of market research and specifically audience research that is fully integrated into the program-producing cycles of museums. What might also be important for museums to be sustainable and to have a deeper social role, is for them to return to being learning hubs rather than destination attractions. Being more socially responsible is one of the keys to long-term sustainability. Being socially responsible has been described as organizations' efforts to improve society and undo harm where harm has been done (MA, 2008).

Museums can have great potential to contribute to creating sustainable communities: places in which people want to live, now and in the future, that embody the principles of sustainable development at the local level. This would include a strong local culture and other shared community activities. To be able to do so, museums need to have fundamental changes in their mandates, activities and organizational structures. This would create progressive museums that have an ambition to rebuild depleted stocks of human and social capital through interactive, community-led activities that will strengthen societies. Museums that continue to operate mainly as object-centered tourist attractions, may have the best option to highlight the historical and contemporary examples of socio-economic and ecological sustainability (MA, 2008).

In Friedman's report (2007) social sustainability is also one of the aspects for cultural institutions, determined by the situation of the organization within the broader society. This contains its audience, funders, colleagues and other stakeholders. A strong socially sustainable institution is deeply embedded in and appreciated by its community. It involves the perception of the broader community about the institution and how they support the organization in both good and bad times (Friedman, 2007).

According to Black (2010) there are five core principles that would enable urban history museums (and others) to actively support civil engagement:

- As memory institutions, museums can collect, conserve, document and represent the cultures and life experiences of the people in their localities and can help to create an inclusive civil environment.
- As learning institutions, museums can inform individuals and help to develop informed communities able to contribute positively to decision making about their lives.
- As social institutions, museums can reach out to welcome, support and represent the different voices of the community they serve in partnership as equals.

- As democratic institutions, museums can actively promote civil dialogue and reflexive participation in civil society.
- As responsive institutions, museums can work to change their organization and culture to meet the needs of contemporary society (Black, 2010).

### Environmental sustainability

A primary role of museums' stewardship of their collections is caring about the environment. If museums claim to be serving the best interests of future generations, they cannot have negative impacts on the environment that will make it harder for future generations to live securely on the planet or even enjoy museum collections. Museums need to increase their awareness of climate change, which is the most urgent aspect of sustainability (MA, 2008).

Merriman (2008) divides environmental sustainability into three sub areas:

- Ecology, habitat, biodiversity and wilderness;
- Air and water quality (pollution);
- Conservation, preservation and management of renewable and non-renewable resources.

For a museum to be environmentally sustainable, it should for example use construction materials from sustainable resources, use low energy air conditioning systems, and succeed in preserving and managing their collections effectively (Merriman, 2008).

According to Hebda (2007), the first step is practicing sustainability as an institution. The Royal British Columbia museum for example ceased using endangered tropical woods in its buildings and exhibits. The museum further joined with their major regional power utility to reduce electrical power consumption and educate the public of how this is done. The second step is developing innovative public programs around the theme of sustainability. As museum collections hold the key to understanding trends and change, the museum can use its collections for example to map shifts in the distribution of plant and animal species, documenting the lack of sustainability. The third step is to collaborate widely, with other agencies and organizations with staff and expertise, as sustainability mostly falls outside the traditional expertise of most museums. Most importantly, museums should strive to bring together the skills and knowledge of scholars in the human and natural sciences with museum interpreters, designers and crafts people. "The challenge is to direct people's thoughts toward a consideration of our unsustainable ways of life and an exploration of the options". (Hebda, 2007, p. 335).

When it comes to environmental and social sustainability, some museum-specific implications are considered for museums to act as models of good practice, in collection management, and museums' potential role in raising public awareness. This means that museums can contribute to sustainability in three different areas: operations, collections and education (MA National Council, 2002). The following chapter will elaborate on these three areas.

### 3.2.1 Operations

According to MA National Council (2002) museums can play a role as organizations in their own right. By adhering to sustainable practices in the way they undertake their own operations in activities, management of their resources, decision making and policy development, they can serve as models of good practice. By doing so, museums will be able to contribute to environmental sustainability in a variety of ways (MA, National Council, 2002).

- Energy efficiency

Museums need to increase their awareness of climate change, which is the most urgent aspect of sustainability. The most immediate way to address this is to reduce energy consumption. It is therefore important for museums to learn how to maintain conditions for collection preservations, with minimal dependence on the use of energy. This can be done by primarily regulating heat and humidity by controlling natural ventilation and improving the insulation of museum buildings. (MA London, 2008). The requirements of public buildings to demonstrate how energy efficient they are, are pressuring museums to improve their energy efficiency and take control of their energy use. Not only is reducing energy use good for the environment, improving and better managing the building is generally better and cheaper than installing wind turbines or solar panels to generate more energy. Staff understanding of energy consumption is furthermore an essential first step to improve facilities management.

- Considering environmental impacts

Another aspect museums will want to reduce is waste and consider the environmental impact of other resources they consume, such as exhibition and building materials, water and paper (MA London, 2008). By working together with other museums, they can use their joint buying power to persuade manufacturers of museum specific products and contractors to be more environmentally friendly. Museums can also consider promoting green transport alternatives, new models of service delivery, offer alternatives to visiting and virtual museum services.

- Green team

It is also possible for museums to establish sustainability in their operations by forming a “green team”. Composed of motivated employees, the green team promotes sustainable choices within their organization and is responsible for developing and communicating green practices among the staff (Byers, 2008).

- Construction of the building

Within the construction of the building of museums, use can be made of “*sustainable design*”. Sustainable design is derived from systems thinking and strives to think toward closed-loop systems that are restorative, dynamic and flexible, rather than extractive and disposable systems that are energy intensive, resource inefficient and toxic. “Sustainable design demands

that every material and process be questioned from the perspective of their impact on ecological and human health” (Byers, 2008: 35).

Buildings that conserve natural resources and energy through the efficient and intelligent use of energy, water, materials and building site, can be called “*green buildings*”. Green buildings employ sustainable design and features can be: incorporating nature into their design, using daylight for illumination, using lower toxicity materials and enhancing indoor quality through efficient ventilation, which in turn affects the productivity and health of human occupants through the quality of its air, lighting, temperature and acoustics (Byers, 2008).

### Green museums

Museums which incorporate sustainability into their operations and programming are known in the museum field as “*green museums*”. These museums are organizations which are engaged in green business practices, eco-friendly facility management and sustainable educational programming (Byers, 2008). It is a recent trend in museum management, earning great interest among the professional community. Next to museum professional conferences being the site of discussion about green museums (like the 2008 American Association of Museums Annual Meeting and Expo), there are also other professional associations developing programming and regulations concerning sustainability. For example, the California Association of Museums has a Green Museum Initiative that aims to inspire state museums to adopt sustainable practices. It is even believed by some scholars that sustainability will become a required museum practice and condition for accreditation (Byers, 2008).

Sala & Gallo (2007) provide a good example of the above mentioned possibilities integrated in museum operations. Their case study, produced showcases of energy efficient and sustainable museum design, by doing an exemplary pilot project for the restoration of historical museums. Their first intention was to demonstrate that an energy efficient and sustainable museum building is fully able to meet the architectural, function, comfort, control and safety requirements. The main objective of the project however, was to apply and test new and innovative technologies in museums. The goals were achieving total energy savings over 35% and reduce CO<sub>2</sub> emissions over 50%. This would directly contribute to the preservation of European cultural heritage and to the acceptance of innovative and renewable technologies in public buildings. Their report provides a direct guidance for design professionals and museum authorities, complete with architectural and engineering examples. With this they wish to set a new standard for energy consumption in museum buildings (Sala & Gallo, 2007).

### 3.2.2 Collections

Sustainable development and management of natural and cultural heritage collections is another role of museums, which are considered to be important national assets and a legacy for future generations. Museums need to collect, conserve and document with long-term obligations and liabilities in mind (MA, National Council, 2002).

A primary role of museums' stewardship of their collections is caring about the environment: collections are to be maintained in perpetuity, which renders the idea of sustainability fundamental to institutional missions (AAM & PIC, 2013). If museums claim to be serving the best interests of future generations, they cannot have negative impacts on the environment that will make it harder for future generations to live securely on the planet or even enjoy museum collections. Environmental sustainability within museum facilities might be the largest shared category of daily sustainability for the museum sector. Museums need to be encouraged and share with each other their specific and unique experiences of implementing day-to-day sustainability (MA London, 2008).

Historical, cultural and traditional objects are important assets and legacies for future generations, that need to be conserved and documented with long-term obligations and liabilities. Collection-care standards and the way they are interpreted need to be reviewed, so that more objects could be made available to a wider range of people, using less energy and at lower costs. This could be done through flexible loan agreements and more appropriate standards, which could have social, environmental and economic benefits, that may outweigh any potential increased deterioration in the condition of the objects. (MA London, 2008).

In terms of being environmentally friendly within the collection museums can take the following actions:

- Reduce energy consumption: Museums need to learn to maintain conditions for collective preservation without excessively depending on the use of energy
  - Review collection-care standards: Flexible loan agreements and more appropriate standards would mean that more objects could be made available to a wider range of people. The environmental and economic benefits that this brings, might outweigh any potential increased deterioration in the condition of objects.
  - Reduce waste: Museums will also want to reduce waste and consider the environmental impact of other resources that they consume, in terms of exhibition and building materials, water and paper. In the procurement and use, museums can work together in joint buying power to persuade manufacturers of museum-specific products and contractors to be more environmentally friendly (MA London, 2008).
- Sustainable collection management

According to Merriman (2008), museums' reason for existence has been to collect objects and specimens for study and instruction in the present, and to preserve them for the future. It has come to the attention that the scale of museum collections has become an increasing problem, with relatively few museums knowing precisely what they hold in their collections. Even

though museums have worked hard in the last couple decades to transform their image into forward-looking engines of social engagements and agents of change, long-term and rather intractable issues around collection management have become unfavorable. This resulted in discussions about the issue of disposal from museum collections as a means of bringing their management under control, while still allowing museums to collect in order to reflect changes in society (Merriman, 2008).

The museum profession has argued for decades that there should be a strong presumption against disposal of collections, as museums holds the material on behalf of the public. Museums need to address the collecting of intangible heritage, objects that degrade, a wider variety of artworks, and more of the typical and every day. However, at the same time, too many collections are not displayed, published, used for research or sometimes even understood. Merriman argues that museums are continuing to collect at a significant rate and disposal is not being used as a collections management tool. Amongst the collection managers and senior museum staff he interviewed, there was almost universal agreement that continued indefinite expansion of museum collections was not a realistic option, especially with ongoing difficulties with documentation, conservation and adequate storage of existing collections. The great majority of museums is facing a collection management problem that is only increased by continuously adding to the collections in the numerical terms. There is an apparent absence of any clear strategy identifying the means by which museums might close the widening gulf between the needs of collection management and the resources required to meet those needs (Merriman, 2008).

Complex notions of sustainability allow for some managed growth, particularly when collections management is brought under greater control. Continued expansion can be tolerated, as long as a path toward sustainability is followed. Museums can therefore be able to have a sustainable future, where collections are effectively housed and documented and sustainable growth of collections is accepted as part of the mission. This path begins with a fully strategic approach to collections management, including programs of community engagement, documentation, storage improvement, acquisition and disposal. Museums are faced with the challenge to see museum collections not as inalienable assemblages passed on from their predecessors, but as dynamic resources. These resources can be re-worked to suit contemporary and future needs. By doing so, museums will be able to pass on a sustainable legacy to the future. Curators and managers need to ascribe value and significance to collections to be able to allow sustainable development. (Merriman, 2008).

- Exhibits

According to Arbuthnott and others (2014), museums have been arranging and organizing artifacts in different ways to reflect chronologies or scientific classifications. In order to focus on the process of evolution, climate change and the loss of biodiversity, natural history museums use a combination of selected specimens, dioramas and interactive displays. In doing so they provide virtual nature experiences and contribute to a sense of place attachment that may be an important predictor of pro-environmental behavior. Pro-environmental behavior, which, as said before is human behavior that minimizes threats to the natural

environment, can also be influenced by the steps museums are increasingly taking to foster learning that gives rise to sustainable cultural systems, to enhance their social relevance. Pro-environmental behavior is associated with how individuals view their relationship with the natural world, their connection with nature. A basis for motivating increased pro-environmental behavior is experiences that foster cognitive or emotional connections with nature. Exhibits about nature and environmental issues have proven to increase the connection from individuals to nature as well as their knowledge about it. Research also indicated that contact with nature appears to have a significant impact on health and well-being of individuals. Even virtual experiences presented by nature videos influence the well-being of an individual in a similar way as actual nature contact, although this may not be as powerful. It is therefore important to remember that “a way to increase pro-environmental behavior is to target educational and persuasive interventions to individuals who are highly connected with nature” (Arbuthnott et. al, 2014, p. 116).

### Art as cultural action

Arts are the primary language through which meaning is discovered, invented and contested. Within the process of culture, art can be described as that aspect of cultural action in which creativity and imagination are the key drivers, where meaning and community are intuitive, non-lateral, unpredictable and even irrational. Creative imagination can be unleashed, which can bring about extraordinary manifestations of vision and purpose. All humans are creative and have a right, a responsibility and a desire to be actively involved in making their own culture. Participatory arts is the practice that embodies this principle. It describes empowered and hands-on community involvement in the above mentioned processes (Hawkes, 2002).

Based on these assumptions, Hawkes (2002) claims on one hand that it is a basic democratic right for every community to have access to the resources that enables them to make art, to exercise their creativity and to make and express their own meanings. On the other hand he believes that participatory arts is an invaluable instrumental tool in the process of democratic governance, in the development of dynamic social communications, in the delivery of public services and in the achievement of a wide range of social objectives, including the building of community. Therefore a cultural perspective should be introduced into the public policy making crucible. The current tri-ocular perspective (environmental, social and economic) should be complemented with this fourth perspective, which takes into account the sources, the nature and the implications of the values that underpin action. With this extra perspective the conscious presence of values in the policy development and evaluation processes would be normalized (Hawkes, 2002).

### Green exhibits

Towards the audience, museums have the possibility to communicate sustainability through the content and design of their exhibitions (Byers, 2008). Exhibits can be green because of the topic they represent, these are subjects related to sustainability such as the natural environment, conservation and ways that humans use nature.

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Exhibits can also be green in being constructed using sustainable design methods and materials (which has been mentioned above). Sustainable design has the potential to transform our everyday lives, by emphasizing responsible and equitable use of resources and linking environmental with social justice. It has the potential to redirect society towards a shift that derives from and speaks to a more widespread desire to find socially and environmentally responsible and thus sustainable ways of living and working. Contemporary artists have also dealt with this impulse to build a more sustainable future in the travelling exhibition *Beyond Green*. This exhibition “calls attention to a florescence of art making that resonates with the considerations at the heart of sustainable design” (Smith, 2008, p.13 by Byers, 2008). Environmental concerns are part of the mix of these artists, although they do not have the desire to be labeled as “eco” or “green” or “sustainable” artists. Working in an expanded field in which art, activism and design are blended to varying degrees, this exhibition focuses on art that uses aspects of sustainable design to metaphoric, practice, speculative, ironic and playful ends (Byers, 2008; Smith, 2008).

Next to being green and making use of sustainable design, museums can also use the theory of cradle to cradle design for exhibits. As opposed to the industrial linear infrastructure, where products are designed for a lifetime with a definite end, the cradle to cradle design asserts that waste can be eliminated by design, as the material’s use beyond the immediate need is considered during the design process, leaving products to have a continuous lifetime (Byers, 2008).

### Ecological Art

Museums can also make use of art expressions in which the audience can be informed and be made aware of the need for re-appreciation of our environment. ‘Environmental art’, which can be seen as an umbrella term to encompass various types of “green” art such as eco- or ecological art, land art, earth art, earth works, art in nature, and other less common terms. One form of environmental art is ecological art, which may be useful for museums to integrate in their expressions towards the audience.

According to van Herpen (2005), environmental art can be defined as ‘art that helps improve our relationship with the natural world’ and involves collaborations between artists and others, such as scientists, educators and community groups.

Environmental art can be characterized as:

- Interprets nature, creating art works that inform use about nature and its processes, or about environmental problems we face
- Is concerned with environmental forces and materials, creating art works affected or powered by wind, lightning, even earthquakes
- Re-envisions our relationship to nature, proposing through their work new ways for us to co-exist with our environment
- Reclaims and remediates damaged environments, restoring eco-systems in artistic and often aesthetic ways (van Herpen, 2005)

Van Herpen defines ecological art as:

“Ecological art has the intention to improve the relationship between man and nature; art and intention fall together.”

Ecological art is a contemporary art movement which addresses environmental issues and often involves collaboration, restoration and frequently has a more eco-friendly approach and methodology (van Herpen, 2005). Ecological artists increasingly acquire influence on the re-appreciation of our environment, both nationwide as in urban areas. With ecological art, artists seem to be able to have an effectual influence in social attitude towards nature and environment, functioning as a mediator between man and nature, science and mystique. The relationship with nature is considered to be a fundamental way of being in which living organisms (plants) are not only used as medium, but as well as message and as subject. In doing so, ecological art changes the interpretation of these materials; nature is no longer seen as an opponent of culture, but as a complex of processes, which we are part of (van Herpen, 2005). Plants are understood as symbol for the organic dynamics and the complexity of the interconnected living communities of organisms. They are also seen as a symbol for fertility, edible crops are seen as a symbol for continuity and prosperity, and fruit is seen as a symbol for abundance and trees as a powerful symbol of life.

