



# **DEVELOPING AN ENVIRONMENTAL STRATEGY FOR UK FILM**

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## **EXECUTIVE SUMMARY**

The services and resources which a sound environment provides are being severely affected by human activities, ultimately affecting both quality of life and the longevity of business.

**The film industry is not immune to this...**

### **Climate Change**

- The climate is changing; the earth is warming up due to increased concentrations of greenhouse gases from burning fossil fuels (coal, oil, gas), deforestation, gases from landfill sites and methane (CH<sub>4</sub>) produced by cattle.
- A report from the Intergovernmental Panel on Climate Change (IPCC) predicts that climate change will bring severe consequences, including increased risk of inland flash floods, more frequent coastal flooding, increased erosion (due to storminess and sea-level rise), higher sea-levels, rising temperatures, extreme weather events such as heat-waves, floods and droughts.

**Climate change is the greatest and widest ranging market failure ever seen...**

- Climate change impacts spread from directly impacted areas and sectors to other areas and sectors through extensive and complex linkages (IPCC, 2007); everyone will suffer the consequences.

**Climate change is with us, and will have an impact on many major aspects of working life...**

- Flooding, sea level rise, extreme weather events, water availability and the relocation of urban populations for example, will have a severe impact on the whole of the film industry, from land availability and loss of locations for filming, resource scarcity, restrictions on the freedom of movement, increased hostilities from the flurry of environmental refugees, damage to business and rising insurance premiums.
- As the cost of flood defences escalate there is a risk that film tax incentives may be redirected to compensate for the ever expanding flood defence budget and depleting public purse.

### **The Depletion of Natural Resources**

- Natural resources are naturally occurring substances.
- Humans are using 20% more natural resources each year than can be regenerated.

**Pressures on the availability and use of natural resources are increasing.  
Natural resources are rapidly being exhausted...**

- As resources diminish, the film industry will experience increasing costs of fuel and goods, increasing costs to dispose of waste, stringent legislation, scarcity of goods and

restrictions on freedom of movement (from the threat of terrorism and/or wars over resources – which are predicted as resource scarcity increases).

**The Film Industry needs to address issues such as climate change, the preservation of natural resources or risk the future success of the industry...**

- Fortunately, there are individuals and organisations within the industry who have taken the environmental agenda onboard through:-
  - Green film toolkits, guides and standards such as Greening the Screen (New Zealand), Environmental Media Association Green Guidelines (USA), Entertainment Industry Development Corporation Production Guide (USA), New Mexico Film Office (USA) guidelines, Greencode (Canada) guidelines and certification scheme, and the forthcoming environmental guidelines in Film London's Code of Practice;
  - Awareness raising, such as the recent University of California report (which associated negative environmental impacts with film production), Friends of the Earth competition for green films and Global Cool website for action on climate change;
  - Studio initiatives such as mitigating the environmental impacts of special effects (Dante's Peak and Volcano), set recycling (the Matrix 2 and 3) and Warner Bros Los Angeles studio environmental management system (where over \$500,000 is saved in electricity each year);
  - Carbon neutral productions such as The Day After Tomorrow and Syriana, and Carbon neutral organisations such as BAFTA who will be carbon neutral from 2007; and,
  - National and regional environmental initiatives (through policies, management, research and projects) by Skillset, South West Screen, the BBC, Sky, Scottish Screen and the Digital Women's Network.

**Environmental awareness within the film industry is on the increase, however there is still more to be done...**

- This is the prime opportunity for the UK Film Council (UKFC) to address the issues surrounding the environment and positively influence the future success of UK film industry through the implementation of an environmental strategy.

**Environmental Strategy**

- It is recommended that the UKFC should formulate an environmental strategy which is innovative and proactive with strong messages and clear guidance.
- The UKFC should get its 'Own House' in order through developing an environmental policy and environmental management system which is approved by Senior Management and includes long-term strategic goals.
- The UKFC should work with the industry to define a vision/definition of environmental sustainability and issue a statement which sets an overall vision/target for environmental sustainability such as:-

- “By 2020 the UK Film Industry will have reduced its carbon footprint by 30%,” or,
  - “By 2020 the UK Film Industry will have increased the amount of waste recycled or composted by 50%.” (Targets to be refined as part of the environmental plan)
- The UKFC should initiate an ‘Environmental Plan’ for UK Film, an initiative to drive forward understanding, awareness and improvements in environmental performance throughout the UK film industry.
- To avoid a fragmented approach to environmental sustainability within the industry it is recommended that the UKFC consider:-
    - Initiating, on behalf of UK film, an industry stakeholder/working group, which brings representatives from the film industry together to look for common ground/common starting point with an agreed environmental vision and environmental agenda;
    - Hosting an industry conference to raise awareness of environmental issues, celebrate best practice and encourage an agenda for change;
    - Meeting members of the film industry who are working on environmental sustainability such as Film London, BAFTA, South West Screen, Pinewood Studios, 3 Mills Studios and the Digital Women’s Network (for example) to look for synergies in research/work and to deliver a strong environmental message to the industry;
    - Engaging with other organisations such as NGO’s (Friends of the Earth and World Wildlife Fund) and organisations (Carbon Sense, Best Foot Forward, Arup, International Visual Communication Association, Stakeholder Forum, Ridlington & Richards, SEA-renew, for example), to look for synergies in research/work and to formulate joined up thinking;
    - Meeting representatives from the BSI to discuss the development of a British Standard for the film industry, the BSI are already in the early stages of investigating a standard; and,
    - Meeting with representatives within the industry and other interested organisations who are keen to develop green filming guides.
  - There is a need to develop the knowledge base, a need for comprehensive environmental training programmes utilising known resources and training routes. Successful implementation of any form of environmental sustainability measures throughout the industry will require skills and experience; this will ensure the sound delivery of environmental sustainability and sound future investment. it is recommended that the UKFC consider:-
    - Funding training placements for members of the production teams e.g. runners and/or fund a sustainability champion placement for each UKFC funded production;
    - Funding educational programs such as training workshops and online resources;
    - Working alongside training providers and/or offering funding to training providers to disseminate messages and training throughout industry. There is a clear role for the National Film and Television School, Skillset, Media Training Northwest etc to incorporate environmental training; and,

- Supplying environmental training to all UKFC funded productions.
- The UKFC need to promote a clear understanding and commitment to environmental sustainability in order for individuals and companies within the film industry to contribute towards achieving sound environmental practices. It is important to have clarity of vision and to avoid confusion in message, it is recommended that the UKFC consider:-
  - Developing and maintaining a sustainability portal which brings together all the best and current resources relating to environment sustainability and green filmmaking; and,
  - Producing an environmental sustainability guide which is supplied to all UKFC funded productions.
- The UKFC should consider appointing an Environmental Officer to oversee the development and monitoring of an environmental strategy. The Environmental Officer could also be on hand to advise individuals and organisations on how to reduce their environmental impact.
- It is recommended the UKFC conduct further research into environmental sustainability and the film industry.

**Failure to implement an environmental sustainability strategy both within the UKFC and across the industry as a whole entails a number of risks, such as:-**

- Non-compliance with current and future legislation (see below);
- Increased costs and insurance premiums;
- Reduced funding opportunities, a number of agencies have already experienced pressure from the EU and regional development agencies to account for environmental sustainability in funding applications;
- Reduced/discontinued tax breaks in order to divert extra funds needed for flood defences;
- Contributing to an already degrading environment which will ultimately impact on the future of the film industry; and,
- Lost credibility; as environmental awareness within the industry gathers pace the UKFC should be seen to be ahead of the game. Individuals within the industry are already taking environmental sustainability onboard...
  - Representatives from the Greencode Project are planning for a green filming event at the Sheffield Documentary Festival November 2007
  - Film London are in the process of devising environmental sustainability guidelines for their Filming in London Code of Practice
  - BSI has produced a British Standard for Sustainable Event Management and are exploring the potential of developing a British Standard for the sustainability of the film industry
  - BAFTA is exploring the possibility of developing a Sustainability Charter
  - DCMS have targets that specifically relate to NDPBs, one of which is to nominate high level sustainable development

representatives to act as contact points for each other and the public by end of July 2007.

## **Legislation**

The following pieces of legislation will impact on sectors within the UK Film Industry:-

<b>Provision</b>	<b>Key cost and/or requirement</b>	<b>Date of implementation</b>
Kyoto Protocol	UK target: 12.5% cut in greenhouse gas emissions from 1990 levels by 2012	February 2005
The Climate Change Levy (CCL)	Tax per kilowatt hour (kWh) on the use of energy by businesses and the public sector. The more energy used the more businesses are taxed. Current rates: 0.441p/kWh for electricity and 0.154p/kWh for gas Renewable energy is exempt	April 2001
Carbon Reduction Commitment (CRC)	Mandatory emissions trading to cut carbon emissions from large commercial and public sector organisations by 1.1 MtC / year by 2020. CRC will cover all organisations whose electricity consumption is greater than 6,000MWh/yr, equivalent to an annual electricity bill of ~£500k. All energy other than transport fuels will be covered, (e.g. electricity, gas, fuel and oil).	2008-2009
Draft Climate Change Bill	Legal framework to manage future emissions of CO <sub>2</sub> , to reduce CO <sub>2</sub> emissions 26-32% by 2020 and 60% by 2050 against a 1990 baseline	Spring 2008
Building Regulations Part L 2006	Sets maximum CO <sub>2</sub> emissions for whole buildings. The regulations apply to the construction of new buildings and renovation of existing buildings	April 2006
Renewables Obligation (RO)	Mandatory requirement for UK electricity suppliers to source a growing percentage of electricity from eligible renewable generation capacity; currently 7.9% (2007-08)	April 2002
Renewable Transport Fuel Obligation (RTFO)	Forthcoming mandatory requirement for UK suppliers of transport fuel to ensure that a proportion of the fuel used in vehicles comes from renewable sources.	2008-2009
EU Landfill Directive	Mandatory requirement for the UK to reduce the amount of biodegradable municipal waste being sent to landfill sites:- By 2010 to 75% of that produced in 1995; By 2013 to 50% of that produced in 1995; and, By 2020 to 35% of that produced in 1995.	1999
Landfill Tax	Tax on the disposal of waste which is paid on top of normal landfill fees. There are two rates:- Lower rate - £2 per tonne (increasing to £2.50 from 04/08) for inactive waste such as rocks and soil Standard rate - £24 per tonne (increasing by £8 per tonne each year from 04/08 until at least	1996

Provision	Key cost and/or requirement	Date of implementation
	2010-2011)	
Waste Electrical and Electronic Equipment (WEEE) Regulations 2006	Illegal to send WEEE to landfill, manufacturers legally responsible for sound collection and disposal Aims to promote collection, re-use and recycling of WEEE	July 1st 2007
Hazardous waste (England and Wales) Regulations 2005	'Duty of care' to make sure hazardous waste is disposed of correctly	July 2005
Batteries Directive	Targets for batteries to be recycled	September 2008
Sustainable Procurement Action Plan*	Goal for the UK to be among the EU leaders in sustainable procurement by 2009 and to achieve a low carbon more resource efficient public sector.	March 2007
London's Low Emission Zone (LEZ)	Aim of the LEZ is to improve air quality in London by deterring the most polluting vehicles from being driven in the LEZ. Vehicles which meet specified emission standards can be driven within the Zone without paying a daily charge; vehicles that do not meet the specified emissions standards can be used within the Zone but operators will be subject to a daily charge of £200 for lorries, buses and coaches, and £100 for large vans and minibuses. Failure to pay will incur a £1,000 fine. Vehicles that do not meet the specified emissions standards can be modified to improve its emissions.	4th February 2008

\* Policy specific to Government departments. However, at the discretion of Ministers, the requirement for a Sustainable Procurement Action Plan may apply to NDPBs.

## **Recommendations for a Practical Roll-out of a UKFC Environmental Strategy**

Activity	Short term actions	Medium/ long term actions
In-house environmental sustainability	<ol style="list-style-type: none"> <li>1. UKFC Environmental Policy <b>Signed off and distributed to UKFC staff, RSAs and UKFC funded organisations by September 2007</b></li> <li>2. Appointment of sustainable development representative (as per DCMS) and/or an environmental officer/environmental champion (this could be the same person or a group of people) <b>Responsibility designated by end July 2007</b></li> <li>3. UKFC Office Environmental Audit <b>To be completed before October 2007</b></li> <li>4. UKFC Environmental Management System with set objectives and targets for energy, waste, water and</li> </ol>	Environmental reporting <b>To produce first report January 2009</b>

Activity	Short term actions	Medium/ long term actions
	transport reduction, and sustainable procurement for example <b>Commencement October 2007 for implementation January 2008</b>	
Lead the development of an environmental plan for UK film	<ol style="list-style-type: none"> <li>1. Establish a UK Film Industry Working Group <b>Initiate contact October 2007, aim for first meeting during December 2007</b></li> <li>2. UKFC Vision statement <b>Signed off and distributed to UK film industry and DCMS by February 2008</b></li> <li>3. Draft Environmental Plan <b>Distributed to UK film industry and DCMS by March 2008</b></li> <li>4. UKFC sustainability portal website <b>Ready for launch January 2008</b></li> </ol>	UKFC hosted environmental conference <b>Spring 2008</b>
Partnerships	<ol style="list-style-type: none"> <li>1. Meet with interested bodies to identify research synergies and/or explore research areas <b>Initiate contact November 2007</b></li> </ol>	Develop a research programme <b>Signed off and distributed to UKFC and UK Film Industry Working Group by March 2008</b>
Environmental Awareness	<ol style="list-style-type: none"> <li>1. Liaise with training bodies to develop training courses <b>Initiate contact November 2007</b></li> <li>2. Produce an environmental sustainability guide <b>Signed off and distributed to relevant bodies by January 2008</b></li> </ol>	<ol style="list-style-type: none"> <li>1. Fund training placements <b>From January 2009</b></li> <li>2. Host, or work with other organisations to host, Film Industry Environmental Awards <b>Spring 2009</b></li> </ol>

# CHAPTER 1: THE ENVIRONMENT

## Introduction

Daily reports relating to climate change, energy security, the price of fuel, waste, confusion over what to and what not to recycle, road building, wildlife trade, species extinction, hose pipe bans, weather patterns, poverty etc, cover our newspapers, news and now films and documentaries. The environment is big news, and people are responding.

