

Eco-Exhibiting:

**A Study to Reduce the Carbon Footprint of Museums
and Galleries through Environmentally Sustainable
Practices and Procedures**

by

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in partial fulfillment of the requirements for the degree of**

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Abstract

Over the past decade, museums and galleries have been incorporating more environmentally sustainable practices, thereby joining in the widespread 'green' movement. By developing and implementing environmental initiatives and sustainability policies, many museums and galleries (particularly in the United Kingdom) are discovering that not only are they reducing their carbon emissions, but they are also reducing their operating costs. However 'greening' museums is only beginning to be discussed and incorporated into strategic plans and policies in some institutions, as seen in certain Canadian museums and galleries. The research reveals that in general, cultural institutions in the United Kingdom are more proactive in terms of environmental sustainability than those in Canada, certainly due to stronger governmental support and carbon reduction goals. By examining case-studies of museums and galleries in Ottawa to museums and galleries in London, a parallel comparison will be established in order to provide examples and ideas as to how Canadian cultural institutions and their exhibition teams could implement some of these environmental initiatives to reduce their carbon emissions and operating costs.

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Introduction

“Museums have always had to modify how they worked, and what they did, according to the context, the plays of power, and the social, economic, and political imperatives that surrounded them”¹ - Eilean Hooper-Greenhill

***“Acceptance of the need to change may well be the biggest barrier to overcome”²
- Gail Anderson***

Statement of the Problem

How can exhibition teams improve their practices and procedures in order to become more environmentally sustainable and reduce exhibition costs? For many years now, the concept of ‘going green’ to reduce human impact on the planet has had influence over many areas of everyday life, from local food and paper products, to sustainable building design and calculating carbon footprints. A number of large museums and galleries across the Western World have also undertaken a review of their environmental impact, resulting in new green building designs, the use of eco-friendly materials, and the development of sustainability policies. The locations that appear to be the most active in the field of environmental museum sustainability are mostly focused in California, USA and in England, UK such as the California Academy of Sciences in San Francisco, and the Victoria and Albert Museum in London, which will be discussed further.

¹ E. Hooper-Greenhill. *Museums and the Shaping of Knowledge*. (London and New York: Routledge: 1992), 1.

² G. Anderson, ed., “Introduction: Reinventing the Museum” in *Reinventing the Museum: Historical and Contemporary Perspectives on the Paradigm Shift*. (Oxford: AltaMira Press, 2004), 3.

This thesis is an early contribution to a new and exciting scholarly conversation. As with all young and developing fields, no proven template exists for the form that a study such as this might take. By exploring a number of case studies that represent a range of institutional types and sizes, this study aims to help initiate a scholarly discussion that is still emerging. As the research and literature review in this thesis demonstrate, the greening of museums is a new field within museum practices, mainly limited to the past decade. Important developments have occurred in institutions in California, USA, and London, in the UK. The goal of this new field is to assess the environmental impact of existing museum operations and to establish methods with obtainable goals for more sustainable operations, resulting in reduced operating costs and a lower carbon footprint. Public concern with these issues is one way for institutions to demonstrate leadership in the community, as well as within the museum field. Public institutions that address these issues (which are also often issues of concern to the public), demonstrate leadership within the community and in the museum field.

Although a small number of museum professionals have written about the contemporary topic of museum sustainability, it seems that no one has discussed the issue from an exhibition and curatorial perspective, which is where I place my research. For the purposes of this study, I will be focusing mostly on large institutions in Ottawa, Canada in comparison to larger institutions in London, United Kingdom. However, smaller museums and galleries are also examined,

namely the Garden Museum and the Ottawa Art Gallery in order to represent varying scales of museums and how size contributes to different practices and procedures. By providing case studies and comparisons, I will demonstrate how museums and galleries in London have incorporated more developed practices and policies in terms of environmental sustainability and monitoring their carbon footprint versus museums and galleries in the Ottawa area. This is largely due to the differences in governmental support for reducing carbon emissions, where the British government have more ambitious goals than Canada and assist cultural institutions to operate more sustainably.

Eco-exhibiting is a concept to create exhibits sustainably by reusing and recycling existing materials, addressing the shipment of objects and their carbon footprint based on location and transportation method, as well as to establish realistic goals within the sustainability policy of the museum or gallery. This original topic, to the best of my knowledge, has not been discussed before within the green museum field, where there are only a handful of publications in total. I believe my study combines both a theoretical and practical approach, which is not usually seen in this new area of scholarship. In fact, there is no clear existing framework specific to this field within art history or museum studies to guide this study. Therefore my thesis attempts to not only contribute to the topic of greening museums, but to also help establish future scholarly conversations and studies. Since this is such a new topic within museum studies, it will take many further discussions on the topic to establish possible conclusions and answers.

Through museological theories, I will explore the historical and contemporary role of the museum as well as that of the curator and exhibition team in order to discuss how these roles have changed, and how they are changing along with the demands of the twenty-first century - such as the widespread concept of environmental sustainability in order to reduce the rate of global climate change. By thinking about the environmental impact and carbon footprint of museological exhibitions, sustainable methods of displaying artworks will be explored as well as their benefits.

Literature Review

The sources consulted for this research include annual reports, sustainability policies, carbon management plans, books by museum professionals and cultural theorists, as well as articles by environmental scholars and activists. In order to include the most up-to-date opinions on my topic, I conducted interviews with museum professionals from most case studies, discussing their views on museum and curatorial environmental sustainability.³ The literature review listed below is a brief selection of key sources used during the development of this thesis.⁴ The two most relevant theoretical texts were by Eilean Hooper-Greenhill and Stephen E. Weil (which are listed first below). In

³ The transcripts from these interviews may be found in the appendices.

⁴ For a full list of sources consulted, please see the bibliography.

addition, all sources are recent, demonstrating that the field of museum sustainability and contemporary museum theory is developing rapidly.

The writings and theories of Eilean Hooper-Greenhill look at the educational authority of museums as symbols of power and institutions of knowledge, while also discussing the locations and architectural styles of museums, mainly in the UK. She also provides a concise historical overview of the role of museums, which shows the context for my contemporary museological thesis. However due to the limitations of this study, I will not be providing an extensive overview of the history of museums.

The theories and essays in Stephen E. Weil's *Making Museums Matter* (2002) is a compilation of twenty-nine recent essays with the overarching theme that museums need to make themselves matter. The author argues that they need to enrich both the individual lives and the general well-being of the communities they serve. Thus museums have power which can be directed towards supporting specific policy choices. Weil believes that each museum must consider its purpose and how it measures success or failure in order to make clear public policy decisions that can be related to making 'greening' museums matter.

Reinventing the Museum: Historical and Contemporary Perspectives on the Paradigm Shift (2004) is a collection of essays by leading museum professionals edited by Gail Anderson. The thirty-four essays and articles included examine important issues facing the museum and art world in the twenty-first century,

including: remaining relevant, the visitor's perspective, exhibition practices, cultural responsibility, and leadership.

The Manual of Museum Exhibitions (2001) edited by Barry Lord and Gail Dexter Lord deals with the practical and sequential side of exhibition planning and curatorial responsibilities. Its chapters discuss the detailed planning involved in undertaking the development of an exhibition as well as the daily life of curatorial staff. In the same series, *The Manual of Strategic Planning for Museums* (2007) by Gail Dexter Lord and Kate Markert, explains the steps needed in developing a strategic plan and policy, which directly relates to the development of sustainable policies and procedures.

In terms of the role of the curator, Karsten Schubert's *The Curator's Egg: the Evolution of the Museum Concept from the French Revolution to the Present Day* (2000) looks at the beginning and emerging role of the curator as well as the history of museums and galleries. The book provides a concise history of the development of museums, and the development of curatorial practices in museums to organize collections.

One of the few books published specifically on the topic of museum sustainability is Sarah S. Brophy and Elizabeth Wylie's *The Green Museum, A Primer on Environmental Practice* (2008). This book is an informative guide on how to make museums more eco-friendly, with a focus on American institutions. The topics discussed include saving natural resources, saving money, and reducing the museum's carbon footprint. Energy use, air quality, and educational

missions are also discussed. The information is for all types of museums and for all budgets so that museums can become stronger leaders and teachers within a global context. The authors argue that we need to move towards an environmentally sustainable future for ourselves and our children.

Douglas Worts, a Toronto-based museum professional and leader of 'The Working Group on Museums and Sustainable Communities', writes extensively about issues of museum sustainability, such as in his essay "Fostering a Culture of Sustainability" in *Museum and Social Issues* (2006). His essay discusses the relationship of culture to sustainability, and promotes the goal of sustainability in Canada. He argues that global issues and changes affect our urban environments, and that museums need to address the cultural needs of the twenty-first century.

Finally Rachel Maden, a museum professional based in London, England, is leading the way towards greening museums in the UK with her 'Greener Museums' company. Her book, *Sustainable Museums: Strategies for the 21st Century* (2011), provides information for museums wanting to become more environmentally sustainable by illustrating international case studies and providing a step-by step guide to develop sustainable policies and procedures.

Methodology

As previously mentioned, a wide variety of sources were consulted, including: annual reports, institutional sustainability policies, carbon management plans, books by museum professionals and cultural theorists, as well as articles by environmental scholars and activists. I also interviewed museum professionals from galleries and museums in Ottawa, ON and London, UK in order to discuss their current views on museum sustainability and exhibition practices. It should be noted that a limitation of this methodology is that the sample is informed by the willingness of interview subjects to participate. Certain case studies chosen for this study were therefore affected by the individuals who bravely agreed to participate.

Ottawa and London were chosen for key comparisons because they are both national capitals and contain many larger museums and galleries. However, smaller museums such as the Garden Museum and the Ottawa Art Gallery were included in order to represent the issues and differences encountered within smaller institutions. There is a significant amount of activity and support in the field of sustainable museum practices in the United Kingdom, therefore comparing Britain's national capital of London to Canada's national capital of Ottawa was a clear choice. The models of Eilean Hooper-Greenhill and Stephen E. Weil were the most prominent theoretical influences, however many texts by museum professionals were used equally to represent different perspectives within museum practice.

Chapter Breakdown

The following questions will be explored throughout the subsequent chapters: Can the sustainable methods of London's museums and galleries be applied to museums and galleries in Ottawa? How will climate change and environmental issues affect exhibition development? Is it possible to change exhibition practices through policies and procedures in order to save money and reduce an institution's carbon footprint?

The chapters are as follows: Chapter One - Environmental Sustainability and the Changing Role of Museums, Chapter Two - Museums: Case-Study Comparisons of Museums in Ottawa and London, Chapter Three - Art Galleries: Case-Study Comparisons of Art Galleries in Ottawa and London.

Chapter One will begin by discussing the development of environmental sustainability and the issues surrounding climate change. The history and purposes of museums and galleries will also be addressed, as well as the symbolic and practical role of the curator. The theories of both Eilean Hooper-Greenhill and Stephen E. Weil will be brought to light, as well as other significant sources relating to museological theory. The goal of Chapter One is to demonstrate the importance of museum sustainability and how the exhibition and curatorial teams can play an important part to reduce carbon output.

Chapter Two will elaborate on the theories and sources presented in Chapter One by comparing museums that focus on anthropology and natural sciences in Ottawa and London. The main areas for comparison surround

sustainability and the institutions' commitment to follow environmental practices and reduce their carbon footprint. The main comparisons will be the Canadian Museum of Nature and the Canadian Museum of Civilization in Ottawa, to the Natural History Museum and the Garden Museum in London.⁵ By contrasting policies and practices of comparable museums, the developing field of museum sustainability will be examined as well discussing the differences between certain Canadian and British institutions to determine current methods for environmentally sustainable operations.

Finally Chapter Three will focus on fine art galleries in Ottawa and in London, mainly comparing Ottawa's National Gallery of Canada (NGC), to London's National Gallery (NG). The Ottawa Art Gallery (OAG) will also be discussed with a focus on curator Catherine Sinclair and issues surrounding curatorial practices and sustainability. Other large art galleries and museums in London and their environmental practices will also be discussed, such as the Victoria and Albert Museum, and the Tate Modern.

As a result of the research and by presenting comparable institutions from Ottawa, Canada and London, England, current museological issues regarding sustainability has been analyzed while addressing governmental factors surrounding this issue. Through the research conducted, it is clear that incorporating environmentally sustainable practices into policies and procedures

⁵ The Canadian War Museum in Ottawa, Ontario, Canada has many 'green' features, but was not included in this study because the museum is an exception environmentally among Canadian museums. Its collection is also focused on military history, whereas the case-study comparisons for this study are mainly fine art galleries and nature museums. However the Canadian War Museum should be commended for its excellent environmentally sustainable features.

is a growing trend among museums and galleries, as seen more prominently in the United Kingdom due to its ambitious carbon reduction goals. The benefits determined through the research conducted include savings in operating costs, a reduction in material replacement, and community leadership. Furthermore, the symbolic role of museums as centres of knowledge, cultural importance, and community engagement provides a public space to debate ideas. As Carol Duncan argues, “they are spaces in which communities can work out the values that identify them as communities.”⁶ Where better than this creative space to discuss the changing role of museums and the incorporation of sustainability to improve the environment of the museum and its audience?

⁶ Carol Duncan, *Civilizing Rituals: Inside Public Art Museums*, (London and New York: Routledge, 1995), 134.

Chapter 1

Environmental Sustainability and the Changing Role of Museums and Galleries

*"[Curators] know that preserving the past required controlled climate conditions, the micro-climate inside the museum and the macro-climate of the world's environment. The issues are the same whether we are discussing objects kept inside or buildings exposed to weather and airborne particles from pollution. Environmentally insensitive building and operational practices contribute to degradation of the objects we are trying to save."*⁷

- Sarah Brophy, Elizabeth Wylie

How will cultural institutions adapt to global issues of the twenty-first century? With the ongoing threat of climate change, how will museums and galleries reduce their environmental impact? In the past decade, museums have focussed even more on their role within their community and the wider world, including addressing environmental sustainability and their carbon footprint. In this chapter, by providing an overview of the history of museums, the historic and contemporary position of the curator, the changing role of museums, the development of the environmental movement, and the concept of sustainability, a base for the upcoming case studies and comparisons will be established, providing background on the field of museum practice and environmental sustainability.

Before discussing sustainable and environmentally-friendly practices, it is important to examine the widespread scientific belief that our planet's global temperature is steadily rising due to climate change propelled by the human consumption of fossil fuels - causing too much of our pollution's carbon dioxide to be trapped in the atmosphere and creating an ongoing greenhouse effect. In order

⁷ Sarah S. Brophy and Elizabeth Wylie, *The Green Museums, A Primer on Environmental Practice*, (Plymouth, UK: Altamira Press, 2008), 2.

to reduce carbon emissions, many individuals, businesses, and organizations are practicing and promoting green initiatives to reduce human impact on the environment, for example: Greenpeace, the World Wildlife Fund, or Earth Hour (there are an uncountable number of green initiatives worldwide).

In terms of architectural innovations in the museum field, the California Academy of Sciences in San Francisco is one of the “greenest” museums in the world with best Platinum-level LEED (Leadership in Energy and Environmental Design) certification.⁸ LEED is an international rating system used in the building industry to establish standards for sustainable design and construction through a point-based system, resulting (from lowest to highest) in a Certified, Silver, Gold, or Platinum rating.⁹ Some examples of the Academy’s numerous eco-friendly features include a sloping green roof that naturally controls the indoor temperature and helps absorb carbon, its interior design that utilizes incoming natural light and ventilation to illuminate and cool the gallery and office spaces, as well as the use of recycled blue jeans for insulation, which “holds more heat and absorbs sound better than spun fiberglass insulation.”¹⁰

Throughout Western history, the museum has played a significant and symbolic role in preserving valuable collections, educating its visitors, and providing research facilities for academics. Over time, the museum has become a

⁸ “Sustainable Design”. California Academy of Sciences. http://www.calacademy.org/academy/building/sustainable_design/.

⁹ Ibid.

¹⁰Ibid.

symbol of knowledge and authority - educating the public on art history, natural sciences, anthropology, and many other topics. Today, museums and art galleries are also educational institutions for children and their families, usually centered near the downtown core of their respective cities and advertised as a major local attraction.

Museums have been around for at least the past 600 years, accumulating rare and valuable objects, generally categorized into either natural (from nature) or artificial (man-made) collections.¹¹ The origin of the museum as a holding place for precious objects and literary materials began in Ancient Greece with the Library of Alexandria, founded in the 3rd century B.C.E. by Ptolemy Soter, and destroyed by rioters 600 years later.¹² The library contained many precious objects and scrolls from philosophers and scientific thinkers, accessible to the public for study purposes. These objects were prized by ancient Greece and Rome and would have had certain key values, such as their aesthetic, historic, religious, or magical significance. With the fall of the Roman Empire went the fall of museums, their knowledge and objects lost for hundreds of years during the Middle Ages.¹³

It was not until the Renaissance when the classical concept of museums and galleries emerged in Italy. The idea of the gallery was instigated for private

¹¹ Eileen-Hooper Greenhill, *Museums and the Shaping of Knowledge*, (London and New York: Routledge, 1992), 191.

¹² Alexander, Edward P., and Mary Alexander, *Museum in Motion: An Introduction to the History and Functions of Museums*, (Plymouth, UK: Altamira Press, 2008), 3.

¹³ *Ibid*, 4.

viewing for the wealthy elite, comprising of a long, grand hallway displaying paintings and sculptures of high artistic merit.¹⁴ The idea of the museum spread throughout Europe over the next two centuries. The British Museum was formed in 1753 in London after Parliament purchased Sir Hans Sloane's large collection of natural science specimens. In 1793, at the height of the French Revolution, the royal Louvre Palace was transformed into the Museum.¹⁵ According to Carol Duncan, "the Louvre [...] was now reorganized as a museum for the people, to be open to everyone free of charge. It thus became a lucid symbol of the fall of the Old Regime and the rise of a new order."¹⁶ The bulk of its collection eventually came as war booty during the Napoleonic campaigns in Italy. As Andrew McClellan explains, "as a result of French territorial expansion after 1794, the Louvre swelled with confiscated art, and the museum became a monument to military might."¹⁷ After the founding of the Louvre as a national public museum, other countries across Europe were inspired to follow suit.¹⁸ During the 17th and 18th centuries, European private collections slowly developed into museums, which in turn permitted more and more members of the public to visit its exhibitions with progressively more lenient rules.¹⁹

¹⁴ Ibid, 5.

¹⁵ Ibid, 6.

¹⁶ Carol Duncan, *Civilizing Rituals*, 22.

¹⁷ Andrew McClellan, *Inventing the Louvre: Art, Politics, and the Origins of the Modern Museum in Eighteenth-Century Paris*, (Berkeley and Los Angeles: University of California Press, 1994), 7.

¹⁸ Carol Duncan, *Civilizing Rituals*, 32.

¹⁹ Ibid, 27.

Experts specializing in the medium or subject matter, known later as curators, would dedicate their profession to protecting the museum's artworks, and researching, organizing, and hanging displays from the museum's collection. These exhibitions (as still seen today) would be hung either chronologically or stylistically. However, before the 20th century, the paintings would be hung in galleries side by side with little to no spacing in between and the display cases would be filled with ceramics, textiles, and natural specimens.²⁰ This created a crowded exhibition space, overwhelming the viewer with visual imagery.

In order to conserve, display, and educate visitors about the collection, the position of the curator was developed first at the Louvre Museum in Paris in the 18th century, then spread to other museums in France, moving out to the rest of Europe by the mid 1800s. By 1814 in France, twenty-two museums had been established focusing on specific schools of art. Curators and lecturers were chosen to preserve the artworks and to educate the public.²¹ To organize the collection and focus the work of the curators, the artworks and artefacts were divided according to their medium among the curators who possessed expertise in that specific area.²²

Historically, the terms 'curate' and 'curator' are from the Latin 'to care', specifically meaning to care for souls. The curator is a person responsible for objects and books in museums and libraries, as well as their objects' acquisition,

²⁰ Ibid, 9.

²¹ Eilean-Hooper Greenhill, *Museums and the Shaping of Knowledge*, 184.

²² Ibid, 183.

disposal, conservation, storage conditions, and the development of exhibitions. After the 19th century, the curatorial profession emerged from a scholastic background, employing museum professionals with academic art historical knowledge and possessing a thorough understanding of the history and importance of the objects in the museum or gallery's collection.²³

Despite similarities between the curator of the 19th century and the curator of the 21st century, there are many differences and new challenges in satisfying the demands of a contemporary audience, such as the integration of more staff members in the development of exhibitions, and a greater focus on educational goals and visitor entertainment.²⁴ In today's museums, especially within large institutions, the curators are no longer the sole guardian of their appointed objects. Within the curatorial department alone, there may be a number of employees each with specific research tasks. The finished research for future exhibitions is then passed on to the exhibitions department, the development department, the news and media department, etc. Exhibition teams have emerged with managers and project-leaders outside the curatorial department heading the planning process to ensure the developmental success of the exhibition.²⁵ What then is the role of the curator and exhibition team in our contemporary context? It is clear that the departments within museums are becoming more collaborative with more communication and teamwork in developing future projects. The curator

²³ Alexander, Edward P., and Mary Alexander, *Museum in Motion*, 192.

²⁴ Eilean-Hooper Greenhill, *Museums and the Shaping of Knowledge*, 208.

²⁵ *Ibid*, 208.

is therefore integrating his/her role with other exhibition and development departments, creating new duties and assignments within curatorial practice.

Exhibition planning has also changed over time especially in larger museums where specific duties are assigned to staff within exhibition teams and coordinated by the project manager. Gail Dexter Lord explains the exhibition planning process in relation to the changing roles of museums:

As the opportunities and demand for exhibitions have increased, so too has the need for a broader understanding of where exhibition ideas come from; how exhibitions are developed; what the choices are with regard to approach; who makes these choices; what exhibitions cost; and what benefits can reasonably be expected from exhibitions in terms of engaging the public, creating new knowledge, and the impact on museum finances.²⁶

To illustrate the various departments in developing an exhibition, Lord has created a diagram titled “Multi-disciplinary Character of Exhibition Development”²⁷ She identifies four categories of specialists: Audience Specialists (Marketing, Evaluation, Funding Sponsorship, Education), Content Specialists (Curatorial and Research, Collections Management), Communication Specialists (Interpretative Planning, Design, Audio-Visual), and Installation Specialists (Conservation, Revenue Generation, Project Management, Construction, Graphics, etc.). As demonstrated by this diagram (Figure 1), there are many different and diverse departments that play a part in the development and mounting of an exhibition.²⁸

²⁶ Gail Dexter Lord, “Introduction: The Exhibition Planning Process”, in Lord, Barry and Gail Dexter Lord (eds.), *The Manual of Museum Exhibitions*. (Walnut Creek, Lanham, New York, Oxford: Altamira Press, 2001), 1.

²⁷ Ibid, 3. See Figure 1.

²⁸ Ibid, 5. See Appendices.

According to Lord, there are basically four phases when developing an exhibition. Part one involves a discussion of the overarching issues surrounding the exhibition and why it should happen. Part two concerns the practical needs of the exhibition such as the types of support cases, lighting, and hardware needed. Part three demonstrates the planning up until opening day.²⁹ Finally part four involves a discussion of contemporary exhibition practices and an evaluation of the exhibition.

The role of the curator within the exhibition planning process is “concerned with all aspects of the development, study, preservation and interpretation of a museum’s collections.”³⁰ According to Joan Nicks, there are two types of curatorial research: thematic research and object research. Thematic research provides a general knowledge of a broad range of information and develops a framework for an exhibition storyline.³¹ Object research specifically analyzes works of art, artefacts, or specimens that will be featured in the exhibition, providing more in-depth information on those selected objects.³² The role of the curator as an object and time-period specialist is therefore to inform the public of why these presented objects are important, and within the context of other objects, how their greater importance is revealed. With the help of audience, content, communication, and

²⁹ Ibid, 4.