### **3.2.3 Education**

#### Museums and education for sustainable development

The United Kingdom Council for Environmental Education provides a basic definition for ESD that takes the Brundtland Commission definition of SD and makes it the goal of education:

*“Education for sustainable development enables people to develop the knowledge, values and skills to participate in decisions about the way we do things individually and collectively, both locally and globally, that will improve the quality of life now, without damaging the planet for the future”* (Landorf, Doscher & Rocco, 2008, p.225).

The MA National Council (2002) states that education for sustainability is vital, referring to the 1992 United Nations Conference on Environment and Development at the Rio Earth Summit, which was the first wider issue of public education for sustainability. Agenda 21 was the action plan that set out broad proposals for reorienting public education, awareness and training towards sustainable development. National strategies were to be initiated by all countries that would increase public awareness of sustainability and promote training and capacity building to move society towards a future where the environment, society and economy are in balance. The council further emphasizes the importance for museums within education when it comes to sustainable development. The broad community should be able to identify and discriminate between sustainable and unsustainable practices. In order to do so, they will need to have a greater understanding of the interdependence of the economy, environment, and social and cultural issues. Museums are in a position to play a vital agency role in this process by challenging people to envisage “a sustainable future in which they will

know what to aim for and be able to think through the consequences of their actions and behavior” (MA National Council, 2002).

It is said that even though the world at large is seriously concerned about environment, population growth and climate change, little improvement has been made in the well-being of the average person living on earth. Besides this, in many countries the gap between rich and poor has grown considerably. Education is seen as a key transformative factor in the improvement of the environment and our future sustainability. In order to develop coherent policies and practice for education for sustainable development (ESD), educators everywhere must be able to understand the meaning of ESD and its component concepts, articulate the values inherent in those concepts and identify consequent, progressive educational practices. Research has shown that basic education is essential to a community’s ability to improve its economy and environment, both of which are important to achieve sustainable development. People need help to understand and learn methods to protect their environments. Giving numeracy and literacy to an uneducated population will provide a basis to do so (Landorf, Doscher & Rocco, 2008).

- Educational exhibits

According to Byers (2008), education is a primary goal of museums. Their objects, collections and knowledge are used to produce educational exhibitions and programs. As centers of informal education, learning occurs outside the school classroom, addressing a variety of learning styles, which makes it experiential and participatory education. Museum education is designed to stimulate all the senses by working with real objects of art, history and science. As a social experience, museum education is not limited to a certain age. It is a place for tactile, emotional, and intellectual contact with people, ideas, or objects that has the potential to inspire. A museum can be a place where people can meet and share similar interests, and at the same time, it can be a place to be solitary, to have a personal experience. For quiet reflection on higher, more abstract questions, museums provide inspirational spaces and powerful and transformative educational experiences (Skramstad 1999, used by Byers, 2008).

Ott (2014) claims that ESD offers a complete educational approach which addresses knowledge, values, attitudes, skills, practices and action. In doing so, it extends closely interrelated cognitive learning approaches by a dimension which is affective and practical. She claims that ESD should serve as a mediator for more universal values as respect, justice, tolerance or equity. ESD is provided with a significant ethical dimension because of its emphasis on values and value transformation. It can furthermore be used as a tool to foster vision building which has practical implementations, affecting attitudes and decisions and practices (Ott, 2014).

As museums are open for the wider public, many have developed school programs to make their exhibitions more relevant for formal education. Although they are not necessarily an integral part in formal learning, they are undoubtedly a common supplement to it. The learning experience in museums is actively shaped by visitors and their interaction with

objects, installations and each other. In doing so, museums can help explore attitudes and perspectives and foster a feeling of belonging and integration in a community. They can furthermore promote knowledge, certain values, attitudes and beliefs, aspects which are considered to be primary aspects of ESD. This can be used to transform behavior. One of the major assets of museums is their link to the past, they can serve as interesting mirrors and bearers of culture, even if they do not address sustainability issues directly. Museums, being in the service of the public, rather than of their objects, will have to address topics relevant for people's lives. Sustainable development is, or should be one of those topics, which makes it directly relevant for the curriculum of museums (Ott 2014).

Ott further describes a relatively new field within museology with regard to ESD, which is ecomuseology. Features that characterize ecomuseums typically consist of several spaces that are significant to the community and thereby addressing and creating a consciousness for a place, for objects tied to it and memories. Ecomuseums also include nature history alongside human artifacts and traditions and actively involve the local community in exhibitions and their design process. In doing so they provide an opening for the active exploration and discussion of different types of knowledge, values and attitudes. The work of museums can therefore be of great relevance to ESD (Ott 2014).

- Museums as forums for civic and civil engagement

According to Black (2010) there is a need for transformation in museum culture that supports the promotion of best practice and challenges museums to champion civil engagement. A museum should seek to achieve a participative relationships with its local communities and should be committed to incorporate their voices and life experiences. By connecting present and past, it can enable people to make fundamental links with the past lives of their own communities and drawing commonalities. With displays and programming, it can encourage and support audiences to become actively engaged and to contribute directly to program content. The museum should also reveal to local people and communities the importance of having an active role in decision making for the future. This can be done by enabling communities to discover their area's past and its relevance to the present. Overall, the museum should place its focus on actively encouraging participation (Black, 2010).

Byers (2008) states that the museum field is self-reflective and committed to excellence and in order for them to be relevant in contemporary society, they need to create mechanisms for relating to the public in meaningful ways. It is suggested that museums can be most relevant as community centers, forums for dialogue, and catalyst for change. As community forums, they provide space to debate the major, social, political and moral issues of today, addressing complex issues in a non-threatening way through their programs and exhibitions that combine education, entertainment and inspirations (Byers, 2008).

In community education, museums have an important role in civic engagement. By seeking ongoing relationships with community organizations, civic groups and employers, museums can help promote individual and collective engagement with the ideas and issues of sustainability, enabling communities to come together across difference and contribute to decisions that will shape social values and government policies (MA National Council, 2002).

Byers (2008) refers to civic engagement in terms of public dialogue and collaboration on complex and multidimensional issues of concern to local and global communities. Museum can use civic engagement to act as safe places for people to interact, and as moderators to improve the quality of conversation on critical civic issues by providing a voice of reason and authority (Byers, 2008).

By becoming forums of civic engagement, museums actively engage and deepen connections with and among their visitors, learning to better serve their constituents and work to improve their communities. Relationships can be built among community stakeholders and encourage pride and participation in community life and in the museum itself (Byers, 2008).

Black (2010) specifically uses the term 'civil' rather than 'civic', as civic tends to relate to public institution (at least in the UK) and he believes that museums should seek to encourage and support engagement within the wider civil society that reaches further than public bodies. By empowering individuals and communities to believe they can help shape their own future, more people can play an active role in civil society to help strengthen the democracy (2010).

Within the museum profession, museums have been increasingly accepted as primarily institutions for public learning, and could be seen as natural locations for free-choice learning (Falk & Dierking, 2002, by Black, 2010). Museum learning, through display and programming, tends to be unpressured and open-ended, involving all the senses and creating diverse stimuli and responses. As this works with a wide variety of audiences, it can reflect a range of opinions, interests, needs and expectations, involves active engagement of the mind, and can be extremely enjoyable. For museums to be centers for free-choice-learning, it would mean comprehensively changing their relationship with visitors, to one of partners on a learning journey, where the museum acts as a supporter and facilitator. By posing questions, and reflecting multiple perspectives, the visitor can construct its own meanings. This flexible learning environment also allows the visitors to play a more active role, as they can take more control of their own learning, create personalized learning experiences and possibly contribute to content of the museum. This role of museums as learning institutions is said to help build stronger communities, which will be much more effective if it is carried out in partnership with others (Black, 2010).

### 3.3 Conceptual framework

The conceptual framework provides a visual image of the different areas of contribution and in what way they are connected to the pillars of sustainability and to each other. The image should help create better insight and understanding of the various topics in which museums can contribute to sustainable development.

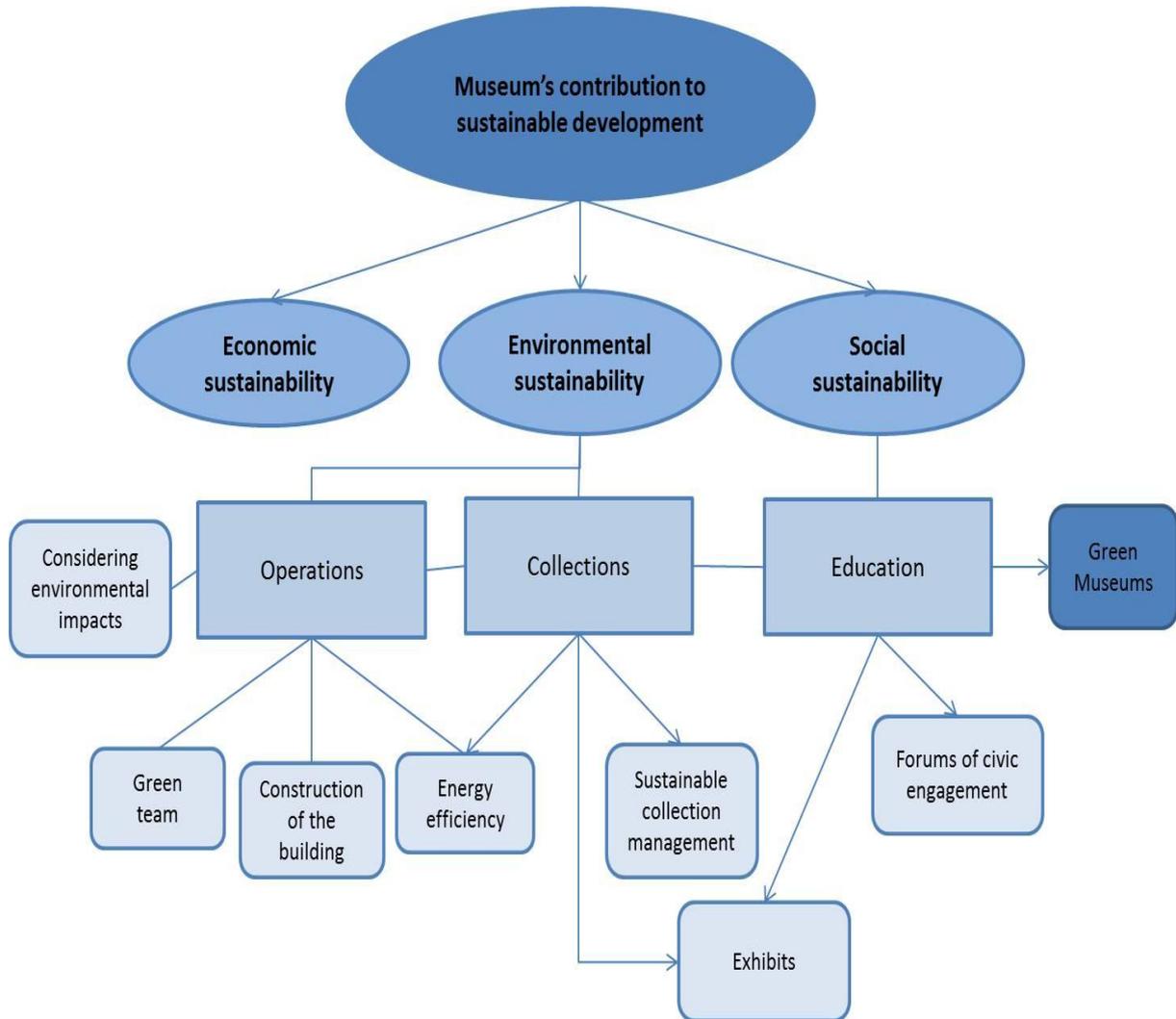


Figure 1: Conceptual framework

## 4. Research Method

This chapter will describe the methodology used in this research and explains how the data is collected, which museums were included in this research and how the data is analyzed. The chapter will conclude with the limitations this research has come across with.

### 4.1 Data collection

In order to collect the right data to be able to conduct this research, use was made of a qualitative research method. Qualitative methods, which provide a flexible approach, are the best procedure to choose as this research is explorative of nature. Qualitative methods also offer the opportunity for participants to describe the subject in their own words and in their own conditions, which can provide rich and detailed data, leading to an interpretive rendering of the studied phenomenon. They also provide findings that reflect the participants' perspective that fit the substantive field, which can be of relevance for this field and can easily be transformed to interventions for practitioners (Boeije, 2010). The data was collected through interviews, observation visits and website analysis. These should enable to establish if the museum is contributing to sustainable development in its operations, or in its collections or through education.

#### Interviews

To be able to construct a good image of the museums' position in the context of sustainable development and environmental concerns, an interview was held consisting of 10 topics/themes. Two of the interviews were conducted in person, while the other five were conducted through telephone contact. The interview lasted about 10 to 15 minutes, depending on the answers and how much they elaborated on the subject. The people representing the museums consisted of facility managers, head of building departments and safety and one head of exhibitions.

The interview included questions related to 10 topics/ themes:

1. Thoughts/opinion about sustainable development
2. Thoughts/opinion about environmental sustainability
3. Importance of sustainability for the museum
4. Practices currently done in the museum related to environmental sustainability
5. Examples of education for their audience about the environment
6. Communication about sustainable practices to visitors and others
7. Collections of the museum: environmental friendly, ways to improve/thoughts about future (sustainable/ cradle-to-cradle design)
8. Collections of the museum: display of environmental issues, ways to improve/thoughts about future
9. Thoughts about future opportunities to include more sustainable practices
10. Looking for ways to cooperate with other museums to reach more sustainability

It can furthermore be said that the interviews were semi-structured and consisted of open questions. The interviews, both conducted through telephone contact as well as in person, were recorded. Audio recordings hold great advantages for the entire research, as it benefits and improves the quality of the data, provides more insight in the subject, benefits the quality of the research and enables the researcher to provide literal quotes to be used in the final report (Boeije, 2010).

### Observations

Another method used to obtain the right data is through means of observation. All seven museums were visited and the visits lasted about 2 – 4 hours, depending on the size of the museum.

The observation visits were aimed at discovering whether or not and to what extent nature/ environmental concerns were present in the collections and exhibitions. It was therefore important to write down as much as possible what is seen in terms of display of the exhibitions in relation to nature/ environmental concerns and material use. Within the exhibitions and art works, the search was made for the display of nature or the environment in any way possible, to see how nature is portrayed, what the supposed message could be behind it and whether or not there are possibilities to link sustainability and environmental concerns to the overall theme of museum or perhaps exhibitions. Also important in the observation, was to what extent use is made of sustainable/ environmental friendly facilities in the museum, including the reception, shop and restaurant.

To ensure the quality of the observations, a list was made of these topics to be analyzed and notes were taken. If allowed, pictures were taken of the collections and exhibitions to be able to review the exhibitions and subtract appropriate data for analysis.

### Website analysis

The third method of data collection was through website analysis. Website analysis was done in order to see whether or not information is provided about the three areas of contribution to sustainable development by museums. These areas are operation, collection and education and important was to discover whether or not and in which way this information is linked to environmental sustainability concerns.

In the area of operation information was sought concerning construction of the building, the consideration of environmental impacts, how energy efficiency is dealt with and perhaps the availability of a green team. In the area of collection, information is sought about the material of the collection (whether this is perhaps natural material), whether or not nature/ environment is being displayed, and if this is presented with a certain meaning. In the area of education, information about educational programs for (school) children as well as adults is sought and to what extent this is connected to environmental concerns and if there is a possible link to sustainable development.

## 4.2 Museum selection

Amsterdam consists of 51 museums of which 7 were selected for this research: the Amsterdam Museum, the Hermitage, the Rijksmuseum, the Stedelijk Museum, the Scheepvaart Museum and the Tropenmuseum. The first six of these museums are in the top 10 most visited museums in Amsterdam. According to an article in 2013, 15 museums in the Netherlands have seen an increase in the amount of visitors. More than half of these museums are located in Amsterdam, and six of these museums are included in this research (RCE, 2013).