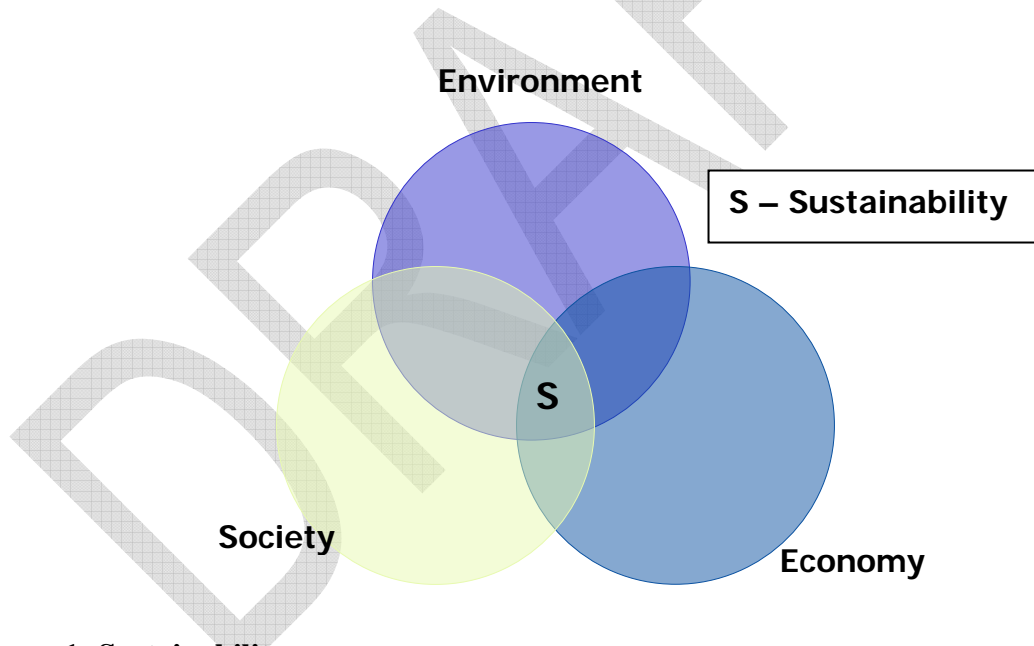
Environmental awareness and policies infiltrate industries throughout the developed and developing world. Until recently businesses have grasped the economics of sustainability, and to some extent social sustainability, yet have neglected environmental sustainability, often 'adding on' environmental measures as an after-thought, or when other business goals and priorities have been achieved. Research suggests business practices are changing. More and more companies are accounting for their environmental impacts, implementing better and more efficient technologies, and adopting environmental management systems and best practices in the workplace (e.g. BBC, News Corporation, SKY, Marks & Spencer, BHP Billiton, Yorkshire Water, the Co-operative Financial Services, Toyota, B&Q, DLA Piper to name a few). Ethical and environment concerns are making their way from government and environmental organisations to the boardroom and heart of business. It is the turn of the film industry to respond to the environmental agenda.

This report provides an introduction to environmental sustainability, what environmental sustainability means for the film industry and introduces strategic recommendations towards an 'Environmental Strategy for UK Film'. Chapter one outlines the relationship between the film industry and the environment, and briefly introduces current environmental concerns which will have an affect on the film industry; Chapter two details environmental legislation, policies and targets, all of which have an impact on the film industry. Throughout Chapter three, current environmental based actions being taken throughout the film industry and best environmental practice within the film industry (nationally and internationally) are detailed. Findings from research conducted, best practices and lessons illustrated in Chapter three are covered throughout Chapter four to illustrate how the UK Film Council (UKFC) and UK Film can approach an 'Environmental Strategy', culminating in recommendations for a practical roll-out of an 'Environmental Strategy for UK Film'.

## Sustainability

Since the beginning of the industrial revolution natural resources have been plundered, habitats destroyed, the land, oceans, air and waterways polluted, species hunted to extinction and the climate changed, all in the name of economic development and the progression of human society. Concern for the environment has steadily gathered pace since the 1960s, when issues relating to the state of the environment prompted the beginning of today's modern day environmental movement. However, it was not until the 1990s that a flurry of environmental alarm, activity and multilateral research raised the environmental agenda once again, leading to global awareness which set businesses, organisations and individuals in line for a plethora of environmental messages, legislation and policies.

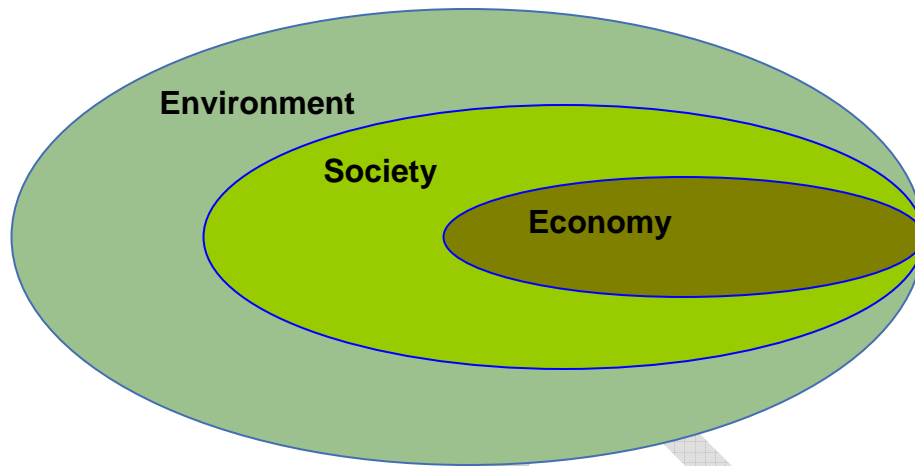
Sustainability is a term often posed as a solution for economic growth which supports conditions for social cohesion and offers some protection to the environment. However, the successful implementation of sustainability involves the combination of economic, social AND environmental factors, as illustrated in Figure 1. However, economic development is often given precedence over the preservation and protection of the environment. Figure 2 introduces an alternative model emphasising the fundamental role the environment plays, exemplifying that a *durable wealth creation process cannot take place in a world of ecological stress*<sup>1</sup>.



**Figure 1: Sustainability**

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<sup>1</sup> O’Riordan, T and Voisey, H. 1998. *The Transition to Sustainability: The Politics of Agenda 21 in Europe*, London, Earthscan.



**Figure 2: Russian Doll Model of Sustainability (O’Riordan and Voisey, 1998)**

What does this mean for the film industry and why should the UK Film Council (UKFC) engage in environmental sustainability? Simply, it is the environment which ultimately sustains the film industry. Currently, the environment is afforded little concern with regards to strategy, policy, awareness and management.

### **The Environment**

The complex interactions of the natural environment:-

- Clean the air;
- Purify water;
- Maintain soils;
- Provide natural resources and raw materials; and,
- Act as a sink to receive wastes into the land, air and waterways.

Figure 3, reproduced from the Millennium Ecosystem Assessment<sup>2</sup>, illustrates the resources and services provided by the natural environment (such as food, water, timber, fuel, flood regulation, climate regulation, cultural heritage, medicines and waste processing). The ability of the natural environment to deliver these resources and services depends on complex biological, chemical, and physical interactions. Unfortunately human activity has affected these interactions and changed the natural environment more rapidly and more extensively over the last 50 years than during any other period, thus affecting the ability of the environment to provide the illustrated resources and services (Figure 3).

The then United Nations Secretary-General Kofi Annan, called for the Millennium Ecosystem Assessment (MA) in 2000. The MA assessed the consequences of ecosystem change for human well-being. From 2001 to 2005, the MA involved the work of more than 1,360 experts worldwide. Their findings provided a state-of-the-art scientific appraisal of the condition and trends in the world’s ecosystems and the services they provide, as well as the scientific basis for action to conserve and use them sustainably.

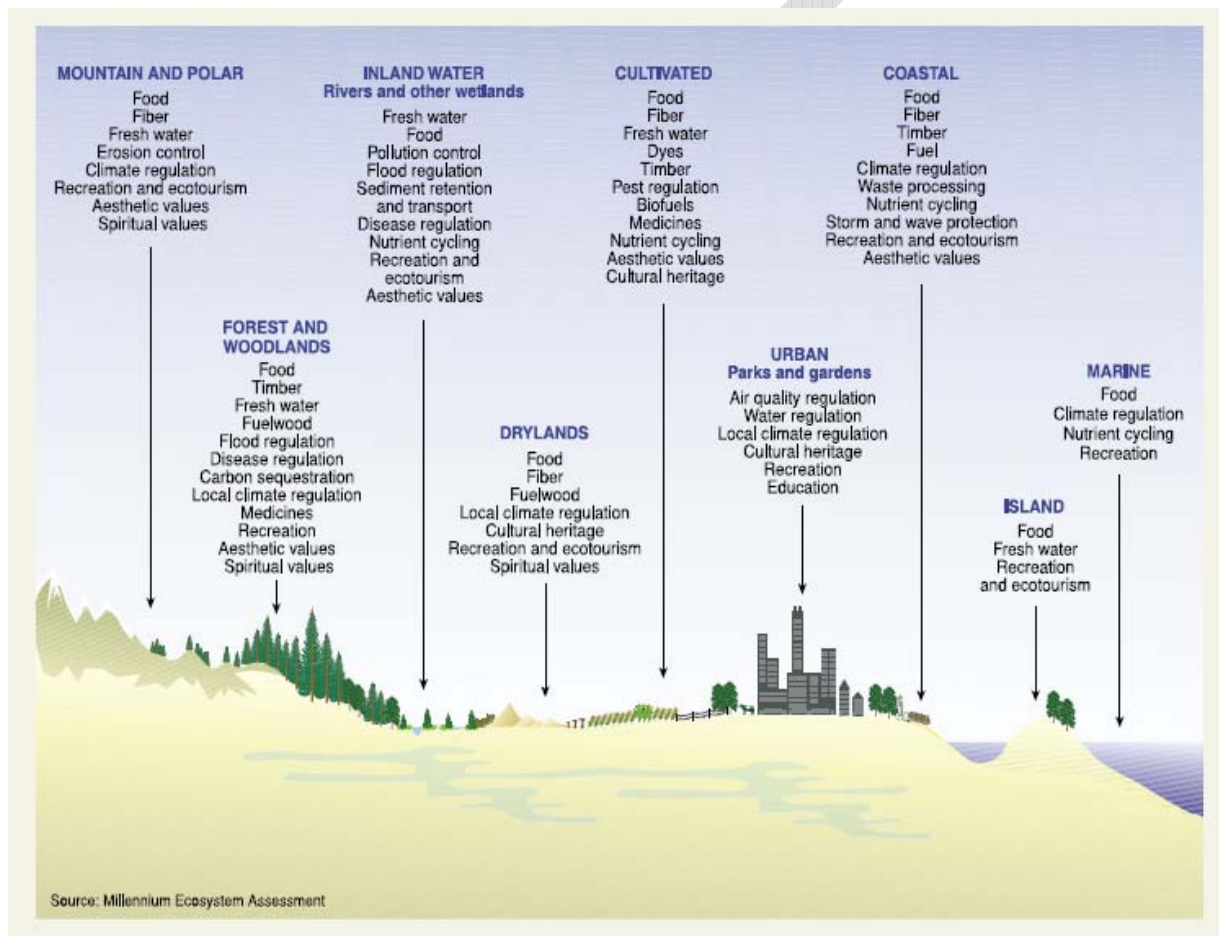
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<sup>2</sup> www.maweb.org

The Millennium Ecosystem Assessment confirmed:-

- The health of the environment is directly linked to human well-being and invariably economic development
- If current trends continue, ecosystem services that are freely available today will cease to be available or become more costly in the near future
- The loss of ecosystem services will influence customer preferences, stockholder expectations, regulatory regimes, governmental policies, employee well-being, and the availability of finance and insurance

All of which will have a direct impact on the sustainability of the film industry.



**Figure 3: Resources and Services Provided by the Environment<sup>3</sup>**

<sup>3</sup> Millennium Ecosystem Assessment. March 2005. Living Beyond Our Means: Natural Assets and Human Well-Being, [www.maweb.org](http://www.maweb.org)

## **The Environment and the Film Industry**

From the moment an initial idea is noted onto a piece of paper right through to the film archiving process the environment provides natural resources (such as water, raw materials and energy for example) to produce goods and services for the film industry, amenities such as landscapes for locations and the means to absorb any waste from any activity associated with the filming, distribution and archiving process (see Table 1 below).