³⁰ Joan Nicks, “Curatorship in the Exhibition Planning Process”, in Lord, Barry and Gail Dexter Lord (eds.), *The Manual of Museum Exhibitions*. (Walnut Creek, Lanham, New York, Oxford: Altamira Press, 2001), 345.

³¹ Ibid, 347.

³² Ibid.

installation specialists, an exhibition develops from an idea to an entertaining attraction for a wide range of visitors.

In a larger context, how will exhibitions themselves be affected by social, cultural, and environmental changes? What will be the future of museums and how will they remain important? These are precisely the questions Stephen E. Weil asks in his book *Making Museums Matter*. In the foreword to Weil's collection of museological essays, Marc Pachter, director of the Smithsonian Institution, believes that "the modern world is asking tough questions of museums and of their management"³³ [...] "the 'romantic' age of the untouchable, unaccountable, unchallengeable, perhaps even ineffable museum is over."³⁴ Whether or not the romantic age is completely over is debatable, but it does seem within contemporary museological discourse that museums are being asked to be more transparent and accountable to their public; forcing museums and galleries to ask themselves how their role within their local and global community is changing. As Weil writes: "every museum is unique, but so too is every person, every persian kitten, and every pineapple soufflé, and all may find themselves, from time to time and for one or another reason, required to stand up and be judged."³⁵

How then will museums and galleries be evaluated? One factor could lie in their contribution to spreading awareness and acting as leaders to its public on

³³ Marc Pachter (foreword) in Stephen E. Weil, *Making Museums Matter*. (Washington: Smithsonian Books, 2002), x.

³⁴ Ibid, xiii. See Appendices for traditional vs. reinvented museum.

³⁵ Stephen E. Weil, "A Theory of Museums and Immodest Proposal" (3-21), in *Making Museums Matter*. (Washington: Smithsonian Books, 2002), 6.

developing sustainable practices and policies within the museum. By showing their devotion to helping reduce carbon emissions and promoting sustainable environmental practices, museums would show their visitors that working together encourages a better environment. Since museums are also symbolic structures of culture and knowledge, they provide a public space for these new topics to be debated.

In order to demonstrate how museums can show leadership within their communities, Weil suggests that they “use their very special competencies in dealing with objects to improve the quality of individual human lives and to enhance the well-being of human communities.”³⁶ With regard to sustainability, this form of leadership could be demonstrated in exhibition practices and policy-making. Although Weil does not specifically refer to environmental sustainability, it is possible to relate the author’s arguments to the role museums can play in improving its surroundings to be leaders in their community. Within the museum itself, the curator and exhibition team play key roles in educating their public. Since they have significant control and influence over the institution's collection and exhibition schedule, the curator and exhibition team have the ability to create more sustainable practices and procedures for future generations of visitors.

Throughout museological history, the museum has had to reposition itself in order to adapt to the social and cultural needs of specific time periods. One

³⁶ Stephen E. Weil, “From Being about Something to Being for Somebody: the Ongoing Transformation of the American Museum” (28-49), in *Making Museums Matter*. (Washington: Smithsonian Books, 2002), 29.

example is with the rise of England's middle class in the 19th century. The British Museum needed to accommodate larger numbers of middle and working class visitors, thereby deciding to open its doors more often throughout the week and on the weekend.³⁷

Museums, galleries, and science centres are continually shifting, always in transition to blend into their surroundings. The cultural institution is a constantly evolving form, like a mammal or reptile, which must quickly adapt to its changing environment, or perish. What then can museums and their staff do to remain relevant? In relation to the changing role of museum staff, Schubert writes that "both the director and his curators have become involved in myriad activities which often have very little to do with art, in the process changing their job descriptions beyond recognition. Today, museum directors and curators speak the languages of management, marketing and accounting as fluently as that of museology and art history."³⁸ Perhaps sustainability and carbon reduction plans will also be evaluated regularly by the exhibition team, since operating in an environmentally-sustainable fashion is a good idea for engaging the community, reduces costs, and helps to preserve the natural world.

Schubert discusses how the issue of adaptability to changing curatorial roles has recently become a central concern for all museums and artistic institutions.³⁹ In most cases, the role of the curator is still comparable to that of the

³⁷ Edward P. Alexander and Mary Alexander, *Museum in Motion*, 6.

³⁸ Karsten Schubert, *The Curator's Egg*, 72.

³⁹ *Ibid*, 133.

19th century, however their role is now changing in terms of departmental collaboration and adapting to their museum's policies and practices.

A number of museums and galleries in the Western World have undertaken a review of their environmental practices, with larger institutions in particular developing sustainable policies, procedures, and action plans. These policies, often outlining a carbon reduction plan, will inevitably cause exhibition development and curatorial practices to become more environmentally sustainable in areas such as shipping and materials. In order to discuss new and sustainable ways to undertake exhibition activities, it is important to understand the development of environmental issues and the concept of sustainability.

The environmental movement roughly began around 1970 when the first Earth Day was celebrated. As White argues: "the pictures of the Earth, taken from the Apollo spacecraft in 1969, are widely credited with the acceptance of the idea that the world is one finite system, the communal home of the human species."⁴⁰ The images taken from space visually demonstrated that we only have one home in the universe, prompting environmentally-conscious individuals to promote the protection of our planet. In terms of the environmental movement, Steward Brand believes it was:

⁴⁰ Rodney White, "Global warming and the greenhouse effect: implications for international environmental policy", in Frank Fisher and Michael Black (eds.), *Greening Environmental Policy: The Politics of a Sustainable Future*, (New York: St. Martin's Press, 1995),210.

Directly inspired by the 1969 photos of Earth from space, the first Earth Day in 1970 attracted 20 million Americans [...] and the environmental movement took off, with a planetary icon and a coherence it has maintained ever since.⁴¹

Over the next decade, environmental issues were brought to light through protests and demonstrations, and has not lost any steam since its inception. The focus of the environmental movement in the 1960s concentrated on pesticides, air and water pollution, whereas the 1970s focussed on energy consumption, overpopulation, and nuclear radiation.⁴² In the 1980s, toxic waste hazards, the ozone hole and the destruction of tropical rain forests were brought to the forefront.⁴³ As Robert Paehlke writes: “by the mid-1980s environmental protection was viewed by many as being as important to our collective well-being as national security, economic prosperity, social justice and for some - even democracy itself.”⁴⁴ By the 1990s, the movement addressed the seriousness of global warming, declining biodiversity, and the effect of exponential population growth.⁴⁵ In general, the main challenge that humans currently face in living sustainably is reducing their carbon output. According to White:

⁴¹ Steward Brand. *Whole Earth Discipline: An Ecopragmatist Manifesto*, (England, USA: Viking, Penguin Group, 2009), 214.
See Figure 2.

⁴² Frank Fisher and Michael Black (eds.), *Greening Environmental Policy: The Politics of a Sustainable Future*, (New York: St. Martin's Press, 1995) xi.

⁴³ Frank Fisher and Michael Black (eds.), *Greening Environmental Policy*, xi-xii

⁴⁴ Robert Paehlke. “Environmental values for a sustainable society: the democratic challenge.” in Frank Fisher and Michael Black (eds.), *Greening Environmental Policy: The Politics of a Sustainable Future*, (New York: St. Martin's Press, 1995), 129.

⁴⁵ Frank Fisher and Michael Black (eds.), *Greening Environmental Policy*, xii.

The principal greenhouse gas is carbon dioxide. Carbon occurs on the surface of the earth as an important component of soils, litter and biomass, especially from trees. Carbon is released to the atmosphere when vegetation decomposes or burns. It combines with oxygen to form carbon dioxide where it stays in the atmosphere for about 100 years before being absorbed by plant material on the earth's surface, or by the ocean itself or by carbonaceous marine organisms.⁴⁶

Despite some skepticism, scientific studies show that since the dawn of the industrial revolution, humans have had a planetary effect on the amount of carbon in the Earth's atmosphere, resulting in global warming and climate change.

As White states: "until 1750 carbon dioxide remained at about 280 parts per million (ppm). Since then it has risen steadily, so that it now stands at 350 ppm and is still rising."⁴⁷ A key solution is to reduce the amount of carbon dioxide released into the atmosphere, allowing the climate to 'level out' instead of continuously rising. The concept of sustainability and "green" were therefore developed in order to encourage the population to reduce their carbon emissions and to make responsible environmental choices. In order to live more sustainably, a drastically reduced dependence on fossil fuels is needed as well as a commitment to reduce human impact on natural ecosystems.⁴⁸

The world-wide population increase has also had a profound effect on urban development and cities (which may affect the number of visitors in

⁴⁶ Rodney White, "Global warming and the greenhouse effect", in Frank Fisher and Michael Black (eds.), *Greening Environmental Policy*, 211.

⁴⁷ Rodney White, "Global warming and the greenhouse effect", in Frank Fisher and Michael Black (eds.), *Greening Environmental Policy*, 212.
See Figure 3.

⁴⁸ Robert Paehlke, "Environmental values for a sustainable society" in Frank Fisher and Michael Black (eds.), *Greening Environmental Policy*, 133.

museums). According to Brand, “at the current rate, humanity may well be 80 percent urban by mid-century. Every week there are 1.3 million new people in cities. That’s 70 million a year, decade after decade. It is the largest movement of people in history.”⁴⁹ These astounding statistics demonstrate that rural living is quickly decreasing in popularity, while moving to cities has been and continues to be exponentially popular, creating greater demands on urban centres to satisfy the needs of its growing population. However, it is becoming increasingly difficult to sustain such an influx of population while ensuring there are enough resources for the next generation. In the future, museums may need to accommodate a wider range and number of visitors as cities continue to swell and expand, creating an even greater need to live and function in a sustainable fashion.

This is precisely the goal of Rachel Maden who is the executive director of the company Greener Museums and author of *Sustainable Museums: Strategies for the 21st Century*. Maden is one of the first sustainability consultants hired by museums and galleries (mostly in the UK) to advise staff on developing a strategic plan to incorporate sustainability within their institution. As Maden writes: “strategic planning for sustainability must always begin with visioning [...] [which] helps to cement the internal understanding of sustainability within a museum.”⁵⁰ Furthermore, “by stepping back and examining our core beliefs about

⁴⁹ Steward Brand, *Whole Earth Discipline*, 26.

⁵⁰ Rachel Maden, *Sustainable Museums: Strategies for the 21st Century*, (Museums Etc. Edinburgh: 2011), 34.

sustainability, museums have a better chance of understanding the challenges they face in implementing it.”⁵¹

In order to begin addressing sustainability and creating policies, plans, and procedures, Maden suggests three main elements for implementing sustainability: support and interest from the most senior level of the museum, a steering group to make strategic decisions, and a network of grassroots staff support to help communicate the actions needed to solve issues.⁵² Maden also encourages the Head Curator to be involved in the environmental planning process since he or she “may be interested to learn and offer insight into how his or her decisions may affect the sustainability of the museum.”⁵³ The curatorial and exhibition team could therefore participate in the strategic planning process to incorporate ideas on environmental sustainability and help create a plan that reduces the museum or gallery’s carbon emissions while saving money in many of the departments. As Maden writes, “an organization can only make a real difference if the people within its walls decide to be greener”⁵⁴

In Canada, Douglas Worts examines the role of the museum in creating a sustainable culture and community. His arguments bring to light the ongoing conversations about museums needing to adapt because the world is changing. Worts believes that “museums are organizations with deep roots [...] they often

⁵¹ Ibid, 14.

⁵² Ibid, 55.

⁵³ Ibid, 58.

⁵⁴ Ibid, 59.

resist change, but the world has and will continue to change. Cultural organizations have the potential to be part of shaping a culture of sustainability that honors the cultural traditions of our pluralist world.”⁵⁵

How then are museums and galleries incorporating more sustainable practices and environmentally-friendly materials into their operations? By examining case studies particularly of museums and galleries from Ottawa, Canada, and London, UK, in addition to sustainable exhibition and curatorial practices, the following chapters will present parallel comparisons to explore how museums and their exhibitions can contribute to reducing institutional environmental impact and their carbon footprint.

⁵⁵ Worts, Douglas. “Fostering a Culture of Sustainability.” (Museum and Social Issues, Volume 1, Number 2, Fall 2006), 170.

Chapter 2 - Museums

Case-Study Comparisons of Museums in Ottawa and London

"It has been said that museums reinvent themselves endlessly. So, too, the people who work in them reinvent museum careers. That's part of what makes museum work so intriguing and interesting."⁵⁶

- Jane Glaser, Artemis Zenetou

Museums collect and display the finest and rarest works of art and nature from across all continents of human civilization and of past eras of planetary and natural development. Museums encompass centuries worth of research material and artistic achievement - a collection that is invaluable to understanding where we came from, and where we are going. In general, as opposed to art galleries often with a focus on fine art, museums holding the aforementioned collections may focus on the history of human civilizations (anthropology), the history of the earth, its ecosystems and its creatures (natural history), or perhaps a specialized collection such as the history of decorative arts and design as seen at the Victoria and Albert Museum, or the history of English gardens at the Garden Museum, (both in London, UK).

As briefly explained in Chapter 1, museums have been a part of human history since antiquity, predominantly in Europe since the Renaissance - gaining popularity during the 17th and 18th centuries. Before the mid-19th century, museums were mainly open to the wealthy and educated upper-class and hardly accessible to the public. For example, the British Museum, considered the first true national museum, opened in London in 1759 as a bequest of Sir Hans

⁵⁶ Jane R. Glaser, and Artemis A. Zenetou. *Museums: A Place to Work: Planning Museum Careers*, (London and New York: Routledge, 1996), ix.

Sloane and only permitted sixty visitors per day. By 1879, it was open daily to the general public and allowed a much greater number of visitors.⁵⁷

Today there is no divide as to who can visit a museum, all walks of life are welcome with or without a fee depending on the institution, country, and age group. Exhibition development is now geared towards the education and entertainment of the general public - requiring a balance between academic knowledge for study purposes, and general information for school groups and passing tourists. To elaborate on the educational role of museums, Glaser and Zenetou write:

As preservers, presenters, interpreters, and transmitters, museums are also centres for lifelong learning. Their resources stimulate the young, instruct the mature, rejoice the eye, and for all ages provide opportunities for quiet contemplation, for discovery, for that knowledge that can only result from asking questions, making comparisons, and undertaking interrelationships. These attributes pertain to all museums, whether dedicated to art, history, science, or nature.⁵⁸

The collections of anthropological, natural, and specialized museums reflect the focus and mandate of their respective institutions. The objects held within the collection are mainly used for research purposes and permanent or temporary exhibitions. Within the exhibition spaces, the objects or specimens are usually displayed with inconspicuous written labels beside them, providing key information (if known or applicable) such as the artist/maker, title, date, location, catalog number, and a short paragraph describing the significance of the object.⁵⁹

⁵⁷ Ibid, 11.

⁵⁸ Jane R. Glaser, and Artemis A. Zenetou, *Museums: A Place to Work*, vii.

⁵⁹ Alexander, Edward P., and Mary Alexander, *Museum in Motion*, 236.

In order to research and display objects and artworks, a specialized curator is needed to research, to collect and document acquisitions, to conserve and care for the objects or specimens, to manage the collection, to plan educational exhibitions, and to organize and write publications.⁶⁰ As discussed in Chapter 1, the curator is a key force behind museum practices and an important member in planning and developing exhibitions for the public.

Strategic planning and policy development are also undertaken by senior staff members, the director, and board members. Over the past decade, developing and implementing environmental policies, procedures and strategic plans has affected all areas of some museums such as the National Gallery in London, resulting in a reduction in the museum's environmental impact and saving money, particularly in operational costs. Strategic planning involves an in-depth visioning discussion to determine the optimal future for the institution and the steps and changes required to achieve it. The planning process allows the museum or gallery to assess its current situation, consider its future paths, and determine an action plan to achieve its desired goals - in other words, "to be the real architect of its own future."⁶¹

In relation to policy development and integrating environmental initiatives into the strategic planning process, policies determine everyday working

⁶⁰ Gail Dexter Lord and Kate Markert. *The Manual of Strategic Planning for Museums*. (Lanham, New York, Toronto, Plymouth, UK: Altamira Press, 2007), 12.

⁶¹ *Ibid*, 4.

procedures⁶² while also stating the plan for implementation of an institution's immediate goals and future objectives.⁶³ The sustainability policy therefore communicates senior management's short and long-term environmental goals to the staff, stakeholders, suppliers, visitors, and researchers.⁶⁴ In order to implement environmentally sustainable practices and procedures within museums and galleries, strategic planning and policy development must be discussed and approved in order to change everyday actions. In the twenty-first century, this is the first major step towards creating a greener gallery or museum.

The inception of green museums is generally believed to have begun in France with 'ecomuseums' in the 1970s. As Barbara Kazior writes, "the term 'ecomuseum' was first coined by Hugues de Varine in France in 1971 and the first ecomuseums were created in Le Creusot in 1974 and Grande Lande in 1975."⁶⁵ Kazior defines an ecomuseum as being "a network of objects or sites dispersed in an area, which presents a 'living whole' reflecting the natural and cultural values of the region and its population."⁶⁶ An ecomuseum is therefore a local attraction that is part of a small community which demonstrates its local and cultural heritage, including churches, country houses, castles, flora and fauna, viewing

⁶² Rachel Maden, *Sustainable Museums*, 75.

⁶³ *Ibid*, 89.

⁶⁴ Rachel Maden, *Sustainable Museums*, 91.

⁶⁵ Barbara Kazior. "Ecomuseums", Environmental Partnership Foundation. <http://www.greenways.pl/en/ecomuseums>. 1-2.

⁶⁶ *Ibid*, 1.

points and geological highlights.⁶⁷ The organization aims to promote environmentally-friendly travel between destinations, such as walking or biking, and to “improve quality of life and promote sustainable development.”⁶⁸

The larger museums discussed in this study have vastly different methodologies than smaller ecomuseums. However, the core relation between sustainable development and improving community welfare are common goals between the two types of organizations. In the last decade, larger institutions have adopted and implemented more sustainable practices, especially within the last decade. However the majority of these institutions are nature and science museums with a clear mandate to examine natural and planetary issues. The green museum field is beginning to consider art museums and their integration of sustainable policies. As authors Elizabeth Wylie and Sarah Brophy write:

Institutions with non-living collections often fail to recognize the synergy between global environmental health and institutions health-overlooking the financial savings [...] In these museums green has not reached standards of practice or accreditation, but surely it will. Just as issues of diversity, disabled accessibility and ethics have made their way into professional expectations, so too will environmentally sustainable practices.⁶⁹

As mentioned previously, throughout the research process, it emerged that the areas most active in the field of museological environmental sustainability are in California and in the United Kingdom. However due to the scope of this study, museums and galleries in Ottawa, Canada and in London, England will be

⁶⁷ Ibid, 2.

⁶⁸ Ibid, 1.

⁶⁹ Elizabeth Wylie and Sarah S. Brophy, “The Greener Good: The Enviro-Active Museum”, (Museum, American Association of Museums, January/February issue, 2008), 4.

discussed with a focus on environmental policy and environmental initiatives. Exploring ways to create more sustainable exhibition and curatorial practices with also be examined. The museums used as case-studies within this chapter are, from Ottawa: the Canadian Museum of Nature (CMN) and the Canadian Museum of Civilization (CMC), and from London: the Natural History Museum (NHM), and the Garden Museum.

The Canadian Museum of Nature (CMN) in Ottawa is a national museum with a focus on the natural world; its collection holds extensive examples of bird, reptile, mammal, insect, and mineral specimens. As stated in the Consolidation Museums Act:

The purpose of the Canadian Museum of Nature is to increase, throughout Canada and internationally, interest in, knowledge of and appreciation and respect for the natural world by establishing, maintaining and developing for research and posterity a collection of natural history objects, with special but not exclusive reference to Canada, and by demonstrating the natural world, the knowledge derived from it and the understanding it represents.⁷⁰

As a natural history museum, the institution has strong connections with nature and its ecosystems. This focus helps to create clear connections between the natural world and our need to preserve it, resulting in a need to develop sustainable plans and policies in order to live harmoniously with nature. However, the CMN's environmental policy statement and action plan is still in development and has not yet been implemented, which is also the case for other cultural institutions in the Ottawa area such as the CMC. Although both the CMN and the CMC do not currently have completed sustainability plans, both institutions are

⁷⁰ *Consolidation Museums Act: Part 1 - Establishment*, (Government of Canada, Published by the Minister of Justice, S.C. 1990, c.3,), 6.

beginning the process of determining environmental goals for their museums, as well as the actions needed to achieve these goals.

The CMN was formed in 1842 and holds over 10 million specimens in twenty-four major science collections covering Earth's four-billion year history.⁷¹ As stated in the CMN's 'Mission and Mandate': "Knowing more about nature gives us the tools to make better decisions about resources. It provides the basis for new technologies and developments, and promotes a better understanding of how we affect, and are affected by, the natural world."⁷² The Museum explores these topics within their collection displays and dioramas, providing information about the natural world to young and old visitors alike.

In order to reduce the CMN's impact on the environment, the museum has developed an 'Environmental Stewardship Policy' outlining the areas in which the museum will improve environmental sustainability. Although the document is a beginning towards making the museum more environmentally-friendly, an action-plan is needed to implement the ideas and goals suggested in the policy (this will apparently be developed further in the coming months)⁷³. As stated in the CMN's 'Environmental Stewardship Policy': "The Museum is committed to demonstrate leadership and inspire action in making wise choices for stewardship of the

⁷¹ "Mission and Mandate", Canadian Museum of Nature, Ottawa, Ontario, Canada. (Accessed December 13th, 2011. <http://nature.ca/en/about-us/museums-corporation/mission-mandate>), 1

⁷² Ibid, 1.

⁷³ Email correspondence from Marc Chrétien, CMN. Jan. 17, 2012.

natural environment.”⁷⁴ The Museum also aims to “educate Canadians about the environment and the issues that affect nature’s balance”⁷⁵ and to “inspire its partners and all Canadians to take responsible actions to protect the natural environment and reduce their ecological footprint.”⁷⁶ In summary of the Policy, the CMN states that “the Museum will annually assess its environmental impacts and priorities and develop and implement practical, focussed environmental action plans.”⁷⁷ Despite not yet having an action plan, the CMN is clearly motivated to reduce its impact on the environment as well as to educate Canadians about environmental issues facing the planet and its ecosystems.

To specify the areas in need of improvement at the CMN, the Museum has developed a document in its final draft titled ‘CMN Environmental Framework, Phase 2: Framework Architecture’⁷⁸. With the assistance of a consulting firm, the Museum has identified its priority environmental issues, two of these being water and resource use. The document also outlines the Museum’s environmental commitments to inspire, educate, and lead. Phase 3 will explain its action plans.

The Canadian Museum of Civilization (CMC), in particular the areas concerning exhibition development and building operations, is considering and

⁷⁴ “Environmental Stewardship Policy”, Canadian Museum of Nature, Ottawa, Ontario, Canada. Effective January 2011. 1: 3.1.

⁷⁵ Ibid, 2: 6.1.1.

⁷⁶ Ibid, 2: 6.1.2.

⁷⁷ Ibid, 2: 7.2.