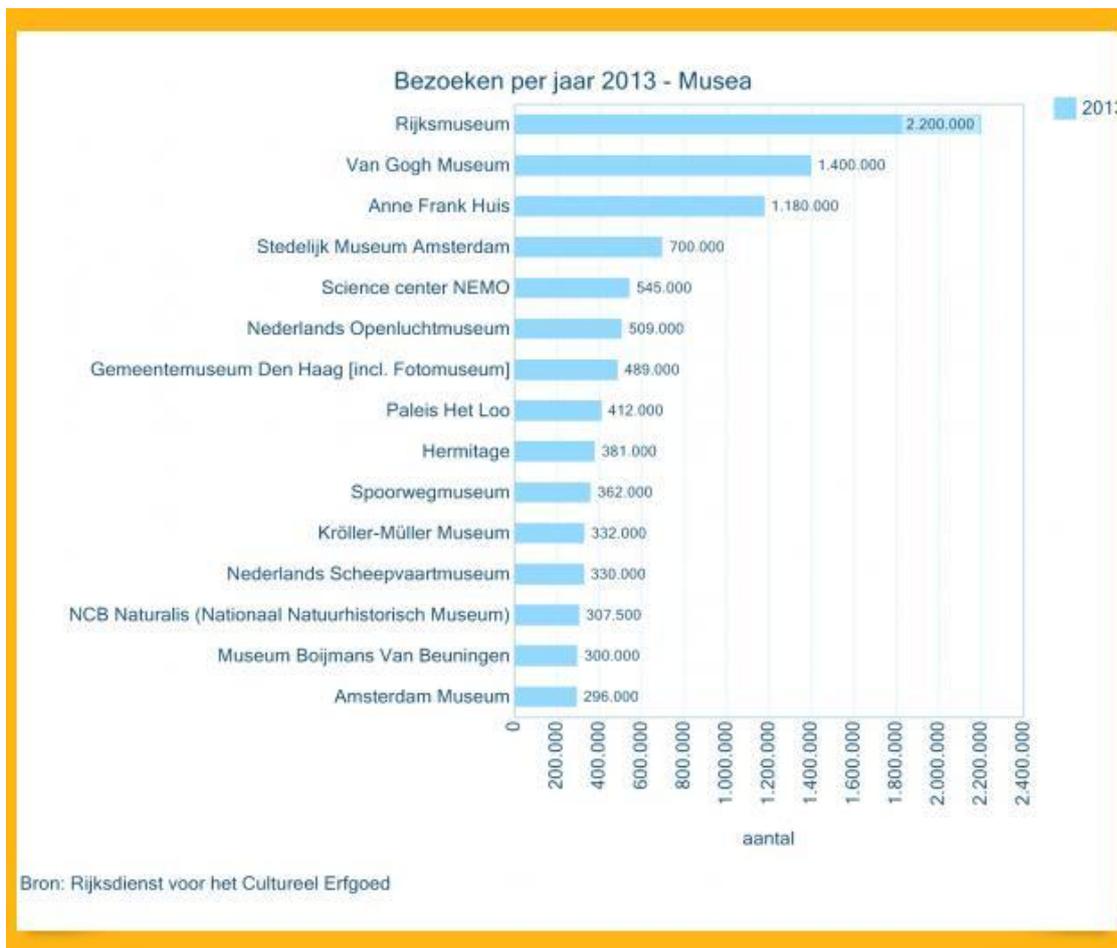


Figure 1: Museum visits on yearly basis (RCE, 2013)

In order to make the selection for the museums to include in this research, certain criteria were set to ensure access to relevant data. The criteria for the museums were as follows:

1. The museum has shown to take specific actions to be able to be more sustainable.
2. If the museum has not shown particular actions, it displays objects or exhibitions related to environmental/ sustainable issues or has potential to do so.
3. The museum was open to cooperation for this research.

The museums meeting the criteria were the following:

### 1. Amsterdam museum

The Amsterdam museum tells the history of Amsterdam during the ages and the museum sees itself as the meeting point for Amsterdam. Its mission is to dare the inhabitants of Amsterdam to deepen their relationship with the city.

Even though it is not evident that the museum is sustainable in the construction of the building – like the Rijksmuseum, or in their exhibitions – like the Tropenmuseum, a vacancy was found online, in which an intern was sought to find ways to make the staff of the museum more aware of the use and re-use of office means and facilities.<sup>1</sup> This leads to the conclusion that the museum is aware of sustainability issues and is looking for ways to be more sustainable. For this reason, the Amsterdam museum was selected for this research.

### 2. Hermitage museum

The Hermitage museum says its mission is to use art and history to inspire, enrich and offer opportunity for reflection. Its exhibitions and programming present the world heritage of one of the greatest museums in St. Petersburg, the State Hermitage, to Dutch and international visitors.

The Hermitage museum released a document in which a detailed description is given of how the use and application of glass in various areas of the building. These applications were made to meet climate requirements. The Hermitage is also one of the 17 museums (including the Tropenmuseum and the Maritime museum) that signed a covenant in order to reduce their CO<sub>2</sub> emissions with 3% for the coming two years. These museums also plan on buying sustainable energy, paper and food and come together on a regular basis to talk about their experiences and progress. This shows that the museum is aware of environmental issues and is taking certain action to be able to contribute to the environment.

### 3. Rijksmuseum

The Rijksmuseum is a national institution, which offers its broad and (inter)national audience a representative overview of Dutch art and history in the middle ages. Also important aspects of European and Asian art are displayed.

The museum re-opened its doors after a ten year period of renovation, in April 2013. The new Rijksmuseum represents the state-of-the-art in museological climate control with an immense new infrastructure in, underneath and around the museum. The museum curators furthermore demand a constant temperature of 20°C and a relative amount of humidity of 50%. Certain measures have been taken to be able to meet these demands, like isolation glass in the windows and the screening of sunlight to prevent the areas from warming up, the use of energy-friendly forms of light use (led-lights and T.L.-lights) and the use of overpressure

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<sup>1</sup> Vacancy: Stagiair(e) HBO: onderzoek duurzaam denken en doen, 2012

which prevents polluted air from flowing into the museum. For these reasons, it was decided that the museum meets the criteria for this research and was selected for investigation.

#### 4. Scheepvaart Museum (National Maritime Museum)

The National Maritime museum tells stories of how the sea is in the genes of the Dutch and how it has shaped Dutch culture. They say their exhibitions are stimulating and interactive and allow visitors to explore 500 years of maritime history.

In 2012 the Scheepvaart Museum was nominated for the Golden Phoenix in 2012, which is a yearly award for re-use of existing buildings. This museum has also undergone renovation and re-opened its doors in October 2011. The renovations resulted in a glass roof on the Open Square, acoustic adaptations of the stone flooring of the court yard and climate showcases for the museum collection. The museum furthermore received an award for best utility project in 2011 and for their noise and echo-absorbing floor they received an award in 2012.

The Scheepvaart Museum is also working together with BP Corporate, which supports the exhibition Haven 24/7 (Harbour 24/7). The exhibition shows the dynamic of the harbor and the BP Amsterdam terminal. BP says to have the environment as high priority and aims at decreasing the damage to the environment by reducing CO2 emissions and improving energy efficiency. BP also aims at helping others to reduce their impact on the environment by developing and marketing cleaner fuels and forming sustainable energy.

#### 5. Stedelijk Museum

The Stedelijk Museum Amsterdam says to be an international institution dedicated to modern and contemporary art and design, which aims to provide a home for art, artists and a broad range of publics. Artistic production is actively fostered, presented, protected, reconsidered and renewed. It is furthermore said that the museum is advocate for the vital role of artists, art, culture and cultural institutions in society. Its primary task is to educate, by involving, inspiring and challenging a diverse audience. The intention is to stimulate, curiosity, criticism and self-reflection.

The Stedelijk Museum is also one of the museums that has been renovated in 2010 with the purpose to conserve the good parts of the building with future-oriented principles. The existing building is isolated and provided with extra isolation shields. The expansion of the museum is for the most part closed and well-isolated. A heat-cold storage has been built underground to minimize heat loss and reserve coldness. The application of the marquise enables the building to avoid getting too hot in the summer and receive lower sunshine in the winter, which leads to less costs air conditioning and heat.

#### 6. Tropenmuseum

The Tropenmuseum says to be one of Europe's leading ethnographic museums and renowned for its collection of (art) objects, photographs, music and film from non-western cultures. Visitors are drawn into the daily lives of people from the tropics and subtropics, with reconstructions of local environments. With a broad approach to both content and concept, the

museum has been designing its exhibits from the perspectives of different generations and ethnic groups. This leads to assistance public figures from the multicultural communities in the Netherlands in shaping and defining the museum.

The Tropenmuseum was selected for investigation, primarily because of its permanent exhibition “Man and the environment” which was displayed in the museum for seventeen years. This exhibition shed light on four different eco-systems, the various interests these eco-systems have and the ones who claim to have a right to its resources. The underlying thought of this exhibition was to enable the visitor to learn that the people who extract “products” of the environment, are also responsible for nature’s survival. Although this exhibition is no longer part of the museums’ permanent exhibitions, it can be seen as an example for other museums in how the subject of environmental sustainability can be integrated in exhibitions to increase the awareness of the visitors.

Until recently, the Tropenmuseum also displayed another temporary exhibition for children with environmental concerns. The exhibition Mix Max Brazil shows the works of Brazilian artists who use plastic PET-bottles as basis for their work. Next to art works also furniture and room decorations are made. Children are also able to learn how to make their own art with this material. This is another example of museums being educative about environmental concerns and changing awareness about pollution and waste.

## 7. Van Gogh museum

The van Gogh museum houses the works of one of the Netherlands’ most famous artists, Vincent van Gogh. The museum tells the story of van Gogh’s life and how he became an artist. This museum was selected for this research, because the van Gogh museum says to be the most sustainable museum in the world, with the first BREEAM-NL<sup>2</sup> certificate in Amsterdam.

After a 7 month period of renovation, the museum re-opened its doors in May 2013. The basis for this renovation was to construct a sustainable building that meets the wishes and requirements of this era. The museum holds a ‘BREEAM-NL In Use’ sustainability certificate (Building Research Establishment Environmental Assessment Method), which reflects the whole range of sustainability measures taken in recent years, like installing a hot/cold storage for cleaner and sustainably generated energy, a clear environmental policy, sustainable procurement and sorting and collection of waste, encouraging employees to make use of public transport and sustainably reporting these measures through internal communication.

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<sup>2</sup> BREEAM is derived from the British research organization Building Research Establishment (BRE) who developed the Environmental Assessment Method of buildings. The addition –NL is to clarify the Dutch version. Having more than 10.000 buildings certified and operating in 15 different countries it is the most important and most used sustainability mark for buildings in the world. In the Netherlands BREEAM is administered by the Dutch Green Building Council (DBGC), an independent network committed to raising the sustainability of the built environment. They manage and develop initiatives such as BREEAM-NL and currently numbers almost 350 participants.

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The museum has been rated as 'very good' three times in a row for building, administration and use.

## The Plantage

During the process of the research, it has come to the attention that the Plantage Amsterdam has been of significance when it comes to museums and sustainable development. The Plantage Amsterdam is a collaboration between sixteen cultural institutions in the eastern part of Amsterdam, consisting of museums, theatres, parks, cafés and restaurants. These institutions have been working together since April 2011, to make the Plantage more sustainable, by signing a covenant for the sustainability of the institutions who have joined the Plantage Amsterdam. This covenant was made to encourage sustainable business and sustainable tourism in Amsterdam, committing the participating parties to reduce CO2 emissions and cooperating on sustainable public procurement like energy, waste, water, paper and food and drinks. This agreement is the start of a concrete approach to the sustainability of each of the member organizations, making sure that the Plantage is a sustainable museum quarter in every area. The Plantage consists of seven museums namely: Hermitage Amsterdam, the Jewish Historical Museum, Museum the Rembrandthouse, The National Maritime Museum, the Tropenmuseum and the Dutch Resistance museum. An interview was also held with a representative of the Plantage, to gain a better understanding of the actions museums in Amsterdam have taken when it comes to sustainable development.

### **4.3 Data Analysis**

This chapter will explain how the data was analyzed. Fairclough's Critical Discourse Analysis is used as a basis to describe and interpret the data, after which it is analyzed by making use of Nilsen & Ellingson's (2014) economic discourses.

#### **4.3.1 Critical Discourse Analysis**

In order to be able to analyze the interviews, observations and press releases, the Critical Discourse Analysis of Norman Fairclough was used (also referred to as CDA). As explained by Jorgensen & Phillips (2002), CDA provides theories and methods for studying the relations between discourse, social and cultural developments in different social domains.

According to Jorgensen & Phillips (2002) people follow different patterns when they take part in different domains of social life. The word discourse refers to language that is structured according to these patterns. Discourse analysis is therefore the analysis of these patterns; a series of interdisciplinary approaches that can be used to explore many different social domains in many different types of studies. A discourse can be defined as: a particular way of thinking about and understanding the world (or an aspect of the world) (Jorgensen & Phillips, 2002).

Fairclough's CDA is seen as the most developed theory and method for research in communication, culture and society. Fairclough believes that discourse is an important form of social practice, which both reproduces and changes knowledge, identities and social relations including power relations, and at the same time is also shaped by other social practices and structures. This means that discourse is in a dialectical relationship with other social dimensions (Jorgensen & Phillips, 2002).

Janks (1997) explains that Fairclough's model for CDA consists of three interrelated processes of analysis, tied to three interrelated dimensions of discourse:

1. The object of analysis  
 This is detailed textual analysis within the field of linguistics. Here text, speech, writing, visual images or a combination of these is analyzed.
2. The process by which the object is produced and received by humans  
 This is the macro-sociological analysis of social practice. This level is of discursive practice and involves the production and consumption of texts (writing, speaking, designing and reading, listening, viewing).
3. The socio-historical conditions that govern these processes  
 This is the micro-sociological, interpretive tradition within sociology, where everyday life is treated as the product of people's actions in which they follow a set of shared 'common-sense' rules and procedures. This is a level of social practice to which the communicative event belongs (Jorgen & Phillips, 2002).

Each of these dimensions requires a different kind of analysis:

1. Text analysis: description
2. Processing analysis: interpretation
3. Social analysis: explanation. (Janks, 1997)

Janks (1997) explains that texts are instantiations of socially regulated discourses. The processes of production and reception of these texts are therefore socially constrained. Fairclough's CDA provides multiple points of analytic entry, which should all be included and are mutually explanatory. The analyst will find interesting patterns and disjunctions in the interconnections, that need to be described, interpreted and explained (Janks, 1997).

Fairclough's three dimensional model can be explained in the following table:

	<b>What</b>	<b>How</b>
<b>1. Textual analysis</b>	Is placed in the field of linguistics, but is in need of an interdisciplinary perspective where textual and social analysis are combined.	Discourse refers to language use as a social practice and concentrates on the formal features from which discourses are realized linguistically.
<b>2. Macro-sociological analysis</b>	The analysis of social practices that are shaped by social structures and power relations of which people are often not aware.	Discourse is the kind of language used within a specific field (like a political or scientific discourse).
<b>3. Micro-sociological analysis</b>	Is the interpretative tradition within sociology, where everyday life is treated as the product of people's actions they follow, as a set of 'common-sense' rules and procedures.	Discourse refers to a way of speaking, giving meaning to experiences from a particular perspective.

Tabel 1: Explanation of Fairclough's CDA (Jorgensen & Phillips, 2002)

Fairclough has constructed a useful framework for the analysis of discourse as social practice, which contains a range of different concepts that are interconnected. The model functions as an analytical framework that can be used for empirical research on communication and society (Jorgensen & Phillips, 2002).

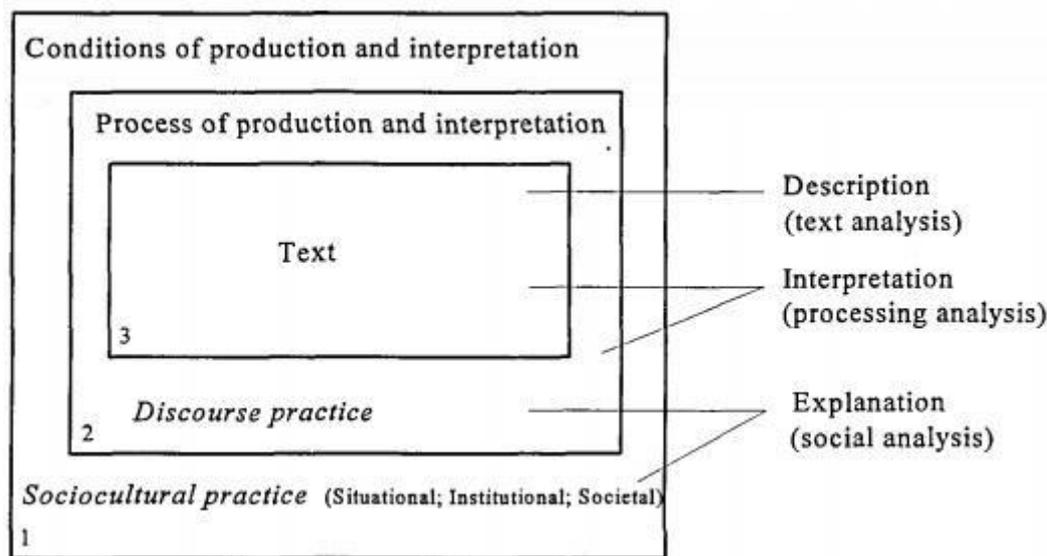


Figure 2: Fairclough's three dimensions of discourse and discourse analysis (Janks, 1997)

The framework consists of the three dimensions:

1. Text analysis (description). The text of the interviews and website will be analyzed on this level.
  - How is the text positioned or positioning?
2. Discursive practice (interpretation). This level will analyse all three aspects: interviews, exhibits and websites.
  - Whose interests are served by this positioning?
  - Whose interests are negated?
  - In what way can people produce meaning out of it?
3. Social practice (explanation). This level is focused on the macro level of examination and will be dealt with in the final discussions chapter of the research.
  - What are the consequences of this positioning?  
(Jorgensen & Phillips, 2002)

According to Janks (1997), the embedding of the boxes emphasizes the interdependence of these dimensions, which allows the different types of analysis to move forward and backward. The analytical move to examine a single box necessarily breaks the interdependence between the boxes. This will require subsequent moves to re-insert that box into its interconnected place. Focusing on one of the boxes therefore has to be seen as an arbitrary place from which to begin (Janks, 1997).