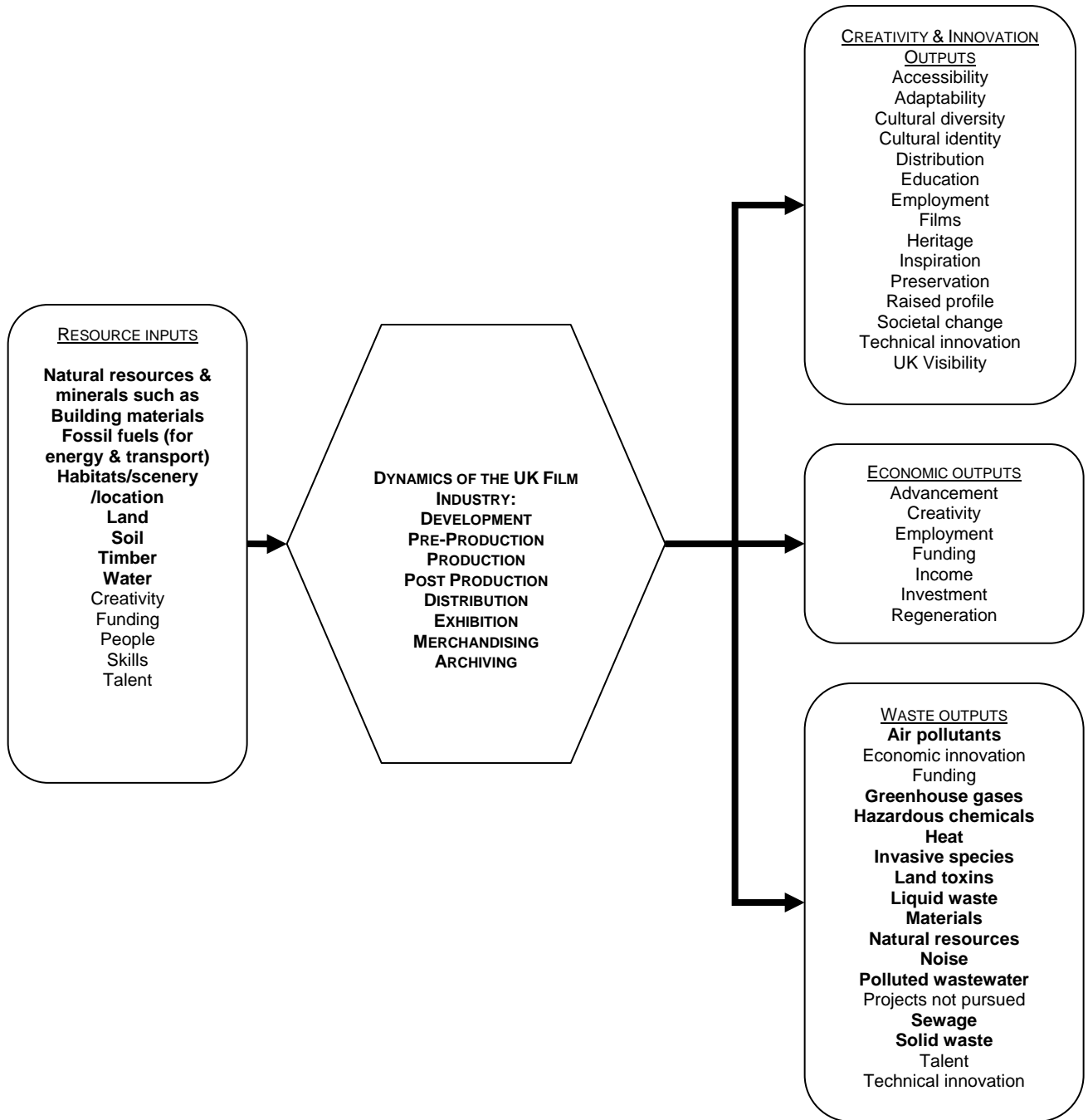
**Table 1: Environment and the Film Industry**

<b>Pre-production</b>	<b>Production</b>
<ul style="list-style-type: none"><li>• Fossil fuels for transport to meetings and castings</li><li>• Wood fibre for paper (scripts, contracts etc)</li><li>• Land to absorb discarded materials such as draft scripts or unsolicited manuscripts</li></ul>	<ul style="list-style-type: none"><li>• Timber for the construction of sets</li><li>• Fossil fuels, water and minerals which make up products such as paint, nails and wire for set design</li><li>• Scenery for locations</li><li>• Raw materials (including oil) used in the production of make-up</li><li>• Fossil fuels to provide electricity for lighting</li><li>• Fossil fuels, water, minerals and other raw materials for special effects</li><li>• Land, water and air to absorb discarded materials such as sets, transport emissions, catering waste, heat and noise</li></ul>
<b>Post-production</b>	<b>Distribution/Exhibition</b>
<ul style="list-style-type: none"><li>• Fossil fuels to provide electricity to run computers and electronic equipment for visual effects and editing</li><li>• Food for the crew</li><li>• Land, water and air to absorb discarded materials such as chemicals, transport emissions, emissions from electricity supply and heat</li></ul>	<ul style="list-style-type: none"><li>• Fossil fuels for transport</li><li>• Fossil fuels, water, minerals and chemicals for developing film</li><li>• Aggregates for cinema buildings</li><li>• Fossil fuels to provide electricity for festivals and cinemas</li><li>• Land, water and air to absorb discarded materials such as packaging, fossil fuel emissions, chemicals and general consumable waste</li></ul>
<b>Merchandise</b>	<b>Archive</b>
<ul style="list-style-type: none"><li>• Fossil fuels, water, minerals and other raw materials to produce DVDs, for example</li><li>• Fossil fuels, water, minerals and other raw materials to produce to produce packaging</li><li>• Land, water and air to absorb discarded materials such as packaging, emissions, chemicals and general consumable waste</li></ul>	<ul style="list-style-type: none"><li>• Fossil fuels, water, minerals and chemicals used for storage and preservation of film</li><li>• Fossil fuels, water, minerals and chemicals which make the computers* for cataloguing</li></ul>

NB: This list is for demonstration only and is not meant to be an exhaustive list

\* For example the manufacture of an average desktop computer and monitor uses more than 10 times its weight in fossil fuels and chemicals; an average 24kg computer and 27cm monitor require at least 240kg of fossil fuels, 22kg of chemicals and 1,500kg of water.

**Figure 4: Model of the Film Industry**  
 Adapted from Cheremisinoff and Abasheyeva (1997)  
*Environmental factors in bold*



Cheremisinoff and Abasheyeva's 1997 'Model of the City'<sup>4</sup> has been adapted to further illustrate the relationship between the environment (in bold) and the film industry (Figure 4). The majority

<sup>4</sup> Cheremisinoff, P.N and Abasheyeva, N.E. 1997. Ecological Issues and Environmental Impacts Assessment p 41 Extended Metabolism Model of Human Settlements. Publisher Butterworth-Heinemann

of the inputs are provided from the services and resources provided by the complex interactions of the natural environment (as illustrated in Figure 3). As previously introduced, human activity has affected these interactions and changed the natural environment thus affecting the ability of the environment to provide resources and services required. A degraded environment will affect the availability of these resources for the future of the film industry; this is something the film industry needs to consider. 'Waste Outputs' (Figure 4) also need to be addressed; resources are discarded as waste and/or inefficiency used, all of which will impact negatively on the environment. As environmental resources and services available today cease to be available they will become more costly in the near future and/or will be subject to environmental legislation, policy and taxation (Chapter 2).

Therefore, it can be shown that the natural environment provides the resources for, and receives all the wastes of, the entire film industry (Figure 4). Thus, the environment directly contributes to the sustainability and prosperity of the film industry.

### **Environmental Concerns: Climate Change**

The climate is changing, the earth is warming up. The otherwise natural process known as the greenhouse effect, is being altered by human activities increasing concentrations of greenhouse gases in the atmosphere (see Appendix 1), resulting in global warming which is causing a change in the Earth's climate 'Climate Change' (Figure 5). The terms climate change and global warming are often used interchangeably: 'Climate Change refers to the variation in the Earth's global climate; 'Global Warming' is the increase in the average temperature of the Earth.

Atmospheric concentrations of carbon dioxide are at their highest for at least 650,000 years. The current stock of greenhouse gases in the atmosphere is equivalent to around 430ppm (parts per million) of CO<sub>2</sub>, compared with only 280ppm pre-industrial revolution. During the last ice age CO<sub>2</sub> levels were 190ppm. Human induced CO<sub>2</sub> increase is largely due to burning fossil fuels (coal, oil, gas) for fuel and deforestation<sup>5</sup>. Methane (CH<sub>4</sub>) is another greenhouse gas, this has increased more than CO<sub>2</sub> levels; pre-industrial levels were 715 parts per billion (ppb), today levels are 1074ppb. There are a number of factors for this increase such as gases from landfill sites and methane produced by cattle.

Increased concentrations of greenhouse gases have already caused the world to warm by 0.74°C during the last century, leading to at least a further half degree of warming over the next few decades. If annual global emissions were to remain at today's levels, greenhouse gases in the atmosphere would double pre-industrial levels by 2050 to ~ 550ppm; at this level, there is a high probability of a global average temperature rise exceeding 2°C. Alarmingly global emissions of greenhouse gases will accelerate from levels recorded today. Failing to take the right action now risks major disruption to economic, social and environmental systems. The most recent report from the Intergovernmental Panel on Climate Change (IPCC) predicts that climate change will bring severe consequences, including increased risk of inland flash floods, more frequent coastal flooding and increased erosion (due to storminess and sea-level rise),<sup>6</sup> higher sea-levels, rising temperatures, extreme weather events such as heat-waves, floods and droughts.

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<sup>5</sup> [http://ipcc-wg1.ucar.edu/wg1/Report/AR4WG1\\_Pub\\_SPM-v2.pdf](http://ipcc-wg1.ucar.edu/wg1/Report/AR4WG1_Pub_SPM-v2.pdf)

<sup>6</sup> <http://www.ipcc.ch/SPM13apr07.pdf>

## **Impacts of Climate Change: Flooding**

Major floods usually happen on average every 100 years, with climate change this may now happen every 10 or 20 years. By 2020, most areas of Europe are likely to see an increased flood risk;<sup>7</sup> by the 2080s up to 100 million people worldwide could be at risk of flooding. Much of southern Britain is sinking, increasing the risk of flooding and coastal erosion, particularly in the south and east of England (Figure 6). The higher the mean sea level the worse storms and erosion will be.

Five million people in England and Wales are at risk from flooding every year. Two million homes have been built in the natural floodplain of rivers or the coast which are vulnerable to flooding; the total financial cost of all of the property, land and assets in these areas has been put at a value of £214 billion. Insurance companies are faced with increasing bills and will therefore either put up their premiums enormously, cut the level of cover they offer, or in some cases refuse to ensure homes in high risk areas.

Major landmarks, tourism destinations and industrial areas within and around London are found in areas which are very vulnerable to increasing flood risk, such as the business and finance areas in Canary Wharf. Fortunately, the Thames Barrier can still protect vulnerable areas. Between New Years' Day and 8 January 2003 the Thames barrier was closed 14 times (double the previous record of seven consecutive closures during the floods of October 2000). However, heavy rain can result in severe, but localised flooding, which the Thames Barrier cannot prevent. London's Victorian sewage system can be easily overloaded in heavy rain; properties can be flooded and large amounts of raw sewage released into water bodies. During August 2004 heavy rainfall in London led to pollution killing thousands of fish, sewage debris, a foul smell along the foreshore of the tidal Thames and significantly increased E. coli levels in the river.

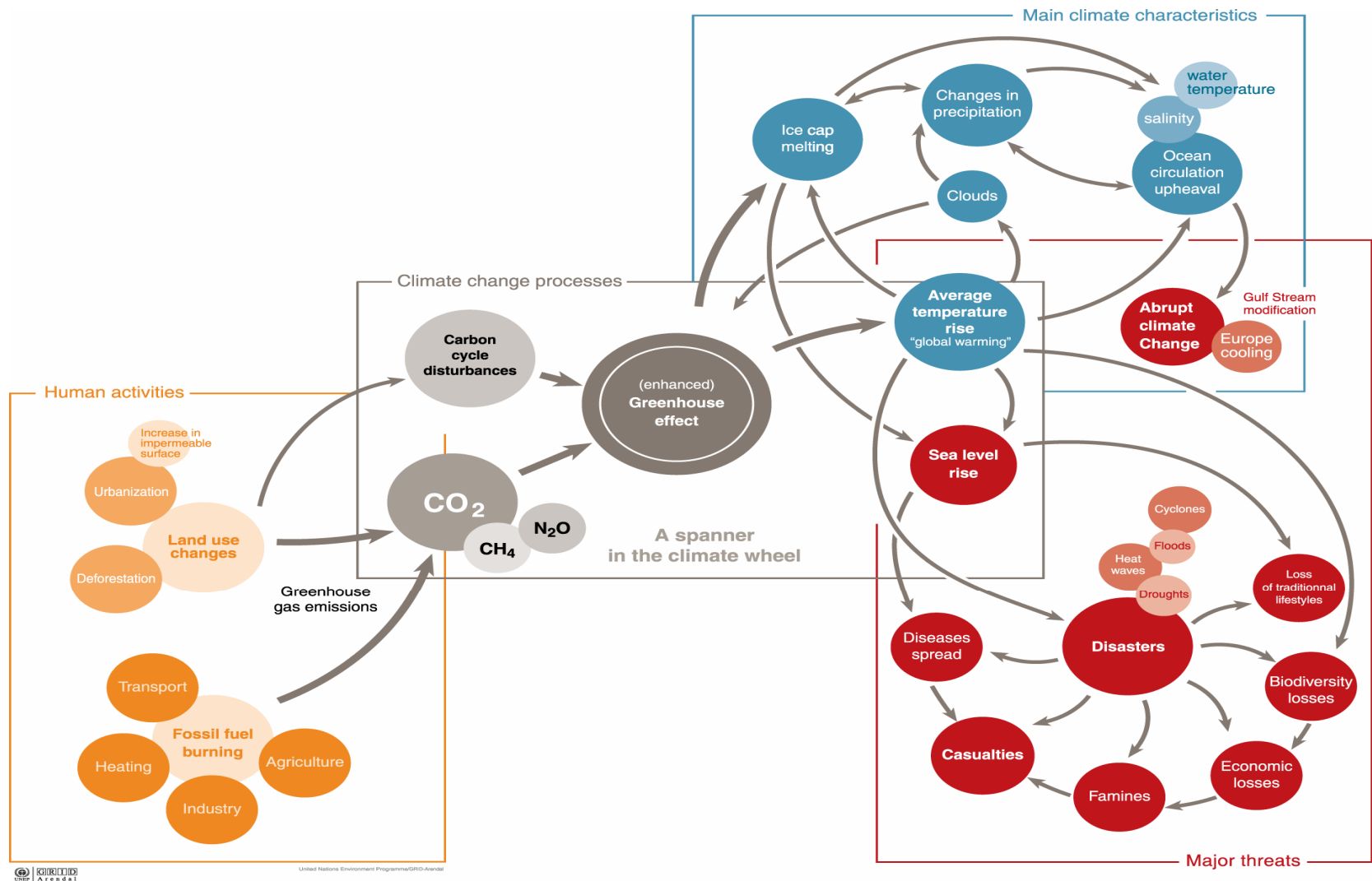
## **Impacts of Climate Change: Sea Level Rise**

A significant sea level rise is one of the major anticipated consequences of climate change. As temperatures rise the sea absorbs heat from the atmosphere causing it to expand, thus creating sea level rises, and land glaciers will continue to melt over the coming century which will further increase sea levels. Although there is still uncertainty and scientific disagreement as to how much sea levels will rise, it is generally accepted that they will rise. Estimates range from 9cms to over 1 metre. Figure 7 illustrates what London will look like after a metre sea level rise.