⁷⁸ “CMN Environmental Framework, Phase 2: Framework Architecture, Final Draft”, Canadian Museum of Nature, (Ottawa, Ontario, Canada). May 12, 2010), 10.

implementing environmentally-sustainable designs and materials. The origin of the CMC was in 1856 with the establishment of a museum by the Geological Survey of Canada. The museum underwent much growth and adaptation over the next century, but it was not until the summer of 1986 that the museum, previously named The National Museum of Man, was renamed the Canadian Museum of Civilization, and was opened to the public. The new and innovative architectural design by Douglas Cardinal was unveiled in 1989.⁷⁹ In general, the Museum has an anthropological focus, looking at the history of ancient civilizations to contemporary societies and holds within its vast collection thousands of significant artifacts and artworks that represent the evolution of human civilization with a strong focus on Canada, its history and peoples.

Although museums with an anthropocentric focus rather than a natural history one seem to have less obvious connection to environmental sustainability, our human civilizations depend on the Earth to survive, therefore by caring for the environment, we are also caring for ourselves as well as future generations. By creating sustainable policies and procedures for museum practices, the goal of caring and preserving civilizations is accomplished by preserving the exterior environment.

As previously mentioned, the Canadian Museum of Civilization has not yet developed a sustainability policy, but there are still green initiatives in place, such

⁷⁹ "History of the Canadian Museum of Civilization", Canadian Museum of Civilization (Ottawa, Ontario, Canada), Accessed December 12, 2011. <http://www.civilization.ca/about-us/about-the-museum/history-of-the-museum-of-civilization>.

as using water from the adjoining Ottawa River to cool and heat the interior spaces.⁸⁰ In addition, the CMC was one of the first institutions to install geothermal energy in the Ottawa area, which captures the heat beneath the ground. Although lighting in the gallery and office spaces will soon be re-evaluated⁸¹, the current bulbs reduce energy usage by automatically dimming and are more efficient than traditional light bulbs. In terms of recycling, the museum recycles paper, glass and plastic as well as reusing materials such as recycled carpet.⁸²

Denise Corbett is the Manager of the Project Management Office at the CMC and is in charge of the development, implementation, installation, exhibition planning of temporary and permanent exhibitions, and the maintenance of all permanent spaces.⁸³ In an interview conducted with Ms. Corbett, she explained the CMC's exhibition practices and the issues that come with exhibition development and incorporating sustainable practices.⁸⁴ One of the issues is that the museum is using tax-payers' money to create exhibitions, and therefore needs to be accountable to the public. Therefore it can be difficult to justify to the public

⁸⁰ "Our Museums and the Environment", Canadian Museum of Civilization (Ottawa, Ontario, Canada), Accessed December 12, 2011, <http://www.civilization.ca/plan-your-visit/amenities/facility-rentals/our-museums-and-the-environment>.

⁸¹ Denise Corbett. Interview with Jasmine Fenn. Canadian Museum of Civilization. Thursday, January 26, 2012, 9:30am. Ottawa, ON, Canada.

⁸² "Our Museums and the Environment", CMC.
No current statistics on energy savings were included in this year's annual report.

⁸³ Denise Corbett. Interview with Jasmine Fenn. See transcript.

⁸⁴ For the full interview transcript, please refer to the Appendices.

spending more on green exhibition materials that are expensive upfront, but that will last longer than traditional materials. In developing exhibitions that are more sustainable, the exhibition designers at the CMC may be requested to find green technology and green materials that are more sustainable and leave either a low or no carbon footprint.⁸⁵

A recent time and cost-saving innovation has been the fabrication of reusable walls. In the past, the exhibition team needed to construct walls for every exhibition particularly in the larger spaces that are between 6,000 and 10,000 square feet to create exhibition zones and surfaces to hang artworks. However for each wall, an architect would need to be hired, inspect the walls for structural stability, give their approval, and repeat for every exhibit wall. After the exhibition, the wall would be full of holes, the only option being to discard it and start over again for the next exhibition. With the creation of a new inventory of reusable walls, (with a height of ten feet, and a variable length between four to twelve feet), the walls are now being used and reused, creating significantly less waste of time, money, and materials.⁸⁶

In addition, the CMC will be purchasing display systems from a Canadian company in Quebec City that utilize LED lighting which use 50% to 80% less power than previous lighting sources⁸⁷ and allows for a more neutral light which resembles daylight to illuminate the artworks or artifacts while saving money on

⁸⁵ Ibid.

⁸⁶ Ibid.

⁸⁷ "Cutting Edge LED Technology". LED Saving Solutions. <http://www.ledsavingsolutions.com/>.

operating costs. Since LED lighting does not heat up like traditional incandescents, the risk of artworks becoming overheated or damaged is minimized.

When asked about whether museums should consider their environmental impact and reducing their carbon footprint, Ms. Corbett replied: “I think societally we don’t have a choice, it is happening at local, individual, and community-based levels, and I think institutions won’t be able to avoid it.”⁸⁸ It is clear that museums today must consider new aspects of exhibition development and operational practices in order to be more accountable to the public, to save time and money on materials, and to educate visitors about social and environmental issues. As Glaser and Zenetou explain: “Museums’ heightened role as educators presents them with the added responsibility and obligation to society to research, explore, and present pressing environmental and social issues factually and to offer possible solutions.”⁸⁹ In the United Kingdom, many cultural institutions have already been considering these issues over the past decade and are therefore ahead of most Canadian institutions in terms of sustainable policies, green design, and environmental initiatives.

The Natural History Museum (NHM) in London, England contains one of the world’s largest collections of natural history specimens including rare and valuable minerals, extinct species, and Darwin’s significant studies of flora, fauna,

⁸⁸ Denise Corbett. Interview with Jasmine Fenn. See transcript.

⁸⁹ Jane R. Glaser, and Artemis A. Zenetou. *Museums: A Place to Work: Planning Museum Careers*, (London and New York: Routledge 1996), 244.

and mammals. The NHM was founded in 1753 when Sir Hans Sloane donated his extensive collection of natural curiosities and specimens to the British Museum.

At this time, Sir Richard Owen, Superintendent of the British Museum's natural history collection, convinced the Government that a new museum needed to be built to store and display these new additions. The NHM officially opened to the public in 1881, and by 1883 the entire mineralogy and natural collections were in their new location. It was however not until 1963 that the collection was considered a museum in its own right, rather than a section of the British Museum.⁹⁰

Due to the nature of its collection of natural specimens, the NHM has a understandable interest for preserving ecosystems and the environment, which is reflected in their sustainable endeavors. The Museum is dedicated to reducing its impact on the environment and reducing its carbon footprint through sustainable policy, green design and technologies, and environmental initiatives. Education about global environmental issues is also important to the institution in order for it to be a leader within its community and to provide information on sustainability for its visitors.

In terms of energy conservation and money-saving strategies, the heat and air-conditioning is powered by the NHM's on-site Combined Heat and Power plant, and is more energy-efficient than conventional methods.⁹¹ After demolishing

⁹⁰ "History and Architecture", Natural History Museum (London, UK), Accessed January 15, 2012. <http://www.nhm.ac.uk/visit-us/history-architecture/index.html>.

⁹¹ Ibid.

the old insect entomology building to make way for the new Darwin Centre, about 95% of the materials were reused in the new building and 80% of the materials that had to be removed were recycled.⁹² As stated by the NHM, “the new Darwin Centre was designed and built to have the minimum impact on the environment.”⁹³ For example, the dense insulating concrete structure containing important specimens of plants and insects regulates changing exterior temperatures, which allows for a stable interior environment with minimal need for heating or air-conditioning. In addition, to avoid over-heating and to reduce the amount of daylight entering the building, the windows on the west side of the building were etched, which also reduces the amount of air-conditioning needed.⁹⁴

Apart from green architectural designs, the NHM has also developed an environmental and energy policy outlining its goals towards sustainability. The NHM’s Environmental Policy pledges sustainability in a number of areas such as: monitoring discharges of emissions into the air, land and water to reduce pollution, a commitment to monitoring carbon dioxide emissions and improving energy efficiency, monitoring waste generation and recycling rates to promote reuse and recycling in all areas of the museum, as well as to consider the environmental impact of new projects or ventures.⁹⁵

⁹² “What is the Museum doing”, Natural History Museum (London, UK), Accessed January 14, 2012. <http://www.nhm.ac.uk/print-version/?p=/nature-online/environmental-change/taking-action/museum-initiatives/index.html>, 1.

⁹³ Ibid, 2.

⁹⁴ Ibid, 2.

⁹⁵ “NHM’s Environmental Policy”, Natural History Museum (London, UK), Signed by David Sanders, Director of Estates, April 13, 2011.

In relation to the exhibition and curatorial departments, the NHM also pledges to “promote sustainable options for staff and visitor travel and reduce impacts from exhibition and specimen transport.”⁹⁶ Despite the specifics on this statement, the NHM is clearly interested in looking at all aspects of their operations to reduce their impact on the environment. Within the ‘Museum Environmental Policy Statement’, the NHM declares:

The Natural History Museums’ vision for the future is to advance our knowledge of the natural world, inspiring better care of our planet. We are committed to improving our environmental performance in all areas of operation [...] We will do so in a way that is complementary to the United Kingdom’s commitment to sustainable development and reducing the effects of climate change.⁹⁷

A selection of the aims listed in the ‘Museum Environmental Policy Statement’ state that the museum hopes to participate in public discussions in the museum sector about environmental issues and to encourage the spread of sustainable technologies and services in the museum field, in addition to continually improving the energy efficiency of all staff, visitor, and supplier travel. The NHM is also committed to continual improvement through reviews of environmental management performance to achieve specific objectives and targets.⁹⁸ Through its policies, procedures, and environmental initiatives, it is clear that the NHM is committed to operating on a daily basis with green practices in mind while reducing its carbon footprint.

⁹⁶ Ibid.

⁹⁷ “Museum Environmental Policy Statement”, Natural History Museum. (Signed by David Sanders, Director of Estates (on behalf of Directors Group), August 4, 2009), 1

⁹⁸ Ibid, 1.

The Garden Museum (also in London, England) is a smaller and more recent institution than those museums previously discussed, but holds a significant collection on the history of British gardens. As previously stated, the Garden Museum was included in this study to represent different environmental initiatives taken on a smaller scale, while also providing a contrast to the larger museums discussed.

In 1977, the Garden Museum was established in order to rescue from demolition the church of St. Mary's, which combines both medieval and Victorian architecture. The church is also the burial place of John Tradescant (c. 1570-1638), believed to be the first great gardener and plant-hunter in British history.⁹⁹ His tomb, now in the garden, is planted with flowers that grew in London over four hundred years ago. St. Mary's church was repurposed and converted into a gallery space for the display of the Garden Museum's artifacts - including paintings, tools, and historic designs. The collection contains about 10,000 objects representing 400 years of gardening in Britain.¹⁰⁰ As the Museum explains, there are three exhibitions each year as well as thirty talks about plant-hunters of the past, from contemporary landscape designers and gardeners.¹⁰¹

⁹⁹ "History of the Museum", Garden Museum (London, UK), Accessed January 18, 2012, <http://www.gardenmuseum.org/uk/page/history-of-the-museum>. 1.

¹⁰⁰ "Collection", Garden Museum (London, UK), Accessed January 18, 2012, <http://www.gardenmuseum.org/uk/page/collection-and-garden>.

¹⁰¹ "History of the Museum", Garden Museum, 1.

An exhibition exploring urban sustainability titled *Going 'Green' in the City: From Garden City to Green City* was on display from September 23, 2011 to April 1, 2012. According to the Garden Museum:

*"From Garden City to Green City, explores the many visions, designs and projects that have inspired the 'green city' movement over the last 150 years. From the Victorian pioneers determined to improve living conditions in post-Industrialized Britain, to today's ground-breaking landscape architects transforming our urban centres, the exhibition considers whether our current enthusiasm for eco-living and seasonality can make a lasting change."*¹⁰²

In order to illustrate London's green movement over the past 150 years, the exhibition displays books, artworks, photographs, design drawings, maps, diagrams and films. The Garden Museum itself also has a keen interest in sustainability, since the majority of the exhibition has been constructed from recycled materials, and most of those materials will be reused after the close of the exhibition.

Among the Garden Museum's initiatives for greening museums is the implementation of an internship program in sustainability. Jade-Lauren Cawthray is the first trainee in the sustainability of heritage program as part of the UK's Heritage Lottery Fund and is in charge of helping the Garden Museum become more socially, economically, and environmentally sustainable through its operations.¹⁰³ This includes all aspects of the Museum including the café and gift

¹⁰² "Gallery Exhibition - Going 'green' in the city: From Garden City to Green City", Garden Museum (London, UK), September 23, 2011 to April 1, 2012. Accessed January 18, 2012, <http://www.gardenmuseum.org/uk/page/gallery-exhibition>.

¹⁰³ Interview with Jade-Lauren Cawthray, Friday, February 17, 2012. Garden Museum London, UK For the full transcript, please see the appendices.

shop, as well as facility, curatorial, and exhibition management. In an interview conducted with Ms. Cawthray at the Garden Museum in London, we discussed the Museum's sustainability initiatives as well as the *From Garden City to Green City* exhibition.

Within the Garden Museum's café, the kitchen operates as a zero waste to landfill system where all the food scraps are composted into the surrounding garden, thereby going back into the purpose of the museum to maintain British gardening history. In addition, the food in the café is locally sourced within a 60 mile radius of the museum, the tea and coffee are Rainforest Alliance Certified, (which helps protect the world's rainforests), and their trays are even biodegradable.¹⁰⁴

Reusing and recycling are important practices at the Garden Museum. For example wooden slats were salvaged from a local theatre twenty years ago, becoming table legs, but now used decoratively in front of the café counter. The desks in the back offices for staff are made from old exhibition materials, thereby repurposing unused objects.¹⁰⁵ Reusing materials was also an important factor in developing the *From Garden City to Green City* exhibition. The designers and exhibition planners developed an almost 'cradle to cradle' design, where all the materials used will be repurposed or recycled rather than being dumped in a landfill at the end of the exhibition. One aspect of the exhibit's sustainability is its

¹⁰⁴ Ibid.

¹⁰⁵ Ibid.

utilization of around 1000 concrete blocks purchased cheaply from a local merchant. After the exhibition, the blocks will be sold back to the manufacturer and used to build houses.¹⁰⁶

The walls created for the exhibition will be used for the next two exhibitions, then will likely be remodeled for the exhibition room. The display space itself maintains a constant temperature because it is enclosed within a free-standing sustainably-sourced wooden structure that does not touch the historic stone walls of the church, thereby keeping the heat contained in the exhibition spaces and maintaining the environmental conditions of the displayed objects. The Garden Museum therefore saves money on energy, waste, and exhibition materials by operating sustainably, which also helps reduce their environmental impact and reduce their overall carbon emissions. When asked if the institution has an obligation to reduce its carbon footprint, Ms. Cawthray replied:

“As a museum or an art gallery, you have a cultural responsibility, you are preserving your nation’s culture, the world’s culture. And as a part of that, you get so tied in to the people and the planet, that you have a responsibility to them as well. [...] This is a way for us to give back to people, and we need to start respecting everything around us.”¹⁰⁷

By examining case studies of museums from Ottawa, Canada, and London, UK, specifically Ottawa’s Canadian Museum of Nature, and Canadian Museum of Civilization, as well as London’s Natural History Museum and Garden Museum, a discussion of current environmental practices has come to the fore

¹⁰⁶ Ibid.

¹⁰⁷ Ibid.

with key examples of current sustainable practices in the museum sector. Through this examination of museums with a natural or anthropological focus, we have seen how the collection and mandate within the museum, as well as social and environmental issues outside the museum, have influenced and are continuing to influence the operations and policy-making of museum practices.

The exhibition departments in particular are considering new and more eco-friendly, time-saving, and cost-effective ways to develop exhibitions, which will also align with the museum's sustainable policy and carbon plan. According to Brophy and Wylie, "by integrating strategies for operational cost savings with mission objectives (both financial sustainability and environmental sustainability), museums are finding a powerful voice in green, one that is being heard and supported."¹⁰⁸ However within the museum sector, it seems that museums with a focus on the natural world are integrating environmentally sustainable practices sooner than art museums and galleries. This is likely due to the nature of their collection and mandate, to preserve and document the natural world thereby encouraging sustainability. As will be discussed in the following chapter, the differences in governmental support for reducing carbon emissions is also a key factor towards developing sustainable museological practices.

¹⁰⁸ Brophy, Sarah and Elizabeth Wylie. "It's Easy Being Green: Museums and the Green Movement". (Museums News, American Association of Museums. September/October 2006), 4

Chapter 3 - Art Galleries

Case-Study Comparisons Art Galleries in Ottawa and London

“Strong leadership is critical for leading a museum through any degree of institutional change, and visionary leadership is essential for leading a museum through fundamental change.”¹⁰⁹

- Harold Skramstad

Art museums and galleries with collections of drawing, painting, and sculptural artworks are fundamentally different from natural history and anthropological museums in terms of their stored and displayed objects, and yet their goals are the same: to educate the public about the history of our world and those that came before us. In relation to art galleries, Harold Skramstad writes: “it was art museums that first saw themselves as preservers of rare and beautiful objects of intrinsic value, and their view of collecting has subsequently shaped the collections of many non-art museums.”¹¹⁰

In addition to the shared educational goals among galleries and museums, many of these cultural institutions are developing sustainable policies and environmental practices that reflect their mission and mandate in demonstrating concerns for global issues. However as previously mentioned, in general museums with a focus on the natural world are implementing sustainable policies sooner than art museums and galleries, which is certainly due to the nature of their collection and mission that is already geared towards sustainability. A number of larger galleries are leading the way towards implementing sustainability in their art museums, such as the National Gallery and the Victoria and Albert

¹⁰⁹ Gail Anderson (ed.), *Reinventing the Museum*, 3.

¹¹⁰ Harold Skramstad, “An Agenda for Museums in the Twenty-first Century”, in Gail Anderson (ed.), *Reinventing the Museum*, 120.

Museum (V&A) in London. In the Canadian context, fine art museums and galleries are generally less focussed on developing sustainable policies, which may be due to the nature of their collections that are not specifically representing the natural world as well as less governmental support for these initiatives than in the United Kingdom.

The National Gallery of Canada (NGC) in Ottawa is focussed on collecting and preserving artworks that represent the history of Canadian and aboriginal art. Within the NGC's most recent corporate plan, the Gallery's legislated mandate is "to develop, maintain and make known, throughout Canada and internationally, a collection of works of art, both historic and contemporary, with special but not exclusive reference to Canada, and to further knowledge, understanding and enjoyment of art in general among all Canadians."¹¹¹

The NGC was founded in 1880 by then Governor General the Marquis of Lorne, but was not federally controlled by the Canadian Government until 1913 with the National Gallery of Canada Act. In 1990, the NGC became a Crown corporation with the proclamation of the Museums Act, along with the affiliated Canadian Museum of Contemporary Photography (CMCP).¹¹² The collection of the NGC holds around 37,800 artworks and its Library and Archives contains Canada's largest collection of visual arts research material.¹¹³ As the largest

¹¹¹ *Summary of the Corporate Plan for 2011-12 to 2015-16 and Operating and Capital Budgets for 2011-12*, National Gallery of Canada, 3.

¹¹² *Ibid*, 5.

¹¹³ *Ibid*, 6.

gallery in the Ottawa area, the NGC is the main centre for viewing historical Canadian art in permanent displays, as well as annual international travelling 'blockbuster' exhibitions.

The National Gallery of Canada is dedicated to promoting, conserving, and collecting Canadian art. Despite not having a formal sustainability plan, the NGC has undertaken green initiatives throughout the operations department such as energy-efficient lighting upgrades, water conservation efforts, and more eco-friendly cleaning products. Since the beginning of its comprehensive energy retrofit program in 2000/2001, the Gallery has introduced a number of annual improvements to reduce energy usage.¹¹⁴ It seems however that the NGC does not publicize their environmental efforts - the facts above are only obtained through personal inquiry. In the NGC's most recent corporate plan, the only mention of environmental issues is that "the Gallery strives to operate its facilities in an environmentally sustainable manner within strict operating ranges in order to preserve the collection and fulfill contractual obligations for works of art on loan."¹¹⁵ However, in a previous version of the the corporate plan, the document states that "the Gallery will need to dedicate more human and financial resources to establishing the sustainable building operations framework and fulfilling the

¹¹⁴ Personal email from Peter Zimonjic, media correspondent, NGC. February, 2012.

¹¹⁵ *Summary of the Corporate Plan for 2011-12 to 2015-16 and Operating and Capital Budgets for 2011-12*, National Gallery of Canada, 10.

corporate environmental responsibilities expected of it as a national institution.”¹¹⁶ This clause was removed from the NGC’s most recent corporate plan, raising the question of the National Gallery of Canada’s commitment to addressing environmental responsibility. However due to the previously stated green initiatives, it seems that the Gallery is in fact interested in operating sustainably.

Within the exhibition and curatorial departments of many cultural institutions, developing and displaying major international ‘blockbuster’ exhibitions requires artworks to be shipped from around the world, new walls and supports to be constructed, as well as paper products for advertising and catalogues. Major exhibitions in particular often accumulate a significant carbon footprint due to their impact on the environment. In order to understand this issue more fully, an interview was conducted with Ms. Sonia Del Re, Assistant Curator of European, American, and Asian Prints and Drawings, as well as the Interim Associate Curator of Prints and Drawings at the National Gallery of Canada.

With regards to the NGC becoming more interested in operating more sustainably and developing an official policy, Ms. Del Re believes that one of the first steps would be to see if greening museum practices is a trend in the museum world. If it is, then the NGC would look into implementing a sustainable policy.¹¹⁷ However, since the National Gallery of Canada is largely governmentally funded

¹¹⁶ *Summary of the Corporate Plan and Operating and Capital Budgets, For 2009-10 to 2013-14, The National Gallery of Canada and the Canadian Museum of Contemporary Photography.* Ottawa: Public Affairs Directorate and the Publications Division of the National Gallery of Canada, 13.

¹¹⁷ Interview with Sonia Del Re, NGC. Ottawa, ON.

as a national institution, the Gallery would need financial support from the Canadian government in order to undertake a sustainability overview.

According to Ms. Del Re, “if national museums don’t have governmental support and the money to do it, then it becomes a lot more difficult because they would need to use their own resources, money and time to do this.”¹¹⁸ In order to regulate sustainable practices across the Gallery, Ms. Del Re suggests that environmental change would need to be policy-driven within the Gallery so that everyone is in agreement and actively participating.¹¹⁹

In relation to how environmental sustainability could affect the curatorial and exhibition departments as well as discussing current practices in place, Ms. Del Re states that within her department, the Gallery tries to reuse as much as possible, such as the molding from a previous exhibition, but this is more driven by budget rather than environmental concerns. Within her European print specialization, Ms. Del Re argues that it is very difficult to organize a show of European art with only local objects with the goal of reducing shipping costs and carbon output. For most international exhibitions, there is little choice except to ship objects from overseas or from the United States, which is a difficult issue to solve. However as Ms. Del Re explained, a consideration for object loans is their proximity to the Gallery in order to reduce shipping and courier costs. One example where distance affected the selection of objects was the ‘Drawn to Art:

¹¹⁸ Ibid.

¹¹⁹ Ibid.

French Artists and Art Lovers in 18th Century Rome' exhibition from October 21, 2011 to January 2, 2012.¹²⁰ The Gallery wanted to borrow a number of small sculptures from across the United States and Europe, however due to budgetary concerns, certain sculptures were cut from the selection, which saved on budget. For the works that came from Europe, Ms. Del Re explained that they tried to consolidate the loans from various museums in France so that there was only one large shipment of works, rather than multiple small shipments, which reduced carbon output but the key focus was on budget concerns.¹²¹ Environmentally sustainable curatorial and exhibition practices can therefore aid budgetary constraints when choosing and shipping objects, which could be considered when developing gallery-wide policies.