### 4.3.2 Three economic discourses

The obtained data will be analyzed in terms of the three economic discourses by Nilsen & Ellingsen (2014). According to them, differences in environmental action exist within the smallest groups of firms and people. By viewing them as belonging to different discourses, it is possible to analyze these differences. “Different discourses reflect different environmental issues, which can shape values and attitudes and can therefore contribute to a more sustainable development. Future environmental performance can be improved by pinpointing obstacles and highlighting success criteria in specific discourses” (Nilsen & Ellingsen, 2014).

Nilsen & Ellingsen (2014) came up with three economic discourses:

- Neoclassical economics
- Environmental economics
- Ecological economics

The discourse of neoclassical economics is based on the ideas of classical economics in which natural resources are a central concern and considered an absolute scarcity. Within neoclassical economics, absolute scarcity is replaced by relative scarcity and relative values determined by supply and demand. Here, environmental problems are traditionally described as external effects arising outside of the economic model. Nature has no value of its own and is only seen as an instrument in achieving the highest possible level of utility. Within this discourse, firms are environmentally reactive or have a defensive environmental strategy.

Within environmental economics, environmental and economic concerns are to converge together. The environmental economic discourse tries to approach environmental integration from a traditional economic starting point, without challenging the existing order of today. Within this discourse firms are receptive or followers, having an integrated environmental strategy or go beyond legal requirements, motivated by financial incentives.

Within ecological economics, it is believed that actors in the market are about to become more conscious of environmental problems. Through an increased focus on environmental and social responsibilities, opportunities would represent themselves to gain enlarged market share. Within this discourse, firms are environmentally constructive or proactive and they are conscious about the effect the product has on the environment as well as on the society (a life-cycle approach).

	<b>Environmental issues</b>	<b>Firms reaction</b>	<b>Motive</b>
<b>Neoclassical</b>	External effects arising outside of the economic model. Nature has no value of its own, is instrumental in achieving the highest possible level of utility	Reactive or have a defensive environmental strategy	Total wealth overtime is a capital-based indicator of sustainable development
<b>Environmental</b>	Environmental integration from	Receptive or followers, integrate environmental	Environmental friendly practices must be

	an economic starting point	strategy including legal requirements	motivated by financial incentives
<b>Ecological</b>	Increased focus on environmental and social responsibilities	Environmentally constructive or proactive	Conscious about the effect the product has on the environment and on society

Table 2: Three economic discourses (Nilsen & Ellingsen, 2014)

The analysis of each museum will help create an image of which position they take when it comes to environmental concerns.

#### 4.4 Strengths and limitations

##### Strengths

This research provides insight in the way museums in Amsterdam deal with environmental concerns, a subject that has not been dealt with yet in academic research. This research therefore contributes to the awareness of the museum industry and museum professionals of environmental issues and sustainable development in general and in which way museums can contribute and make a difference in a variety of ways.

It further seemed that most of the interviewees were quite eager to participate in this research, wanting to prove their involvement in the subject and in which way they deal with environmental friendly activities. By mentioning which museums have already participated (or were going to be interviewed), I felt their curiosity was awakened in the results of this research, to discover how museums in Amsterdam are handling the subject. This research might help them gain insight in the possibilities of further steps that could be taken next to their contribution to sustainable development in the field of operation and make use of their collection and educational programs.

##### Limitations/ challenges

###### Language

One of the challenges in writing this research was the language difference. Because the research was to be written in English, the gathered data needed to be translated from English to Dutch, as the interviews were held in Dutch. Translating and paraphrasing the data can result in potential differences in the original texts. The same goes for data found in Dutch, which had to be translated into English. For the website analysis, it often appeared that the information provide on the Dutch version of the website, was absent on the English version.

###### Interviews

During the conduction of the interviews, it appeared that some of the interviewees were not always able to answer a certain question in the way the researcher meant to. As a reaction, examples of possible answers were given, which led the interviewees to the type of answers that were needed. This could have had an influence in the subjectivity of the data.

In order to persuade museums to participate, the importance of their contribution to this research and more importantly to the museum industry was stressed. This may have led to some of the museums wanting to cooperate to be able to show that they are concerned with environmental issues, even though no specific actions or practices could be named. This could have resulted in answers that may be incomplete and perhaps dishonest.

The questions of the interviews were linked to a certain topic and thus paraphrased differently with each interviewee. The type of questions was often dependent on the interviewee, their knowledge of the subject, their function in the museum and their attitude when conducting the research.

### Observations

The observation visits to the different museums faced multiple challenges. Important when deciding to visit a museum is taking into account the time of the observation visit. Most of the museums in Amsterdam are quite popular and busy on a daily basis. If the museum is too busy, it is difficult to observe certain aspects, which increases the time spent in the museum and decreases the time left to visit the other museums.

Also difficult during the observation is deciding whether or not the material used within the collections is environmentally friendly or sustainably or not. Limited information was provided about this in certain museums.

### Analysis

As a student unfamiliar in the field of environmental issues, ascribing meaning to certain statements or seeing them as belonging in a certain theme, was quite a challenge. It was furthermore very difficult to use Fairclough as a theory for this research as it is complicated.

### Ethics

Boeije (2010) states that a basic concept in qualitative research is trust. Managing to win trust of the participants will help them to be willing to say more than they had planned to. Lack of trust or a comfortable atmosphere can make interviewees feel embarrassed, after which they can refuse to answer certain questions or elaborate on certain matters (Boeije, 2010). This could have been the case with one of the interviewees. Curious about the purpose of the study and if it will be made public, the participant found my answers too vague for her to want to participate, even though I explained myself in the same way I did with the other interviewees. I was not able to gain her trust, at least not in the beginning of the interview. From the start, the participant's attitude had a certain effect on the way the questions were reframed, as I felt uncomfortable in asking her to elaborate on certain topics. This resulted in a shorter interview (less than 10 minutes) and information that was not as extensive as with the other interviewees.

This brings us to the topic of informed consent as well, which is also one important general ethical requirement in doing research. The researcher has the obligation to fully outline the nature of the data collection and the purpose for which the data will be used in a style and

language that the potential participants can understand (Boeije, 2010). Each of the museums were first contacted by telephone, and further directed to the person that would be best to answer the questions. By explaining the purpose of the study and the questions I wanted to ask in an email, the participants were able to decide whether or not they were the right person for the interview, or redirected me again to another colleague. Before sending the end result to the participants, I will have to make sure that the provided information has been read and approved by them in order to make this research public.

## 5. Findings

This chapter will describe the findings from the interviews, websites and observations, which will be analyzed based on Fairclough's Critical Discourse Analysis. The findings have been organized by the three areas in which museums can contribute to sustainable development: operations, collection and education.

### 5.1 Operations

The area of operations include the way museums undertake their own operations in activities, the management of their resources, decision making and policy development in order to be more sustainable. This includes dealing with energy efficiency, considering environmental impacts and the construction of the museum building. This chapter will elaborate on these ways. In the interviews was asked which practices and actions have been taken recently for the museum to be more environmentally friendly. Here it is important to mention that the interviews have been conducted with six facility managers and one head of exhibition. This reflected their view of the subject, which they mainly described in terms of cost efficiency, efficient use of building and space and strategic business processes. On the websites information is gathered concerning construction of the building, the consideration of environmental impacts, how is dealt with energy efficiency and perhaps the availability of a green team. Each museum will be separately dealt with, after which an overall conclusive analysis will be given.

#### 1. Amsterdam Museum

The interviewee of the Amsterdam Museum claims that sustainable development has to do with energy consumption in the first place and waste disposal in the second. As museums are big consumers of energy, they are required to find ways to be more environmental friendly, so he says:

*“Museums are big energy guzzlers because of their climate installations, lighting and energy use, so museums are required to be more environmental friendly.”*

In terms of specific actions taken the museum itself to be more environmentally friendly, the interviewee mentions that they have been making preparations to install the WKO (heat-and-cold storage)<sup>3</sup> in the museum itself, however, the financial means need to be available to do so. As soon as the financial means are available, the WKO can be installed. Other activities include installing LED-lighting in the museum.

*“.. with a heath-cold storage in the ground, it would mean a significant difference for the emissions of fossil fuels. Secondly we are looking at the application of LED-lights, which would mean a decrease in energy use, as it produces less heat, meaning that we would have to cool less and that also is a decrease in electricity.”*

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<sup>3</sup> WKO-installation (Warmte-Kou Opslag) is a heat and cold storage, installed underground which collects heat that can be regenerated in the winter to warm up the building, and cold, which can be used in the summer to cool the building down (Lagendaal, 2013)

In the museum's management plan, the current museum practices are elaborated. The document describes how the museum deals with energy efficiency in the building and gives a description of activities that relate to environmental concerns, such as energy consumption, saving and generation. The societal discussion about the environment and the exhaustion of the traditional energy sources, has led to changes in the temperature and air humidity norm as well as the circulation and filtering in museum halls and depots. It has been determined that the new installations for the collection center function appropriately and according to the expectations. The climate installations have been adjusted to the climate regulations on energy consumption, that have been set by the RCE (Rijks Cultureel Erfgoed, the institution for National Cultural Heritage). The Amsterdam Museum is adjoined to the RCE platform to be able to follow environmental developments closely. In collaboration with the company Helicon, measurements are made in the depots since 2012, on which energy consumption is analyzed (Collectieplan 2013-2016, 2013)

Future plans include finding alternative forms to generate energy to be able to provide in own energy or perhaps selling this to other users. The roof of the Collection center in the North of Amsterdam has the possibility to place solar panels and here the WKO delivers energy neutral climate control of the building (Collectieplan 2013-2016, 2013).

## 2. Hermitage

According to the interviewee of the Hermitage the whole concept of sustainable development relates to handling your business operations in an environmentally conscious way, as he feels that a museum itself is not sustainable by definition. He says:

*“ Sustainable development is finding ways to reduce the environmental impacts of museums, as a museum is by definition an institution which isn't sustainable due to climate control and climate installations. I don't believe that museums can ever be fully sustainable, but I think that it is possible to do this in a more environmentally conscious manner.”*

He was able to name various actions the museum has been taking to be more environmentally friendly. From the WKO-installation underground, to solar-cells on the roof and LED-lighting in the building, to privatization of its hospitality industry, which means conducting a stricter policy in purchase of green and biological products.

*“Museums are per definition an energy drama, it is very energy consuming and I feel that you have the responsibility to keep your ecologic pressure as low as possible.”*

He says that the museum also participates in collective purchase, and buying sustainable energy with a group of museums, making the price per unit cheaper, because the purchase is in large amounts. This is in cooperation with the 'Groene Plantage', and other museums in this collaboration. The Hermitage is able to do a bit more than the other museums, as they are larger as a museum, having a bigger budget and more time to spend on this issues, which means that their impact is bigger as well.

*“We are also working on reducing CO2 emissions, and we participate in a two year test in which we have to show the amount of emissions and how we are reducing it.”*

Although the interviewee was quite enthusiastic in naming all the ways in which the museum is being environmentally conscious, not much of this is seen on its website. Information is provided of how the building, that used to be a nursing home, has been transformed to the museum it is today, with a detailed description of the history of the old building. The building is now much lighter than it used to be, due to the breaking down of walls and ceilings, allowing two more spacious exhibition areas. The various areas of the museum are also highlighted. It is further mentioned that the building received an award for the way the architect handled the building: the smart technical interventions and sustainable additions to the building, the careful detailed renovation, and the fruitful collaboration with all stakeholders, were the basis of this award. The website does not mention anything about energy reduction, CO2 emissions or other aspects of sustainable operation.

### 3. Rijksmuseum

The interviewee of the Rijksmuseum was not able to mention specific actions related to their operations which the museum has been taking in order to be more environmental friendly. In her opinion sustainable development or environmental sustainability is about awareness:

*“Sustainable development is being aware of.. what you use and how you deal with certain things. Just a piece of awareness. .. Everything you purchase for the museum, you should look at where is it from, do I need it, how am I going to use it.”*

She was rather vague about the concept and kept explaining in general terms what it means to be more sustainable:

*“It is a combination of things you deal with, which is energy use, how much do you use, how do you use it, which products should be purchased, what is to be done with waste water, what do you do with waste, you separate it. You purchase products such as hand towels for the museum, what kind of hand towels do you purchase or do you perhaps buy blow dryers. With everything you do, you should wonder what am I doing and what are the consequences of that decision.”*

The website does not provide more information in this area either. It does describe the history of the museum and how it has evolved from National Art Gallery to the museum it is today. Having gone through a couple of periods of renovation, the last one allowed the building to bring back its original structure, which enables the museum to show its artworks as one chronological story about Dutch art and history. It is further mentioned that the building has been modernized as well in other areas of the building, however, it does not go further into detail in which way this has been done.

Although the museum website itself does not provide the information needed in the area of operation, an article published, mentioned in chapter 4, does consist of information about the construction of the building and environmentally friendly measures taken.

#### 4. Scheepvaart Museum (the National Maritime Museum)

The interviewee says that sustainability and environmental sustainability is something that concerns the whole organization. It refers to people, planet, profit, and includes a lot of issues.

*“Everything you do when it comes to energy saving, use of material, central purchase, are all parts that ask to be dealt with in a sustainable manner.”*

When it comes to current museum practices, he says:

*“Purchasing sustainable energy, green energy, while reducing CO2 emissions. What we do actively is monitoring our consumption, so the moment we notice that our consumption is increasing, we look for the cause.”*

The museum has also replaced energy consuming lighting for LED-lighting, a WKO-installation in the ground and working on ways to be able to separate waste.

*“We are currently working on a really interesting project, which will take a while to be realized, because it is quite complex, in which we want to transport waste via water by means of a ship which is called the “Stille Boot” (quiet ship). So not making use of the polluted truck in the already busy street, but making use of the existing waterways and a quiet ship that takes care of our waste, that is one of our, mine ultimate gain, to realize, this year.”*

The website of the Scheepvaart museum did provide some information about the construction of the building, although this information does not mention any aspects of environmental or sustainability concerns. During the renovation, the architect was striving to modernize the building, without losing the feeling of the 17<sup>th</sup> century warehouse it used to be. The building needed to be renovated in order to adapt to the growing amount of visitors and climate control needed to be installed. The highlight of the renovation was the roof of the courtyard, which exists out of thousands of pieces of glass in a metal frame. Thanks to its renovation, the Scheepvaart museum has won the Amsterdam Architecture Price of 2012.

#### 5. Stedelijk Museum

For the interviewee of the Stedelijk Museum, sustainable development is about being alert of your environment.

*“That is for me the starting point. And from that alertness, that involvement, you can develop initiatives and that is what we are busy with at the moment.”*

The museum is currently working on receiving the BREEAM-NL certificate, as the Van Gogh Museum has done, within a workgroup of 10 museums:

*“..we started with that and that is certification on a broader term than just energy efficiency, it’s about management, transportation, waste disposal.. but also about the exhibitions you want to organize and more questions are rising, not only about the right climate temperature or air humidity, but as well as how we deal with these things..”*

When it comes to current practices, the interviewee says that the museum already has a WKO-installation, which came after the renovation of the building. They are also consciously busy with energy saving techniques to reduce the energy costs and CO2 emissions. Within their depot, which is on another location, they are working on limiting outside air:

*“When using less air from the outside, you will also have less costs for energy use. So that ventilation system is now more about recirculation.”*

The website of the Stedelijk Museum provides information about the construction of the building after renovation. It describes the exterior and interior of the building, explaining how the renovation has improved the division of the exhibition halls. The website furthermore provides a short film about the wall decoration of the restaurant and entrance hall in which the wall decoration is explained. The wall, which needed to be soft and green, had to literally become a vertical garden. However, because of the possible issues this garden would bring, such as bacteria and dampness, the wall has now been decorated with carpet, based on the Dutch weaving tradition. Inspired by the other building architects, what lies behind the wall, the connection between old and new and inspired by the location of the building, which used to be farms with vegetable gardens, the choice was made to use the Angelica weave in the carpet. It is said that this flower is an edible plant, which used to grow here in the earlier days. This information can be considered as some form of sustainable design, in which the material is chosen based on the perspective of their impact on human health.

The website further mentions the façade material of the building with the important ingredient, called Twaron, a synthetic fiber, which is extremely light and five times stronger than steel. Because of this, it keeps its form and strength through varying weather conditions and it is said to be heat resistant. Although the website does not literally mention any aspect in which sustainability is taken into account, it can be said that the material used does consider environmental impacts and therefore it can be considered as partially sustainable.