A rise of a metre or more would be disastrous for major coastal cities, greatly increasing the risk of devastating storm surges, displacing millions of people from their homes, losing thousands of km<sup>2</sup> of land use and causing millions of pounds of damage, all which will severely affect the economy (Table 2). Even a small increase in sea level will increase the risk of serious flooding in the Thames Estuary, which could cause the withdrawal of insurance cover and the collapse of the property market. Consider the loss of land area directly relating to UK film, such as the BFI on the Southbank, plus the associated urban disruptions and the impact this would have on the industry (Figures 6 and 7).

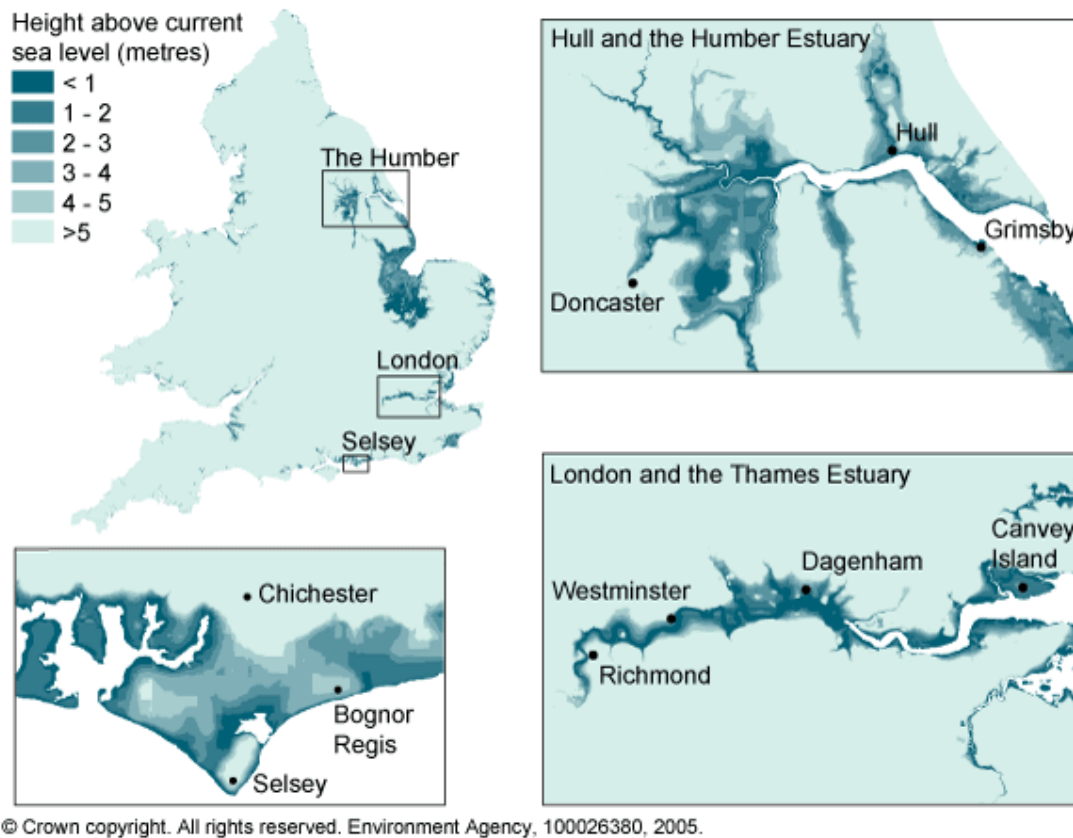
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<sup>7</sup> Europe has already experienced severe floods. August 2004, Boscastle Cornwall, saw 8 inches of rain fall in 24 hours, approx 2 million tonnes (440 million gallons) of water; July 2005, Romania, flooding causing damages 25,000 properties, estimated €650 million damage.



**Figure 5: Human Activities, the Climate Change Process, Characteristics and Threats**

Source: [http://maps.grida.no/go/graphic/climate\\_change\\_processes\\_characteristics\\_and\\_threats](http://maps.grida.no/go/graphic/climate_change_processes_characteristics_and_threats)

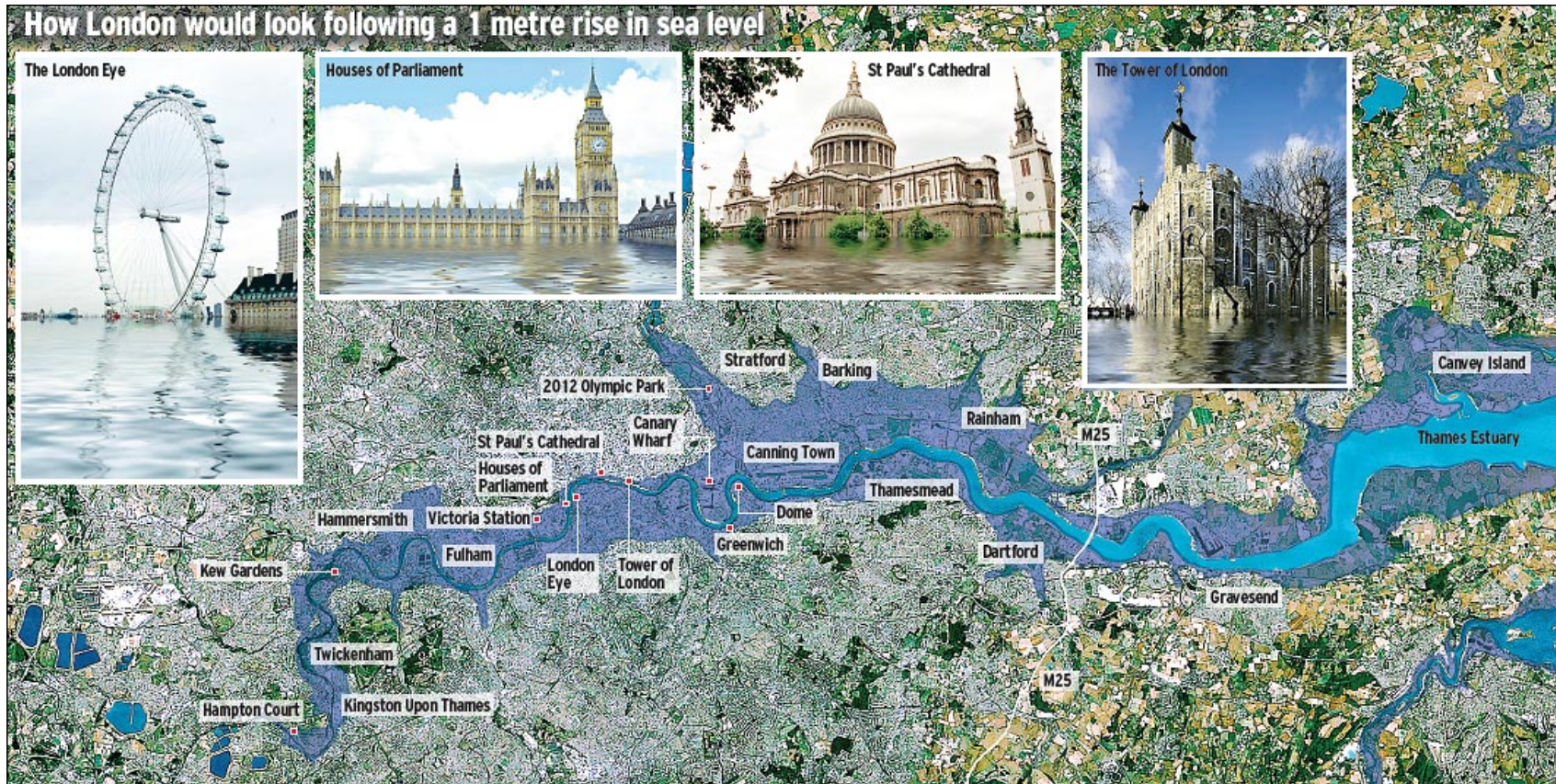


**Figure 6: Low lying land in England and Wales**

Source: [http://www.environment-agency.gov.uk/commondata/103196/157609?referrer=/yourenv/eff/1190084/natural\\_forces/flooding/](http://www.environment-agency.gov.uk/commondata/103196/157609?referrer=/yourenv/eff/1190084/natural_forces/flooding/)

Although the Thames Barrier protects the 150km<sup>2</sup> of London that lies below the high tide level, the Environment Agency has estimated £4 billion is needed to prevent the Thames flooding, due to predicted sea level rise.

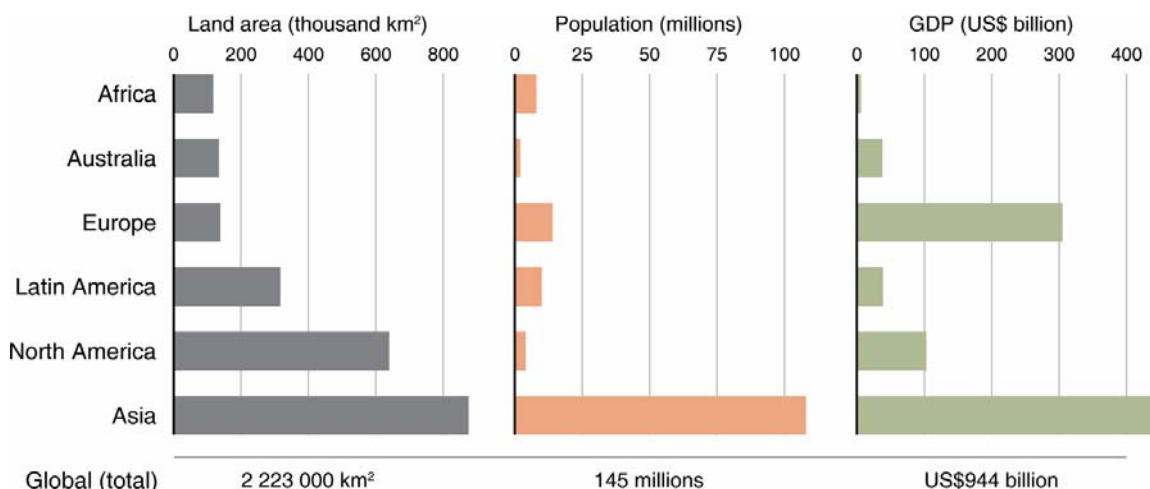
Many low lying countries and islands are already experiencing the impacts of climate change. Residents on Tuvalu (a small Pacific island), for example, are experiencing damage to their homes and drinking water, islanders have already started to leave. This scenario is sure to replicate across the many low lying areas of the world, prompting fears of mass migration (Table 2); in Bangladesh, for example, a 1.5m sea-level rise would lead to displacement of 17% of the population.



**Figure 7: London-on-Sea**

Source: London-on-Sea: the future of a city in decay Roger Highfield, 2006

[www.telegraph.co.uk/news/main.jhtml?xml=/news/2006/12/27/nlondon27.xml](http://www.telegraph.co.uk/news/main.jhtml?xml=/news/2006/12/27/nlondon27.xml)



**Table 2: Population, Land Area and Economy Affected for a 1m Sea Level Rise**

Source: <http://maps.grida.no/go/graphic/population-area-and-economy-affected-by-a-1-m-sea-level-rise-global-and-regional-estimates-based-on-today-s-situation>

### Impacts of Climate Change: Extreme weather

Evidence exists to suggest increased freak weather events are due to climate change. Where extreme weather events become more intense and/or more frequent, the economic and social costs of those events will increase, and these increases will be substantial in the areas most directly affected. The IPCC's latest report predicted more intense tropical cyclones (typhoons and hurricanes), changes in wind, rain, and the frequency of storms. For example, hurricanes have grown in number and intensity by around 30% over the last decade. Hurricane Katrina, August 2005, killed hundreds of people and caused up to \$30 billion in damages.