When asked whether a sustainable policy should consider the role of the curator and the carbon impact of exhibitions, Ms. Del Re “think[s] so because projects like exhibitions are generally driven by the curators [...] [however] we have to respect the lending institutions’ requirements, so we cannot control every aspect of loan transportation.”¹²² Furthermore, “the curators’ work in designing exhibitions is intellectual, [...] and of course they want the most prestigious objects, and that’s really what I think is what a curator thinks about when they choose objects, which are most in line with the theme and content of the show

¹²⁰ National Gallery of Canada. <http://www.gallery.ca/en/see/exhibitions/upcoming/details/drawn-to-art-french-artists-and-art-lover-in-18th-century-rome-67>.

¹²¹ Ibid.

¹²² Ibid.

and which are the most prestigious.”¹²³ For example for the NGC’s ‘Van Gogh: Up Close’ exhibition from May 25 to September 3, 2012¹²⁴, the NGC’s collection contains only three Van Gogh paintings and one drawing; therefore, many loan requests were required. However a consequence of loans is reciprocity, meaning that the carbon footprint will be doubled since the lending institutions will soon want to borrow an object in return, perpetuating the environmental impact of the original loan.

According to Ms. Del Re,

The intellectual concerns of the curators are such that even if we were more careful as to where we are borrowing objects from, it would be hard to always be respectful of environmental issues, since the exhibitions would just not be the same. We use our collections as much as possible because we have a great collection, but for works on paper, even if the collection is very large, we are limited in the amount of exposure time each work can be subjected to. Also, it is difficult to attract the public as much as with large exhibitions with international loans, so we try to get a good balance of the two.¹²⁵

There is certainly no clear answer to this issue, since international exhibitions bring in high revenue and prestige, but perhaps by establishing an agreed-upon sustainability policy, small goals may be achieved within curatorial practices. As Ms. Del Re concludes, “I think there really needs to be a shift in how we deal with these issues [...] I think it is something that we need to be a lot more educated on in order to be able to do something about it.”¹²⁶

¹²³ Ibid.

¹²⁴ “Van Gogh: Up Close”, NGC, <http://www.gallery.ca/vangogh/en/index.htm>.

¹²⁵ Interview with Sonia Del Re, NGC.

¹²⁶ Ibid.

The Ottawa Art Gallery (OAG) in Ottawa is the city's main municipal gallery and displays historical and contemporary Canadian artworks particularly of local artists. Similarly to the Garden Museum in the UK, the OAG was chosen as a case-study in order to represent the differences encountered in a smaller museum with regards to environmental sustainability. The OAG was founded in the late 1980s with the goal of representing current local artists, resulting in the Gallery's opening in 1988 as part of Arts Court.¹²⁷ Catherine Sinclair is the Curator of the Firestone Collection of Canadian Art at the Ottawa Art Gallery. The Firestone Collection is a significant private collection of modern Canadian 20th century artworks including around 1600 works with artists such as A.Y. Jackson, Emily Carr, and Jack Shadbolt.¹²⁸

In order to discuss everyday curatorial and exhibition practices as well as environmental sustainability, an interview was conducted between myself and Catherine Sinclair. Since the OAG is much smaller than the NGC, the gallery staff of around twelve have a wide variety of responsibilities in developing exhibitions. As stated by Ms. Sinclair as a curator, these duties include exhibition preparation and exhibition research, installing exhibitions, administration, proofreading, publicity, fundraisers, grant reports, donations, artist and general public correspondence, meeting with students, gallery visits, exhibition openings, etc.¹²⁹

¹²⁷ "History", The Ottawa Art Gallery, Accessed June 2, 2012, <http://www.ottawaartgallery.ca/content/history>.

¹²⁸ "The Firestone Collection of Canadian Art", The Ottawa Art Gallery, Accessed June 2, 2012 <http://www.ottawaartgallery.ca/content/firestone-collection-canadian-art>

¹²⁹ Interview with Catherine Sinclair.

When asked whether the OAG currently has a sustainable plan or policy in place, Ms. Sinclair replied that there is currently nothing official in place. However, the OAG will open a new building in 2015 and issues including more sustainable materials such as energy-efficient lighting systems and better insulation for the preparation room in the vaults are under discussion. Although the new building will have energy-efficient features, Ms. Sinclair explained that she tries to keep environmentally-friendly and budget-friendly choices in mind when developing exhibitions. Some of these decisions include shipping through the use of shuttles which reduces the number of trips made to and from the gallery, switching to healthier and no-VOC (Volatile Organic Compound) paint for the walls¹³⁰, and using forest-friendly FSC-certified (Forest Stewardship Council) paper for publications, which ensures that trees are harvested sustainably without seriously affecting the forest. The gallery spaces in the new building will be triple the size of the current galleries, therefore the staff is looking into creating moveable walls for the new building. According to Ms. Sinclair, “budget also helps with environmental choices since shipping is extremely expensive. My exhibitions are dictated by what is affordable, so what is ecologically friendly can also be cheaper.”¹³¹

As explained by Ms. Sinclair, a recent community art project at the OAG was titled ‘Will Work for Food’, led by artist Jennifer Cook over the summer of 2011. The project involved a huge aesthetically patterned culinary garden outside

¹³⁰ See Chapter 3 for further discussion.

¹³¹ Interview with Catherine Sinclair.

the gallery where disadvantaged youth and families from the area helped work in the garden over the summer. At the end, the Gallery hosted a workers feast, thereby assisting local families in the community while creating an environmentally-friendly exhibition.¹³²

Another nature-oriented exhibition was titled 'Deep Roots' from February 2 to May 4, 2008¹³³ which was about the lone tree in the wilderness symbolizing a lone Canadian adventurer. As explained by Ms. Sinclair, "for that exhibition, we did an urban forest walking tour [...] We were talking about trees and did a tour of urban trees in the area and had a discussion about urbanization and the impact it has on trees, so we did move into an environmental area from the art." Through these two exhibitions, it is clear that Ms. Sinclair is interested in the relationship between art and nature as well as discussing current environmental issues where appropriate. When asked at the close of our meeting whether the Ottawa Art Gallery has an obligation to reduce its carbon emissions, Ms. Sinclair replied that "I 100% would push every way for the gallery to have its own sustainable policy or mindset. All of my colleagues are all on the same page, and we all talk about it with equal importance, so we try to work towards it together and work towards the budget."¹³⁴

¹³² Ibid.

¹³³ Ottawa Art Gallery. <http://www.ottawaartgallery.ca/aboutus/annual-reports/OAG-Annual-Report-2008.pdf>.

¹³⁴ Ibid.

Through my interviews with curators Sonia Del Re (NGC) and Catherine Sinclair (OAG), curatorial perspectives have been represented in relation to the challenges of implementing sustainable exhibition practices, as well as the interest in incorporating these issues when developing a gallery-wide sustainable policy. However it seems that the carbon impact from exhibition and curatorial departments has not been widely assessed when developing gallery-wide policies and plans, even in the more proactive British institutions. Setting short and long-term goals, creating strategic plans, and developing sustainable policies and procedures are some of the methods by which museums are addressing their environment impact, (especially with the aid of governmentally driven initiatives) as seen at the National Gallery in London, England.

The National Gallery (NG) houses over 2,300 works with some of the most famous European artworks throughout art history, most of which are regularly on display. The paintings range from the Medieval period to the early 20th century, including works by Duccio, Botticelli, Michelangelo, Raphael, Caravaggio, Rubens, Goya, Degas, and Van Gogh, just to name a few.¹³⁵ With the completion of the Sainsbury Wing, the Gallery now has a total floor space of 49,396 metres squared (or over 162,060 square feet)¹³⁶.

The origin of the National Gallery dates to April 1824 when the House of Commons paid £57,000 to the banker John Angerstein for his collection

¹³⁵ "Collection Overview". The National Gallery (London, UK), <http://www.nationalgallery.org.uk/paintings/collection-overview/>.

¹³⁶ "About the Building". National Gallery (London, UK), 6. <http://www.nationalgallery.org.uk/paintings/history/about-the-building/>.

consisting of 38 paintings. These pictures were intended to form the core of a new national collection for the education and enjoyment of the public.¹³⁷ By 1831, Parliament agreed to construct a new building for the National Gallery by architect William Wilkins to be located at Trafalgar Square, believed to be the centre of London between the rich West end and the poor East end.¹³⁸ Although a complete history is outside the scope of this study, since its beginnings, the National Gallery has been dedicated to demonstrating its commitment to the public through free admission to the Gallery, as well as free lectures, tours and seminars.

In recent years, the National Gallery has embarked on a mission to operate in a more environmentally sustainable fashion to reduce operating costs and their carbon output. According to the National Gallery's Director Nicholas Penny: "saving energy and thereby reducing our carbon footprint has been a long-held ambition at the National Gallery."¹³⁹ This goal is greatly directed by the UK government's targets to reduce the country's carbon dioxide CO₂ emissions. By 2020, the British government hopes to reduce emissions by 34%, and achieve an 80% reduction by 2050 (measured against 1999/2000 baseline values), which is much more ambitious than Canada's reduction goals (which will be discussed further).¹⁴⁰

¹³⁷ Ibid, 1.

¹³⁸ Ibid, 1, 4.

¹³⁹ Nicholas Penny (foreword) in Steve Vandyke's "The National Gallery Carbon Management Plan", The National Gallery (London, UK), Final version (SH), 3.

¹⁴⁰ Steve Vandyke, "The National Gallery Carbon Management Plan", The National Gallery (London, UK), approved February 2011 by the Executive Committee, 8.

Not only does the National Gallery's 'Carbon Management Plan' align with the targets of the British government, but it will also provide significant savings to the Gallery. The goal of the Plan is to reduce CO₂ by 43% by 2014/15, with potential financial savings of around £1.18 million by that date.¹⁴¹ The baseline year for the Plan is 2005 when the National Gallery's emissions totaled 9,417 tonnes CO₂. To achieve the Gallery's target of a 43% reduction by 2014/15, its emissions need to be reduced to 5,437 tonnes CO₂.¹⁴² Since 2005, the National Gallery has reduced its emissions by 18%, saving 1,698 tonnes of CO₂ from entering the atmosphere. The Gallery is therefore on track to meet its goal with 2,316 tonnes of carbon reduction to go, with estimated annual savings of £31,723.00.¹⁴³

As stated in the 'Carbon Management Plan':

Climate change is a pressing issue with overall global temperature rising significantly over the last few decades; there is a broad movement towards reducing the effect of green house gases. The key driver of this plan is the need to reduce the National Gallery's carbon emissions in the future in an effective, structured way through providing clear measures and guidelines.¹⁴⁴

In an interview conducted with Mr. Vandyke, author of the Plan and Head of Technical Services within the Facilities Department at the National Gallery in

¹⁴¹ Richard Rugg (Carbon Trust) in Steve Vandyke's "The National Gallery Carbon Management Plan", The National Gallery (London, UK), Final version (SH), 4.

¹⁴² Steve Vandyke. "The National Gallery Carbon Management Plan", The National Gallery (London, UK), Final version (SH), approved February 2011 by the Executive Committee, 6.

¹⁴³ Ibid, 6, 7.
See Figures 5 and 6.

¹⁴⁴ Steve Vandyke. "The National Gallery Carbon Management Plan", 17.

London, we discussed the National Gallery's environmental initiatives and their innovative Carbon Management Plan. Mr. Vandyke looks after all the technical services, maintenance, upkeep, and refurbishment of the galleries.¹⁴⁵ A newer role for Mr. Vandyke is developing and implementing sustainable initiatives, as well as reducing carbon emissions at the Gallery. One of the Gallery's strategies is the installation of automatic blinds that control the amount of daylight entering the galleries, which helps protect the paintings from UV damage as well as reducing the amount of air-conditioning needed to cool the sun-warmed space. Some of the key areas in which improvements will be made include a new efficient heating and cooling plant (General Electric's Jenbacher engine, to be delivered in April 2012)¹⁴⁶, and low energy Light Emitting Diode (LED) lighting.

The National Gallery was inspired to introduce LED lights from the neighbouring National Portrait Gallery which was one of the first galleries to try LED lighting in one of their gallery spaces.¹⁴⁷ These lights are significantly more energy-efficient, low-maintenance, and are estimated to reduce the Gallery's lighting costs by 85%.¹⁴⁸ Furthermore, LEDs last about 25 times longer than tungsten lights, which in turn reduces the time and effort required to continuously change lightbulbs. A UV filter to protect the displayed objects is also not required

¹⁴⁵ Interview with Steve Vandyke, the National Gallery, London, UK.

¹⁴⁶ "National Gallery painting comes to life". The National Gallery (UK), Press and media, Issues May 2011.
Interview with Steve Vandyke

¹⁴⁷ Interview with Steve Vandyke. See transcript.

¹⁴⁸ "Paintings newly illuminated at the National Gallery". The National Gallery, London, UK. Issued April 2011, Press and media, 1.

because LEDs do not produce any UV light.¹⁴⁹ The National Gallery's scientific department tested the LEDs prior to installing them in select galleries to assure a stable spectral analysis, meaning that the lights will not damage the works.

In addition, the National Gallery has almost changed all the lighting in the Sainsbury Wing to LED lighting, and Vandyke's team have found that by switching light for light from a 90 watt tungsten lamp to a 14 watt LED lamp, the Gallery is saving about 85% in energy.¹⁵⁰ According to Vandyke there is a three-fold benefit: "one is obviously the energy that the lamp burns, secondly the energy used to cool the heat from that lamp, and finally the maintenance cost of that lamp which is reduced because it lasts up to 50,000 hours, as opposed to 2,000 or 3,000 hours compared to that of tungsten."¹⁵¹ After the LED test in the Sainsbury Wing, the staff agreed that the paintings never looked as good in the previous light (where the new lighting more resembled neutral daylight). The National Gallery hopes to install LED lighting throughout its gallery spaces by the spring of 2013.¹⁵² LED lighting is therefore a clear choice towards making exhibition and curatorial practices more environmentally sustainable. Not only are the artworks brightly illuminated and protected against UV light, but the energy required to display artworks is greatly reduced, thereby reducing the gallery or museum's carbon footprint while saving a great deal of time, money, and materials.

¹⁴⁹ Ibid.

¹⁵⁰ Interview with Steve Vandyke.

¹⁵¹ Ibid.

¹⁵² "Carbon Management Plan", The National Gallery, London, UK.

The National Gallery and General Electric (GE) recently organized and installed a giant living wall of colourful and textured plants based on Van Gogh's painting, *A Wheatfield, with Cypresses*.¹⁵³ The work titled 'Living Masterpiece', on display from May to October 2011¹⁵⁴, was composed of over 8,000 living plants of more than 26 varieties in 600 individual plant boxes.¹⁵⁵ GE organized and managed the development and installation of the work with some assistance from the National Gallery, meaning that the exhibition was meant to promote GE's green practices. According to Mark Elborne, President and CEO of GE UK:

We are delighted to be working with the National Gallery on these two projects. The living painting, the first of its kind, is a creative manifestation of GE's commitment to the environment through our ecomagination business strategy.¹⁵⁶

A Wheatfield, with Cypresses was selected because of its distinctive bands of colour which can be more easily replicated with living plants.¹⁵⁷ As the National Gallery states: "to create the artwork, each plant was selected for its unique colour to match the tones of the original painting."¹⁵⁸ The work was constructed by the

¹⁵³ See Figures 7, 8, 9.

¹⁵⁴ "Paintings newly illuminated at the National Gallery". The National Gallery, London, UK. Issued April 2011.

¹⁵⁵ Ibid.

"GE Living Masterpiece -- Making Of". YouTube video. National Gallery (UK).

¹⁵⁶ "GE helps the National Gallery go green, inside and out: GE unveils London's first living plant picture in Trafalgar Square, GE Jenbacher engine to reduce the Gallery's energy consumption and carbon footprint." GE Newsletter. Issued May 26, 2011. <http://www.genewscenter.com>.

¹⁵⁷ Ibid.

¹⁵⁸ "National Gallery painting comes to life". The National Gallery (UK), Press and media, Issues May 2011.

specialist living wall company ANS Group using over 8000 plants of differing varieties, growing them vertically, then planting them into 640 modules that correlated to the numbered drawing that replicated Van Gogh's painting.¹⁵⁹ Furthermore, the living painting had a built-in irrigation system which watered the plants regularly.¹⁶⁰ The work was on display on the western side of the National Gallery in Trafalgar square and was in place throughout the summer and early fall. In addition to reinterpreting Van Gogh's painting, the 'Living Masterpiece' was also meant to demonstrate the Gallery's commitment to reducing their carbon footprint.

Despite the stated environmental commitments of GE, the 'Living Masterpiece' work seems to be a display of self-promotion for the GE company, visually showcasing how they are making the National Gallery green on the inside and out (by providing the new energy-efficient engine and a living wall). As explained by Steve Vandyke, the project was run by GE with some assistance from the National Gallery, but was not a project initiated by the Gallery. Perhaps in the future, more exhibitions of this nature will come from within the National Gallery with the goal to produce more sustainable exhibitions that help lower the institution's carbon footprint, thereby supporting their Carbon Management Plan. When asked if the National Gallery has an obligation to reduce its carbon footprint as a public institution, Steve Vandyke replied: "I think it's very important. All institutions need to be aware that they're potentially damaging the environment."¹⁶¹

¹⁵⁹ Ibid.

¹⁶⁰ Ibid.

¹⁶¹ Interview with Steve Vandyke. February 2012, London, England.

The National Gallery also has a Sustainability Carbon Group with the head of each department representing their department's ideas or concerns. The Group meets every two months and everyone comes with ideas and all these thoughts are put on a list. When asked if the curatorial department has contributed ideas about sustainability, Vandyke replied: "Very much so. They are an essential part of the team and our lighting LED program. In terms of control and coordination-work, this has been essential between us and that particular department."¹⁶² Currently, sustainable exhibition materials and strategies are not a major part of the Carbon Management Plan, however Vandyke believes these could certainly be a feature in future versions of the plan and that his department will look at more sustainable materials and builds. As Vandyke concludes, "we are serious about carbon and as a nation, we need to be serious about carbon. Globally, we're a very minor user of energy, but nonetheless we need to adopt the attitude that every little bit helps."¹⁶³

A second example of a large British gallery with strong environmental initiatives is the Victoria and Albert Museum (V&A), discussed here under 'Galleries' due to its focus on fine and decorative arts. The V&A was established in 1852 after the huge success of the Great Exhibition the previous year. According to the V&A: "its founding principle was to make works of art available to all, to educate working people and to inspire British designers and

¹⁶² Ibid.

¹⁶³ Ibid.

manufacturers.”¹⁶⁴ The Museum was originally named the Museum of Manufacturers, then in 1857 the South Kensington Museum, finally in 1899 was renamed the Victoria and Albert museum in honor of Queen Victoria and her husband, Prince Albert, a longtime supporter of the project.¹⁶⁵ Today, the V&A continues to focus on contemporary design and manufacturing, “with many of Britain’s most successful designers having used the V&A as a source of ideas and stimulation.”¹⁶⁶

With regards to environmental sustainability, the Museum has made sustainable development a strategic priority since 2005 and was one of the first museums to calculate its carbon footprint by calculating for 2007/08 the carbon impact of utilities, IT, the V&A Museum of Childhood in Bethnal Green, headline and touring exhibitions, stores and business travel.¹⁶⁷ By 2009, a 20% reduction in the Museum’s energy carbon footprint was achieved. In the same year, the V&A was awarded a Gold award from London’s Mayor Boris Johnson in recognition of their work to reduce carbon emissions.¹⁶⁸ In the gallery spaces, recent projects have been developed to control incoming natural light using computerized and automatic ventilation and heating systems to help prevent

¹⁶⁴ “A brief history of the Museum”, Victoria and Albert Museum (V&A), Accessed March 8, 2012, <http://www.vam.ac.uk/content/articles/a/a-brief-history-of-the-museum/>.

¹⁶⁵ Ibid.

¹⁶⁶ Ibid.

¹⁶⁷ “Sustainability at the V&A”, Victoria and Albert Museum. <http://www.vam.ac.uk/content/articles/s/v-and-a-sustainability/>. See Figure 9.

¹⁶⁸ Ibid.

galleries from becoming overheated, thereby forcing the air conditioning system to cool the interior. This allows the V&A to save on its energy bill since air conditioning is needed less frequently. As Maurice Davies of the Museums Association writes: “museums and galleries are likely to hear more about carbon footprinting over the next few years. As pressure grows to reduce greenhouse-gas emissions, your carbon footprint could become one of those must-know facts, like your annual attendance.”¹⁶⁹

The UK’s Museums Association (MA) has developed a document outlining the ‘Principles for Sustainable Museums’ as well as guidelines to operating sustainably. The Association’s suggestions include improving energy efficiency, minimizing waste, setting targets for carbon reduction, demonstrating and encouraging sustainable development, as well as responding to changing political and environmental contexts in order to reflect society’s expectations of museums.¹⁷⁰ According to the MA, “with their long-term role in preservation and community engagement, museums are in the sustainability business. They balance the interests of different generations. As well as serving society today, they aim to pass on collections, information and knowledge to people in the future.”¹⁷¹ Sustainable development and environmental initiatives therefore

¹⁶⁹ Davies, Maurice. “What museums can learn from carbon footprints”, Museum Practice, Museums Association. May 17, 2010.

¹⁷⁰ “Principles for Sustainable Museums”, Museums Association, 1.

¹⁷¹ Ibid.

dovetail with museology since both are concerned with preservation, education, and future generations.

A third example of a large gallery in London with highly developed environmental initiatives is the Tate Modern and Tate Britain. Tate was first established in 1897 with a small collection of British artworks, growing to 70,000 artworks from the Renaissance to the present, housed and displayed at four locations.¹⁷² The Tate and its galleries has been an ongoing leader in the museum sustainability field. According to Tate, “art galleries are fundamentally energy intensive, but Tate recognizes that this is no longer appropriate in the context of climate change. The design of a gallery for the twenty-first century must respond to this agenda.”¹⁷³

According to Tate’s Report 10-11, since 2008 Tate has aimed to be a leader on sustainability while influencing other museums and galleries to follow suit.¹⁷⁴ In addition to reducing its carbon emissions by 10% from 2008-09 to 2010-11, Tate has implemented its first carbon plan led by the new Carbon Manager, Gemma Driscoll in order to reduce carbon emissions by another 10% by 2013.¹⁷⁵ A reusable wall system for temporary exhibitions has also been developed, as well

¹⁷² “History of Tate”, Tate, Accessed March 18, 2012. <http://www.tate.org.uk/about/who-we-are/history-of-tate>.

¹⁷³ “Transforming Tate Modern”, Tate Modern (UK). Accessed December 7, 2011. <http://www.tate.org.uk/modern/transformingtm/sustainability.shtm>.

¹⁷⁴ “Tate Report 10-11”. Tate (UK). Accessed January 16, 2012. http://www.tate.org.uk/about/tatereport/2011/tate_report_2010-11-v2.pdf, 54.

¹⁷⁵ Ibid, 55.
See Figure 10.

as hosting “the first meeting of museum conservators and estate managers from across the UK to review current practice and practical research, and enable collaboration and sharing of expertise.”¹⁷⁶ As an added initiative, in the summer of 2010, beehives were installed on the roofs of Tate Britain and Tate Modern in order to encourage urban biodiversity and bee populations (the honey is sold in Tate’s gift shops).

As demonstrated by London’s National Gallery, Victoria and Albert Museum, and Tate Britain and Tate Modern, sustainability has become a central concern for museums and galleries in the UK. These art galleries are all clearly dedicated to monitoring and improving their carbon emissions, as well as demonstrating leadership to the public as well as to other cultural institutions. Although there is some mention of sustainable exhibition practices (such as exhibit materials and lighting) in their respective policies and plans, a review of exhibition and curatorial practices and their contribution to their museum or gallery’s carbon footprint has not yet been widely discussed or implemented.