## 6. Tropenmuseum

The interview with the Tropenmuseum was with the Head of Exhibition, which means that her perspective in the different areas might be different from the other interviewees. She says that she and her colleagues at the Tropenmuseum do not work with a specific definition for sustainable development. For her, the concept is about working together in finding ways to be more sustainable:

*“Well, in the Netherlands a lot of people are already working on finding ways to be able to work together with museums on different aspects, like sharing each other’s’ vitrines and so on. Until recently, everything that was important for an exhibition was thrown into a container. Now little companies are arising to save these parts.”*

She says that two people of the university visited her in the past couple of months to discuss a certain protocol for environmental friendly activities, but it has not been developed any further yet and it is still on their to-do pile.

Although the interviewee could not name the ways in which the museum is saving in energy consumption, she says:

*“Yes, we are looking more and more into energy saving methods. There is no protocol yet, but it is more and more discussed, when purchasing new products. Especially when things have to be renewed, as it is quite expensive to switch from one system to another..”*

She further mentions that they have been installing more beamers in the museum and energy saving methods in terms of lighting: by working with sensors, lighting automatically goes on when a person enters the room and when no movement is detected, the lights go off again.

The website of the Tropenmuseum does not provide any information on the construction of the building or other ways in which the museum is contributing to sustainability in this area.

## 7. Van Gogh Museum

According to the interviewee of the Van Gogh Museum, sustainable development involves a couple of things:

*“.. things that have to do with the 3 pillars of people, planet, profit and for us maybe even a fourth pillar, the p of paintings.”*

In terms of environmental sustainability, he says:

*“I think environmental sustainability is very important. I think that sustainability of our paintings entails paying good attention to how we want to handle our paintings in a sustainable way. This means that everything we do in terms of climate and energy, we have to pay close attention to.”*

Current activities the museum has been taking to be more environmentally friendly, are activities coming from the BREEAM-NL certificate. The BREEAM is a tool to achieve the goals set in the museum’s CSR policy.

*“So it has to do with societal involvement, sustainability of the building, energy efficiency, it also has to do with our visitors and visitor satisfaction.”*

He claims that the heads of the different departments carry out the importance of sustainability to the employees, creating awareness and measuring employee satisfaction and improving employee activities on a daily basis such as printing, lighting and water use.

The link “About the Museum” on the website provides the visitor with a list of different subjects with information. Under the tab museum the construction of the new entrance hall is explained, however here no links to environmental or sustainable concerns are mentioned. The subject of sustainability has its own link elaborating on the sustainable measures and includes:

- Information on the museum’s ‘BREEAM-NL In-Use’ sustainability certificate  
The museum has been rated ‘very good’ for building administration and use and reflects the whole range of sustainability measures the museum has taken. The ratings

are based on nine categories including energy, materials, water, waste, health and management. The BREEAM-NL is the instrument for measuring the sustainability performance of Dutch buildings, districts and projects.

- The sustainability measures the museum has taken  
This includes a heat/cold storage to earn a cleaner energy label and using sustainably generated energy. The museum also has a clear environmental policy in place in order to minimize the water and energy consumption and reducing ecological footprint. It is said that procurement is sustainable, waste is sorted and collected separately and employees and visitors are encouraged to use public transport. These measures are further communicated internally through effective sustainability reporting.
- Information about the Dutch Green Building Council (DGBC)  
The DGBC is an independent network that administers the BREEAM-NL quality mark and is committed to raising the sustainability of the built environment. In order to do so, initiatives such as the sustainability quality mark BREEAM-NL are managed and developed by the DGBC. What was founded in 2008 as a market led initiative by organizations such as ABN AMRO Dura Vermeer and the municipality of Amsterdam, has grown into an organization that numbers almost 350 participants.

It is also possible to download the document 'Infographic sustainability measures' (2014). This document is a visual explanation of how the museum integrates its sustainability measures in building, management and use (van Wessel, 2014).

When it comes to the building, the roof has been replaced and added with additional isolation which results in 40% less energy use. The temperature in the building is managed by three high efficiency boilers, that only switches on when the temperature falls below freezing. The rest of the time the building is warmed and cooled with energy stored underground. The building further consist of water-saving taps and showers, subdued and energy-efficient outdoor lighting and LED lighting for indoors, where this is compatible with the art on display. It is furthermore said that 100% of the energy used by the museum is wind power generated in the Netherlands (van Wessel, 2014).

It is said that sustainability plays a role in purchase management. The museum furthermore buys sustainable cleaning products, recycled paper, etc. When it comes to use, the museum says all waste is sorted (chemical waste, paper/cardboard and residual waste are disposed of separately) and there is a grease interceptor. Visitors are said to be informed about sustainability issues, local services and accessibility by public transport. Office workers use doubled-sided printing, it is encouraged to use digital archives, measures are set to limit printing, reuse left over printed materials and use furniture available for reuse by others (van Wessel, 2014).

### **5.1.1 Conclusions in the area of operation**

It can be said that the museums in Amsterdam do not have a concrete perception of what sustainable development entails in general, let alone for museums. However, it does appear that they are aware of environmental issues and the environmental impact museums have on nature, which is one of the ways in which museums can be more sustainable. As said before, the Museums Association London (2008) state that the most immediate way to increase the awareness of climate change in museums is to reduce energy consumption and this is what all of the museums say to be involved in, either with energy saving techniques or measurements for energy efficiency, and the purchase or generation of green energy.

The representative of the Plantage Amsterdam says that a covenant has been signed with the municipality of Amsterdam in 2011, in which certain goals have been set for the institutions to be more sustainable. These goals included the reduction CO2 emissions with 3% each year, monitoring and sharing numbers of energy consumption use and collaboration on collective sustainable purchase. This is evident in the actions museums in Amsterdam have been taking. Next to energy consumption these measures vary from WKO-installations and LED-lighting to solar cells and improved climate installations, which are more frequently installed and are almost becoming an unmissable aspect of sustainable museum operations. The interviewee of the Plantage further mentions that a couple of museums have also adjoined in collective sustainable purchase and says that their current project is concerned with collective waste disposal of the different institutions. She furthermore mentions that these museums often come together to discuss sustainability with each other and with other stakeholders in the neighborhood, such as the municipality, the directors and heads of the facility services. It can be said that these museums work together as a green team.

It has also been made clear that in the construction of the museum building, the Van Gogh Museum is a frontrunner in applying sustainability measures in building administration, management and use due to the BREEAM-NL certificate. The Stedelijk Museum was the only one who mentioned working towards receiving the BREEAM-NL certificate as well, indicating that the will to be more sustainable is available, which is seen in the preparations made to be able to achieve this. This implies that the BREEAM-NL certificate as a tool, which, as mentioned, is based on nine categories of ratings, stimulates installing sustainable measurements in museum buildings.

Other museums, such as the Tropenmuseum and the Rijksmuseum were less specific on the actions taken to be environmentally friendly. Nevertheless, all of the interviewed representatives mentioned the importance of collaboration and sharing knowledge and information with each other to be more sustainable and exploring the ways in which they can do so.

## **5.2 Collection**

The second topic to be discussed concerns the collections of the museums. This section will deal with the ways in which museums are environmentally friendly when it comes to their collection (e.g. display of nature or the environment) and collection material and the extent to

which they make use of things like a digital database accessible for the visitors. In doing so, meanings of their collections are discussed as well and if and how sustainability and environmental concerns are included into the overall theme of the museum or certain exhibitions.

### 1. The Amsterdam Museum

In terms of collection and collection material, the interviewee of the Amsterdam Museum says they support the initiative of the 'Kunstloods', an organization that collects used materials from past exhibitions, which other museums and institutions can re-use for other purposes or new exhibitions.

*“There is a letter of intent from us to the ‘Kunstloods’, to invest some money to be able to expand this initiative. This means making vitrines available for others instead of keeping them in storage for years, sometimes not even using them, and in most cases it is still thrown away, which is a waste. There are beautiful things in storage, seen by others but never used, so that is a nice initiative of the ‘Kunstloods’.”*

The Amsterdam Museum offers a separate link on its website, which provides a digital database of the collection, containing 90.000 objects, some of which displayed in the museum, but most of which kept safe in the depots. Visitors can find various pieces that present nature in terms of landscape, animals and flower decorated items and objects. The visitor is able to view the various objects of the online collection, which makes it accessible for future generations, however the link to environmental sustainability concerns here is not visible.

The collection plan, mentioned in the previous chapter, describes the importance of cooperation and mentions the growing awareness of the role of conservation of the museum, but more importantly that the collection needs to be accessible for everyone. The virtual collection is an invitation to participation and can be seen as an intermediate step to the physical depot, activating employees, colleagues, volunteers and others to interact with the collection. In order to guarantee the collection of the Amsterdam Museum for future generations, conservation and management are of great importance, and do not only include the objects the museum manages, but also apply to the buildings. To be able to present more of the collection in storage to the audience, restoration and conservation will be needed for some of the items, in which partnerships will be looked for and developed to share expertise and capacity with other institutions. This is why conversations have been taken place in 2013 with the Rijksmuseum, the Van Gogh museum and the Stedelijk Museum, to explore the possibilities in sharing knowledge of collection management and workforce. All parties have acknowledged the need of cooperation and the need to take action, in response to the new collection management agreements set by the community of Amsterdam for 2014 (Collectieplan 2013-2016, 2013). This indicates that the Stedelijk Museum considers restoration, conservation and collection management as important, which, as seen in chapter 3 is necessary for museums to have a sustainable future.

The museum further displays information, art works and other objects having to do with the development of Amsterdam as a city, educating its audience about the historic developments the city has gone through. It is interesting, however, to see that the museum uses different ways of displaying objects, which could be considered sustainable. For example, beamers are used in a couple of exhibition halls to display images on glass screens. This allows the museum to restore art works while still having a digital version of them displayed on screen. Use is made of pillars to provide information about that specific gallery/ hall/ area, on cards which are replaceable, which can be removed, re-used and replaced. Also a cabinet is displayed in the museum, which is provided with automatic lightening inside, which saves energy. The visitor is also able watch an information video in a quiet area, that provides educational information in a peaceful manner. Some paintings are displayed behind glass, most likely to keep it more protected, resulting in less damage from visitors and saving the museum from restoration costs, which keeps the object intact for a longer period of time.

The visitor also comes across displays which require interaction, such as a bicycle which is connected to a screen with moving images, activated when the visitor actually cycles. This is an educational form of displaying how energy works and invites the visitor to participate and be part of the exhibit that shows the city's relation to bicycles and provides an example of an alternate form of transport, which is also sustainable. It is furthermore possible to find objects made out of natural products such as wood, stone or ivory from animal teeth or horns. It is possible to say here, that although environmental concerns are not presented as such per se, it does show in which way nature is and can be used and it also shows environmental friendly ways of displaying collections.

## 2. Hermitage

When it comes to the collection of the museum and material use, the interviewee says that this is a discussion that is quite complicated. In terms of re-use of material, he says:

*“Our exhibitions are large and often two- and three-D designed, so very graphic, as well as with the décor. These are especially built for certain objects, made out of wood, glass and steel. Then we do as much as we can to re-use big plates of wood.”*

He says that they already practice re-use a lot, from lighting to pieces of wood, support pieces and center vibes and try to take out useable pieces, which can be used for other purposes, but it is not always that simple:

*“...you built a whole wall in your exhibition area, a temporary wall, which is used for 6-7 months and afterwards, it is just being tossed away, and that is something that we are trying to prevent.”*

The website does not provide immediate links that leads to the topic of collection, though, it does provide an overview of the current and upcoming exhibitions displayed in the museum and an archive in which one can find past exhibitions, some of which with objects with additional information. The collection of the Hermitage is not accessible online. The lack of

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information here on the collection of the museum and how this is managed, enables to talk about whether the museum is being environmentally sustainable in its collections.

In the museum itself, it was not evident whether natural materials have been used in the objects and items within the museum, nor was nature displayed in any art or form. The museum did have energy saving and digital displays available, but the link to environmental concerns is absent. The lack of information of how the Hermitage museum deals with its collections in terms of conservation and storage, does not contribute to the image of the museum wanting to be more sustainable in this area. Not being able to find anything related to environmental concerns or sustainability in the museum's collection is due to the fact that it is tied down to the permanent collection of St. Petersburg, however, the interviewee says that displaying environmental issues would be possible in the Nieuwe Kerk, which is another department of the museum where contemporary art and photo exhibitions are displayed.

### 3. Rijksmuseum

In terms of the collection material, the interviewee says the most important thing the museum does is re-use:

*“It depends on whether the material can be re-used or not. Usually the collections are delivered in custom made caskets, which are very specific and have certain sizes, which makes it not always possible to re-use them. But if it is possible, it is re-used.”*

The website of the Rijksmuseum offers an immediate tab on collection, through which the visitor can browse. The visitor can create its own Rijksstudio, where it is possible to design an own piece of art through inspiration of and based on the collections of the museum. Here, the Rijksmuseum enables its visitors to make their own culture by letting them design their own piece of art, such is what Hawkes (2002) talked about in chapter 3. The Rijksmuseum thus has the possibility to engage in participatory art, which involves hands-on community involvement in extraordinary manifestations of vision and purpose (Hawkes, 2002). The website further offers highlights of the collection, allows the visitor to browse through the collection and provides historic tales and stories. The online collection of the museum shows an extensive amount of objects that are available for visitor use, however, no information is found on collection management.

The museum further displays a significant amount of art related to nature. Art works were made out of a various types of wood such as pear, oak, walnut and alabaster, but also materials such as sandstone, marble and ivory are used. Paintings of flowers, landscapes and other nature scenes can be found throughout the museum. Interesting about the presentation of these flowers is the message behind it. Flowers are seen as the most colorful subjects of nature, which requires skill and resourcefulness. One of the bouquets displayed, for example, is a representation of wither and eventually death. Other representations of nature are often linked to that message that everything is impermanent in the world, it represents wither of youth and life and other earthly things.

The museum furthermore displays a certain amount of paintings in which nature is presented through different landscapes of different countries. Each of the painters has his own reasons for painting certain landscapes, displaying the beauty that they see. In Romantic art, a central theme is a longing for drama or sentimentality, noticeable in landscape paintings: a storm is fiercer, a dark sky is more threatening and a tree is always larger in real life. The intent is not on rendering reality faithfully, nature is presented as overwhelming or, alternatively, as intimately connected to man.

Nature is also displayed in terms of the characteristics to humans attribute to animals. The eagle is mighty because he is the ruler of the sky. The lion is considered to be the most powerful on the land and symbolizes pride, power and victory. In paintings people often had themselves painted with animals; hounds and horses revealed status and a wealthy lifestyle. Next to this way of using animals within art, use was also made of animal products, such as sculptures made of ivory from elephant and walrus teeth, and moose antlers. Also bugles and horns are made out of these materials.

Also interesting in the Rijksmuseum is the exhibition that shows the reaction to mass production of the Industrial Revolution, which made handmade objects popular again around 1900. The basis for pattern and ornament in furniture and other applied arts were motifs from the animal and plant worlds. This helped evolve a stimulating and sometimes exotic living environment that reflected spiritual and material riches.

Although the museum does not link these works to environmental concerns, potential is seen here to make a connection to the use of nature by humans and the result of this in environmental degradation, in for example how animals have been used (and killed) for the purpose of making of art. By doing so, the museum creates an awareness of the beauty of nature being destroyed and the need for protecting it. Here, the above mentioned message can come into place, emphasizing that if human actions do not change, the world we live in will not survive.

#### 4. Scheepvaart Museum

In terms of collection material, the interviewee says that they make use of wood that carries the FSC brand, which he calls ‘honest wood’ (eerlijk hout). They also practice re-use of materials by working together with the initiative of the Kunstloods:

*“In the past, a couple of years ago, when an exhibition was broken down, we had 2 options: either keep it in storage or throw it away; but eventually it was thrown away anyway. Since a couple of months, we have a covenant with the Kunstloods, which means that when we break down an exhibition, and we cannot make use of it anymore, we offer it to them. They take it to a barrack and other cultural institutions, who have less to spend, withdraw pieces, objects, parts, walls, vitrines, etc. And we do this because we really want to practice re-use, not waste, but re-use, a nice initiative of the Kunstloods.”*

The Scheepvaart Museum provides information about different exhibitions the museum offers and shows pictures of each exhibition, presenting an image of what it looks like on their

website. 'The tale of the whale' shows how humans' image of the whale has changed over time. This exhibition explains how the whale, first seen as a sea-monster, was hunted down by humans, which led to the almost extinction of its species. Environmental activists have risen all over the world to protest against whale hunting. The exhibition allows the visitor to learn about whaling and how this has turned the creature into an endangered species. This example shows that the Scheepvaart Museum pays attention to environmental concerns. This exhibition, moreover, was made with the support of the World Wildlife Fund.

The Scheepvaart museum has an extensive variation of displays and exhibitions. Next to paintings, sculptures, pictures, and exhibits of all kinds of ships, the museum also presents books, maps, interactive displays, audio information, films and projections with moving images to present the collection. When entering the exhibition areas of the museum, one is immediately confronted with the way different kind of (natural and manufactured) products are being shipped throughout the world. Of the natural products, charcoal, coffee beans, cacao beans, oranges and oil are displayed, next to used electronic products and car parts, which represent the way these are being transported by ships. This reflects the ways of industrialization and the enormous amounts of products subtracted from countries for exportation.