### Impacts of Climate Change: Fresh water resources

Water is a resource that is already in short supply, especially in the South East. Water availability per person in England and Wales is already below that of most Mediterranean countries; in South East England water availability is less than that in Syria or Sudan. With demographic changes and the impacts of climate change increasingly being felt, the situation could become even more serious. The drought experienced in the South East during 2006 could become more frequent or alarmingly, an annual event. For example, even though autumn and winter 2006 were the wettest since 1914, the threat of water shortages this summer (2007) may seem unlikely, yet the temperature during April 2007 was a record high, and may yet result in water shortages throughout the summer.

In the course of the century, water supplies stored in glaciers and snow cover are projected to decline, reducing water availability in regions supplied by meltwater from major mountain ranges, where more than one-sixth of the world population currently lives. It is estimated between 75 and 250 million people in Africa could face increased pressure on water resources as early as the 2020s, while rain-fed agriculture could have yields reduced by 50% in some countries. Appendix 2 lists additional impacts of climate change.



## The Economics of Climate Change

The Stern Review<sup>8</sup>, released in October 2006, investigated the economics of climate change, highlighting the economic pressures of a degraded environment. The Stern Review called for investment to combat, and action to reduce, climate change, which, if left unabated will affect the basic elements of life i.e. access to water, food production, health and the environment as well as rising water levels and altered weather patterns.

The Stern Review concluded, if we do not act now the overall costs and risks of climate change will be equivalent to losing **at least** 5% minimum global GDP each year for the foreseen long-term and could possibly rise to 25% global GDP, however costs of action (i.e. reducing greenhouse gas emissions) can be limited to around 1% global GDP each year if the investment takes place in the next 10-20 years.

The Stern Review highlights:-

- Climate change as the greatest and widest ranging market failure ever seen
- A 5-6°C warming risks abrupt and large-scale climate change which will equate to an average 5-10% loss in global GDP, with poor countries suffering costs in excess of 10% global GDP
- The annual cost of stabilising greenhouse gases in the atmosphere at between 450 and 550ppm of CO<sub>2</sub> is estimated to be around 1% of GDP in 2050.
- The costs of mitigating climate change within the next 10-20 years, though significant, are manageable for the world's economy
- Each tonne of CO<sub>2</sub> emitted causes damages worth \$85
- A low carbon path could benefit the economy by ~\$2.5 trillion
- A CO<sub>2</sub> level limit of 450-550ppm anything higher will produce very harmful impacts

**Climate change is with us, and will have an impact on many major aspects of working life.**

**Implications for business:** Climate change impacts spread from directly impacted areas and sectors to other areas and sectors through extensive and complex linkages<sup>9</sup>, therefore everyone will suffer the consequences.

The UK faces the costs of dealing with the impacts of climate change through storm damage, the loss of valuable low-lying land, implementing protection measures like coastal defences, the loss in value of assets, increased insurance costs, massive urban re-organisation as populations in London and other low-lying areas are forced to relocate, diversion of resources to build flood defences and costs of managing accelerating immigration as populations are forced from their homes. Additionally, consumers could face higher and more volatile energy prices, international relationships with both consuming and producing nations on a wide range of issues may become more complex (if energy supply is used as a political lever) and the UK will be more vulnerable to the risk and impact of overseas disruptions to energy supplies in future, caused by international disputes, accidents or terrorism.

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<sup>8</sup> [www.sternreview.org.uk](http://www.sternreview.org.uk) was based on evidence from the IPCC Third Assessment Report

<sup>9</sup> <http://www.ipcc.ch/>



Flooding, sea level rise, extreme weather events, water availability and the relocation of urban populations for example, will have a severe impact on the whole of the film industry, from land availability and loss of locations for filming, resource scarcity, restrictions on the freedom of movement, increased hostilities from the flurry of environmental refugees, damage to business<sup>10</sup> and rising insurance premiums. Moreover, as the cost of flood defences escalate, through maintenance and upgrading existing flood defences and building new flood defences, there is a risk that funding resources and film tax incentives may be redirected to compensate for the ever expanding flood defence budget and depleting public purse. In fact, one could deduce that the true scale of the impacts of climate change could cause the eventual collapse of the film industry if climate change is not tackled on a global scale (not just within the film industry). Therefore, the film industry by taking a stance to combat climate change could use its power of communication to increase awareness on a global scale.

### **Environmental Concerns: Natural Resource Use**

Natural resources are naturally occurring substances; they can be renewable and non-renewable. The UK Government groups natural resources in five overlapping ways<sup>11</sup>: -

1. Raw materials such as minerals and biomass: Minerals (fossil fuels, metal ores, gypsum and clay) are classed as non-renewable because they cannot be replenished within a human timescale. Biomass is renewable within the human timeframe and includes agricultural crops and slowly renewable resources like timber.<sup>12</sup>
2. Environmental media such as air, water and soil: Resources which sustain life and support biological resources.
3. Flow resources such as wind, geothermal, tidal and solar energy: Resources which cannot be depleted, but require other resources to exploit them. For example, energy, materials and space are needed to build wind turbines or solar cells.
4. Space: Land for wildlife, rivers and natural processes for them to function healthily, and land for cities, towns, infrastructure, industry and agriculture.
5. Biological resources: Plants, animals and other organisms maintain the life-sustaining systems of the earth. Biodiversity (variety of life on earth) is also a resource and includes the diversity within species, between species and of ecosystems.

If renewable resources are consumed at a rate that exceeds their natural rate of replacement the resource will diminish and eventually run out, however, if they are used sustainably they can, to a certain extent, be used indefinitely. Non-renewable resources exist in a fixed amount and cannot be remade, regrown or regenerated, therefore cannot be used indefinitely.

Pressures on the availability and use of natural resources are increasing. During the past 50 years the human population has increased from two to seven billion people. With the soar in population, economic development and increased consumption humans are using 20% more natural resources each year than can be regenerated. Resource use is often inefficient, both in production and consumption; approximately 80% of products are discarded after a single use.

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<sup>10</sup> Zurich insurance conducted a study during 2006 and found 30,000 small to medium businesses suffered from floods at a cost of £86 million

<sup>11</sup> <http://www.sustainable-development.gov.uk/key/whatare-natural.htm>

<sup>12</sup> Although UK forest cover is increasing due to reforestation and sustainable management of woodlands, over 45% of the Earth's original forest cover has been lost mostly during the last century.



Renewable and non-renewable resources are rapidly being exhausted (non-renewable resources such as fossil fuels are diminishing rapidly), and our use and disposal of resources (especially non-renewable resources) is radically altering the environment. The extraction and use of resources, uses energy (thus contributing to climate change), destroys habitats, and creates pollution and waste. During 2005 the quantity of natural resources used by the UK economy was 686 million tonnes.

Europe's demand on the planet has risen by almost 70% since 1961. A 2005 report 'Europe 2005: The Ecological Footprint'<sup>13</sup> launched at the European Parliament in Brussels demonstrated that the European Union uses 20% of the world's natural resources, even though it is home to only 7% of the world population. The report calculated the Ecological Footprint of Europe. An Ecological Footprint measures natural resource consumption, and equates it to a corresponding representation of land area (necessary to sustain current levels of resource consumption and waste discharge) in hectares. The global Ecological Footprint is just 1.8 global hectares<sup>14</sup> per person; the 2005 European report calculated a European footprint of 4.9 global hectares per person. The Europe continent can only supply 2.2 global hectares per person; therefore Europeans rely on the rest of the world to make up this increasing deficit. Europe's Ecological Footprint represents an area more than twice the size of Europe.

A 2006 World Wildlife Fund (WWF) report 'Counting Consumption'<sup>15</sup> calculated the total Ecological Footprint per person in the UK to be 5.4 global hectares. If the footprint was to be distributed evenly among the global population, three more planets would be required to support current lifestyles.

The highest footprint of all devolved administrations and English regions was the South East, at 6.3 global hectares per person, the lowest Wales, at 5.2 global hectares per person. The study suggests, the South East had a higher recorded Ecological Footprint due to:-

- Higher income, which means greater access to resources, particularly noticeable in more purchases of furniture, personal effects and household appliances;
- High travel demand dominated by low-occupancy, high-polluting vehicles;
- Long-distance exotic holidays more than once a year;
- Large and often old inefficient homes with low occupancy compared with their size;
- Heavy reliance on the service sector for eating out, recreational and cultural activities;
- Large gardens that need maintenance and treatment; and,
- More short weekend breaks in the UK.

Current levels of resource use are only possible for a limited period; if current rates of consumption and development continue the Earth's natural resources will be depleted.

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13 [http://www.footprintnetwork.org/gfn\\_sub.php?content=europe2005](http://www.footprintnetwork.org/gfn_sub.php?content=europe2005)

14 Area equivalent to a normal hectare but adjusted for average global productivity

15 <http://www.wwf.org.uk/filelibrary/pdf/countingconsumption.pdf>



## Resource Use: Fossil Fuels

The world's fuel and energy is largely supplied by fossil fuels such as oil, gas and coal, all of which are non-renewable resources that are rapidly diminishing.

The International Energy Agency's (IEA) "business as usual" forecast for global energy use between 2004 and 2030 includes:

- Fossil fuels will remain the dominant source of energy worldwide, meeting 83% of the increase in energy demand;
- Emissions from power generation will account for 44% of global energy-related emissions by 2030, as demand for electricity rises;
- Coal will provide the largest incremental source of power generation, with the majority of this increase likely to be in China (55%);
- Over 70% of the increase in global primary energy demand will come from developing countries, reflecting rapid economic and population growth;
- Global primary energy demand will rise by 53%, leading to a 55% increase in global carbon dioxide emissions related to energy; and,
- Some \$20 trillion of investment will be needed throughout the energy supply chain.

Oil: World demand for oil has grown faster in the past five years than in the second half of the 1990s. During 2002, 79 million barrels of oil were consumed per day; today 85 million barrels are consumed, estimates suggest this will rise to 113 million barrels a day by 2030. Most of the world's oil reserves are found in the Middle East. Proven oil and gas reserves are equivalent to around 41 and 65 years at current production levels respectively<sup>16</sup>.

However, the Independent reported in June 2007 that oil will run out faster than expected, with the global production of oil set to peak in the next four years<sup>17</sup>. After a peak, oil production will enter a steep decline. As oil decreases, costs increase. A 10-15% reduction in oil supply causes significant price increases which could severely affect industrial economies. In the 1970s, a reduction of 5% caused a price increase of more than 400%. If consumption begins to exceed production by even the smallest amount, the price of oil may reach \$100 a barrel, which, it is thought would be followed by a global recession<sup>18</sup>.

Crude oil is a mixture of many chemical compounds of carbon and hydrogen (hydrocarbons); the different hydrocarbons are separated in an oil refinery. Hydrocarbons are a major source of energy and are a raw material (or form the oil-based substances) for many products<sup>19</sup> (Table 3). Nearly everything in our lives is made from oil, either made by machinery and systems dependent on oil or transported by oil as either gas or fuel.

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<sup>16</sup> <http://www.worldcoal.org/pages/content/index.asp?PageID=188>

<sup>17</sup> Britain's oil reserves peaked during 1999

<sup>18</sup> [http://news.independent.co.uk/sci\\_tech/article2656034.ece](http://news.independent.co.uk/sci_tech/article2656034.ece)

<sup>19</sup> The construction of a single car in the US requires, on average, at least 20 barrels of oil.



**Table 3: Selection of Products made from Oil**

Anesthetics	Antihistamines	Ballpoint pens
Cameras	Carpets	Clothing
Cosmetics	Credit Cards	Deodorant
Electrical Wiring Insulation	Fertilizers	Fishing Line
Food Preservatives	Glue	Hair Dye
Heart Valves	Ink	Insect Repellant
Metal Production	Nail Polish	Painkillers
Pesticides	Petroleum Jelly	Plastics*
Renewable energy equipment**	Rubber	Shampoo
Shoes	Vitamin Capsules	Water Pipes

\* used in everything from computers and mobile phones to pipelines

\*\* requires large amounts of oil to produce

Other fossil fuels such as coal and natural gas are also running out. Coal estimates suggest there are 909 billion tonnes of proven coal reserves worldwide which should last approximately 155 years<sup>20</sup>. Coal provides 25% of global primary energy needs and generates 40% of the world's electricity. The use of coal contributes to global warming and acid rain. Natural gas, the natural gas fields in Siberia, Alaska and the Middle East should last 20 years longer than the world's oil reserves but, although cleaner than oil, natural gas is still a fossil fuel that emits pollutants, it is also expensive to extract and transport as it has to be liquefied.

**Implications for business:** There is only a finite amount of natural resources available at any one given time; the value rests in the amount of the material available and the demand for the certain material, which ultimately impacts on availability and costs of resources and goods.

As resources diminish, the film industry will see increased costs of fuel and goods, increased costs to dispose of waste, stringent legislation (of which non-compliance will result in fines and even imprisonment) scarcity of goods and restrictions on freedom of movement (from the threat of terrorism and/or wars over resources – which have been predicted to increase as resource scarcity increases).

<sup>20</sup> <http://www.worldcoal.org/pages/content/index.asp?PageID=188>



## CHAPTER TWO: DRIVERS FOR CHANGE

Governments, industry, organisations and individuals worldwide have responded to current environmental crisis and concerns through increased environmental awareness, guidance, campaigns, legislation, polices and taxation – all to drive forward positive change.

### The European Union

The EU is the major driving force behind the UK's environmental legislation. Since the 1970s, the EU has put into place a network of measures to protect the environment. These measures have led to improvements in the quality of air and water, for example. However, much more remains to be done as pressures on the environment increase; therefore, the EU puts the environment at the heart of all decision-making from transport to energy, industry to farming.