The United Kingdom’s proactive position on environmental initiatives and museum sustainability demonstrates a clear will to reduce carbon emissions. Through the ‘Climate Change Act 2008’, the UK government aims to “encourage that transition to a low-carbon economy in the UK through unilateral legally binding emissions reduction targets.”¹⁷⁷ The UK plans on reducing at least 34% in

¹⁷⁶ Ibid.

¹⁷⁷ “A Long Term Framework” in “Energy Budgets”, Department of Energy and Climate, UK government, Accessed June 3, 2012. http://www.decc.gov.uk/en/content/cms/emissions/carbon_budgets/carbon_budgets.aspx.

greenhouse gas emissions by 2020, and at least 80% by 2050.¹⁷⁸ This will affect every organization, business, institution, and individual in the United Kingdom. Therefore museums and galleries in the UK have no choice but to implement environmentally sustainable policies and procedures because of the British government's long term commitment to significantly reducing their carbon emissions.

In many cases, the British government is helping to fund the environmental assessments and change needed within their cultural institutions. According to the Museums Association, there are over 2,500 museums in the UK with many variations in ownership, management, and funding.¹⁷⁹ There are 54 national museums in the UK containing collections of national importance and are “established and funded by central government through the Department of Culture, Media, and Sport (DCMS)”.¹⁸⁰ Many historic buildings and monuments are run by English Heritage, a public body of the UK. In addition, independent charities and organizations, such as National Trust, help support heritage sites and independent museums. Other categories of museums include local authority museums, university museums, regimental museums, and unoccupied royal palaces.¹⁸¹ As previously mentioned, the UK's ‘Climate Change Act 2008’ states

¹⁷⁸ Ibid.

¹⁷⁹ “Frequently Asked Questions”, Museums Association, Accessed July 13, 2012. <http://www.museumsassociation.org/about/frequently-asked-questions>.

¹⁸⁰ Ibid.

¹⁸¹ Ibid.

legally binding reduction targets, therefore museums and galleries in the UK have forced governmental support to assess their carbon footprint and reduce their emissions.

In comparison to Canada, the Canadian government's carbon reduction targets hope to reduce greenhouse emissions by 607 Megatonnes (Mt) to 17% below 2005 levels of 731 Mt by 2020, which parallels reduction targets in the United States. The Canadian government plans on regulating the transportation sector and electricity generation in order to meet this target.¹⁸² However in December 2011, Canada dropped out of the international Kyoto Protocol.

The Kyoto Protocol [...] committed major industrial economies to reducing their annual CO₂ emissions to below 1990 levels, while providing financial supports to developing nations to encourage them to follow suit eventually. Canada ratified the accord in 1997 but was not on track to meet its legally binding targets.¹⁸³

The Canadian government's current target reduction commitment is therefore less demanding than that of Kyoto. Despite the Canadian government's withdrawal from the Kyoto protocol and its carbon reduction target, many initiatives have been taken. Within the museum field, the Canadian Museums Association (CMA) has developed a 'Sustainable Development Guide' to help Canadian museums and galleries improve environmental sustainability which provides many excellent suggestions for museums and galleries to incorporate more environmentally-friendly practices into their operations and exhibitions.

¹⁸² "Canada's Greenhouse Gas Target and Emissions Projections", Canada's Action on Climate Change, Government of Canada, Accessed June 3, 2012. <http://www.climatechange.gc.ca/default.asp?lang=En&n=DC025A76-1>.

¹⁸³ "Canada Pulls out of the Kyoto Protocol", CBC News, Dec. 12, 2011. Accessed June 3, 2012, <http://www.cbc.ca/news/politics/story/2011/12/12/pol-kent-kyoto-pullout.html>.

According to the Guide's authors, "in the past several years, we noticed that there is a growing interest in sustainable development and the environment among museum and science centre professionals in Canada."¹⁸⁴ Furthermore, the main goal of the Guide is to "help museums develop and implement Sustainable Development policies and practices."¹⁸⁵ Most museums in Canada are members of the Canadian Museums Association, therefore the Guide is presumably intended to help museums across the country.

Within the Canadian Museums Association's chapter on exhibition materials, the Guide discusses ways to create more sustainable and environmentally-friendly exhibition practices. The authors argue that "throughout the design process [...] consideration should be given to all products and services used – from the extraction of raw materials to their disposal."¹⁸⁶ Other suggestions for consideration when designing an exhibition include choosing eco-certified products, reducing waste and size, reusing packaging, and accounting for the consumption of energy and materials used.¹⁸⁷ When planning temporary exhibitions, the authors argue that "when designing a travelling exhibit, size, weight and modularity need to be considered."¹⁸⁸ To reduce carbon emissions, the authors suggest that organizers should use materials and finishes that have a

¹⁸⁴ "Sustainable Development Guide: A Sustainable Development Guide for Canada's Museums". Canadian Museums Association, Introduction.

¹⁸⁵ Ibid.

¹⁸⁶ "Sustainable Development Guide". Canadian Museums Association, 42.

¹⁸⁷ Ibid.

¹⁸⁸ Ibid, 43.

minimal impact on the environment, as well as considering more sustainable exhibition materials.

Exhibitor Magazine's article titled "Eco-Friendly Exhibiting" by Charles Pappas provides an overview of some of the methods and materials currently used in a handful of exhibitions to improve sustainability and environmental impact. According to the article: "the greenest woods come with the Forest Management Certificate (FMC) seal of approval. The FMC designation signifies products harvested from forests that comply with the Forest Stewardship Council's (FSC) Principles of Responsible Forest Management, which encourages responsible management and preservation of forests."¹⁸⁹ Two other alternatives to using conventional wood products include a wood/plastic composite, or bamboo. The wood/plastic composite is "made from a 50/50 mix of recyclable plastic trash bags and soda bottles, and sawdust from furniture factories [...] composite lumber doesn't need staining or sealing, and it never rots or splinters."¹⁹⁰ An even better alternative is the quickly growing and extremely durable bamboo.

Bamboo is quickly becoming popular flooring material for Green exhibiting. And it grows faster than a weed: Bamboo grass needs just four to six weeks to mature, compared to the 50 to 100 years it takes most hardwood trees. Bamboo is also 27 percent harder than northern red oak, and naturally resistant to water and mildew - which means it lasts longer than conventional woods.¹⁹¹

¹⁸⁹ Charles Pappas, "Eco-Friendly Exhibiting", Exhibitor Magazine, March 2007, Accessed December 12, 2011, <http://www.exhibitoronline.com/exhibitor magazine/article.asp?ID=1186>), 4.

¹⁹⁰ Ibid, 3.

¹⁹¹ Ibid, 5.

In terms of lighting, there are a myriad of choices that are more energy-efficient and cost-saving than traditional incandescent lighting. The quality of the light has also been greatly improved from earlier models; LED lighting is often described as being neutral and resembling daylight, which would have been the main light source used when many artworks were created before the 20th century.

In the 1980s, Compact Fluorescent Light bulbs (CFLs) were introduced and use about 25% to 30% less energy than incandescent bulbs and last 4 to 16 times longer, saving roughly \$30 in energy costs or more for each CFL bulb's lifetime.¹⁹² Today however the most energy-efficient lighting is LED (Light Emitting Diode). On average, 50% to 80% of the energy LEDs use turns into light¹⁹³, whereas incandescents only convert 5% into light, with CFLs marginally better at 20%. The LEDs break less often, and are estimated to last up to ten years. Despite the higher initial cost of LEDs, their operating costs can be as little as 3.5% of incandescents.¹⁹⁴

The Canadian Museums Association's Guide provides more detailed suggestions for sustainable exhibition practices as well as links to companies and products to assist in the exhibition development process. An important aspect of exhibit design is to reduce or eliminate products that emit VOCs (Volatile Organic Compounds). Not only are these harmful off-gassed emissions bad for human health, but can also slowly degrade the objects on display. According to the United

¹⁹² Ibid, 6.

¹⁹³ "Cutting Edge LED Technology". LED Saving Solutions. <http://www.ledsavingsolutions.com/>.

¹⁹⁴ "Eco-Friendly Exhibiting", 6.

States Environmental Protection Agency, VOCs include a variety of chemicals, which may have long-term adverse health effects ranging from headaches to nausea, organ damage to cancer. Some of the items in exhibitions which often contain VOCs include paints, cleaning supplies, furnishings, office equipment, glues, adhesives, and permanent markers.¹⁹⁵ The Canadian Museums Association's Guide suggests that exhibition teams use water-based or natural glues and choose low or no-VOC paints, stains and sealants.¹⁹⁶ At the end of the exhibition, materials should be reused or recycled.¹⁹⁷

By examining the sustainable practices, policies, and procedures of galleries in the UK in comparison to those in Canada, a comparison study was conducted, showing the differences between how sustainability is tackled in the UK and in Canada. Through interviews with curators and discussing the challenges to incorporate more sustainable practices in the exhibition development process, it seems that there is no clear answer to this issue, however small goals may be achieved through a gallery-wide carbon reduction policy. Furthermore, in order for Canadian museums and galleries to parallel the environmental initiatives in the UK, it is probable that the Canadian government would need to be more supportive of these issues. Throughout this investigation, it is clear that operational and exhibition practices are becoming more

¹⁹⁵ "An Introduction to Indoor Air Quality (IAQ): Volatile Organic Compounds (VOCs)", United States Environmental Protection Agency (EPA), <http://www.epa.gov/iaq/voc.html>.

¹⁹⁶ "Sustainable Development Guide", Canadian Museums Association, 45.

¹⁹⁷ *Ibid*, 47.

environmentally-friendly, especially in the UK, with museums and galleries becoming more concerned about environmental impact and reducing their carbon footprint.

Conclusion

"The future of museums, and of those who work in them, is closely aligned with the future of the society or cultures in which they exist."¹⁹⁸

- Jane Glaser

"Institutional change takes time, and it takes leaders who are willing to dig deep into the institution's history, values, and organizational culture to understand potential barriers and create consensus about a future vision and the steps to achieving that vision."¹⁹⁹

- Gail Anderson

Museums are constantly changing. Their roles and functions are continuously adapting to society's cultural and social needs. Their collections spanning hundreds, sometimes thousands of years show us where we came from, but cannot show us where we are going. Our present in the twenty-first century is riddled with socio-political and global issues, but the question remains of how museums and galleries will adapt to change. As examined throughout this study, environmental sustainability has become a predominant issue among many museums and galleries, especially those in the United Kingdom. By monitoring and reducing their carbon emissions and operating more sustainably through policies and procedures, some cultural institutions, such as the National Gallery, are discovering that not only are these new strategies reducing their environmental impact, but also reducing operating costs. As Gail Lord and Kate Markert write: "in the past two decades, museums throughout the world have

¹⁹⁸ Glaser, Jane R., and Artemis A. Zenetou. *Museums: A Place to Work*, 231.

¹⁹⁹ Anderson, Gail (ed.), *Reinventing the Museum*, 7.

embraced change, becoming more outward looking, adopting new technologies, and collaborating with artists, scientists, and communities in entirely new ways.”²⁰⁰

Operating in an environmentally sustainable fashion is one of the ways in which certain museums are embracing change and becoming leaders of ‘green’ museum technologies. As seen at the National Gallery in London, England, the Gallery is currently outfitting their entire exhibition spaces with LED lighting, which will greatly reduce their operating and energy costs. The Gallery is also dedicated to monitoring and reducing its carbon footprint as dictated by the UK government and has therefore developed a Carbon Plan to ensure ongoing reductions. The National Gallery’s ‘Living Masterpiece’ installation demonstrated the transformation of a Van Gogh painting into a living work made up of plants and flowers, which absorbed carbon, reduced the institution’s carbon footprint, and represents an example of a sustainable exhibition.

The Victoria and Albert Museum, the Tate Britain and Tate Modern are also committed to lowering their carbon footprint and operating sustainably, with the Tate even installing beehives on their roofs to promote urban biodiversity and honey production. With regard to nature museums, the Natural History Museum is deconstructing, designing, and reconstructing buildings that are more energy-efficient while reusing existing materials and educating the public about environmental issues and how the gallery is helping against climate change.

²⁰⁰ Gail Dexter Lord and Kate Markert. *The Manual of Strategic Planning for Museums*, 2007), ix.

The Garden Museum is also committed to operating sustainably, which reflects its collection on the history of British gardening and working with nature. Not only does their exhibition *From Garden City to Green City* depict the evolution of green urban design in London, but the Museum itself reduces and recycles its exhibition material, saving money and materials, while also returning those materials to the community.

The above-mentioned British museums and galleries were compared to a small selection of museums and galleries in Ottawa, Canada, namely the Canadian Museum of Nature, the Canadian Museum of Civilization, the National Gallery of Canada, and the Ottawa Art Gallery. A comparison of practices and procedures between the UK and Canada shows the importance of governmental support in reducing carbon emissions.

Canada's museums and galleries are beginning to incorporate sustainable practices, as seen at the Canadian Museum of Nature with its progressing Environmental Framework and action plan, or the Canadian Museum of Civilization's geothermal energy and more sustainable exhibition materials, such as reusable gallery walls and more LED lighting systems. Throughout this study, it is clear that financial governmental support is a key factor in enabling museums and galleries to assess their carbon footprint and establish sustainable policies. Through the incorporation of more sustainable materials, as well as reducing, reusing, and recycling existing exhibition materials, some museums and galleries are discovering a variety of benefits including savings in time and money. As

discussed in Chapter 3, there are a variety of eco-friendly options for the curatorial and exhibition teams to consider, such as energy-efficient lighting, sustainably-managed woods, as well as no VOC paints and adhesives. By developing an exhibition with its environmental impact in mind, the quality and safety of the objects on display is enhanced as well as visitor and environmental health.

The field of greening museums is a rapidly developing area, especially active within the past decade. Through Canadian and British museological case studies, the incorporation of sustainable policies and environmental initiatives is only increasing in support. As Michael Henry argues:

A sustainable approach to cultural heritage is an overarching philosophy that should permeate our thoughts and actions. Environmental management [...] is singularly important because of its consequences for cultural heritage conservation, energy consumption, and capital and operating costs.²⁰¹

With the inclusion of museological theory and curatorial practices, an overview of the historical and contemporary role of the museum as well as that of the curator has been discussed in order to explore their changing roles and expectations. As symbolic buildings of power, knowledge, and education, museums often provide a safe arena for old and new ideas to be debated. They are usually in the centre of their respective communities, lead discussions on current issues, and invite all to meet and share their ideas or concerns. As demonstrated in the previous chapters, the environmental movement has had a widespread following since the first Earth Day in 1970, with more and more

²⁰¹ Michael C. Henry, "From the Outside In: Preventive Conservation, Sustainability, and Environmental Management", (California: Getty Publications, Newsletter 22.1, Spring 2007), 9.

organizations, businesses, and individuals committed to living more sustainably and reducing their carbon impact. Within museums and galleries, especially in the UK, sustainable policies and carbon reduction plans have been established which help the institution reduce operating costs and demonstrate to the public the institution's dedication towards the environment. Tereza Scheiner has argued:

In a world where humankind, the environment, and sustainable development are a focal point for international policies, not only in the economic field but also in the field of culture, it is vital to revise the roles and responsibilities of museum professionals and to formulate a new image for the profession.²⁰²

Through the examination of Canadian and British museums and galleries, it is clear that there is a growing trend in the museum world for 'greening' operations through design, facilities management, and exhibition materials. It should also be noted that most Canadian institutions have the added reality of more extreme seasonal temperatures to regulate within the building (i.e. Ottawa's winter can be -40°C, and up to +40°C in the summer). Heating and air-conditionally are therefore in high demand for a large portion of the year, rather than the more temperate climate of England. Therefore difficulties could be encountered due to the geography and climate of the institution and the extremes of the exterior environment. As previously discussed, government support for establishing sustainable initiatives is an added challenge for Canadian institutions, however as seen throughout this study, many larger institutions (especially in the UK) are

²⁰² Tereza Christina Scheiner, "Museum Ethics and the Environment: In Search of a Common Virtue." in Gary Edson (ed.), *Museum Ethics*, (London and New York: Routledge, 1997), 180.

addressing this issue, making institutional environmental sustainability a new topic for discussion within art history and museum studies.

Through the incorporation of strategic planning, visioning exercises, policies, procedures, and action plans, certain museums and galleries are involving all departments of the museum to establish sustainable goals for the future with achievable results. According to Michael Henry, “as stewards of cultural heritage, we should review our current approaches to environmental control [...] This may give us solutions that promote not only the conservation of our material culture but also the conservation of our global environment.”²⁰³

²⁰³ Michael C. Henry, *From the Outside In*, 2.

Appendices

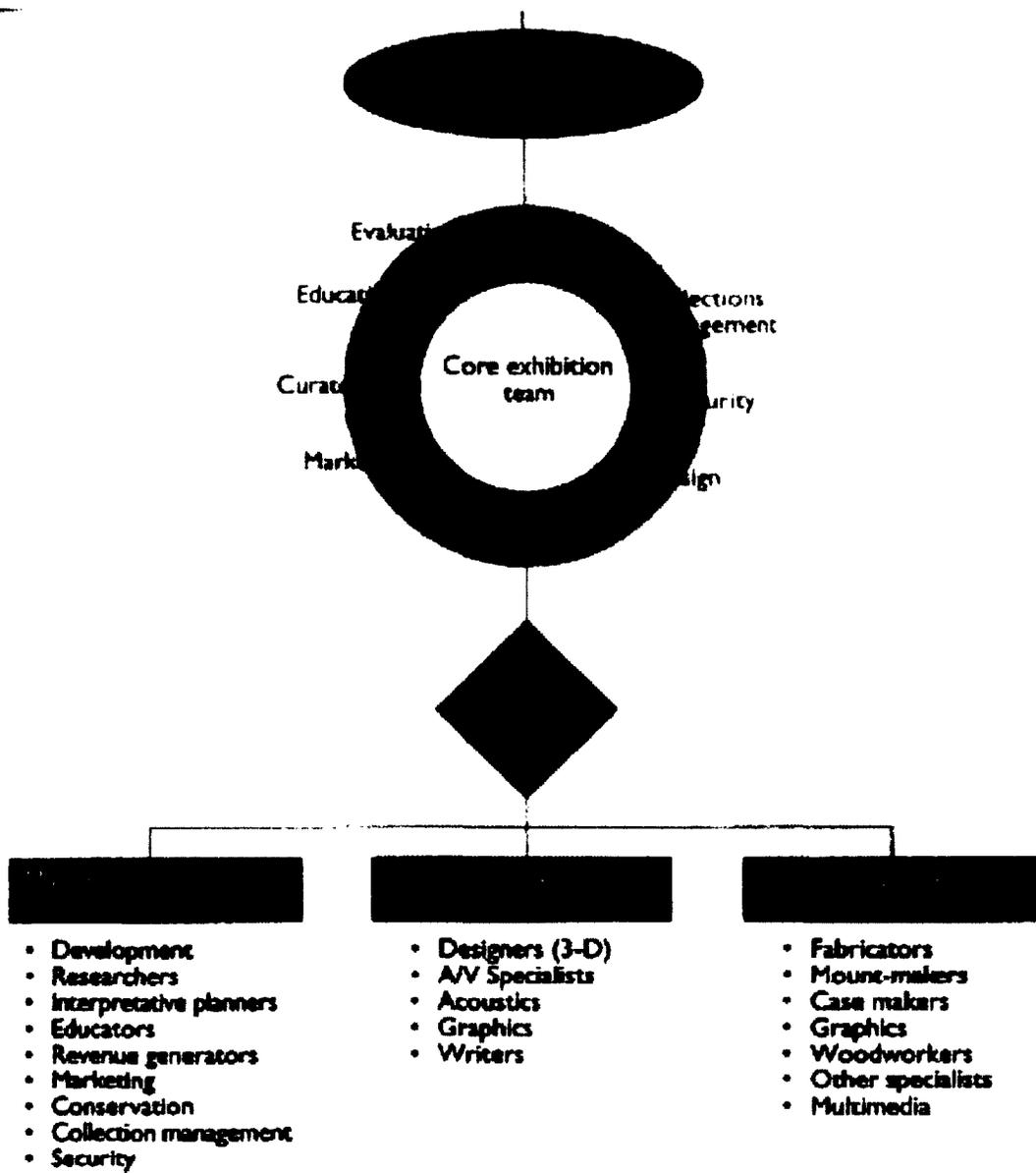
The parallel terms in table 1 capture the essence of the trends in the paradigm shift. This list of terms was developed over nearly three decades of working with museum leaders and listening to conversations about the changing role of muse-

Table 1 Reinventing the Museum

<i>Traditional Museum</i>		<i>Reinvented Museum</i>
	Governance	
Mission as document	.....	Mission driven
Elitist	.....	Equitable
Exclusive	.....	Inclusive
Reactive	.....	Proactive
Ethnocentric	.....	Multicultural
Internal focus	.....	External focus
Singular vision	.....	Shared vision
Single visionary leader	.....	Shared leadership
Top-down management	.....	Bottom-up management
Assumed value	.....	Earned value
Good intentions	.....	Public accountability
Social activity	.....	Social responsibility
Paternal	.....	Mutual respect and stewardship
Managing	.....	Governing
	Institutional Priorities	
Management	.....	Leadership
Various activities	.....	Mission-related activities
Collection driven	.....	Audience focused
Limited representation	.....	Broad representation
Internally based	.....	Community based
Open to the public	.....	Visitor oriented
Business as usual	.....	Institutional assessment
Voice of authority	.....	Multiple viewpoints
Focused on past	.....	Relevant and forward looking
	Management Strategies	
Inwardly driven	.....	Responsive to visitor needs
Isolated and insular	.....	Participant in marketplace
Selling	.....	Marketing
Assumptions about audiences	.....	Knowledge about audiences
Hierarchical structure	.....	Learning organization
Unilateral decision making	.....	Shared decision making
Compartmentalized goals	.....	Holistic, shared goals
Cautious	.....	Informed risk taker
Fund development	.....	Entrepreneurial
Individual work	.....	Teamwork
Static role	.....	Strategic positioning
	Communication Style	
Privileged information	.....	Open communication
Suppressed differences	.....	Welcomed differences
Debate/discussion	.....	Dialogue
One-way communication	.....	Two-way communication
Keeper of knowledge	.....	Exchange of knowledge
Protective	.....	Welcoming

Note: This chart was adapted from *Museum Mission Statements: Building a Distinct Identity*, edited and written by Gail Anderson and published by the American Association of Museums Technical Information Service in 1998.

Gail Anderson (ed.), *Reinventing the Museum*, 3.



Gail Dexter Lord, *The Exhibition Process*, 5.