Further displayed in the museum are the paintings of the Scheepvaartmuseum. Paintings of sea scenes emerged as a lively market in the 17<sup>th</sup> century, when the maritime industry had become a major driver of the economy, next to already being a source of national pride. Over time, seascape painters were influenced by romanticism and impressionism, where favorite themes were the mysterious power and beauty of nature and man's significance. The museum claims that its collection is of world-class quality and show how rich the tradition of Holland's glory really is. In addition to this theme of the sea life that formed Dutch culture is the exhibition "The navigational instruments". This exhibition shows how ships depended on the sun, moon and stars to navigate the seas up until the last century. It shows how seamen and sailors used to be dependent on nature to find their way at sea. These exhibitions are important for Dutch culture as they show how the sea has been of influence in forming it. As mentioned in chapter 2 cultural sustainability is also of importance, as it involves cultural capital that needs to be passed on to future generations.

The museum consists of 400.000 objects, giving nearly a complete image of the maritime history of the Netherlands. It is said that the collection is of major national importance and has prominent position in the international field. It is said that the museum has a team of 7 curators introduced on the website, however no mentions were found on (sustainable) collection management.

##### 5. Stedelijk Museum

The interviewee of the Stedelijk Museum says that no actions have been taken yet to be more sustainable when it comes to material use, as well as lighting. He said that everything is still done with halogen lights instead of LED-lights.

*“That is because the design of the museum. The new building dates from 2005, when LED was not such a big issue then. So halogen lights were purchased. The expense was different back then, we are talking about 1000 bulbs and 1000 new bulbs will cost 450.000 euro, which is a big investment.”*

He does say that these things still need to be addressed and that it’s a matter of time that this will be done:

*“These lamps will not work forever, so they have to be replaced sooner or later. The lamps we have now are not being produced anymore and also not being delivered, the parts are hard to get, so it is a matter of time for us to make actual change. We are working more on that.”*

The Stedelijk Museum provides the visitor with online information about the collection, publications, research, collection care and conservation. When it comes to the online collection, the visitor can choose out of a range of categories, from design, paintings and sculptures, to drawings, photos, posters, films and videos. Each category presents images of an extensive online collection, arranged in alphabetical order of the artists. Although the visitor can view an image of a certain art work, information about the art work itself, the meaning or reason behind it, is not provided. However, digital access to the collection for current and future generations is available.

It is furthermore possible to find a broad scope of information online about collection care and its department, which focuses on establishing and maintaining optimal conditions for the museum’s collection and objects on loan. This is done through the implementation of various preventive conservation measures like environmental monitoring and control, pest control, choosing appropriate materials for storage and display, storage and display maintenance. Further information is also given about the collaboration of the Collection Care department and the Conservation department. It is said that the Collection Care department contributes to the preservation of the museum’s collection through the appropriate management of work processes and development of service-wide strategies (as risk management and emergency planning). This department is furthermore divided into several disciplines in order to meet its mission of long term preservation. Furthermore environmental concerns of the objects are described. It is said that objects in storage require the same quality of long-term protection as those on display. Therefore, for the wide range of materials represented in the collections, the Stedelijk Museum says to offer a state-of-the-art offsite storage building which offers secure and stable environmental conditions. To ensure suitable environmental conditions for various types of materials, five separate climate zones are installed. The Audiovisual Collection Care department is responsible for ensuring that the multimedia collection remains available for future generations, which is why appropriate preservation plans need to be developed.

From this information it can be said that the Stedelijk Museum is in control of the housing, preservation, conservation and management of its collections, which is a prerequisite for museums to be sustainable in this area.

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The museum displayed art works of Henry Matisse during the time of the observation. This was the main theme presented throughout the museum and provided information was about the artist and his works. According to the Stedelijk Museum Matisse tried to find the most possible union between shape and colors, depicting Eastern nudes, fabrics, carpets, potted plants and idyllic landscapes. Matisse sought to evoke a bright, joyous simplicity with the minimum of means. He was never able to fully take the step to make only abstract art, he appreciated reality too much. One particular piece of art and apparently one of the visitor's favorite, is his presentation of the parakeet and the mermaid, which is made out of paper cut-outs, which is Matisse's conception of nature. Due to his illness, Matisse was forced to remain indoors; the parakeet and the mermaid represent his own garden to surround him with real and made plants, flowers and birds. Because he could not go outside, he was still able to take walks in his homemade garden (information book: De Oase van Matisse, 2015).

Other findings in the museum which can be linked to conceptions of nature are the works of Richard Long. He created conceptual works beyond the boundaries of his studio by using materials he found during long walks in remote areas. By making subtle interventions, Long incorporates the landscape and nature into the domain of art, making photographic documents of his sculptures and afterwards leaving them to nature. Other works, associated with the Nouveau Réalisme movement, refer to a group of young artists who drew their inspiration from popular culture by incorporating found objects and materials into collages and assemblages.

Even though these exhibitions are not concerned with environmental issues, this information can be linked to Arbuthnott's (2014) research in chapter 3, where he states that exhibitions about nature have proven to increase the connection from individuals to nature. This can be used to make a relation with other exhibitions in which pro-environmental behavior is stimulated.

## 6. Tropenmuseum

As was the case with the Amsterdam Museum and the Scheepvaart Museum, the Tropenmuseum is involved with the 'Kunstloods', as mentioned by the interviewee:

*"It is often also the builder of the exhibition that wants to save parts, so that other museums can take what they need. That is the initiative of the 'Kunstloods', we are also involved in that, so that is what we focus on."*

The Tropenmuseum has furthermore chosen to buy a standard system for vitrines, which is given to the designers and allows them to use it for the coming 10 years:

*"Before we used to work around the exhibition, building different sizes for each exhibition, after which we threw it away or used for maybe two more exhibitions. But another time the exhibition was quite different and each designer wants to have a different design and structure. So now we've said, these are the vitrines and this is what you have to work with. These include glass and iron, so in this area we've improved a lot already."*

The collection consists of material cultural objects, photographic material and other imagery like drawings, paintings and documents.

The Tropenmuseum is divided into different sections or exhibition halls in which objects, artworks and artifacts of different cultures are displayed. These explain and describe the connection to nature and what it means to them. Animals symbolize different things in different cultures. In Asia for example, birds are associated with the divine, as messengers from the Gods. This animal is important in countries such as Indonesia and Thailand, visible in the notion of emblems and as an airline logo. Another example is the serpent, which symbolizes the cosmic ocean and fertility and reflects the contacts with Hinduism. The ancient serpent symbol is also combined with the Chinese dragon, appearing in numerous objects and in a stylish form.

Another interesting representation of nature is the flower, which stands as a symbol for fertility in South-East Asia. Their form, color and scent have various meanings in different religions. The lotus is for Buddhists a sign of purity, a red rose represents the female for Javanese, while a white rose represents a male. In Islamic mystical texts, the garden of paradise is full of flowers, of which the fragrance leads to God and reminds the promises of the afterlife. Special meaning is given to the tree full of flowers: the tree of life, of which the branches stretch up to heaven, standing firmly in this world, with its roots reaching down into the world below. The tree represents the entire cosmos of heaven, earth and the cosmic ocean.

These different meanings of nature elements are shown (often as decoration) in different artifacts and objects, dependent on the meaning and the culture in which it is displayed. These are often also made from natural materials, such as wood, bamboo, leaves. Etc.

Also shown in the museum are objects from Indonesia, that the Dutch have taken back to Holland during the years of colonialism. It is said that the Dutch initially came to Indonesia for trade, but over the years became attached to the culture, natural environment and the people. Collectors and scientists found an inexhaustible source of objects, plants, animals and customs previously unknown to Europeans. European collectors also brought items that were strange and special to them and presented these in the so called '*Rariteitenkabinet*', translated to the Cabinet of Curiosities. The collection consisted of exotic stones, pieces of coral, shells, reptiles, butterflies and plants, but also coins, sculptures and textile. Drawings of these rarities can also be found in this cabinet.

The museum further shows a collection of various creations made out of wood, which were found in New Guinea as a result from an exploratory expedition. Researchers ventured into unmapped areas, charting the coastlines and the rivers, returning with animals, plants, rocks and ethnographic objects for research in Europe.

It is further explained how the Papuans were connected to nature, which was a mass of repetition and a continuous cycle of consecutive events for them. Using rituals to celebrate the creation of the world and fertility and funeral rites express how death was the beginning of a new life. The people of New Guinea employed a whole range of natural resources to build what they needed in terms of weapons and tools. Wood, reed and plant fibers were the principal materials for making houses, canoes, sculptures, clothes, carrying nets and arrow shafts. The objects of the New Guinea's ancient cultures reveal sophisticated knowledge and the expert use of natural resources.

The museum further provides more of these examples in how nature is used as a resource to provide for human needs. Also seen in the museum is the history in clay, displaying how pottery was more than just utensils; the motifs with which objects were decorated expressed the essence of existence.

All of these exhibitions are examples of how the Tropenmuseum informs its visitor of the way different people, from different countries and with different cultures, deal with their natural environment. However, none of these exhibitions shows any link to environmental concerns or sustainable development. This museum, in comparison to the others in this research has the biggest potential and possibility in explaining the importance of biological and cultural diversities for sustainable development. Their exhibitions about nature can furthermore be linked to the notion of Arbuthnott et al (2014) in increasing the connection of individuals with nature, creating a better understanding and compassion for it and thereby stimulating pro-environmental behavior.

One of the online highlighted subjects is the Papua Web Special, a digital exhibition of objects and photographs. Although it doesn't say so in the English version of the page, the Dutch version mentions that the Papua web special has been made possible with support of the arrangement 'Digitaliseren met Beleid' (DmB), which is translated to '*Digitalizing with policy*' by Lechner, Nauta & de Niet (2013). The DmB is aimed at sustainably embedding the digitalizing process in organization, policies and work processes of cultural heritage institutions. To be able to arrange the requests for digitalization and to base the judgements of the requests on their total quality, three criteria were used:

- Innovation; for significant improvement in digital services
- Accessibility; to anchor interoperability and sustainability in policy
- Active knowledge sharing; to stimulate cooperation

This information shows that this exhibition is concerned with sustainability in its policy, however it is not clear if this is the case for the other exhibitions as well. Although the Tropenmuseum furthermore offers a digital collection, where visitors can find information about objects, the exhibitions they are displayed in and their origin, further information about sustainable collection management is not provided.

## 7. Van Gogh Museum

The interviewee of the Van Gogh Museum was not able to say how they deal with environmental concerns in relation to their collection. He did talk about their purchase policy which is integrated in their CSR report:

*".. we take into account material purchase on various aspects. CSR is a part of our purchase conditions. We also do so in our housing. Our office furniture comes from a company that recycles furniture."*

The presentation of the art works are mainly paintings and a few digital screens that provided some information and interactive assignments for children. Next to paintings, the museum

also had wall sized photos and pictures of drawings, paintings and letters. One can see the different use of light in different exhibition areas to accentuate and highlight paintings or parts of it, or how dimmed light was used in cases where the works were too sensitive. This information is also provided to the visitor, which indicates that the museum is aware of their environmental impact and uses these measures to try to decrease them. By providing this information to the visitor as well, the museum increases their awareness on their environmental concern.

Visitors are able to learn how Van Gogh had the desire to live deep in the country and to paint peasant life, which he idealized and which was better than the civilized world in many respects, according to him. He believed that peasants and farm workers were close to nature, that their life was linked to the cycle of sowing and harvesting, of life and death. Van Gogh was inspired by French peasant painters of the 19<sup>th</sup> century, who portrayed life in the countryside. They honoured this honest and humble existence, which Van Gogh kept in mind and used this to transform his love of nature and the rural landscape into depictions of diggers, sowers, and peasant dwellings. Later on, Van Gogh was in need of quiet and space to be able to find his own direction, which made him move to the countryside in the South of France. Here, he was struck by bright light and shimmering colors and dazzled by Arles' natural surroundings, which led him to paint various nature themes such as orchards in bloom, scenes of harvesting and fields of flowers. Van Gogh's simple paintings were able to convey how deeply he felt the essence of life, beauty and tragedy alike. In the last months of his life, in 70 days' time, Van Gogh painted 75 paintings in which nature was displayed in all her appearances: a garden full of flowers, a close up of waving corn and panoramic landscapes full of emotion. Van Gogh tried to display the emotions he felt when looking at a sunrise, a blade of grass or a plowed field. Nature had a religious meaning for him: he felt comfort and consolation and could regain his strength through it. He described the effect of nature's landscapes on his constitution as healthy and invigorating, as nature had a salutary effect on his unsteady state of mind.

The exhibited collections in the Van Gogh museum do not display environmental concerns. However, referring back to Arbuthnott et al (2014), the way nature is presented in these works shows clear links to the impact it has on the authors health and well-being. This can be used to increase the connection of the visitors with nature in such a way that stimulates pro-environmental behavior.

A great deal (if not all) of the works of Van Gogh is presented online. The website not only presents the story of his life and the developments Van Gogh has gone through, it also presents collection highlights, self-portraits, animal paintings and drawings, the way van Gogh depicted peasant life, portraits of his family members, and letters he has written throughout his life. Each of these subjects redirect the visitor to a remarkable amount of pictures and images with additional information of each of the images. This shows that the museum has an digital database of its collection that is accessible to the visitors. It does not, however mention a strategy that includes a sustainable collection management.

### 5.2.1 Conclusions in the area of Collection

Museums have a role in the sustainable development and management of their collections. Museums need to collect, conserve and document with long-term obligations and liabilities in mind (MA, National Council, 2002). The Amsterdam Museum and the Stedelijk Museum were the only museums who provided information about the housing, restoration, preservation and conservation of their collections, which indicates that they have a collection management strategy in place. The Tropenmuseum did provide information about a certain exhibition that is concerned with sustainability in its policy, although it was not clear if this was the case for the other exhibitions as well. For museums to become sustainable institutions, a sustainable collection management is necessary in which value and significance are described and where collections are effectively housed and documented (Merriman, 2008). As information on collection management was not found for the other museums, it was not possible to determine how these museums are dealing with their collections in storage as well as the collections on display.

The connection with nature appears to be important in increasing pro-environmental behavior. In addition to this, exhibits about nature and environmental issues have proven to increase the connection to nature and their knowledge about it (Arbuthnott, 2014). It can be concluded that nature is presented and displayed in five of the seven of the museums in Amsterdam, some more extensive than others. The Hermitage and the Amsterdam Museum did not present nature in any way. This is due to the fact that the exhibits of the museum are tied to a certain collection, that relates to the overall theme of the museum. Nevertheless, possibilities to include nature or concern for the environment do exist, whether this is in another department, such as for the Hermitage, or within another exhibition, such as for the Amsterdam Museum and for the Stedelijk Museum. The Tropenmuseum and the Rijksmuseum presented the most exhibitions in which nature is displayed. In the Tropenmuseum, the connection with different cultures and their surrounding environment is displayed and how they deal with nature. Different cultures ascribe different spiritual meanings to nature. The Rijksmuseum also exhibits nature in various art works, often with a message behind it. Nature elements represent wither and dead and reminds us that everything is impermanent in this world.

Although nature elements are present in these collection, these show no links to environmental issues. This indicates that the awareness of the importance of nature exhibits to inform about environmental concerns is absent. The relation of connection with nature to pro-environmental behavior needs to be acknowledged if museums want to enhance their social relevance.

Next to these methods, museums can also be more sustainable in the area of collection, by reducing their waste and considering their environmental impact in terms of for example exhibition and building material (MA London, 2008). It appears that museums in Amsterdam are increasingly using methods in which materials are re-used or recycled. This is made easier with the initiative of the Kunstloods, which collects used materials from past exhibitions and enables other museums and institutions to re-use them. The Amsterdam Museum, Scheepvaart Museum and Tropenmuseum are already involved with this initiative, while the Hermitage

and the Rijksmuseum have said to practice re-use of material whenever this is possible. However, if re-use of material is not possible it can be assumed that this is still disposed of, which is not beneficial for their environmental impact.

### 5.3 Education

Education is one of the main tasks of a museum. Museums can play an educational role as well in relation to environmental concerns. In this section the ways are shown in which the seven museums deal with environmental concerns in their educational activities. This is done by looking at educational programs for children and adults and to what extent environmental concerns are included in these programs. Moreover, the ways in which the museums are involved within the community is shown and to what extent they try to encourage participation in museum activities, related to environmental concerns.

#### 1. The Amsterdam Museum

The Amsterdam Museum provides programs for (school) children and offers free learning material. Various programs related to the subjects displayed in the museum are offered. For primary school children, the museum offers free transportation. For adults, the museum also offers various activities, such as (audio) guided walks through the different parts of the city to learn about and get to know the city better. These tours are in collaboration with izi.Travel, which provides audio guides and city tours for museums. Another example is the IProvo route, which is a free app that guides the visitor to different places in the city. It is said that Provo tries to make the world a better place with its playful plans: ‘the white bicycle plan’ is an example of this, in which white painted bikes are offered to visitors as an alternative to the pollution of cars. However, a clear link to environmental concerns is not present. This was also stated by the interviewee:

*“No, I don’t think the museum is educative about environmental concerns. At the moment it is an issue that the employees are more and more concerned about, but it is not an issue in our expressions to the outside world, yet.”*

The Amsterdam Museum, however, does make a link to their local environment. The museum presents its website as the community site of the city and offers a separate link called ‘Hart’ (heart), to the community site of the museum. The visitor is invited to discover the pearls of the city, to participate and to share knowledge. Here it is possible to take a look behind the screens of the making of certain exhibitions, but also to become a volunteer of the museum and to participate in museum projects. Information is also provided about ‘Het Fundament’, which consists out of business owners that have formed the foundation of the city. The Amsterdam Museum offers to be a stage for these business owners to be able to connect with each other and with the history of the city.