The EU's Environment Action Programme<sup>21</sup> is a long-term strategic action programme which places environmental policy at the centre of the business agenda, emphasising the importance of enforcing existing environmental laws and taking environmental implications into account when setting all other EU policies. The EU Sixth Environment Action Programme focuses on four areas where more action is needed and strong action is proposed:-

- Tackling climate change;
- Protecting nature and wildlife;
- Addressing environment and health issues; and,
- Preserving natural resources and managing waste.

All of which are of relevance to this report. The EU Sixth Environment Action Programme sets out objectives for the next 10 years and beyond: “...*finding ways of improving our quality of life without causing harm to the environment, future generations or the people of both the rich and developing world*”

The role of business is highlighted “*We particularly need to encourage business to go further, on a voluntary basis and through legislation. Increased attention to environmental measures will improve efficiency and productivity.*”

The EU will:-

- Put the environment at the heart of policy-making;
- Name, shame and fame the success and failure of different national governments – ultimately forcing Governments to act and implement EU environmental legislation;
- Encourage businesses to achieve ‘Green growth’ through incentives, reward those companies that improve environmental performance and penalise those that do not;
- Hold those who cause damage to the environment responsible for their actions;
- Start environmental performance reward schemes for companies; and,
- Investigate taxes and other incentives to boost the purchase of greener products.

Whatever comes from the EU will eventually find its way to the heart of UK Government polices and legislation, and ultimately to all UK businesses.

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<sup>21</sup> <http://ec.europa.eu/environment/newprg/index.htm>



## The UK Government

The UK Government's goal for sustainable development is to enable all people throughout the world to satisfy their basic needs and enjoy a better quality of life, without compromising the quality of life of future generations. The UK Government approach this in an integrated way *...through a sustainable, innovative and productive economy that delivers high levels of employment; and a just society that promotes social inclusion, sustainable communities and personal wellbeing. This will be done in ways that protect and enhance the physical and natural environment, and use resources and energy as efficiently as possible.* The latter part (in bold), is of direct relevance to this report.

The UK Government launched its new strategy for sustainable development 'Securing the Future' during March 2005 as a new integrated vision building on the previous 1999 strategy. The 2005 strategy has been developed with more explicit focus on environmental limits, societal dimensions and with a stronger international perspective. The 2005 strategy has five principles and four agreed priorities for immediate action. The five principles are:-

1. **Living within Environmental Limits:** Respecting the limits of the planet's environment, resources and biodiversity – to improve our environment and ensure that the natural resources needed for life are unimpaired and remain so for future generations.
2. **Ensuring a Strong, Healthy and Just Society:** Meeting the diverse needs of all people in existing and future communities, promoting personal wellbeing, social cohesion and inclusion, and creating equal opportunity for all.
3. **Achieving a Sustainable Economy:** Building a strong, stable and sustainable economy which provides prosperity and opportunities for all, and in which environmental and social costs fall on those who impose them (polluter pays), and efficient resource use is incentivised.
4. **Using Sound Science Responsibly:** Ensuring policy is developed and implemented on the basis of strong scientific evidence, whilst taking into account scientific uncertainty (through the precautionary principle) as well as public attitudes and values.
5. **Promoting Good Governance:** Actively promoting effective, participative systems of governance in all levels of society – engaging people's creativity, energy, and diversity.

The four agreed priorities for immediate action are:-

1. **Sustainable consumption and production:** Achieving more with less – looking at how goods and services are produced, the impacts of products and materials across their whole lifecycle and reducing the inefficient use of resources.
2. **Climate change:** Securing change in the way energy is generated and used, securing a profound change in activities that release greenhouse gases into the atmosphere, preparing for climate change and setting a good example (encouraging others to follow).
3. **Natural resource protection:** Formulating better understanding of environmental limits, environmental enhancement and recovery; ensuring a decent environment for everyone and formulating a more integrated framework.
4. **Sustainable communities:** Creating sustainable communities that embody the principles of sustainable development at the local level, giving communities more power and say in the decisions that affect them and working in partnership at the right level to get things done.



The majority of Government policies will stem from the aforementioned principles and priority areas.

Although all of the UK Government principles and priorities are relevant to any UKFC sustainability strategy, principles 1 and 3, and priorities 1-3 are more specific to environmental sustainability within the film industry, hence the proposed UKFC Environment Strategy.

One of the commitments in the UK Government sustainable development strategy was for all government departments and their executive agencies to produce a Sustainable Development (SD) Action Plan by December 2005. The DCMS has its own sustainable development action plan<sup>22</sup> covering the period April 2007 to March 2010. The sustainable development action plan sets targets for the DCMS and its NDPBs. The plan will be reviewed in the spring of 2008.

The DCMS's primary focus<sup>23</sup> for 2007-08 is climate change and its possible effects on its responsible sectors. The DCMS also has three high level Sustainable Development Action Plan priorities:

1. To carry out a review of the contribution of the cultural and heritage sector to combat climate change (in order to develop policy and measure progress, including a measurement of DCMS HQ + NDPB HQ carbon footprint), resulting in an academic literature review on the effects of climate change on DCMS sectors and a report on their carbon footprint.
2. To lead the efforts of a key group of NDPBs to make the most of their significant potential to influence public responses to sustainable development issues, in particular climate change, resulting in a high level conference for all NDPBs to define a combined and separate approach to sustainable development, and an invitation to each NDPB head to sign a declaration of action on climate change, which the DCMS will support and follow up.
3. To ensure that current policy development is consistent with wider government sustainable development priorities.

The Sustainable Operations in Government Report (for 2006-07) will be published later this year and will contain information relating to the DCMS's environmental performance in waste, energy and water use. The DCMS states in its sustainable development strategy that *'it is highly likely that NDPBs will be required to provide similar information within the next three years'*.

The following DCMS sustainable development action plan targets specifically relate to NDPBs include:-

- Target 2
  - Invite CEOs of NDPBs to make a joint declaration of action on climate change: Signed declaration from each sector (with DCMS to follow-up and support action) by February 2008
- Target 4
  - All NDPBs to be encouraged to produce plans that demonstrate their contribution to sustainable development principles: a) Plans available for each NDPB, either

<sup>22</sup> [http://www.culture.gov.uk/NR/rdonlyres/F9BA45DE-9E00-49AA-A7A5-7D06D65AC828/0/DCMS\\_SDActionPlan\\_07.pdf](http://www.culture.gov.uk/NR/rdonlyres/F9BA45DE-9E00-49AA-A7A5-7D06D65AC828/0/DCMS_SDActionPlan_07.pdf)

<sup>23</sup> alongside the other three Government agreed priority areas sustainable consumption and production, natural resource protection and sustainable communities



internally or externally b) Dedicated area of DCMS website displaying examples and guidance c) DCMS to hold instructive workshop(s) to guide production of plans/statements on sustainable development actions by end of 4th qtr Y2007/2008

- Target 7
  - DCMS to carry out its own carbon footprinting exercise and (initially) for larger NDPBs as the starting point of a process to reduce the carbon emissions created
    - a) Report and benchmark b) Toolkit for calculating carbon emissions rolled out to all NDPBs by end of 3rd qtr 2007-2008
- Target 8
  - All NDPBs to nominate high level sustainable development representatives to act as contact points for each other and the public by end of July 2007
- Target 9
  - A review of NDPBs current primary activity to mitigate and/or adapt to the effect of climate change on their business (including their work to influence the public) by end of 3rd qtr 2007-2008
- Target 12
  - DCMS to offer guidance and support to NDPBs to institute collection mechanisms to capture operational data in line with Sustainable Operations in Government report, DCMS to hold workshop(s) for NDPBs to identify key needs/challenges by end of 4th qtr 2008-2009

The Department for Environment Food and Rural Affairs (defra) core purpose is to champion sustainable development as the way forward for Government. Defra has responsibility for issues such as climate change, sustainable energy issues, sustainable consumption and production, sustainable procurement, waste, planning and biodiversity. Defra's sustainable development action plan is titled 'Jump straight in,'<sup>24</sup> and has five strategic priorities:-

1. **Climate Change and Energy:** Reduced greenhouse gas emissions, adaptation to climate change, every home adequately and affordably heated, risk from flooding managed and clean air.
2. **Sustainable Consumption and Production:** Economic growth decoupled from environmental degradation and waste managed sustainably.
3. **Protecting Natural Resources and Environmental Enhancement:** Natural environment protected and enhanced, improved access to the natural environment, good water quality and a good water environment, and improved local environment conditions.
4. **Sustainable Rural Communities:** Vibrant rural enterprise and fair access to services.
5. **Sustainable Farming and Food:** Sustainable farming and food industries, CAP reform, Improved animal health and welfare.

Defra's priority sustainable operations actions for 2006 include:-

- **Travel:** Publication of a revised defra travel strategy will focus on reducing business road miles and carbon emissions. Defra will expand their existing carbon offset scheme for air travel to rail travel and road travel.
- **Waste:** Reduction of packaging waste on goods supplied to defra; defra will develop best practice clauses on reducing supplier packaging and take-back of re-usable packaging as

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<sup>24</sup> <http://www.defra.gov.uk/environment/sustainable/pdf/sd-action-plan.pdf>



- appropriate to goods supplied, this will be incorporated into new and renewed supply contracts. Defra will also use their influence to incorporate packaging clauses in pan-government contracts.
- **Water:** Where practical Defra will develop water saving projects at all Defra sites such as reusing rain water for non-potable purposes.
  - **Energy:** Through Defra's agreed Carbon Management Programme with the Carbon Trust, Defra will undertake a full review of energy management of the estate and institute a range of invest to save measures to realise carbon savings into the future. This partnership is being viewed as a pilot for other Government departments.
  - **Procurement:** Defra will ensure that sustainable development principles are embedded in pan-Government call-off contracts for goods and services – the first of which will be the Pan-Government Travel Contract.

On 12th June 2006, the Government set a series of sustainable operations targets<sup>25</sup> for the Government office estate, including a pledge to go carbon neutral by 2012 and to reduce carbon emissions by 30 per cent by 2020. The sustainable operations targets apply to all central Government Departments and their Executive Agencies, including buildings and land managed. They also apply to NDPBs on a case-by-case basis at the discretion of ministers.

## **European Union and UK Government: Legislation, Taxation & Targets**

Legislation, taxation and targets have many issues for business and will impact the film industry through economic instruments and regulation. EU and UK environmental legislation is increasing annually. This alone will be incentive for the UKFC and UK film industry and to implement environmental strategies.

As outlined in Chapter one, the impacts of climate change will be severe. As a result climate change is at the heart of EU and UK legislation, and is now becoming a core part of business strategies across the globe. With the rising UK CO<sub>2</sub> emissions, and EU and UK targets additional measures, legislation and incentives may lead to increased energy costs and more stringent measures.

EU leaders agreed a binding target to reduce greenhouse gas emissions by 20% from 1990 levels by the year 2020 at a climate change summit in Brussels during March 2007. It is thought the EU could offer to extend its 20% target for emissions cuts to 30% if other heavy polluters like the US, China and India come on board. The EU also has a binding target for 20% of the EU's energy to be from renewables by 2020. The current share of renewables in the UK's total energy mix is around 2% and for the EU as a whole around 6%.

**The Kyoto Protocol:** The Kyoto Protocol entered into force on 16 February 2005 and binds 35 nations to limit or reduce their greenhouse gas emissions in a first phase until 2012. The UK target is a 12.5% cut from 1990 levels by 2012. The targets cover emissions of the six main greenhouse gases (Appendix 1).

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<sup>25</sup> <http://www.sustainable-development.gov.uk/publications/pdf/Targets.pdf>



**The Climate Change Programme:** The Climate Change Programme<sup>26</sup> is the UK's key strategy for combating climate change, and sets out the policies and measures which the UK will implement to cut its emissions of greenhouse gases. The Climate Change Programme is designed to deliver the UK's Kyoto Protocol target of reducing emissions of greenhouse gases (12.5% over the commitment period 2008-2012), and to move the UK close to the domestic goal to reduce CO<sub>2</sub> emissions by 20% below 1990 levels by 2010. It also aims to put the UK on a path to cutting carbon dioxide emissions by some 60% by about 2050, with real progress by 2020.

Climate Change Programme framework for action:-

- **Economic instruments:** Climate Change Levy (CCL), for energy-intensive industries, the Climate Change Agreements (CCA) and Emissions Trading Schemes (ETS), enhanced capital allowances for energy-saving technologies and grant schemes;
- **Technology deployment:** Carbon Trust will deliver an integrated programme of support to accelerate the take up of low carbon technologies and other energy saving measures;
- **Regulation:** In England and Wales, e.g. implementation of the Integrated Pollution Prevention and Control (IPPC) EC Directive which requires major industrial plants to take up best available techniques to control pollution from industrial activities<sup>27</sup>, and tightening the energy efficiency requirements of the Building Regulations in England and Wales and the Building Standards (Scotland) Regulations;
- **Measures to make the market work better:** Helping business to respond to market pressures with advice and information; improving the energy efficiency of consumer products and other equipment; and supporting benchmarking; and,
- **Improving public and company information:** Making it easier for business to measure their emissions and set public targets for improvement by establishing clear guidelines for companies reporting on greenhouse gas emissions.

**The Climate Change Levy (CCL):** The CCL, which came into effect on 1st April 2001, is a tax per kilowatt hour (kWh) on the use of energy by businesses and the public sector; renewable energy is exempt. The aim of the levy is to improve energy efficiency and reduce emissions of greenhouse gases. The CCL is expected to lead to reductions in carbon dioxide emissions of at least 2.5 million tonnes of carbon a year by 2010.

Businesses and the public sector pay the levy through energy bills, the more energy used the more businesses are taxed. The current rates (June 2007) are:

- 0.441p/kWh pence per kilowatt-hour for electricity
- 0.154p/kWh pence per kilowatt-hour for gas

The CCL is expected to increase in line with inflation at the next budget.