Table 1.1 Roles and Responsibilities in Exhibition Development

Title	Role	Responsibilities
Director	To make the policy and major financial decisions regarding the exhibition usually in consultation with the senior management team. Depending on the magnitude of the project, may involve the Trustees	Appoints the core exhibition planning team and the exhibition team co-ordinator to manage the project. Provides the team with policy, schedule and financial guidelines. Keeps informed on project progress through the co-ordinator. Signs off at key points in the process such as concept, exhibition brief, schematic design, detailed design and budget; award of main contracts; and commissioning
Core exhibition team	To formulate the exhibition brief and budget. To monitor its implementation through all stages. To link the exhibition development with the museum's various departments	Because this team includes representatives of all the museum's functional areas, it ensures that the exhibition meets the requirements of audience, content and communication in an appropriate balance. It retains consultants and specialists as needed and in compliance with the museum's procurement policies. It recommends detailed budgets and schedules to the museum director. It reviews terms of reference for contracts and all deliverables to ensure that they fulfil the exhibition brief document and budget. It organises the evaluation processes. It recommends sign-off (or rejection) to the director of deliverables like schematic design; detailed design, and budget, tender (bid) documents, award of main contracts; and commissioning
Exhibition team co-ordinator	To facilitate meetings of the core exhibition planning team and keep communication flowing between the core team and the director, and, the core team and the project manager	Convenes and facilitates meetings. Distributes records of meetings and decisions. Ensures that documents are prepared by specialist staff or consultants to a high level of quality and distributed for review, discussion and decision. Facilitates the tendering (bidding) of external contracts with designers, fabricators and others with the museum's finance/procurement office
Designer	To design the exhibition to fulfil the museum's exhibition brief	The exhibition designer and specialist design consultants (graphics and multimedia) may be museum staff, individual contractors or members of a design firm. They prepare schematic and detailed designs for review, amendment and approval by the core exhibition team and they prepare the documentation for the tender (bid) process. The designers inspect throughout the implementation to ensure quality compliance with the design
Project manager	To implement the exhibition on time, on budget, to the level of quality in the design	Prepares detailed implementation schedules and budgets. Co-ordinates the efforts of the museum implementation teams, the design team and the construction teams. Ensures that all contractors working on site comply with museum policies and standards, especially security. Identifies and documents

		problems and communicates them to the core exhibition team and/or the director for policy decisions. Supervises commissioning, prepares lists of deficiencies and ensures they are corrected. Recommends sign-off to director
Construction	To build and install the exhibits	This team may consist of one firm; or it may be a construction management firm with a number of specialist subcontractors; or it may be a number of separately contracted specialist firms. The services provided include construction, millwork, graphics, multimedia production and casework
Design or build alternative	To design, project manage, build and install the exhibition	This team consists of one multi-disciplinary firm or primary contractor with specialist subcontractors with the capability to provide all implementation services for a fixed price. This team would work directly for the museum's core exhibition team

Gail Dexter Lord, Roles and Responsibilities in Exhibition Development (continued), 7.

**MA Thesis Interview: Canadian Museum of Civilization (CMC)
Interview with Denise Corbett**

**Thursday, January 26th, 2012, 9:30am
Gatineau, QC, Canada**

- JF: What is your position at the Canadian Museum of Civilization and what types of duties and assignments are you responsible for on a daily basis?**
- DC: I am the Manager of the Project Management Office at the Canadian Museum of Civilization. The Project Management office is specifically responsible for exhibitions and it's not really IT or anything else. We are responsible for the development, implementation, installation, ongoing maintenance of all the temporary exhibition spaces, planning and maintenance of all of our permanent spaces, as well as the short term planning and maintenance of all of our permanent spaces so in total it represents between about 150,000 to 250,000 square feet of exhibition space we handle. It's big but we have a good group, we have a team of six project managers plus myself plus an admin assistant, and so everybody is working with a good schedule of four or five temporary exhibits at various stages of development, and almost everybody has permanent spaces they're responsible for their maintenance and development.**
- JF: Does the museum or gallery have a sustainable policy or carbon plan? If so how long has it been in place? If not, is there one in development?**
- DC: We don't have one. It is something that within exhibitions, the exhibitions and programs branch at the museum which also encompasses the design group branch we've been slowly working on. There are a variety of facets with regard to sustainability. There are two different ways when looking at and implementing a sustainable policy. One is from a design temporary exhibition perspective where we look at methods and production of materials for a game plan. The other is working with our Facilities Management Group operational requirement. While we don't have a policy in place, we have started talking with both groups to see about implementing one. The Canadian Museums Association a couple of years ago developed guidelines for sustainability with Environment Canada, so we are starting to look at that. It is a very slow process since we are a publicly funded institution. While we clearly need to keep sustainability in mind, we are also spending tax payers dollars so we have to make sure we are getting the best value for the money that we're spending - it's a very complex issue to embark on. What we have been finding with respect to looking at incorporating green technology is green materials into exhibition**

design. We have designers at times and will request them to spec green materials that are more sustainable that leave either a low or no carbon footprint. The problem we have is that it is still very expensive. It's a road we want to go down but we need to be very careful about our dollars as well - we have to be responsible.

DC: For us, the biggest impact would be felt with temporary exhibitions because that's where we have the roll over. So something may last longer but it's not necessarily in our best interest to have a life span of five or six years, but a display life span may be only six to eight months. Most of our temporary exhibitions come from already existing material, so we're not building as much. Last year, we started creating an inventory of reusable walls, so what we had been doing up until last year is every time we have an exhibition particularly in our larger spaces that are between 6,000 to 10,000 square feet, to create the different exhibition zones and spaces in zone divisions, our construction workers come in, they would recycle, scavenge some stuff. Every exhibition, especially in larger spaces, usually build walls with the ability to hang works on. Construction workers throw up walls and they would come down and most get trashed because it's been chewed up with nails. So we have created an inventory of reusable walls, with a standard height of ten feet in length that varies from four to twelve feet, and we have an inventory in each one of our exhibition galleries, and these walls are being reused and reused. So we're not building and tearing down all those walls.

DC: We're fortunate because we're Canada's largest museum, we have a good budget, we have the luxury of being able to explore those things, but we still have financial struggles like all other cultural institutions, it's kind of an economies of scale thing. But we have more room for movability to reallocate funds. Smaller museums don't have the financial wherewithal to be able to trim and reallocate, it's just trim. It's not like we're rolling in cash, but because we have enough of a budget to be able to look at developing these things, and we need to build walls for the gallery anyway. Build a wall throw it out, build a wall, throw it out. Or build a wall and reuse it. Even though it's more expensive upfront, the long-term savings are good for us and time-saving, and it's not just financial but also time-saving. There's a whole lot of stuff involved with designing walls with time and money implications. An architect has to do a formal review of the document that can cost \$2000 to \$6000 dollars to have that done. The temporary [reusable] walls have been stamped, and don't have to go back through any of those processes again. It's part of the process, you get used to it, and you just have to do it. [The walls] need to be sound and stable, safe for visitors. [Reusable walls] save time, save money, and are a long-term investment that reduces the amount of waste generated.

JF: How are sustainable practices coming into exhibitions?

DC: Mostly just materials, and we are undertaking (probably beginning in April or May) a review of our lighting inventory as well. I know with respect to building operations from a plant maintenance side, facilities management has been looking at reducing the wattage of bulbs. In the summertime in the building, the lights are off or at half light in the admin building, which is great because it reduces the energy we are consuming. But we haven't done a lighting inventory in a while, and we need to upgrade it just to make it more contemporary, more efficient, so we will be certainly be looking at greener lighting technologies.

JF: Have you considered LED lighting? Like at the National Gallery in London?

DC: Yes, we have considered LED. We have in the Museum what we call mall showcases, (little window showcases at the bottom level of museum on the way to cafeteria) and it has a small presentation of pottery from Quebec. We had it installed in 2007, almost 5 years ago now, and the lighting in the little mall cases had traditionally been abysmal. In refitting the lighting infrastructure, we went with LED lighting there, and both from a sustainability perspective and a design perspective, it is a much better choice. We get better, more focused lighting, more flexibility to do pinpoint, and not absorbing as much. In the inventory of generic showcases, we have what we're calling the Generation 3 version, and they are in house design and built showcases that we had for upwards of ten to fifteen years now, and they are just very traditional looking boxes with plexi boxes on top, and standard display surface. Last year and then again this year, (2011-2012) we are undertaking a project to refurbish and replenish the inventory, and rather than design and build, we have gone outside to find suppliers that have ready-made systems that we can buy - an official product that is easier for us to go back to. We just had approval to purchase from the same company we purchased from last year, a Canadian company located in Quebec City called Concetti design and they have a system called the zone display system. It's a glass box essentially, but it comes with a lighting attic, with three strips and each has an LED light, that will be going into temporary spaces. And while you go into a temporary gallery doing an install, the fluorescents are going non-stop. Once those are off and the artifacts are in and the exhibition lighting, they're nine-fold LEDs with very little power at all. They also don't generate heat, which is huge. We generally stay away anything that generates heat, because it means that we have to put a barrier between the light and the object, usually it's a sheet of glass and it limits our flexibility. The more layers to go through, the less focused it can be.

- JF:** Do you think that the curator should have more of an active role in exhibition development? And do you think sustainable policy should consider the position of the curator in the exhibition process and where the objects are coming from?
- DC:** It's a tough question because where you can get the objects from depends entirely on what the subject of the exhibition is, and certainly here at CMC we have had over the past ten years in particular, we've certainly had a tradition of borrowing a lot of shows - our big treasures of, explorations of ancient civilizations, contemporary civilizations, and, if you take an exhibition like Japan, the Japan exhibit that closed in the fall [2011], we had some material that was in our collection, a lot of material from the United States and Europe, and then about fifty or sixty, about half of the objects came from Japan - because the exhibition explored a period of time in Japan and the impact of contemporary design. In order to be faithful and true to the subject, you can't really present an exhibition about Japan without having objects from Japan. So certainly there are clearly issues of carbon footprint and effect on the environment with respect to transporting. It's a decision that curators will have to make. Because we're a larger than average institution, those departments are very compartmentalized. If the curator is looking at objects with a sustainability framework in place, then that is going to impact the work that the Project Manager has to do because where these objects come from impacts the budget. Over the course of the next six or seven years, we will be doing more in-house exhibitions - we will be drawing from our own collection and will be reducing related costs.
- JF:** Would the CMC consider shipping works by boat or train, which both have a lower carbon footprint? Do you think shipping practices could be improved?
- DC:** It's unlikely at this point simply because we almost never ship objects by boat, it's considered in terms of museum practices safer to send by plane. The transport time is a lot shorter with guaranteed arrivals and departures. It's dicier by boat and there's that issue of exposure to water - in fact we don't send anything by boat. Where the objects come from, rarely is it the museum's choice when borrowing objects how the objects are transported, the owner of the object chooses the method of transportation. So for anything coming within North America, it will come from a plane or trucked up, but we will not use trains because access isn't that great, whereas at the airport, trucks come right to the door and not as much movement as a train. It will come in an environmentally secure or environmentally controlled truck with the trailer air-ride feature that absorbs shocks and

bumps and movements. It gives more control over loading, since the driver oversees loading, and is received by the same person at the other end.

JF: Do you think carbon offsetting would be considered?

DC: It's outside of our scope right now, but I wouldn't be surprised if down the road it will be something we'll start looking at, but I suspect if we start looking at that it will really be looked at with respect to exhibition design and fabrication and structures and looking at companies that do carbon offsetting or work within a zero carbon imprint. It all takes time and it's hard for museums - traditionally museums struggle with budget. A larger institution may not have the same struggles as a smaller institution local or regional museum or gallery. It's really a matter of economies of scale, the issues are the same but on a larger scale, dollar and workforce issues, all of those sorts of things, we really need to balance where we choose to make those decisions, but those decisions are coming and we'll have to be more conscious of that. Within museums and exhibitions here, exhibition design in particular in our design RFPs, we have three or four designers on staff who design our exhibits, but we have a huge exhibition schedule. We are now putting in language in RFPs and we hire a lot of designs on concept, asking them to spec more green materials and more sustainable materials, so when the design document turns into an exhibition, the fabricators are bidding with the cost for using sustainable materials rather than importing exclusion wood from a forest in Russia, when instead we can take a piece of [wood that is] mass produced, low cost, easily-available, with low impact on the environment, and treat it with a low VOC finish on it. I think societally we don't have a choice, it is happening at local, individual, community-based level, and I think institutions won't be able to avoid it.

JF: Do you feel that museums have an obligation to reduce carbon footprint since they are public institutions?

DC: I think we do, but we need to weigh our obligation with being fiscally responsible, since we're spending public money. We need to be environmentally aware of sustainable practices while also balancing how we spend our money and how we spend tax payers' money versus the footprint. It's hard to justify spending twice as much to build an exhibition when we're using taxpayers' money for a lower carbon footprint. Some of society is not at a point yet to accept an expensing curve. As balance is being struck, cost comes down, and as there are more sustainable products and become more common, as well as thinking more frequently and regularly [on these issues], cost becomes lower and will make it easier down the road [to incorporate sustainable materials].

- DC:** I think within the museum for permanent spaces, it is definitely the mindset we have, we pay upfront but the long-term maintenance and roll over of a lot of the supplies is lower. For the permanent spaces, I won't say we're there, but we're definitely moving clearly in that direction. For the temporary exhibits, again, it's that balance. Can we really spend fabricating something that won't be on display for a long period of time? For temporary exhibitions, the balance is a short period of time, so much so that it needs to come into play. As a public institution, like the rest of the federal government, with budget cuts in the spring [2012], we need to look at ways to make the dollars go further. It's an issue that needs to be a bit more on the radar for everybody. I need to be more active myself with colleagues here at the museum, but it's one of those things that's a bottom up effort. The more we get and hear about it from people outside, the easier it is to accept inside - you tend to be more in a bubble inside a work place.
- JF:** Do you think the role of the curator in relation to the exhibition department is going to change in the twenty-first century to become more involved with exhibition and social issues? Or will it stay more the same as a separate department?
- DC:** At CMC, it's not super compartmentalized. Organizationally, they're the research and we're the exhibitions branch but on a team level when exhibitions are being developed, it's definitely a collaborative team effort - research paper and body of knowledge, it's a total team. When looking at design, everybody is involved. Everybody is involved in the creation of the documents, but certain members lead certain aspects. I can't speak for other institutions because it specifically speaks to corporate culture, and a sort of dynamics within an organization. My sense is here it will only become more collaborative.
- JF:** Do you think the curator is still the core of an exhibition or is it more collaborative from the outset?
- DC:** It's becoming more collaborative. There is an ongoing recognition and awareness that's only increasing, not decreasing at all. We have been doing visitor-centered exhibition development for quite a while. Exhibition development won't change with that it's not the curator that brings the visitor perspective, that's their responsibility. It will continue to be collaborative areas of expertise, there is no boss of the others.
- JF:** Although the CMC doesn't have a sustainable policy, do you think one will be in the works in the coming years?

DC: It is something we have started the conversation on, there is nothing formal yet, but we have started conversations on exhibitions, design, and facilities management group because we need to look at it from a holistic perspective. We use a lot of the same suppliers for exhibition development, building fabrication, and the same materials, so we need a policy that speaks to both plant maintenance as well as exhibition development. The discussions have been over the past four or five years, very casually, and then moving in a direction that's more sustainable and responsible with respect to the environment, away from anything formal, but moving in that direction. It's all baby steps and in the absence of any sort of a formal plan, we make the changes we can make where we have control, like exhibit lighting inventory renewal and making good responsible choices. Then we start seeing a domino effect from there. We have LEDs, temporary exhibitions, maybe we should be looking at permanent exhibitions, and is there anything we can look at at a base level? Then it has a ripple effect down the road.

JF: Ok, thank you very much Denise!

DC: My pleasure Jasmine!

**MA Thesis Interview: Garden Museum
Interview with Jade-Lauren Cawthray**

**Friday, February 17th, 2012, 2:00pm
London, England, UK**

JF: What is your position at the Garden Museum and what duties and assignments are you responsible for on a daily basis?

JLC: I am a trainee in the sustainability of heritage, and I am the first trainee of this type as part of a funding program that the Heritage Lottery Fund runs in the UK for the skills for the future program. So I am a graduate that was interested in working in heritage and I came into the Garden Museum to examine the sustainable practices of museums on an operational basis mostly and to have a look at those and make suggestions specifically for the Garden Museum and look at how we can improve what we're doing. This covers everything from the café and shop, to facility management, right through to curatorial and exhibition management. I've done events, working in the garden and the community. So I'm looking at social, economic and environmental sustainability.

JF: Does the Garden Museum have a sustainable policy or plan, do you know if there is one in works?

JLC: We have not put together a full sustainability policy, we have not yet found it necessary. I've put together a few different documents for example a strategy document about zero waste to landfill. I have also created a sustainability analysis document, so not just the economic side of things are considered, but social and environmental as well. Now at the moment I'm only using that for researching procurement opportunities, but I'm hoping that as I leave, I'm able to convince managers that this could be included throughout the organization, so we found that we'd like to do it differently, not just do standard things like reading meters and counting carbon. I've been most particularly interested in resources.

JF: So more of an ecological footprint than just the carbon footprint?

JLC: Looking more at that, and more of a direct and clear impact that we have on the world around us, as opposed to that not so visible impact. Although I'm hoping that the next trainee will start the carbon counting. In my year I've seen how important that is. With everything else going on, to put yourself as a standard really.

JF: With the ecological footprint and the initiatives of the Garden Museum, could you elaborate on the museum's initiatives?

JLC: We became zero waste to landfill, and I set up a recycling system here since we didn't have one before. Within the café we're working on a food localization project. Project management likes the slow food movement out of Italy with a 60 mile radius from the museum. Also in the café, we compost a lot of food scraps direct from the kitchen into composting in the garden, so very local. We do that and the coffee and tea is already Rainforest Alliance Certified. We also have biodegradable takeout trades and things like that, and a lot of that was already in place. With the brand of the Garden Museum everything ties in nicely since we are a smaller organization, we need to be more resourceful. Because we are a tighter, smaller institution, we are so much more careful. So at the front of the café, all of these wooden slats were rescued from a skip at a local theatre 20 years ago, then table legs for our spring plants events, then we decided to upgrade tables and it became the front of café counter. The desks in back offices are built from old exhibition materials, so that naturally happens here anyway. We've got a really talented technician who doesn't like to spend money, so it just comes really naturally on that side of things.

JF: Within exhibition practices, do you think exhibits have altered since sustainability became more prominent at the Garden Museum?

JLC: Definitely, especially since I stepped through the door. My presence here has been a constant reminder to people that we trying to do something. As a result, our current exhibition is really sustainability focused from Garden City to Green City, about greening the urban environment. We thought it was appropriate for me to sit in on the meetings. I sat in on the initial design meetings. We felt that we can't put an exhibition like that on if you're not being sustainable yourself. Although there was a big drama weeks before and had to change designers, we ended up with an almost a cradle to cradle design using about 1000 concrete blocks in the exhibition, and have been purchased very cheaply from a local merchant who will resell them back to the manufacturer, then will be used to build houses, so we're thinking about that. And we've decided as well, instead of rebuilding space from scratch, what we've built in there, except for the concrete blocks, the walls that have been built will be used for the next two exhibitions, then will probably be remodeled in the exhibition room. The other thing that's been cropping into conversations is the whole environmental condition, but our room has been purposefully built to maintain a constant temperature and humidity, so we've avoided that through the design of the room.

We did have a massive heating problem because of the vastness of the shape and size, since there is no insulation in the roof, just the wood and tile, so we lose all our heat at the top. Inside the church, they've built a completely free-standing pine structure that doesn't touch the walls. There is a purpose design space, sealed up to keep the environment constant. And that's something we're starting to see happening in quite a few places now that have been purposefully designed for that reason.

JF: Did you want to discuss the steps towards curating the show? In general how did you develop the show?

JLC: I wasn't involved in that process at all, and haven't been whilst here. I know that here the director is very involved in the process. And he seeps a lot of ideas in and the curator goes and researches around the subject and then picks key ideas into the story they want to tell, then approaches people for the objects. I did a few case studies for it, minute kinds of things.

JF: With reducing the carbon footprint of exhibitions through curatorial practices, do you think exhibition development is one way curators could reduce the footprint and sustainability of their museum?

JLC: In the conversations we've been having over the past year, it hasn't come up yet. People have talked a lot about transport, like how can we reduce the amount of transport? How can we share transport with other museums? But I don't think we are quite prepared in this country yet to not accept objects because they came from another side of the world. It's a side of things that I haven't had too much exposure to, but it's really interesting.

JF: In terms of the museum or gallery's carbon footprint, do you think exhibitions can help reduce the museum's impact on the environment?

JLC: Materials for exhibitions, which is probably our highest use of physical resources, possibly. I think the exhibition is the least impactful of our practices. We have a huge venue and event hire, since we're independent without any government funding. Our café and shop are probably the most energy and resource consuming. And with this building it is really hard to maintain heating-wise. But in the bigger institutions where the focus is 90% on the exhibitions, without a doubt. There is some really interesting work at Science Museum and Tate, and is still unpublished. But I know that the Science Museum did a fantastic exhibition on climate change.

In that kind of sense, out at the front in the garden is an Insect Hotel, and I built that out of old exhibition materials, in a way I was trying to improve biodiversity in the area and turning a waste resource from an exhibition into a positive environment as an environment-improving installation, and we treat it as an installation. So in that kind of way, there is loads of scope. There are more opportunities in the Garden Museum, or the Science Museum or the Natural History Museum because their subjects tie in so well. It's really easy because it's almost like a natural part of what they are doing anyway. Other museums, like the Branding, Packaging and Marketing Museum in the UK, and I've thought about that quite a bit since it would be harder to tie these narratives into, because it's all about consuming. Having said that, you can flip it to consider more sustainable products.

JF: Do you think then that art museums are generally not picking up on sustainability due to the nature of their collections?

JLC: Yeah I think so. Particularly with the LED debate over here. Initially curators hated LEDs because they said the light was unnatural and that it ruined the colours in the painting. We are just coming to the end of that debate, but as the back end of that fades, there came about a whole piece of research about a light spike in the LEDs, in the light waves is a spike of blue light that is higher than deemed safe for pictures when it starts to degrade the picture. So everyone started to panic, and that gave curators a good reason to not adopt LEDs. But new research and technology has been developed to reduce this. People are realizing that when these paintings were created, they were usually done in daylight, so fluorescent orange light doesn't replicate this, and LED is closer because it is a brighter light. People are coming around now seeing the massive economic benefit. Curators have keen eye, but no one else can tell. At a study that happened, a museum did a whole gallery space with it and no one noticed, they didn't have a single comment. Because of the massive savings you can make with them, they are coming now. When you look at the old light and the new light and the LED, the old was at the red end in the high bit, and basically you didn't have that with the LED, a more intense peak in blue end, so you are swapping one for the other.

JF: In general with climate change, do you think your institution has an obligation to reduce its carbon and ecological footprint?

JLC: This is the exact reason why I got involved with this traineeship program because I've never heard of it before. As a museum or an art gallery, you have a cultural responsibility, you are preserving your nation's culture, the world's culture. And as a part of that, you get so tied in to the people and

the planet, that you have a responsibility to them as well. It is an innate responsibility in heritage. It is a bit of a turning point, it is going over the curve now, where before it was about taking from the world. This is a way for us to give back to people, and we need to start respecting everything around us. We also have a responsibility to our visitors to teach and engage visitors with this as a subject. People come with an open mind, ready to receive new information, so there isn't that initial barrier. I think it is essential and completely hypocritical not to address this as an issue.

JF: How do you think curating and exhibition practices will change throughout the 21st century?

JLC: I think I can see that aesthetics will become slightly less important, and I think that curators and exhibition designers will need to become more open-minded with wider perspectives. The specialists can be quite narrow-minded, especially the old-school of curators. And I feel they will need to look at the bigger picture, both environmentally but curatorially as well, like engaging with subject matter. I think we will see a change from aesthetics-focused preservation curating to moving to a more natural-focus, things could degrade a little, with less pampering on these things and let them go a little bit, and let them exist more naturally. But I think it will be really slow coming. This has been mentioned a few times and circulating around over here, with patina and letting things age, and isn't that part of their existence? Shouldn't we allow that to happen in some way? Isn't that part of the history of the object? You can't stop that history.

JF: Well that's the end of my questions, thank you Jade!

JLC: Thanks Jasmine!

**MA Thesis Interview: National Gallery
Interview with Steve Vandyke**

**Monday, February 20th, 12:00pm
London, England, UK**

JF: What is your position at the National Gallery and what duties are you responsible for on a daily basis?