Next to ‘Heart’ the website also offers a link to ‘the history of East’ and ‘the history of West’. Both of these separate sites offer an interactive platform for the people living or have lived in these parts of the city and invite them to share their story or memory about East or West Amsterdam. People can also participate in workshops and it is also possible to make a

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contribution to the city in different ways. The website further provides information about what facilities, shops, organizations, etc. can be found in both parts of the city.

These activities the Amsterdam museum offers to the community, is a good example of civil engagement, referred to by Black (2010) in chapter 3, in which he explains how the visitor can be stimulated to play a more active role, and possibly contributing to content of the museum, which helps the museum fulfil its role of learning institutions for its community better.

## 2. Hermitage

The Hermitage has a separate website and department for (school) children (The Hermitage for children), which offers an extensive educational program for a variety on curriculums: the Hermitage School, the Hermitage Academy, the Hermitage Atelier and the Hermitage Workshop, all made possible by the VSB-fund.. The Hermitage says that education is an important pillar of the museum, stating that every child has the right to discover its artistic talent. The ‘Hermitage for children’ is an exclusive and educative premises on another location with the principle of ‘social inclusion’, meaning that all children should have the chance to get into contact with visual art, museums and creative environments. Different educational programs are offered for different levels of education for school children between the ages of 4 and 18 years. This includes guided tours, historical highlights, looking cards and study programs with specific topics. The museum also offers free transportation to primary schools, with the ‘Culture Bus’, which takes them to 17 cultural institutions, including the Hermitage.

The Hermitage also offers courses for adults and provides a studio in which visitors can let themselves be inspired to create art. The museum also possesses an education center, which enables the visitors who are eager to learn, to have access to a wealth of information about all sorts of subjects relating to the Hermitage. Here, visitors also have access to the film archives and the library.

Even though the educational facilities for the visitors are clearly available, no links are made to environmental or sustainable concerns. The observation visit showed to what extent the museum is bound to specific exhibitions from the Hermitage in Russia and in the current exhibitions an exquisite amount of objects are displayed. It is not possible to link these to nature/ environmental concerns. This also came forward in the interview. The interviewee of the Hermitage could not name examples showing that the museum educates the audience about environmental concerns. However, the interviewee stated that the museum does want to communicate certain environmental friendly activities to the visitors:

*“Well, we are currently working on a display of some sort, downstairs in the entrance hall, to show how we practically work with solar-cells within the Hermitage.”*

He mentions that he just recently received government funding to realize this and with this he wants to be able to generate their own energy, which means less energy can be extracted from their energy provider.

*“This is our third sustainability pillar, generating our own energy, next to collective purchase and saving energy. And I really want to show this, also on the website, so maybe right above in a corner, that you can click on energy. That we generate real-time energy and that we try to be more sustainable in this way”.*

Although the link to environmental and sustainable concerns could not be found, the Hermitage does fulfil its role as learning institution and it can even be said that the museum is engaged in free-choice-learning, as mentioned in chapter 3. With the ‘Hermitage for children’ school, the museum acts as supporter and facilitator to its young visitors.

### 3. Rijksmuseum

The Rijksmuseum offers a variety of educative and interactive activities such as family tours, family workshops and various activities for families with children. For schools, the museum offers various programs, depending on the level of education. The tab ‘Now in the museum’ has information for adults, where guided tours, workshops and courses, readings, symposiums and a roundabout are offered, the last is in collaboration with the Blue Boat Company.

Although the Rijksmuseum offers various ways to educate their visitors, environmental aspects or links to environmental sustainability could not be found. This was confirmed by the interviewee who stated moreover that she also thinks that it is not possible to educate visitors about concerns related to their art work:

*“Well, that is not our purpose. We are a museum for art and history, but making an exhibition about sustainability is for another museum. That does not fit our policy.”*

Even though there is a lack in the museums programming when it comes to environmental and sustainable concerns, as seen in the previous area, the museum does offer its visitors the opportunity to create their own art works, based on the museum collections. By doing so, it can be said that it allows the visitor to create their own learning experience, although this will most likely not be used in the content of the museum. It can furthermore be said that the museum uses its objects, collection and knowledge to produce educational exhibitions and programs to inspire people, have them share similar interest and have a personal experience (Skramstad 1999, used by Byers, 2008).

### 4. Scheepvaart Museum

The Scheepvaart Museum offers audio and guided tours to its visitors and provides a lot of information on their website aimed at educating different audiences. There is information for school children on how the sea has defined Dutch culture, they do so by referring to their exhibitions of the museum. Schools and groups are offered four different tours, however, environmental concerns or sustainability issues are absent in this area.

The exhibitions provide a lot of educational information for the visitor about the maritime industry. Through various forms of display and presentation, information is provided. For children, an interesting exhibition has been made about one of nature’s biggest sea creatures: the whale. A (supposedly) life sized whale is installed, where the visitor is able to walk into

the mouth of the whale. A lot of educational information is furthermore presented and fetuses of whale babies are also displayed.

The interviewee further also mentions that the museum's latest acquisition has been a solar ship from Delft, one that sails purely on solar cells. Even though the ship is not displayed yet, it is possible that it receives a permanent spot within the museum, educating the audience about sustainable developments in the shipping industry.

*“One of our temporary exhibitions, in the near future, will be about steam ships and displays luxury on board, and these kinds of new techniques, about sailing with sails, to steamships, to diesel motors and to solar powered motors will be displayed.”*

With this information it can be said that the museum does educate the audience about environmental concerns in one exhibition, showing what the consequences are of whale hunting and that a change in behavior is necessary if we don't want its species to get extinct. The interviewee also mentions future plans to display sustainable developments in the shipping industry, indicating that the museum is also concerned with sustainable development. By presenting both environmental concerns and sustainable development to their audience for educational purposes, it can be said that the Scheepvaart museum fulfils its primary goal as educational institution and uses its exhibits to address current issues. Here museum education is used to offer informal education as it displays objects of art and history to stimulate the senses and educating their audiences with their educational exhibitions and programs, as mentioned by Byers (2008) in chapter 3.

##### 5. Stedelijk Museum

The Stedelijk museum offers various educational methods, appropriate for different visitor groups, such as families, schools, youth and adults. For families and children, the museum offers the 'Family lab', in which creations can exist through workshops. A various amount of educational programs are offered to school children at different levels of education.

The Stedelijk Museum also offers young adults between 15 and 19 years the chance to have a part time job at the museum, allowing them to give tours, advice and critical opinions about all aspects of the museum. They are called Blikopeners with a fresh perspective on art, representing a wide variety of backgrounds, studies and coming from the Amsterdam region. By using their own personal experience and knowledge, they help to open other people's eyes to the world of art. next to giving tours, they also organize activities for people their age and work as peer educators as part of the Stedelijk Classroom. They furthermore give lessons to students together with museum educators and organize workshops and events outside the museum's walls with different partners.

For adults educational programs are given through audio tours, guided tours, public programs for discussion and debate, instruction guides and assignments and educative activities. These programs are often linked to the current exhibitions in the museum, and the world behind the objects. Information is also provided about a 'Public Program' offered by the museum. This program, with readings, film screenings, book presentations, interviews, music and dance

performances, guided tours and events, is meant to offer a platform for discussion about contemporary art. It informs, contributes to and asks critical questions about the collections and exhibitions of the museum. Experts from other parts of the world are invited to share their experiences, insights, and research findings with the museum.

Education about nature/ environmental concerns is not available, but the interviewee sees some possibilities for the future to display these issues:

*“It might be possible, but that is not my area. But I believe that it could be possible, I just think that the awareness is not there yet. And that’s what it all starts with, awareness.”*

It can be said that the Stedelijk Museum is also involved in civil engagement in that it enables young adults to express their questions, opinions and perspectives, and providing a flexible learning environment in which the visitors play an active role. The museum acts as a supporter and facilitator, which helps it to provide free-choice-learning (Falk & Dierking, 2002, Black, 2010). The museum is also engaged in civic engagement, acting as community forums for debate of various issues through programs and exhibition that combines education, entertainment and inspiration (Byers, 2008)

## 6. Tropenmuseum

The Tropenmuseum has paid explicit attention to environmental sustainability in one of their previous exhibitions, namely “Man and the environment”. The interviewee stated that the main focus of the museum is their collection. It depends on the funders which exhibitions will be displayed:

*“This museum is very much involved with humans and the fact that it has a lot to do with its surroundings and nature, so yes, sometimes it is possible to display environmental issues, sometimes it is not. I can’t say if we will ever go back to the exhibition (Man and the environment).”*

Because the museum has been fused with two other museums, the funders and money lenders are now different and they have different priorities.

*“.. the environment will probably be displayed less but I don’t think it will ever fully disappear, because it influences human doings in many ways. So I think we will definitely keep paying attention to it, but I think it will rather be a theme in an exhibition, rather than a whole exhibition wing, which it was before.”*

Educational activities of the Tropenmuseum are mainly focused on school children. Various activities, such as quests, crafts, travel stories, coloring pages and the Tropenmuseum Junior, which is a separate wing in the museum with a children’s’ exhibition. These activities allow them to learn about the objects from different parts of the world. The museum offers various educational programs to explain these in appropriate language. For example, for the little ones, primary school children, the museum offers a tour that shows the animals of the museum, and a theatrical tour through Morocco. This gives young children insight in other

cultures and traditions displayed with objects and artifacts, and by doing so increasing their knowledge of other countries in the world.

For adults, the Tropenmuseum offers an interesting educational program for people in the Netherlands, who don't have Dutch as their first language. This program allows the visitors to talk about an object they find interesting of their own culture, they get a tour through the museum and get the chance to discuss the topics together. The Tropenmuseum offers various programs and activities having to do with other cultures, in which nature often plays a part.

The Tropenmuseum also organizes symposiums and debates, in which the museum offers space for reflection and discussion about collections and themes that transcend cultures. These meetings are often accessible for everyone, sometimes these are for museum professionals and experts, conversing about a museological theme. During the symposiums, collection books of the museum are also presented, about the permanent exhibitions in the museum, explaining the stories behind the objects and pictures.

This information indicates that the Tropenmuseum also engages in experiential and participatory education, where learning occurs outside of the school classroom, and can be said to be museum education that is designed to stimulate the senses by working with real objects of art and history, which is highlighted by Byers (2008) in chapter 3. By organizing symposiums and debates, accessible for both the general public and professionals and expert, it can be said that the museum is involved in both civil and civic engagement, by actively engaging and deepening deeper connections with and among their visitors, learning to better serve their constituents and work to improve their communities. (Byers, 2008).

### **Past exhibitions Tropenmuseum**

In this section, information is given about past exhibitions in the Tropenmuseum, as these are directly concerned with environmental issues. It gives insight and provides an example in the way museums can integrate environmental concerns in their exhibitions.

#### Man and the environment

In the exhibition 'Man and the Environment', the Tropenmuseum shows the relationship between humans and their diverse interests related to the environment. Four eco-systems were presented: the tropical rainforest, the savanna, the busy city life (the man created eco-system) and the seas and shores. The exhibition explained differences in the various interests within the eco-systems: from local populations living within the eco-systems and of the ones who claim the products and raw materials from these eco-systems. The features, meanings and threats of each eco-system were also presented. Through slideshows and video programs, the visitors could meet the different stakeholders within the eco-systems: a wood chopper, a breeder, a cotton farmer, a chauffeur, a coral researcher, a fisherman. Each exhibition of an eco-system ended with a glimpse of the future; what can be done or is already being done to avoid the loss of the eco-system? With an interactive computer program and various future perspectives of the different stakeholders, the visitors were able to think of their own future perspective in how to deal with the issue.

The exhibition has been in the Tropenmuseum for 17 years and had become outdated according to the previous head of exhibition Marga van Berkel (2013), which is why it has been torn down and is no longer part of the museums exhibitions. However, this example shows the interrelatedness and interconnectedness between humans and their environment and educated the audience about the importance of eco-systems, the cause of its loss and stimulates the visitor to think about the consequences for the future.

### Mix Max Brasil

Mix Max Brasil was a temporary exhibition for children, showing the works of famous Brazilian artists of Pernambuco, who have learned to find different and creative ways to earn their living and deal with the environment. The exhibition shows the work of up-cycle artists, who turn garbage into something new, without losing sight of what it previously was. Old plastic bottles are transformed into animals, and parts of old machines (like washing machines) are used to make new music instruments like drums. Other artists use plastic bottles and caps for to create art. One of these artists uses these to make “*petkamers*” (rooms made out of PET-bottles, polyethylene terephthalate), rooms that are fully made from plastic bottles.

To gain more information about this exhibition, the visitor was able to buy a storybook offered by the museum called “*De Slipper van Maria Bonita*”<sup>4</sup> (the flip flops of Maria Bonita), which provides more information about Pernambuco and its capital Recife and about the various people and artists who have been important for the city with their work.

This exhibition shows the many ways in which PET-bottles can be recycled, re-created and re-used for other purposes. Instead of disposing of these PET-bottles, which causes pollution, they can be used in many different ways, which also stimulates creativity. It educates its young visitors about how the people of Pernambuco deal with the means they have to provide in new and resourceful ways of living.

Both of these exhibitions can be seen to educate the audience about environmental concerns and the consequences of certain actions. On a wider scale it can help the visitors gain a greater understanding of the interdependence between humans and their environment and help them identify and discriminate between sustainable and unsustainable practices. It can be said that the Tropenmuseum has fulfilled its agency role by challenging people to imagine a sustainable future, in which they are able to know what to aim for and think about the consequences of their actions and behavior, as suggested by the MA, National Council (2002).

### 7. Van Gogh Museum

According to the interviewee it is possible to educate the audience about nature/ environment. He says:

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<sup>4</sup> Ruben & van Ogtorp, *De Slipper van Maria Bonita*, 2012, KIT Publishers

*“It is always being looked at. In the first place, when we talk about sustainability towards the audience, it will mostly be about Van Gogh’s paintings and how we conserve these in a sustainable manner and how we show the world everything that lies behind the paintings. So the meaning of Van Gogh, which a whole lot of studies are dedicated to. If there is an entrance to do this, it will be used.”*

Supposedly this means that the Van Gogh museum is involved in doing research in which the audience can be educated about the museum’s collections, by looking for the meaning behind the paintings. Informational displays describe how Van Gogh felt about nature, explaining how the natural environment had a positive effect on his well-being. The museum makes sure that the audience is aware of this and links this information to his paintings of the natural environment.

The van Gogh Museum offers information for primary and secondary schools and free teaching materials can be found, which can be downloaded to use in class, as well as information and guided tours for groups. Further information can be found on what actual activities in the museum on exhibitions, guided tours, workshops, storytelling and highlights. Activities being organized by the Van Gogh Museum, include a walk-in workshop, a special program on Friday night with music and guided tours, an exhibition that presents thoughts from contemporary artists on the works of Van Gogh and interactive guided tours.

This information indicates that the Van Gogh museum is not involved in educating their audience about environmental concerns. Although they do organize and provide interactive activities, these are not linked to environmental or sustainable concerns, nor can these activities be connected to civil or civic engagement.

### **5.3.1 Conclusions in the area of Education**

As Byers (2008) mentions in chapter 3, a primary goal of museums is education. Educational exhibits and programs are often based on the objects, collections and knowledge they present. According to the findings, all of the museums in this research offer educational programs and activities for adults and (school) children, some more extensive than others, based on the collections displayed in the museums. The Hermitage museum, who says that education is an important pillar of the museum, offers an extensive educational program for children to discover their artistic talent. The Tropenmuseum also has a bigger focus on children, allowing them to learn about objects and artifacts from other cultures and countries and designing special exhibits for them. The Scheepvaart Museum also designs special exhibitions for children and with their current exhibition on whale hunting and the consequences that lead to extinction, it can be said that education about environmental concerns here are present.

Programs and activities for adults often include guided tours and audio tours and sometimes workshops. Next to these programs, the Rijksmuseum also offers courses, readings and symposiums and a roundabout tour in collaboration with another organization. The Amsterdam Museum also offers guided tours and walks through the city in collaboration with two organizations, educating the participants about the different historic parts of Amsterdam. Here, the link to environmental concerns can be made, as Provo, the organization they work

with, says to make the world a better place, by offering the use of free bicycles to visitors as an alternative to polluting cars. Other than these two examples, it can be said that educational programs offered by the museums in Amsterdam, are not concerned with environmental issues.