Companies using/purchasing renewable energy are exempt from the climate change levy and will therefore see cost savings. The table below details a large office block housing 1250 employees; by switching to green electricity (green tariff) significant savings can be made (Table 4).

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<sup>26</sup> <http://www.defra.gov.uk/environment/climatechange/uk/ukccp/pdf/ukccp06-all.pdf>

<sup>27</sup> Only applicable to certain industrial activities such as energy, mineral and chemical industries, waste management and paper manufacturing for example



**Table 4: Climate Change Levy**

	Day rate (p/kWh)	Daytime consumption (kWh)	Night rate (p/kWh)	Night time consumption (kWh)	Annual cost
Original tariff	5.24	2,219,000	1.75	364,000	£122,670
Original tariff after climate change levy	5.67	2,219,000	2.18	364,000	£133,740
Green tariff	5.50	2,219,000	1.83	364,000	£128,660
<i>Saving using green tariff</i>					<i>£5,080</i>

NB: At the time of publishing, Good Energy is the only energy supplier who use 100% renewable energy.

**Carbon Reduction Commitment:** The Carbon Reduction Commitment (CRC) is a new scheme, announced in the Energy White Paper 2007, which will apply mandatory emissions trading to cut carbon emissions from large commercial and public sector organisations by 1.1 MtC / year by 2020. The CRC will target up to 5,000 large organisations (whose emissions are currently not included in the EU Emissions Trading Scheme (ETS) or Climate Change Agreements). This scheme will include supermarket chains, hotel chains, office-based corporations, government departments and large local authorities for example. The CRC will cover all organisations whose electricity consumption is greater than 6,000MWh/yr, equivalent to an annual electricity bill of ~£500k. During a planned introductory phase (~2009), all allowances will be sold at a fixed price. From 2013, allowances will be allocated through auctions with a diminishing number of credits available over time. At the end of each year, company performance will be summarised in league tables outlining the best and worse performers in terms of carbon emissions and reduction.

The Government launched a 15 week “Consultation on the implementation of the Carbon Reduction Commitment” during June 2007.

**Draft Climate Change Bill:** The draft Climate Change Bill was open for consultation during 2007; the closing date for comments was 12 June 2007. The Government aim to introduce the final Bill to Parliament during autumn 2007, with a target date for Royal Assent Spring 2008.

The draft Climate Change Bill provides a legal framework in which to manage future emissions of CO<sub>2</sub>, provide greater clarity and to invest in delivering the changes needed to move to a low carbon economy.

The draft Climate Change Bill will:-

- Put into statute the UK's targets to reduce CO<sub>2</sub> emissions through domestic and international action by 60% by 2050 and 26-32% by 2020, against a 1990 baseline;
- Make provisions for five-year carbon budgets, which will require the Government to set, in secondary legislation, binding limits on CO<sub>2</sub> emissions during five year budget periods, beginning with the period 2008-12. Three successive carbon budgets (representing 15 years) will always be in legislation;
- Allow emission reductions purchased overseas to be counted towards UK targets (consistent with the UK’s international obligations);
- Recognise the potential for investing in low carbon technologies abroad as well as action within the UK to reduce the UK’s overall carbon footprint;



- Enable powers to introduce new trading schemes through secondary legislation. This increases the policy options which Government could use to stay within budgets and meet emissions targets.

**Building Regulations Part L 2006:** Building Regulations 2000 were revised in order to meet the requirements of the EU Directive on the energy performance of buildings (EU EPBD). Revisions to Part L set maximum CO<sub>2</sub> emissions for whole buildings. The regulations apply to the construction of new buildings and renovation of existing buildings (with a total surface area over 1,000m<sup>2</sup>). For new buildings, it is anticipated that Part L will reduce carbon emissions by 25% from 2002 standards which already reduced emissions by 15%.

**Renewables Obligation (RO):** RO's encourage new renewables generation in the UK through a mandatory requirement for UK electricity suppliers to source a growing percentage of electricity from eligible renewable generation capacity. Currently 2007-08 RO is 7.9 per cent (2.8 per cent in Northern Ireland), which will increase to 15% by 2015. Thus increasing the availability of renewable energy for consumers, and incentivising organisations/companies to produce renewable energy. The RO may also stimulate the market in renewable energy technology by increasing availability, reducing costs and improving technology.

**Renewable Transport Fuel Obligation (RTFO):** During 2008-2009, the UK Government will introduce the Renewable Transport Fuel Obligation (RTFO) which will require suppliers of transport fuel to ensure that a proportion of the fuel used in vehicles comes from renewable sources. By 2010-11 this proportion is expected to be 5%, once cost, standards and sustainability concerns are addressed the Government intends to go beyond this 5% level. Like the RO above, the RTFO may increase the availability of renewable fuel for consumers, stimulate the sustainable production of renewable fuels, increase availability, reduce costs, and, improve and increase the accessibility of technology.

**EU Landfill Directive:** The EU Landfill Directive requires member states to cut the amount of biodegradable municipal waste being sent to landfill sites:-

- By 2010 to 75% of that produced in 1995;
- By 2013 to 50% of that produced in 1995; and,
- By 2020 to 35% of that produced in 1995.

The Directive's overall aim is "to prevent or reduce as far as possible negative effects on the environment, in particular the pollution of surface water, groundwater, soil and air, and on the global environment, including the greenhouse effect, as well as any resulting risk to human health, from the landfilling of waste, during the whole life-cycle of the landfill".

The EU Landfill Directive will require the UK to significantly reduce the amount of waste it landfills over the coming decade. England is lagging behind much of Europe; during 2006 the UK produced 375 million tons of waste (90% from commercial and industrial activities). Government is in the process of setting higher recycling targets for businesses and local councils. If this is to be achieved, all sections of society, including business, will have to reduce the amounts of waste they produce.

**Landfill Tax:** Landfill tax is a tax on the disposal of waste, and is paid on top of normal landfill fees by businesses and local authorities that want to dispose of waste using a landfill site. The tax is designed to encourage businesses to produce less waste, recover more value from waste, for



example through recycling or composting, and to use more environmentally friendly methods of waste disposal. Landfill Tax applies to all waste:-

- Disposed of by way of landfill
- At a licensed landfill site
- Unless the waste is specifically exempt

There are two rates of tax: the lower rate which is currently £2 per tonne (increasing to £2.50 per tonne from April 2008) for inactive waste such as rocks and soil, and the standard rate which is currently £24 per tonne (increasing by £8 per tonne each year from April 2008 until at least 2010/11).

By reducing the amount of waste sent to landfill, companies within the film industry could see significant cost savings.

**Waste Electronic and Electrical Equipment (WEEE):** WEEE stands for Waste Electrical and Electronic Equipment. The EU's Waste Electrical and Electronic Equipment Directive was transposed into the UK Waste Electrical and Electronic Equipment Regulations (WEEE Regulations) during December 2006, from 1<sup>st</sup> July 2007 it is illegal to send WEEE to landfill.

WEEE is the fastest growing waste stream in the UK. The WEEE Regulations aim to reduce the amount of this waste going to landfill, and increase recovery and recycling rates. Currently 30% of all electrical waste can be recycled and reused, under this EU Directive the UK is expected to recycle up to 315,700 tonnes of electrical and electronic waste per year. Previously there has been no incentive for companies producing electrical and electronic equipment (EEE) to care about the life cycle of their products, however the WEEE Regulations have been designed to make manufacturers pay for the waste produced by their products, which it is hoped will provide incentives to design EEE in an environmentally, more efficient way.

The WEEE Regulations apply to manufacturers and retailers of EEE, local authorities, businesses and other non-household users of electrical and electronic equipment. Businesses that use EEE (electrical and electronic equipment) must store, collect, treat, recycle and dispose of WEEE separately from other waste. Disposal of EEE is free to businesses if the EEE was sold after 13<sup>th</sup> August 2005 and if the EEE is being replaced with new equivalent equipment. However, businesses will have to finance the costs of treatment, recovery and environmentally sound disposal for all EEE purchased before 13<sup>th</sup> August 2005 which is discarded and not replaced on a one-to-one like-for-like purchase (of new EEE).

Therefore, businesses within the UK film industry who discard old EEE (electrical and electronic equipment) which was purchased before 13 August 2005, and are not replacing it with equivalent EEE will have to pay for the costs of treatment, recovery and environmentally sound disposal. Considering the amount of EEE used in the film industry, this Regulation has the capacity to significantly impact on the industry, with non-compliance resulting in prosecution.

**Hazardous Waste Regulations:** Any business producing hazardous waste has a 'duty of care' to make sure it is disposed of properly. The Regulations define what hazardous waste is; require producers of hazardous waste to notify the Environment Agency of their premises (with some exceptions); ensure safe management of hazardous wastes; provide cradle-to-grave documentation for the movement of hazardous waste; and, require people who receive hazardous waste to keep thorough records and provide the Environment Agency with quarterly returns.



**Batteries Directive:** The Batteries Directive was published on 26 September 2006. The UK and all other Member States have a deadline of 26 September 2008 to transpose the provisions into national law. When the Directive is transposed in the UK, the Directive seeks to improve the environmental performance of batteries and accumulators, reduce the quantity of hazardous and non hazardous waste batteries going to landfill and increase the recovery of the materials they contain.

This Directive will set targets for a collection rate for waste portable household batteries and prohibition of final disposal of automotive and industrial batteries into landfill and incineration, therefore requiring all industrial and automotive batteries to be recycled, and establish collection schemes for the return of used portable batteries which are to be free of charge to the end user.

## **UK Government**

By the end of 2007 the UK Government will have released the Energy White Paper, Low Carbon Transport Innovation Strategy, Waste Strategy, Water Framework and Sustainable Procurement Action Plan<sup>28</sup>; all implementing notions of environmental sustainability, and all having a direct or indirect impact on the film industry (through, for example, increased targets, regulation and incentives).

### **UK Government Energy White Paper**

Even with current publicity, implementation of policies and measures to reduce greenhouse gases and increase energy efficiency, provisional figures have found the UK's carbon emissions rose by 1.25% last year<sup>29</sup>. During early 2007, the then, Environment Secretary David Miliband stressed that there is a need for increased action on climate change.

The UK produced total greenhouse emissions equivalent to 658.10 MtCO<sub>2</sub> (million tonnes of CO<sub>2</sub>) during 2006, down 15% from 1990 figures (775.20 MtCO<sub>2</sub>). However, CO<sub>2</sub> rose from 544.2 MtCO<sub>2</sub> in 2005 to 560.6 MtCO<sub>2</sub> in 2006. Energy use by business is the largest source of CO<sub>2</sub> emissions in the UK; the overall CO<sub>2</sub> emissions from the UK business sector are around 220 MtCO<sub>2</sub> p/a. Around 50 MtCO<sub>2</sub> of these emissions come from small businesses. Reducing energy consumption is vital to reducing CO<sub>2</sub> emissions. The Department of Trade and Industry see *the challenge facing the world is to meet rising energy demand, to support economic growth while moving towards a low carbon economy*.

It is estimated that the UK will need around 30-35GW of new electricity generation capacity over the next two decades and around two thirds of this capacity by 2020. Many of the UK coal and nuclear power stations are set to close even though energy demand will continue to grow due to expanding economy. The UK Government Energy White Paper concludes the delivery of energy security and an accelerated transition to a low carbon economy will require:-

- Urgent and ambitious action at home and abroad;
- Energy saving measures;
- The development of cleaner energy supplies; and,
- Securing reliable energy supplies at prices set in competitive markets.

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<sup>28</sup> the White Planning Paper will also be released during 2007

<sup>29</sup> Reports suggest the main reason was a move from gas to coal for electricity generation.



Key elements of the Energy White Paper are to:-

- Establish an international framework to tackle climate change;
- Provide legally binding carbon targets for the whole UK economy, progressively reducing emissions;
- Encourage more energy saving through better information, incentives and regulation, in order to take steps to reduce emissions and our energy dependence; and,
- Provide more support for low carbon technologies.

The UK Government hope that the measures outlined in the Energy White Paper will deliver:-

- Annual savings of between 23 and 33 million tonnes of carbon (MtC) in 2020;
- Progress towards the 2020 target range of a 26-32% reduction in carbon emissions on 1990 levels set out in the draft Climate Change Bill;
- Electricity consumption up to 15% lower in 2020;
- Gas consumption up to 13% lower than it would otherwise have been;
- Improved energy efficiency of the UK economy by around 10% by 2020; and,
- An additional 4% to electricity prices and 3% to gas prices by 2020 (however, measures to improve energy efficiency should help reduce energy bills).

In addition:-

- Large non-energy intensive UK public and private sector organisations (e.g. hotel chains, supermarkets, central Government large Local Authorities) account for around 10% of the UK's emissions. The Energy White Paper details the Carbon Reduction Commitment, (CRC) a mandatory cap and trade emissions scheme, to the largest non-energy intensive UK public and private sector organisations. The Government hope to introduce half hourly metered electricity consumption to organisations using more than 6,000MWh per year. The Government are currently consulting on how a mandatory cap and trade emissions scheme can be implemented.
- The Government are also consulting on a requirement for energy suppliers to extend advanced and smart metering services to all business users in Great Britain within the next 5 years (this will not apply to small business users, nor to larger businesses with half hourly meters). Advanced metering will provide half-hourly data, accurate and regular consumption data to consumers, allowing closer management of utility use.
- All business premises will have to have an Energy Performance Certificate when they are built, sold, or rented out. Energy Performance Certificate will detail a buildings energy ratings plus steps to improve energy performance.
- By 2012 the central Government office estate will be carbon neutral. The UK Government will bring forward plans for funding energy efficient public sector buildings, and energy efficient procurement of new public sector cars and energy using products. Large public sector organisations will be required to reduce emissions by participating in the Carbon Reduction Commitment scheme. Buildings greater than 1,000m<sup>2</sup> occupied by public authorities and by institutions providing publicly funded services to large numbers of people will be required to display a Certificate showing the energy rating of the building and the steps that can be taken to improve its energy performance. From 2008 energy efficiency standards for all new products and services that the Government procures will be set.