SV: I'm Head of Technical Services, I work within the Facilities Department. I look after all the technical services throughout the gallery and that includes all the maintenance and upkeep related to services, as well as refurbishment of galleries and associated project work. Just to give you a bit of background, the gallery is comprised of predominantly two buildings, Sainsbury Wing, which was completed in 1990. The Wilkins building is much older that dates back to the early 18th century. This section of the building is the façade that is seen from Trafalgar square. Since then many additional rooms have been added to the north and the latest being the Northern Extension that was completed in 1970. I deal with day to day issues, maintenance is obviously a key issue in a building of this nature, our main concern is to maintain the environmental conditions and to maintain the paintings for future generations to come. We have quite stringent control comprising of 55% RH all around with a floating temperature with 23°C in the summer months and 21°C in the winter months. We've got various centralized plant rooms, that house the plant to keep conditions to those close set points, and they're located throughout the building in localized satellite basement plant rooms.

The other role I have within the gallery, which I'd say is a more recent role involves dealing with the sustainability and carbon management. Obviously that's increasingly important, with respect to the government requirements with specific key Carbon dates of 2020 and 2050, we have to cut it by 34% and 80% respectively, so it's quite a challenge. Notwithstanding that, over the last 12 years, certainly our department has been quite mindful in terms of reducing our energy levels and our plant throughout. Certain ways as lighting efficiency, reducing plant energy overall via controls and better control strategy. We're also investigating a new blind strategy which controls our daylight in the top-lit galleries. But more recently we're signed up with the Carbon Trust over the past couple of years, and worked closely with them on this inaugural system called the Carbon Management Plan, which covers the majority of high-end users of utilities within England and Wales. This Carbon Management Plan was a conceptual plan brought in 2010 and through 2011 we were involved in the pilot scheme basically.

What we've identified are key projects throughout the next 5 years, so by 2014 we will have met our 34%, in fact we've surpassed that at achieving a 43% reduction so far, and that's based on 1990 figures. We also had a dispensation because over the years have done a lot of reduction in carbon and we wanted to show that we've actually covered those areas rather than starting from fresh and were allowed to include previous years. This plan identifies key future involvement from the Gallery and a sign up from the executive committee and director that we will endeavor to reduce our carbon by these figures, which is encouraging. I must mention that we've got other taxations facing us, called CRC, which is a carbon reduction commitment tax, aimed at higher users of utilities and basically it's taxation on the amount of carbon you use throughout the building on an annual basis. For the current figures of us in this coming financial year 2012-2013, probably looking at about 110,000 pounds, which is quite a significant sum. Some of the figures within the carbon management plan takes that into consideration, we are not only looking at carbon reduction savings, but commitment savings, so by reducing our energy this also reduces our carbon tax.

JF: I read that the National Gallery is getting a new energy-efficient boiler, could you elaborate on this?

SV: That's a Jenbacher engine, which is built in Austria, and that's through GE and they are the manufacturers of that plant. We did have an existing CHP plant here, which is a fairly small in comparison, this only gave us 220 kilowatts and about about 350 kilowatts of heating. We have since developed a system that we can actually utilize a larger engine, so this scheme basically involves us using an 850kw unit, which basically matches our base load. This not only reduces electricity requirement from the grid, but also enables us to swap out boilers in the future with more efficient boilers in the 2nd or 3rd stage of project, We're just about to install the infrastructure for this new engine that will be delivered in April.

JF: Of course the National Gallery already has sustainability policy and a carbon plan, do you know when were these developed?

SV: Our official carbon plan was developed in 2010, but as I said, over the last 10 or 12 years, we were mindful that we needed to reduce our utilities, so we had our own carbon unofficial plan within the facilities department. We also had a written statement stating out sustainability intent.

JF: How does the carbon plan affect your work on a daily basis? What things have changed since the plan was developed?

- SV:** To embark on a carbon plan it needs to be gallery-wide. Whilst probably initially we were giving energy-awareness talks to the gallery audience that included all departments and that formed an important part of our introduction to the gallery in terms of health and safety and what we do at the gallery. This has been done over the past 3 or 4 years. The Carbon Management Plan enabled a focus on specific departments and we formed our Sustainability Carbon Group based on that. And we offered this out to heads of departments and have representation in each department, so they felt that they were included in every sense. We meet every two months as a group, of which everyone comes with ideas and those ideas are listed. Obviously all ideas are put on a list. Some of the ideas that have been put forward have been encouraging, so we've actually embarked on those. Some of the ideas like basement lighting for example. The security staff had noticed that lighting is on quite a lot, so we're embarked on a project to reduce that lighting by putting PIRs on the controls to reduce the time out hours.
- JF:** Has the curatorial department contributed ideas about sustainability?
- SV:** Very much so. They are an essential part of the team and our lighting LED program. In terms of control and coordination-work, this has been essential between us and that particular department. They are represented in our sustainability carbon group.
- JF:** Within exhibition practices, how has the carbon plan affected exhibitions? In what ways?
- SV:** I think the problem you have with exhibition spaces is that they are in their own right probably unique in every exhibition. So whilst we've probably looked into recycling exhibition builds, it's proved difficult. While it hasn't been totally disbanded, we think there are possible solutions to do that in the future, but some of our exhibitions are so diverse, it's almost an impossible task to reuse other exhibition builds. In terms of the LED lighting, that goes without saying that we've almost changed all the lighting in the Sainsbury Wing to LED lighting, so we found we are almost swapping light for light from a 90 watt lamp to a 14 watt lamp, so we're saving about 85% of the energy. In some galleries where we have display cases in the centre, the numbers have gone up slightly but even so we're nowhere near the wattage that we're using with the tungsten. There is also a three-fold benefit, one is obviously the energy that the lamp burns, secondly the energy used to cool the heat from that lamp, and finally the maintenance cost of that lamp which is reduced because it lasts up to 50,000 hours, as opposed to 2,000 or 3,000 hours compared to that of tungsten. We previously had a bulk lamp change every year, so we no

longer look at lamp changes at all. To be honest, we've only had 2 failures on the LEDs in the galleries due to an integral fuse going in the unit, and the manufacturers have replaced those, so things are looking good.

JF: I heard about the LED debate on the blue peak, how did the National Gallery react to this?

SV: Quite right to bring this up, there was a bit of a panic not within the Gallery but within the museum world, I think conservators were obviously very concerned about finding out about this blue peak. But we're quite fortunate here where we have our own Scientific department at the National Gallery who are geared up to test these lamps. We tested all the lamps prior to embarking on LEDs in the gallery. It's been proven that even with the blue peak, it doesn't offer anymore intensity than daylight, so the spectral analysis of the curve, we have been assured this is the case. Notwithstanding that I think you need to be aware the LED offers a different kind of light, compared to tungsten which has higher peaks on the warmer side of the spectrum. LEDs offer a spectral curve that is similar to that of daylight. We have also found that the intensity of light is different to that of tungsten, so we are able to light objects with a reduced lux level compared to tungsten-lit exhibits to give a similar intensity for viewing.

JF: What do the curators think of the LED lighting? Have they accepted them?

SV: I think they were a bit skeptical at first, but I'll give you a bit of background of how we embarked on the LEDs. The National Portrait Gallery next door organized a demonstration and installed them in their galleries first. I was convinced that was the way forward not only because of the way the pictures looked but the difference in the quality of light in the room, it just stood the pictures out, it was great. We had to convince curators and conservation members and ourselves. We embarked on a test in the Sainsbury Wing to see how it would look in our spaces. We did that and got the go ahead; everyone agreed that the paintings never looked as good in the previous light. So we embarked then on a program and got the agreement from the executive committee to embark on all of the galleries which was exciting. I'll show you around so you can see the difference between the tungsten-lit and LED galleries. You will definitely be able to see the difference, it's remarkable. The colours just leap out at you.

JF: As you mentioned, the head curator is involved in developing the carbon plan and contributing ideas. With the Living Masterpiece work, the living wall, how were you involved?

- SV:** I wasn't involved with that at all, all we provided was the canvas to put the plants on. There was a tie up with GE [General Electric] and our development department. They happened to be the manufacturers we were independently looking to supply our CHP unit. GE was one of the most efficient engines we could purchase, so it so happened that they were working with the Gallery, and we were thinking of purchasing this engine. This has been purchased and will be delivered in April.
- JF:** In the Living Masterpiece Youtube video, it said that the exhibition also meant to reduce the gallery's carbon footprint. Do you think in updated versions of the carbon plan, will exhibitions be more included?
- SV:** That certainly could be a feature, and I think we are quite fortunate that we are sitting on one of the most famous squares in the world, so that in itself offers publicity and able to advertise to that effect. We work closely with exhibitions, and I think possibly the future is to look at more sustainable materials in the builds and we'll look at LED lighting. We've got an ongoing program to change out galleries in temporary exhibition galleries in 2013, so we're working closely with them and hopefully fit in a program to do that within the summer months when we have a bit of a lull in exhibitions, working closely with project teams and exhibitions to make sure we can deliver as a whole really, rather than an independent department approach. You need that otherwise it won't work. You need to work together and that's what the Sustainability Carbon Group tries to achieve to bring up ideas through the management structure.
- JF:** With the ongoing threat of climate change, do you think the National Gallery has an obligation to reduce its carbon footprint?
- SV:** I think it's very important. All institutions need to be aware that they're potentially damaging the environment. Whilst we're a bit of a double edge sword for us, since we need to spend energy to keep our environmental conditions to preserve our collection, and that necessitates us burning fossil fuels at the moment. We are trying to increase the efficiency of doing that, one way is using this engine to produce cheaper electricity, but to use the gas to provide electrical energy plus the waste heat to actually reduce our gas consumption of our boilers, so efficiency is stepped up. So that's one approach. Our other approach was to look at more efficient plant technology, one example of this are our introduction of LEDs.
- JF:** Do you think sourcing and buying wind power and solar power would be considered?

SV: There are wind farms that are currently being built off the east coast of Britain and Scotland. But bearing in mind as its total consumption that's only a proportion of what Great Britain needs. With regard to solar power, we're already looked into that but unfortunately, if we used solar power, we'd have to use a lot of our roof area which we currently use for natural light, so we will be covering our available natural daylight which would not reduce our electricity. We have a system as I mentioned concerning blind control. We've stepped up mark on that, and developed a unique system that no one else has, we monitor the orientation of the blind to the building and roof, and we check every 2-3 minutes to see what the angle should be to optimize daylight in the gallery and to prevent direct sunlight. That's all computerized via BMS system, and that is generally controlled by our light sensors in the gallery, so the first stage is to optimize natural light, and the second stage is to fill that in with artificial light. And our new internal system is a sophisticated system that dims the light up and down to the required set points for the paintings. Not many establishments do that, and we are one of the first to embark on that and this has been pioneered by myself and the technical services team.

JF: I see the Tate and the National Portrait Gallery now have beehives on the roof, has the National Gallery gotten on to this?

SV: We're not quite there, but I wouldn't mind, maybe offsetting some of the honey.

JF: That's the end of my formal questions, any concluding thoughts?

SV: We are serious about carbon and as a nation, we need to be serious about carbon. Globally, we're a very minor use of energy, but nonetheless we need to adopt the attitude that every little bit helps. You think of all the rainforests being cut down and that's terrible, and we can do our little bit at the gallery, and maybe 200, 300, or even 400 trees per day that have been cut down, will be saved in terms of carbon. In countries like China, that are probably opening up coal power plants, one every month, that's where I think globally everyone needs to address this important issue. We like to think we are doing own little bit within the National Gallery to reduce global warming.

JF: Well that you very much Steve!

SV: You're welcome!

**MA Thesis Interview: National Gallery of Canada
Interview with Sonia Del Re**

**Friday, May 11th, 2012, 10:00am
Ottawa, ON**

JF: What is your position at the National Gallery of Canada? What duties and assignments are you responsible for on a daily basis?

SDR: Normally the position I hold is the position of Assistant Curator of European, American, and Asian prints and drawings, but currently I am the Interim Associate Curator of Prints and Drawings. We work in consultation with the head curator, and we plan and direct the care, meaning the intellectual and physical care of the collections of European prints and drawings. We also plan the development of the collections through the acquisitions of works and through the donation of works. Thirdly we carry out research on these collections. And of course the fourth point is communicating information about the collections, with the most basic being answering phone or e-mail questions, but there are different ways of communicating information about these collections, it can take different forms and shapes, exhibitions being the most complex. So those are the four main areas that we cover, but there are many different ways of achieving each of these functions.

JF: Although the National Gallery of Canada does not have a sustainable policy, do you think they would be interested in developing one in the future?

SDR: I think the first thing would be to look at what are the trends in the museum world and if this is something other museums are already doing, then we may need to look into implementing a sustainable policy. Governmental support has a strong influence on how we handle these things. This is a type of project where we would need a specific budget with someone dedicated to it. If national museums don't have governmental support and the money to do it, then it becomes a lot more difficult because they would need to use their own resources, money and time to do this. If it's something that many governmental institutions were interested in, then it is something that could be developed across all government organizations.

JF: If the National Gallery of Canada were to develop a sustainable policy and plan, how do you think it could affect the curatorial department?

SDR: It would really depend on the form this plan takes. Presumably there would be a committee that would be looking into these issues and would try to implement practices that are not restricted to recycling paper and other existing practices. It would have to be a concerted effort. It has to be policy-driven, and there needs to be something in place for everyone to be on the same page, and be actively participating.

JF: Within exhibition practices, how do you think a sustainable policy would affect exhibitions?

SDR: We try to reuse as much as possible, but it is really driven by budgetary concerns. We try to recycle and reuse a lot of things, but this is generally not driven by environmental concerns. For example, we might reuse molding from a previous exhibition for a new show. We do things that lower our ecological footprint, but they are not driven primarily by environmental concerns, they are certainly driven mostly by budget concerns. As you know in Canada, the collections are not as rich as they might be in the U.S.A., and a lot less than they are in Europe, so it's difficult to build an exhibition with only local objects. It's feasible with Canadian art of course because Canada is the primary holder of Canadian art. But for European art, for example, it's different. Every curatorial department and every collection faces different challenges when it comes to organizing exhibitions. Also, the ways in which the collections develop affect the way we organize exhibitions. For example, if Aboriginal art is to be understood as an international area of collecting, as opposed to a local area then our exhibition practices also change. With European art, it's very difficult to build an exhibition with local objects only. However, we have a very strong collection of prints and drawings from which we can prepare travelling shows that tour across Canada at a relatively low cost for other Canadian institutions, so that's one way of preparing shows with the permanent collections only. However, the objects travel by truck, and I don't know what the ecological consequences of that might be. The main concerns when the works are travelling are their safety and the expenses incurred. So these are the two main concerns that drive our decisions.

I can also give you an example from our latest large European show, "Drawn to Art". In our original selection, we had a few small sculptures that we wanted to borrow from different museums across the United States and in Europe. When we became concerned about exceeding our budget, we looked at ways of reducing costs, so we ended up removing all of the sculptures from the selection. One would have come from Los Angeles which would have made for a very long couriership by truck, so we removed it and some others that would have come from Europe. Crating is often more expensive for sculpture as well as insurance premiums, so

there are a variety of things that increase cost. We try to consolidate loans, so that everything leaving from France for the "Drawn to Art" show left at the same time, instead of having each museum ship their works separately, so perhaps this is already one way of reducing our carbon footprint, but as I said before, these decisions are mostly driven by budgetary concerns. Budget and safety of the works are the two principal factors taken into consideration. Eliminating loans from our selections that are too far away is one way by which we are reducing the carbon footprint, and consolidating loans is another, although they are not driven principally by ecological concerns. We are doing these two things more often now as we need to adapt to the current financial situation. Whenever possible, a work will be transported by land as opposed to air freight. The truck option is generally privileged over air freight since it generally provides utmost safety of the artwork. However, I am unaware of whether that may have a greater impact on our carbon footprint. For instance, transporting an object by truck from Texas to Ottawa and back is certainly increasing our carbon footprint, but would the carbon footprint be lessened if it traveled by air freight? I really have no idea about these things, but whenever we do solicit loans from Texas, for instance, they travel by truck, so that's a considerable carbon footprint. One would have to look at different companies that provide art transport services and look at how they operate, which vehicles they use, and what types of fuel is needed in order to find out what is more ecologically sound. This could be difficult to find out.

JF: Do you believe a sustainable policy should consider the role of the curator and the carbon impact of exhibitions?

SDR: I think so because projects like exhibitions are generally driven by the curators. However, we can't control how lending institutions request to have their artwork transported and cared for. We have to respect the lending institutions' requirements, so we cannot control every aspect of loan transportation. So if a curator is curating a loans show, he or she cannot control most of the aspects related to art transportation. The curators' work in designing exhibitions is intellectual, so that they are looking at the intellectual content provided by the selection and of course they want the most prestigious objects, and that's really what I think is what a curator thinks about when they choose objects, which are most in line with the theme and content of the show and which are the most prestigious. For instance, the Bernini show was a very important exhibition for us in terms of scholarship and in terms of the prestige of the works borrowed. Also, one of the repercussions of loans is reciprocity. If one institution accepts to lend an artwork to us, they are more likely to request something in return in the near future, so that the carbon footprint is then doubled in a way. Even

borrowing from other Canadian cities such as Vancouver is still quite far away. It's difficult to get around that here in Canada. And the National Gallery of Canada is an international institution and our collections are world-renowned, so we really need to uphold high standards since we are competing with European and American museums. European museums have a wealth of art that they can use. I think in the United States it's different too. They're a big country with a different system of mostly private institutions. In Europe, curators can very easily build exhibitions with only works from local collections which is very different than here, there's only so much you can do with your own collection. For instance, the National Gallery owns three Van Gogh canvases and one drawing, so for an exhibition like "Van Gogh: Up Close" which will be shown here this summer, we need to put in many loan requests.

JF: In terms of reducing the National Gallery of Canada's carbon footprint, do you think exhibitions can help reduce the institution's overall carbon impact?

SDR: That would be great, but since we are a publicly funded Crown Corporation, we are often working in collaboration with other government organizations. The NCC [National Capital Commission] for example is in charge of the land behind the gallery where we are currently developing a sculpture garden, so everything that we do there has to be done in collaboration with the NCC, so I think if the National Gallery is going to be organizing eco-friendly, environmentally responsible exhibitions and implementing a general policy, it needs to be part of a general effort from the government. I think it really needs to come from the government and if we can get that, everyone would be more than happy to pitch in and do whatever we can do. If you don't have governmental support, it would be difficult [to do something like London's National Gallery's "Living Masterpiece" exhibition]. Right now we have an exhibition entitled "Flora and Fauna", and although some of the art presented in it could certainly be connected to current issues about sustainability, that is not the driving force behind the concept of the exhibition. Also, the National Gallery of Canada has an important mandate in collecting and exhibiting contemporary Canadian art, and environmental issues is an important topic in this field, but the same cannot be said of historical art. If you are looking at a 16th century painting of a Madonna and Child, it is difficult to discuss these types of topics. There are definitely small things that we can do inside our offices, but with larger projects like building exhibitions, it is a little bit more difficult. With regards to reusable walls, our temporary exhibition galleries can be configured in many different ways but I don't know what proportion of materials is being reused and what proportion is being recreated from scratch every time. It is not something curators are regularly

consulted on. And when we do reuse, it's mostly because of budgetary and time constraints again.

JF: Do you think curators should be more hands-on throughout the exhibition development process to make more environmental choices?

SDR: Curators' concerns are so far away from ecological concerns, it doesn't even cross my mind what kind of paint, for instance, is being used. We are mostly concerned with choosing the right wall colour. Unfortunately environmental issues are very far removed from our concerns. In terms of curatorial, every collection is different and every collection has its own particular conservation needs. For example with prints and drawings and other works on paper, we cannot exceed a light level of 50 lux in the galleries, so we are concerned with the lighting, but not because of environmental issues. Every collecting area has different needs that have to be respected in order to be able to conserve the works properly. Shifting certain practices would require a concerted effort since it's so far away from what we think about in our daily work. We are mostly concerned about the intellectual and aesthetic impact of our decisions and about the conservation of artworks. So I think what you can take from this meeting is that these issues are very far removed from curatorial concerns and it's just the nature of our work. We are responsible for the intellectual and physical care of the objects. Our profession is such that environmental issues are far removed from our everyday tasks.

JF: With the ongoing threat of climate change, do you think the National Gallery of Canada has an obligation to reduce its carbon footprint?

SDR: Of course I think it would be important, but it needs to happen across governmental organizations. We are a Crown Corporation and it can be difficult for an institution as large as ours and with a very precise collecting and exhibition mandate to be able to invest time and money if there isn't a force outside of the gallery that is really encouraging a shift.

JF: How do you feel the curatorial and exhibition departments might evolve throughout the twenty-first century with environmental sustainability in mind?

SDR: That's a tough question because I'm thinking about the different needs of the different collections. With European art, I feel it would be difficult to implement an important shift. Unless we no longer organize large, prestigious shows, and think of a different way to do exhibitions than we have done them so far. It's so different for each and every collection. It's an important matter but how do we implement policies that make it easier for

each and every one of us including curators to actively participate in a sustainability plan? The intellectual concerns of the curators are such that even if we were more careful as to where we are borrowing objects from, it would be hard to always be respectful of environmental issues, since the exhibitions would just not be the same. We use our collections as much as possible because we have a great collection, but for works on paper, even if the collection is very large, we are limited in the amount of exposure time each work can be subjected to. Also, it is difficult to attract the public as much as with large exhibitions with international loans, so we try to get a good balance of the two.

I think we all need to be educated about environmental issues. I for one am entirely uneducated about these issues, and I can't say that eco-friendly museum practices is something I've given serious thought to. If this is something developing fairly quickly in Europe, then this is something we need to start thinking about as well. I was entirely unaware of all of these practices and museum professionals would have to be more educated about these developing practices in order to help change things. I think there really needs to be a shift in how we deal with these issues. Our job as art curators is to preserve and present man-made objects so perhaps we don't feel a connection as much to the environment as nature or science museums would. For example, next week I am installing a small show on 17th century Dutch landscapes, so although the topic is closely connected to nature and the environment, I can't say that environmental issues ever crossed my mind while I was working on this show. It is not something that is talked about in art history. I think it is something that we need to be a lot more educated on in order to be able to do something about it. It might happen bit by bit, not specifically because we are trying to reduce our carbon footprint, but perhaps because there will be more of a variety in the products available to museums, so that might be how we'll become more aware of what we can do to be more environmentally sustainable.

JF: Well thank you very much Sonia for meeting with me!

SDR: You're welcome Jasmine!

**MA Thesis Interview: Ottawa Art Gallery
Interview with Catherine Sinclair**

**Monday, May 7th, 2012, 2:00pm
Ottawa, ON**

JF: Thanks for meeting with me Catherine.

CS: You're welcome.

JF: So what is your position at the Ottawa Art Gallery and what types of duties and assignments are you responsible for on a daily basis?

CS: I am one of two curators, but officially my title is Curator. My mandate covers historical art and some contemporary art. My duties and assignments change every single day. Mostly I deal with exhibition preparation and exhibition research, so I'm always in a different stage of every exhibition, whether it's installing exhibitions, researching the other, writing letters, thinking of a new idea for the other, administrative duties, copyright folders, proofreading a million different things, publicity, then there's the extra activities such as gallery fundraisers like our current art auction right now, so we're contacting artists with that. We host a lot of different events. We're a small staff, there's about 12 of us so we all pitch in. Grant report writing as well, keeping up with artist correspondence, general public correspondence, meeting with students, studio visits, and getting out to gallery exhibitions, openings, and getting into the communities, as well as government applications for donations so it's very different at any different time. So acquisitions, exhibitions, administration, event planning, and publicity.