Black (2010) states that museums should focus on actively encouraging participation and should be committed to incorporate their voices and life experience. The findings indicate that four of the seven museums engage in civil or civic engagement. The Amsterdam Museum contributes most to civil engagement, as it presents its website as the community site of the city, where the visitor is invited to participate, discover and share knowledge. People living in Amsterdam are able to share stories and memories about the city on the interactive platform provided by the museum. It can therefore be said that the Amsterdam Museum fulfils its role as learning institution that helps to build a stronger community. As is said in chapter 3, building stronger communities will be much more effective if it is carried out with others (Black, 2010).

The Stedelijk Museum contributes to civic engagement, offering a public program in which experts are invited to participate in various activities that includes sharing their experiences, insights and research findings with the museum, in order to offer a platform of discussion about contemporary art. The Tropenmuseum contributes to civic engagements as well, with symposiums and debates they organize, in which the museum offers space for reflection and discussion about collections and themes that transcend cultures. The Rijksmuseum is also involved in civic engagement, as it organizes courses, readings and symposiums for museum professionals. It can be said that these museums have created mechanisms for relating to the public in meaningful ways, in order to be most relevant as community centers, forums for dialogue and a catalyst for change. These museums actively engage and deepen connections with and among their visitors and other stakeholders, learning to better serve their constituents and improving their communities. By doing so, they help build relationships among community stakeholders and participation within the community and the museum itself (Byers, 2008).

As said in chapter 3, it is important for the broad community to have a greater understanding about economic, environment, and social and cultural issues, to be able to identify and discriminate between sustainable and unsustainable practices. In this process museums can help explore attitudes and perspectives, promote knowledge, values, attitudes and beliefs to transform behavior; aspects which are considered to be primary in ESD. Museums can also include nature history alongside human artifacts and traditions and actively involve the local community in exhibitions and their design process. In doing so they provide an opening for the active exploration and discussion of different types of knowledge, values and attitudes. The work of museums can therefore be of great relevance to ESD (MA National Council, 2002, Ott 2014).

Except for the Tropenmuseum, who, with its past exhibitions has been able to educate the audience about environmental concerns, according to the findings of current exhibitions, it

can be said that museums in Amsterdam are mostly not involved with these abovementioned activities to educate the audience about environmental concerns and sustainable development.

#### **5.4 Overall conclusion**

This conclusive chapter will look at the overall way in which museums in Amsterdam contribute to sustainable development and thereby answer the sub questions formulated at the initial stage of this research:

1. What is sustainable development according to museums in Amsterdam?
2. How is nature or the concern for the environment displayed in the collections of these museums?
3. To what extent do these museums educate their audience about environmental concerns?
4. How can these museums' current contributions to sustainable development be improved?

From the findings it can be concluded that, although museums in Amsterdam do not work with a specific definition for sustainable development, it was apparent that the awareness of the environmental impact of museums does exist among all. All of the museums have further proven to contribute to the area of operation in different ways, some more than others. The museum that was able to contribute most to this area, was the Van Gogh Museum, with its BREEAM-NL certificate in sustainable administration, management and use of the building. It can be said that being sustainable for museums in Amsterdam, is mostly about being environmentally friendly in museum operations, and mostly through energy efficient techniques.

The findings further show that five of the seven museums have nature displayed in their exhibits, although not related to environmental concerns. Nature is displayed in a spiritual way, showing the connection with nature for different cultures by the Tropenmuseum. Nature is also displayed in the Rijksmuseum, often with the message of wither of youth and life and other earthly things. Because no links were found to environmental concerns in these exhibitions, it can be said that these museums are not aware of the importance of nature exhibits to inform about environmental concerns.

It is also shown that all of the museums offer educational programs and activities to their visitors both adults and children, some more extensive than others. The Hermitage offers an extensive educational program to (school) children, while the Scheepvaart Museum and the Tropenmuseum develop special exhibitions for their young visitors. A clear environmental link can be made to the children's exhibition of the Scheepvaart Museum, in which the visitors are educated about whale hunting and its extinction as consequence, made in collaboration with the WWF. The Amsterdam Museum has also shown to make a small link to environmental concerns with its activities. With their collaboration with Provo, the museum offers audio tours and walks through historic parts of the city, but moreover, the visitors are stimulated to use free bicycles as an alternative to polluting cars. Although it

cannot be said that the Amsterdam Museum educates their visitors about environmental concerns, this link is an important start in further developments.

The last sub-research question will be answered in chapter 7, but before this is done, the data of the museums will now be discussed in terms of three economic discourses.

## 6. Museums and economic discourses

This chapter will discuss the obtained data in terms of three economic discourses defined by Nilsen & Ellingsen (2014), who claim that differences in environmental actions exist within the smallest groups of firms and people. The three economic discourses they distinguish are: Neoclassical Economics, Environmental Economics, and Ecological Economics. The findings will be discussed in relation to these three discourses and see to what extent the seven museums fit in one or more of these discourses.

### 6.1 Neoclassical Economics

As explained in chapter 4, the discourse of neoclassical economics is based on the ideas of classical economics in which natural resources are a central concern and considered an absolute scarcity. Within neoclassical economics, natural resources are seen as relative scarcity. Here, supply and demand determine relative values. Nature is seen as a mere instrument in being profitable and any problems concerned with environmental issues are external effects outside of the economic model. Museums in this case, would have a defensive and inactive environmental strategy such as for example refraining from reporting pollution or CO<sub>2</sub> emissions or bypassing environmental regulations. An inactive environmental strategy can indicate that museums are indifferent to environmental concerns, acting passively and not working towards environmental improvements (Nilsen & Ellingsen, 2014). In order to see to what extent museums fit in this discourse, insight is needed in the specific interests that are served and negated.

When it comes to environmental concerns and profitability, museums in this discourse will be focused on the demand of their visitors for environmental concerns. Museums in Amsterdam receive thousands of tourists each year. The interviewee of the Rijksmuseum assumes that often these tourists are not specifically looking for attractions concerned with the environment. This means that museums do not necessarily feel the need to change their strategy or behavior towards environmental concerns, as this will not impact the amount of visitor numbers and the museum will be able to keep profiling itself in the same way. However, it is unclear if by choosing not to be more environmentally friendly, on the long run the museum will lose its (high) position in the museum industry, as other museums will evolve, adapt and improve themselves to be more environmentally conscious. As this will increase, communication about these activities will be carried out to the outside world, including visitors, who might want to choose more for environmentally conscious attractions in the future. In this aspect, museums that would fit this discourse by not changing their strategy in terms of collection, are the Rijksmuseum and the Hermitage, as these have already said to be tied to a certain collection in which these issues are not presented.

In relation to environmental interests, this discourse sees environmental problems outside of the economic model. However, it has been proven that exhibits about nature and environmental issues increase the connection with and knowledge of nature. Museums that fit this discourse do not have environmental concerns in their collections and exhibits that stimulate action. They will act passively or indifferent instead of working towards

environmental improvements. According to the findings, none of these museums use their current collections and exhibitions to stimulate pro-environmental behavior. This indicates that the seven museums fit in the discourse of neoclassical economics, in terms of their collection.

## **6.2 Environmental economics**

In the discourse of environmental economics, concerns towards the environment are converged together with economic concerns. This means that environmental integration is approached from an economic starting point and does not challenge the existing order of the economic view. Museums in this discourse have developed an integrated environmental strategy in which legal requirements are actively included and imposed on the organization. Beyond the legal requirements, environmentally friendly practices must also be motivated by financial incentives. In this discourse, museums will act as receptive or as followers (Nilsen & Ellingsen, 2014).

In this discourse, environmental and economic concerns are converged together. Here the financial interests are served. The museums belonging in this discourse will only integrate environmental friendly measures if this is economically feasible. It is said by the Hermitage that the museum participates in collective purchase, buying sustainable energy within groups, which increases the purchase amount and makes the price per unit cheaper. With this statement, it can be assumed that economic feasibility could have been a starting point to integrate this strategy. Another starting point for environmental integration, is if the financial means are available. Only if the means are present, will the museum for example install a WKO-installation, as is seen with the Amsterdam Museum. Although the willingness might be available to integrate environmental concerns in its strategy, it will only be realized if the funds are provided. For these reasons, the Hermitage and the Amsterdam Museum fit this discourse.

It is also said that museums will act as receptive or as followers. The Stedelijk Museum has mentioned that it is making preparations to be able to receive the BREEAM-NL certificate, as the Van Gogh Museum has and refers to this as a bit of public relations and the importance towards the outside world (see statement in interview). It can be said that the Stedelijk Museum serves its own interest in wanting to receive the BREEAM-NL certificate, although, of course this also serves the interest of the environment.

Furthermore, museums in this discourse are said to have developed an integrated environmental strategy in which legal requirements are actively included and imposed on the organization. This can be said for the Van Gogh Museum, as the BREEAM-NL certificate requires meeting certain measurements and regulations. The interviewee moreover mentioned that sustainability aspects are communicated to the staff via the department heads (see interview). The Scheepvaart Museum started the interview by saying that sustainability is a concept that concerns the whole organization of the museum. Initiated in the facility department of the museum, its strategy is now increasingly expanding to the other departments (see interview).

### **6.3 Ecological economics**

The discourse of ecological economics consists of actors with increasing more consciousness of environmental problems. It is believed that an increased focus on environmental and social responsibilities will result in opportunities to gain enlarged market share. Museums are said to be environmentally constructive or pro-active, and conscious about the effect the product has on both the environment as on society (life-cycle approach of products) (Nilsen & Ellingsen, 2014).

It can be said that all the museums that participated in this research are aware of environmental issues, and of the impact institutions such as theirs has on the environment. By being aware of this and acting on this, not only the environmental interests are served, but also those of the museum itself. In addition to this, museums should also focus on sustainable products. It was observed that of the seven museums three of them (Tropenmuseum, Van Gogh Museum, Scheepvaart Museum) have shown products in their museum shop which mentioned environmental concern or sustainable production (see observations).

In terms of programming and activities, and being involved in civic and civil engagement, four out of the seven museums try to relate to the public in meaningful ways by offering their museums as community centers, forums for dialogue and possibly catalysts for change. However, by three of these museums, this is not done yet in favour of educating their visitors about environmental concerns. The Amsterdam Museum has shown to link environmental concerns to one of their activities, which stimulates the visitors to use bicycles instead of polluting cars. It can be said that the Amsterdam Museum can fit in the discourse of ecological economics, as their financial interest does not lie primarily in

### **6.4 Conclusion**

Based on the characteristics, it was possible to place the all of the seven museums in two of the three of the different discourses, although with a few nuances here and there. This may be due to the fact that Nilsen & Ellingson (2014) have used these discourses to determine in which of them tourism firms could fit. As these have different strategies on economy and environment (being more profit oriented, which museums are by definition not), it is not possible to approach the method in the same way they did in their research. For the different discourses, an attempt was made to name the different interests served and/or negated to decide if they fit in a certain discourse.

It can be concluded that in the discourse of neoclassical economics, where environmental interests are suppressed in achieving profitability, it can be said that all seven museums fit in this discourse as they do not express nature/ environmental concerns in their current collections, either because they do not think it's necessary or they or not aware of their importance, even though being profitable is not one of the museums goals. It can furthermore be concluded that the Rijksmuseum and the Hermitage fit in this discourse, as they are assume that visitors interests are not towards attractions concerned with the environment, which means that there is no need to change strategy or behavior to increase visitor numbers. As this

discourse goes out from a total-wealth based indicator, it is not possible to fit more museums in this discourse.

In the discourse of environmental economics, it can be concluded that in terms of financial interests it can be assumed that the Hermitage integrates certain environmental practices from an economically feasible starting point, then it would fit this discourse. The Amsterdam Museum also fits in this discourse as environmental investments can only be made once the financial means are available, thus working from an economic starting point. It can furthermore be concluded that the Stedelijk museum's reaction to environmental issues is receptive or following the example of the Van Gogh Museum, serving their own interests, however in doing so also that of the environment. In the interests of meeting requirements and regulations, it can be concluded that the Van Gogh Museum and the Scheepvaart museum have actively included and imposed their environmental strategy on the organization, which indicate that they fit in this discourse of environmental economics.

In the discourse of ecological economics, interests of the environment and of the museum are served by all the museums in this research, as they are well aware of their environmental impact. In addition it can furthermore be concluded that the Tropenmuseum, the Van Gogh Museum and the Scheepvaart Museum show concern for environmental interests in their sustainable/ ecological products in the museum shops. Four out of the seven museums are involved in civic and civil engagement, thereby serving the interests of their community. In this context, the Amsterdam museum fits best in this discourse, as it provides an environmental link to one of its activities offered to their visitors.

Thus, in the discourse of neo-classical economics, we can find all of the museums, with the notion that this does not mean that they are focused on making profit at the expense of nature. It just means that they do not express the importance of nature in their current exhibits. The Hermitage and the Rijksmuseum can furthermore fit in this discourse. In the discourse of environmental economics, the Hermitage, the Stedelijk, the Van Gogh and the Scheepvaart museum can fit in this discourse. And finally in the discourse of ecological economics, all museums fit due to their awareness of their environmental impact. The Tropenmuseum, Van Gogh Museum and the Scheepvaart museum can additionally also fit in this discourse. It can be said that for the museums in Amsterdam, there is no dominant discourse present.

## 7. Recommendations, answering the research question

This last chapter will use the findings and analyses to answer the last sub question and thereby the main research question.

As was seen in chapter 5, museums in Amsterdam contribute most to sustainable development in the area of operation. With their various energy efficient techniques, they have been able to decrease their environmental impact in significant amounts. However, museums can still contribute more in this area. The Van Gogh museum is the only museum in the Netherlands with the BREEAM-NL certificate, a tool to increase sustainable measures in aspects of building administration, management and use. Museums in Amsterdam, like the Stedelijk Museum can follow this initiative if they seek to be more sustainable. It is furthermore advisable for the Plantage Amsterdam to stimulate their adjoined museums to work towards receiving the BREEAM-NL certificate. Not only will this increase the museums sustainability contribution, it will also improve the image of the museum industry in Amsterdam concerning sustainability. This will not necessarily have to be through means of the BREEAM certificate, as seen in chapter 3, the report of Sala & Gallo (2007) provide guidance for design professionals and museum authorities, setting a new standard for energy consumption in (historic) museum buildings.

In the area of collection, museums in Amsterdam need to express better the way their collections are stored, preserved, conserved and managed in order to be able to increase to their own sustainability. In this area it is furthermore of importance that museums acknowledge the relation of the way nature is perceived and its connections to humans. Nature is already presented by most of the museums in Amsterdam, so it should not be that difficult to add additional information that increases the knowledge and connection of the visitor with nature, in order to inform about environmental concerns. As is said by Arbutnott (2014), if museums want to enhance their social relevance, the relation of connection with nature to pro-environmental behavior needs to be acknowledged. Furthermore, museums also need to increase their awareness about initiatives such as the Kunstloods. It is important for museums to be environmentally sustainable in terms of the way collection material is disposed of. By working with the Kunstloods, material does not need to be disposed of, which decreases waste and stimulates re-use and recycle of exhibition material. Also increasing their knowledge of sustainable methods such as sustainable design and cradle-to-cradle design, can help decrease loss of valuable material.

In the area of education, it appears that museums in Amsterdam are not aware of their enormous potential as educators for sustainable development. In their programming for adults and (school) children, none of these museums present environmental concerns, except for the exhibition of the Scheepvaart Museum with its exhibition of whale extinction. In the past the Tropenmuseum has been able to educate the audience about environmental concerns and the consequences of their actions, helping the visitor to gain a greater understanding of the connections between humans and their environment. Unfortunately, these exhibitions are no longer displayed in the museum, even though they provide a perfect example of how to

integrate this subject into exhibitions. If museums want to mean more towards their audience in the relation to environmental concerns, organizing educational exhibitions is a great way of doing this. This can be done by making use of for example green exhibitions, green art and ecological art. It can also be suggested to do further research on artists and art movements involved in this subject.

Within the organized activities, the only link to environmental concerns was one activity organized by the Amsterdam Museum in collaboration with Provo. Although this is a great initiative, more activities like these need to be organized, offering the visitor more than what is to be seen behind museum walls. By engaging in direct contact with the city and with nature, the connection to it will also increase and stimulate pro-environmental behavior. Organizations such as for example Terra Tours, organizes tours through the city and stimulates people to give positive impulses to the livability of the city and its social interaction (see [www.terratours.nl](http://www.terratours.nl) for more information). By working with organizations such as these, the museum not only increases its offer to its visitors, it also increases its social value and are better able to fulfil their role as forums for civil and civic engagement. In addition to this, the museums already providing an example in this area (the Amsterdammuseum, the Stedelijk Museum and the Rijksmuseum) can integrate environmental concerns in these activities, creating an awareness about sustainable development in general and environmental issues more specific and discuss together with visitors, museum experts and the community how museums can contribute more and fulfil their role agents of change more effectively.

With this information, it is possible to answer the main research question, which was:

*To what extent are environmental concerns featured in museums in Amsterdam?*

It can be said that museums in Amsterdam, although aware of environmental concerns and their environmental impact, environmental concerns are hardly or not featured. Even though for example the Tropenmuseum has displayed environmental concerns in past exhibitions, it is not clear if more exhibitions such as these will return in the future. Museums in Amsterdam need to increase their knowledge about sustainable development and the different roles they can play in order to be able to contribute more to society as educational and cultural institutions.

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