JF: Does the Ottawa Art Gallery have a sustainable plan or policy? Is there one in place or one in development?

CS: We currently don't have anything official in place, but it is part of our daily conversation in terms of the choices we make. However we are planning a new facility in 2015, the shovels should go in the ground in 2013. So we're in the implementation and planning stage right now, so we are taking into account our choices for the new building. We need to think about these things with an entirely new building, like more energy-efficient lighting systems. Also there are energy inefficient things in our current building since we are a heritage site in terms of heat and keeping proper temperature and humidity controls, so that is for sure something we want to improve in the new building. Our preparation room in the vaults right now needs to be

kept at a certain temperature, but it has an outside wall. Usually in museums this room would never have an outside wall since the system has to be on all the time to maintain humidity controls. So in the new building, this room will not have exterior walls.

JF: Do you think with the sustainable features of the new building, will that affect the different departments such as the curatorial and exhibition?

CS: In a way a lot of these decisions are more building-level decisions, so these decisions would affect us as an institution like more efficient lighting. It's difficult since in general, putting up art exhibitions is not environmentally friendly, it's a lot of waste. We're reinstalling every two months, with all the materials and tickets. One thing we did do is we got rid of paper newsletters, so that reduces our paper use. In terms of my own job, it's my day to day decisions and paper use like paper files. Shipping decisions would be a curatorial decision, and whenever possible we try to get shuttles, and these are mainly cost decisions and are more cost-efficient. Our wall paint, since we are repainting all the time, last year we switched to a more environmentally-friendly and no VOC paint. It's more expensive but it's healthier for everybody, so we would continue that. In the new building, we will have reusable walls in the new exhibition spaces, since we will have bigger rooms. In terms of planning for the new gallery, we will have triple the gallery space that we have now, so we are looking into building false moveable walls. Currently we also turn off everything at night, like TVs and projectors, and turn them on in the morning to save energy, so we try to shut things down to save energy.

JF: Since environmental sustainability became more prominent in recent years, has it become more prominent at the Ottawa Art Gallery?

CS: It's in everyone's minds, not in terms of an official policy, but it is something we are all conscious of. We try to recycle and our public programming team is amazing with using recycled material in the crafts department with the kids, they try to promote that DIY re-purposing aesthetic. Everyone has the environment on our minds, and as we move to the new facility, it's being put into it, but I'm not sure if it will be adopted officially, maybe it needs to be.

JF: Within the curatorial role, how do you think the curator can have an impact on the exhibition development process to help reduce the overall carbon footprint?

CS: Well I do all the exhibition development, but like I said, it would be choices in shipping and materials. Publications are also the responsibility and duty

of the curator. Recently I've been choosing FSC certified paper and not doing print runs, so only printing as much as we need. There's a trend right now with curators of getting their catalogues printed in China since it's cheaper, but I said no because I like working with local print companies. Budget also helps with environmental choices since shipping is extremely expensive. My exhibitions are dictated by what is affordable, so what is ecologically friendly can also be cheaper. We will certainly do things in public programs and we will make decisions such as with a group exhibition, we try to bring in artists for the opening for a talk. We bring them in once for the opening and then they go home, so it's also less plane flights. Since we are a small museum, we do it all. Luckily we have a staff of 12, so there's a communications person and a publications person, but somewhere like Carleton University's Art Gallery, there is a staff of 3, so they are doing even more.

JF: Do you think exhibitions can help reduce an institution's carbon footprint?

CS: We actually had once last year. We did a community art project and we commissioned an artist to do urban gardens outside of Arts Court, and we called it Will Work for Food. It was a huge culinary garden that went all summer, and we linked up with the Ottawa Mission and Operation Come Home to help youth and families. They helped work in the garden and we had a workers feast at the end. So I think that was our most overtly green exhibition or hope project. I'm always open to any ideas, so potentially yes there could more exhibitions like this. A few years ago I did an exhibition called Deep Roots. Although it was about trees, it was more about artists using single trees standing in for the lone adventurer in the Canadian wilderness, so it was more of an artistic choice, rather than focusing on trees. But sometimes we use our public programming to tie in ideas. For that exhibition, we did an urban forest walking tour with a group from Toronto and Ottawa that started in the gallery and 30 people or so came out. We were talking about trees and did a tour of urban trees in the area and had a discussion about urbanization and the impact it has on trees, so we did move into an environmental area from the art.

JF: With the ongoing threat of climate change, do you think the Ottawa Art Gallery has an obligation to reduce its carbon emissions?

CS: I would be crazy to say no to that question, I think everyone has an obligation as a personal opinion. I 100% would push every way for the gallery to have its own sustainable policy or mindset. All of my colleagues are all on the same page, and we all talk about it with equal importance, so we try to work towards it together and work towards the budget.

- JF:** In general, how do you think the role of the curator and the exhibition team will change in the twenty-first century in terms of environmental sustainability?
- CS:** I think that goes back to whether we really need a policy since it's something that should be an obvious part of our everyday lives. I always try to keep it in mind, it's something that should be part of our daily lives, and just obvious. It's probably still at the stage where it needs to be policy-driven to always keep it in mind and make the best choices possible. It's one decision at a time.
- JF:** It sounds like the Ottawa Art Gallery is taking a lot of great steps towards environmental sustainability. Thanks Catherine!
- CS:** You're welcome Jasmine!

Figures

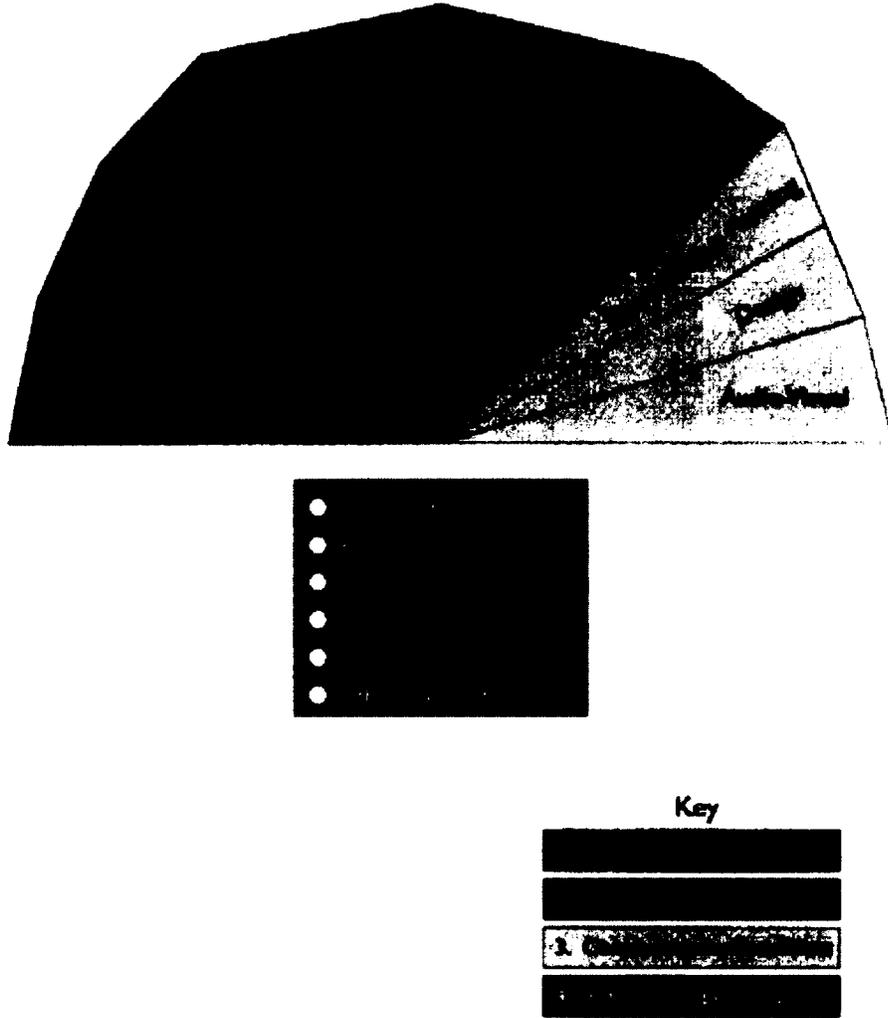


Figure 1
Multi-disciplinary Character of Exhibition Development
Gail Dexter Lord, 3.

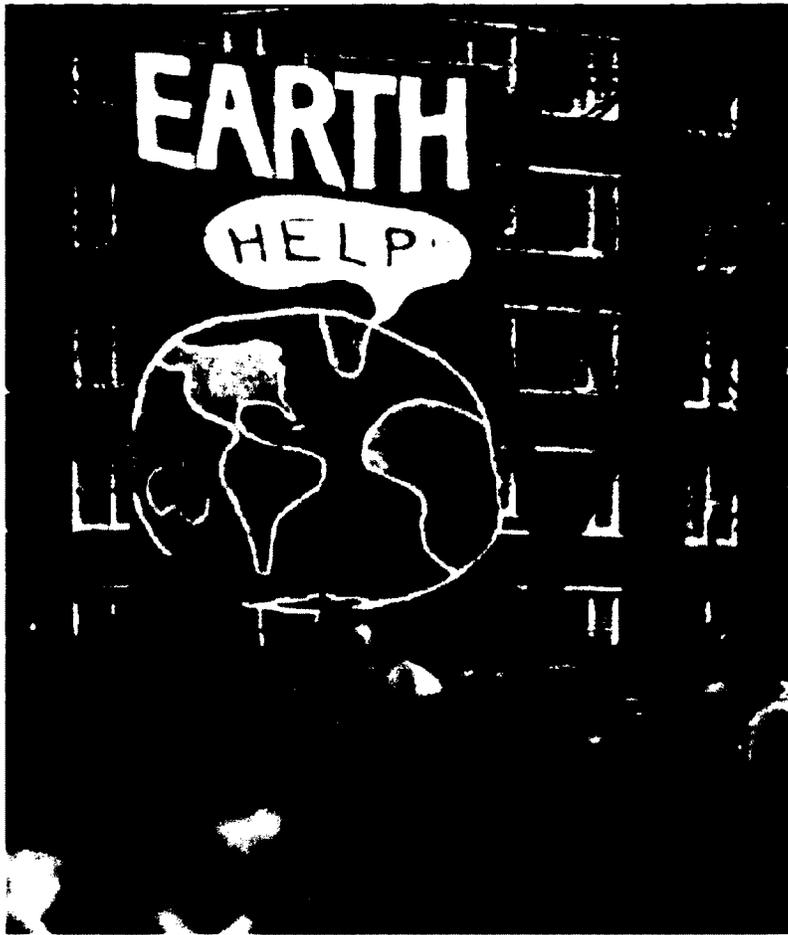


Figure 2

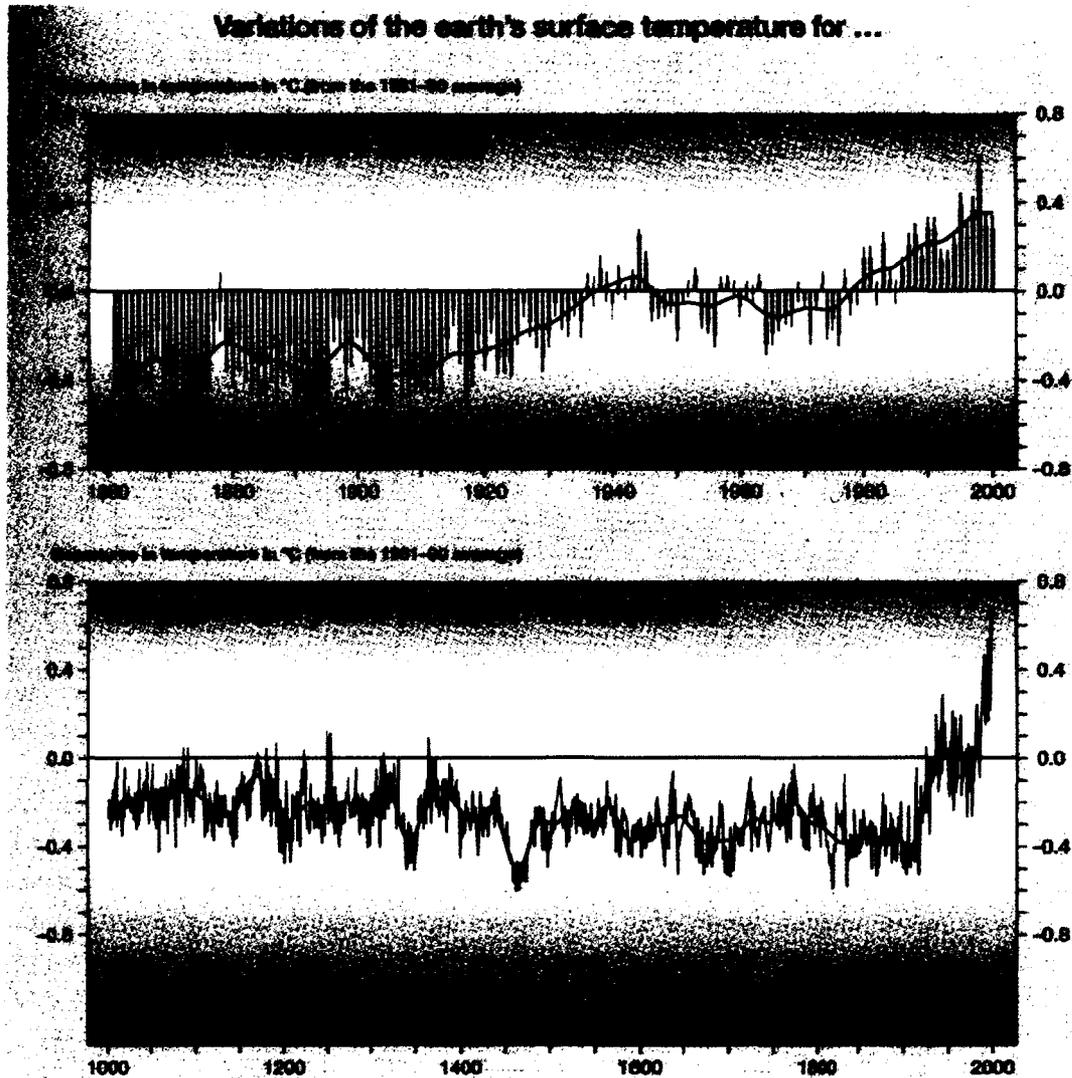
First Earth Day celebration
April 22, 1970, in New York City.

Hulton Archive/Getty Images

http://geographer-at-large.blogspot.com/2011_04_01_archive.html

THE HOCKEY STICK GRAPH

The iconic piece of Canadian sports equipment was dragged into the climate debate when scientists published a graph in 1998 that they claimed tracked global temperatures over the last thousand years. The graph had an upward kink in it, like the blade of a hockey stick,



▲ The original hockey stick graph has been challenged repeatedly, but to paraphrase Mark Twain, the rumours of its death have been greatly exaggerated. Several subsequent climate reconstructions have come to the same conclusion: the latter part of the twentieth century was unusually warm.

xv

Figure 3
Hockey Stick Graph. Jay Ingram. *The Daily Planet Book of Cool Ideas*, xv.

Targets and Emissions from 2005/2006

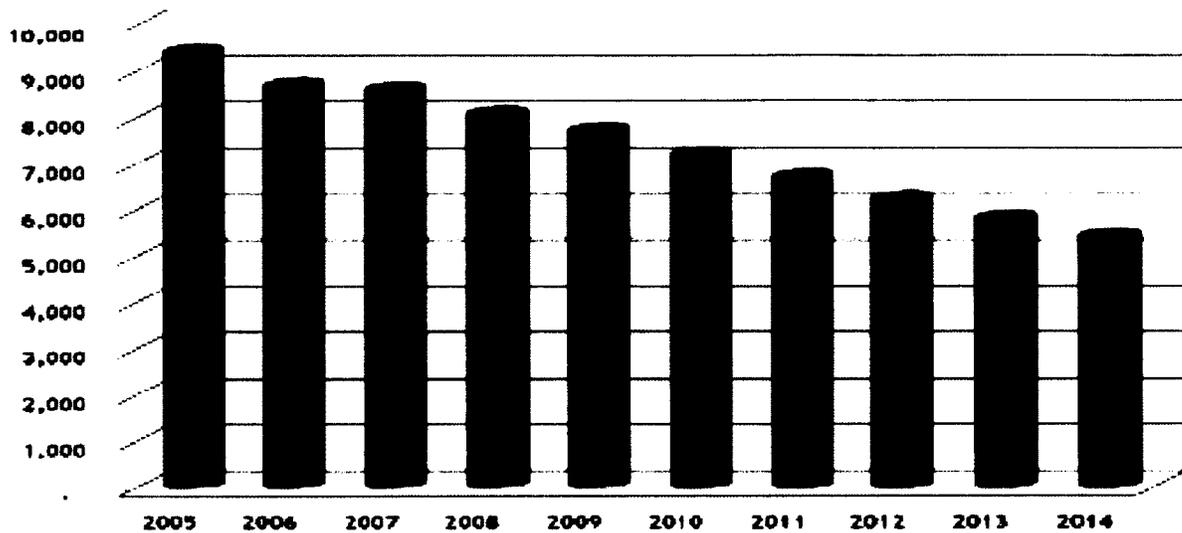


Figure 4
Targets and Emissions from 2005/2006. National Gallery, UK. Steve Vandyke, “The National Gallery Carbon Management Plan”, 6.

Year	(TCO ₂ e/Year)	Energy Reduction £	CRC Tax Saving £	Total £
2011/2012	604	£82,145.55	0	£82,145.55
2012/2013	2,219	£302,070.65	£26,632.74	£328,703.40
2013/2014	2,644	£359,856.26	£31,727.54	£391,583.80
2014/2015	2,555	£347,793.09	£30,663.97	£378,457.05
Cumulative Total	8,022	£1,091,865.55	£89,024.25	£1,180,889.80

Figure 5
Financial and Carbon Savings. National Gallery, UK. Steve Vandyke, “The National Gallery Carbon Management Plan”, 7.

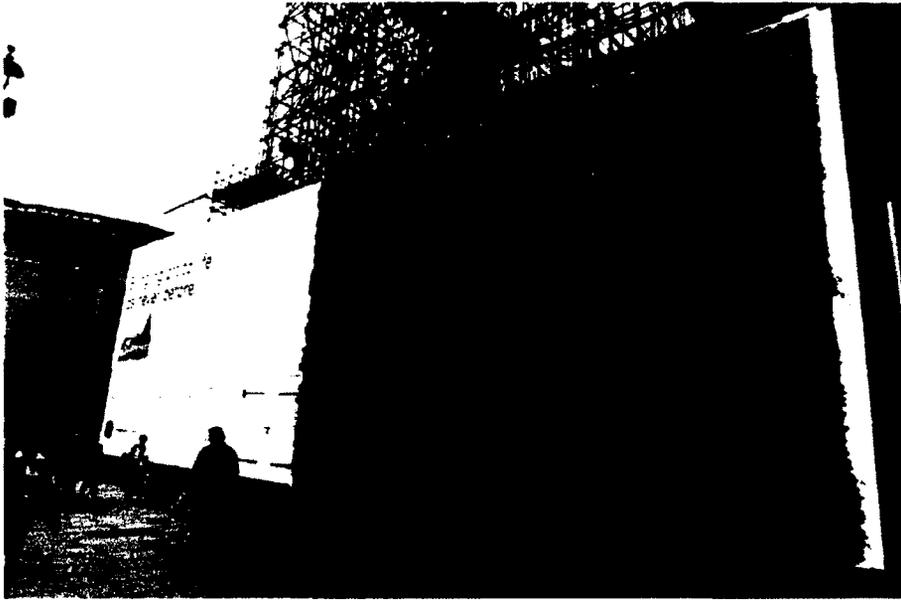


Figure 6

'Living Masterpiece', National Gallery, London, UK

<http://www.fadwebsite.com/wp-content/uploads/GENational-Gallery-Living-wall.jpg>



Figure 7 (detail)

'Living Masterpiece', National Gallery, London, UK

Bonnie Alter, Living/Culture. June 6, 2011. <http://www.treehugger.com/culture/van-gogh-painting-is-a-vertical-green-wall.html>



Figure 8

Vincent Van Gogh, *Wheat Field with Cypresses*, 1889

Courtesy of the National Gallery

<http://www.nationalgallery.org.uk/paintings/vincent-van-gogh-a-wheatfield-with-cypresses>.

V&A Annual Carbon Footprint of Utilities 2004 to 2009

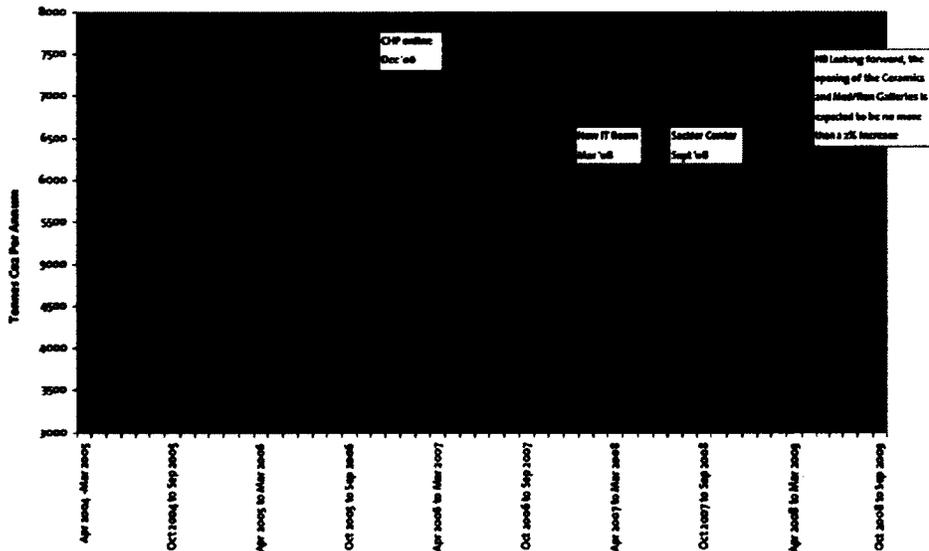


Figure 9

V&A Annual Carbon Footprint of Utilities 2004 to 2009

<http://www.vam.ac.uk/content/articles/s/v-and-a-sustainability/>.

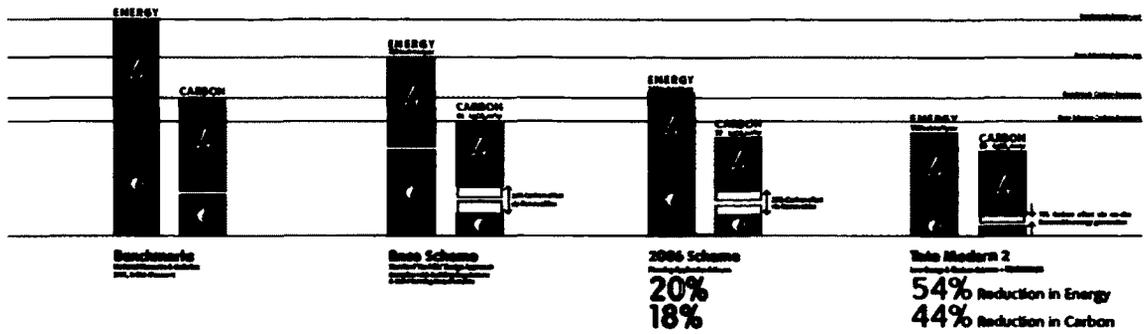


Figure 10
 Tate Modern 2 Energy Usage
<http://www.tate.org.uk/modern/transformingtm/sustainability.shtm>.

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