The Energy White Paper is sure to impact on the film industry, either through incentives to reduce energy use, increased costs or stringent regulation.

**Enhanced Capital Allowance Scheme (ECA):** Businesses can claim a tax allowance of 100% of the cost of specified plant and machinery in the year that they buy them<sup>30</sup>. Designated types of equipment are:-

- Energy-saving plant and machinery;
- Low carbon-dioxide emission cars;
- Natural gas and hydrogen refuelling infrastructure; and,
- Water conservation plant and machinery.

The ECA is an integral part of the Climate Change Levy programme that has been introduced to help the UK reduce its CO<sub>2</sub> emissions under the Kyoto Protocol, and move towards its domestic target of a 20% reduction in carbon emissions.

The ECA scheme is open to all businesses that pay UK Corporation or Income Tax, regardless of size, sector or location. If a business is a tenant within a building the ECA will be applicable to the Landlord. Where tenants are trying to encourage their landlords to implement environmental technologies, the ECA could prove to be a useful negotiating tool.

Large companies within the film industry could invest in the specified equipment which would help to lower CO<sub>2</sub> emissions, reduce energy and water use, whilst receiving a tax allowance. However, Enhanced Capital Allowances (ECAs) can only be claimed on technologies and products that meet the relevant criteria for example energy-saving products as detailed on the Energy Technology Criteria List (ETCL)<sup>31</sup>. The fourteen groups currently on the ETCL are:-

Air-to-air energy recovery	Heating ventilation and air conditioning zone controls
Automatic monitoring and targeting (AMT)	Lighting
Boiler equipment	Motors and drives
Combined heat and power (CHP)	Pipework insulation
Compact heat exchangers	Refrigeration equipment
Compressed air equipment	Solar thermal systems
Heat pumps for space heating	Warm air and radiant heaters

See [www.eca-water.gov.uk](http://www.eca-water.gov.uk) for water conservation criteria such as low flush toilets and automatic shut off taps, and [www.hmrc.gov.uk/capital\\_allowances/cars.htm](http://www.hmrc.gov.uk/capital_allowances/cars.htm) for cars with low carbon dioxide emissions, and natural gas and hydrogen refueling equipment criteria such as electric cars, and a gas refuelling station on company premises to refuel lorries.

**Carbon Offsetting:** All central government official and ministerial air travel is offset by purchasing credits that meet strict international standards in terms of the certification and monitoring of emission reductions. The projects used are all located in developing countries, are small-scale and involve renewable energy and/or energy efficiency. The Government is also

<sup>30</sup> [http://www.hmrc.gov.uk/capital\\_allowances/eca-guidance.htm](http://www.hmrc.gov.uk/capital_allowances/eca-guidance.htm)

<sup>31</sup> <http://www.eca.gov.uk/etl/>



looking at the role carbon offsetting might play in the commitment for the Government office estate to go carbon neutral by 2012. There are a number of Carbon Offsetting companies who operate bad practices, therefore the UK Government is in the process of developing a Code of Best Practice for the provision of carbon offsetting to UK customers (in operation) from autumn 2007. The Code is set to ensure consumer confidence in this emerging market and continued growth of that market through that confidence.

**Low Carbon Transport Innovation Strategy (LCTIS):** The LCTIS sets out an overall framework through which the Government aims to encourage innovation and technology development in lower carbon transport technologies.

**London's Low Emission Zone (LEZ)<sup>32</sup>:** The LEZ comes into force on 4th February 2008 and will operate 24 hours a day, 7 days a week, every day of the year. The aim of the LEZ is to improve air quality in London by deterring the most polluting vehicles from being driven in the LEZ.

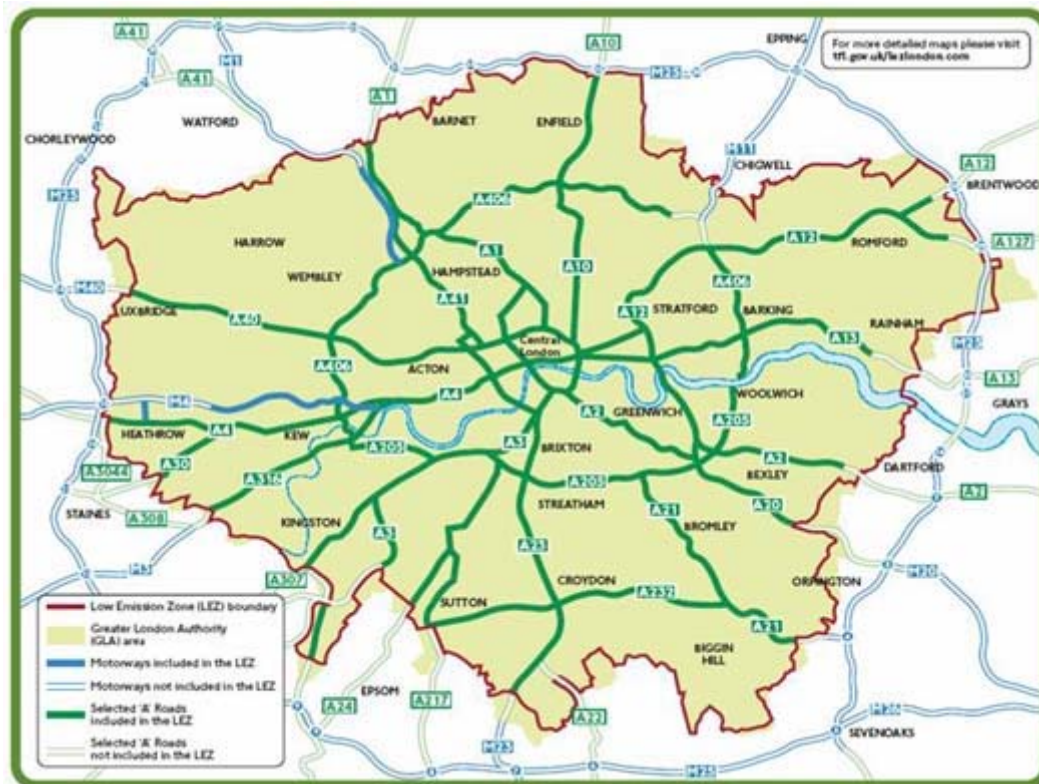
Vehicles must meet specified European Emission Standards. Trucks (including specialist vehicles over 12 tonnes), will need to meet standards from 4<sup>th</sup> February 2008, commercial vehicles, motor homes and other specialist vehicles over 3.5 tonnes from 7 July 2008. From October 2010, vans over 1.2 tonnes will also be affected. Vehicles affected will be older diesel-engined lorries, buses, coaches, large vans, minibuses and other heavy vehicles (e.g. motor caravans and motorised horse boxes).

Vehicles that meet the required emissions standards for the LEZ can be driven within the Zone without paying a daily charge; vehicles that do not meet the specified emissions standards can be used within the Zone but operators will be subject to a substantial daily charge. If the daily charge is not paid operators will be liable for a penalty charge; the daily charge is currently set at £200 for lorries, buses and coaches, and £100 for large vans and minibuses. Failure to pay will incur a £1,000 fine. Alternatively, vehicles that do not meet the specified emissions standards can be modified to improve its emissions.

The LEZ covers most of Greater London following the Greater London Authority boundary (Figure 8). All roads, including certain motorways within the LEZ boundary are included within the Zone. The M25 motorway is not included in the LEZ. Studios such as 3 Mills Studios and Ealing, for example, are within the LEZ; any trucks, buses and commercial vehicles used on location which do not meet the specified standards will be subject to a daily charge and fine of the charge is not paid.

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<sup>32</sup> <http://www.tfl.gov.uk/roadusers/lez/default.aspx>



**Figure 8: Low Emission Zone Boundary**<sup>33</sup>

## Water Strategy

A new water strategy will be published during 2007 and will place climate change at the heart of the strategy; by saving water, energy savings can also be made. To supply every thousand cubic metres of water approximately 500KWh of energy is used; to dispose of wastewater approximately 400KWh of energy is used, in total 400kg of CO<sub>2</sub> is emitted. Water is often needlessly wasted through lack of awareness, inefficiency and poor management. Offices across the UK are needlessly wasting 310 millions of litres of water every single working day. The large film studios will use a significant amount of water, film companies could stand to save money through efficiency measures or face higher costs.

## Waste

The cost of waste is not simply that of discarded materials (such as waste management costs and Landfill Tax) but includes inefficient use of raw materials, energy and water, waste disposal, waste treatment and wasted labour. The actual cost of such waste for UK companies is typically 4-5% of turnover, and in many companies can be as high as 10%. Consider the amount of resources used throughout the production of a film, if the above figure of 4-5% turnover is applied to the industry there are great cost savings to be made.

<sup>33</sup> A map allowing you to zoom in on any part of the Zone, including the boundary will be available by the end of July





- This is a significant increase on the targets in the previous waste strategy, published in 2000.
- A greater responsibility on businesses for the environmental impact of their products and operations through, for example, a drive to minimise packaging and higher targets for recycling packaging.
  - A strong emphasis on waste prevention with householders reducing their waste (for example, through home composting and reducing food waste) and business helping consumers, for example, with less packaging. There will also be a new national target to reduce the amount of household waste not re-used, recycled or composted from 22.2 million tonnes in 2000 to 12.2 million tonnes by 2020 – a reduction of 45%.
  - Working with retailers for the end of free single use bags. This could involve retailers only selling long-life bags, or retailers charging for disposable bags and using the proceeds to sell long-life bags at a discount.
  - A challenge to see recycling extended from the home and office and taken into public areas like shopping malls, train stations and cinema multiplexes, so that it becomes a natural part of everyday life.
  - Increasing the amount of energy produced by a variety of energy from waste schemes, using waste that can't be reused or recycled. It is expected that from 2020 a quarter of municipal waste - waste collected by local authorities, mainly from households - will produce energy, compared to 10% today.
  - For its own estates, the Government proposes a 25% reduction in waste by 2020 and 75% of waste recycled by 2020 and will use its considerable buying power to stimulate the market for recycled products.

The waste strategy will offer businesses incentives and guidance to implement waste reduction measures and use recycled materials. To help deliver this, the Government is working with owners of public spaces (such as cinemas, shopping malls and event venues) to draw up guidance and a voluntary code of practice to be published by the end of the year. With 73% of cinema screens found in multiplex cinemas this could have major implications for the amount of waste generated at cinemas and encourage more recycling.

Groups including the Airport Operators Association, British Council of Shopping Centres, Earls Court and Olympia Group, Highways Agency and the Local Government Association have already come out in support of this. In particular, the Royal Parks has committed to putting recycling bins in all its parks within the next 12 months and the Association of Event Venues says its members plan to install recycling bins for waste brought in by audiences at major events.

## **Sustainable Procurement Action Plan**

In March 2007 the UK Government published its Sustainable Procurement Action Plan<sup>35</sup> with the goal for the UK to be among the European Union (EU) leaders in sustainable procurement by 2009 and to achieve a low carbon more resource efficient public sector.

The UK Government will achieve this through policies, performance frameworks, procurement practice and working with the supply-chain to provide the technologies and solutions that will be

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<sup>35</sup> <http://www.sustainable-development.gov.uk/publications/pdf/SustainableProcurementActionPlan.pdf>



needed. Measures will directly influence approximately £60 billion of the £150 billion public sector expenditure, delivering about 1 million tonnes of CO<sub>2</sub> savings by 2020.

The UK Government will judge success by progress in the following areas:-

- By 2020, the Government office estate would have reduced its emissions by around 180,000 tonnes of CO<sub>2</sub>;
- Save around 75,000 tonnes of CO<sub>2</sub> by 2010/11 from road vehicles;
- Achieving a carbon neutral office estate by 2012 through offsetting between 475,000 and 550,000 tonnes of CO<sub>2</sub> per annum;
- By 2009, around 100,000 tonnes of CO<sub>2</sub> per year will be offset through the air travel offsetting scheme (to which all Departments have signed up);
- By 2020, the Government would increase its energy efficiency by around 100kWh per square metre and save around £1 million (based on net present value);
- By 2020, the Government estate would reduce its total waste arising by 30,000 tonnes and recycle around 65,000 tonnes of waste;
- A total of 220 Sites of Special Scientific Interest (SSSI) on the Government estate would be in target condition by 2010; and,
- By 2020, the Government estate would have reduced its office water consumption by around 65,000 cubic metres.

Air freighted food, mainly fresh fruit and vegetables, account for 0.1 per cent of the UK's total food miles and generates 13 per cent of total food transport CO<sub>2</sub> emissions. Responsible and local purchasing reduces CO<sub>2</sub> and stimulates the local economy.

Currently, it is at the discretion of ministers if the Sustainable Procurement Action Plan will apply to NDPBs or not. This may change in the future with sustainable procurement potentially becoming mandatory for all NDPBs.

The Film Industry should follow the example of the Government's Sustainable Procurement Action Plan, due to environmental benefits such as reduced waste and reduced CO<sub>2</sub> emissions. Large film industry organisations such as studios, major distributors, VFX houses and processing labs could adopt similar supply chain management practices as the UK Government. Sustainable procurement would benefit the large companies by:-

- Reducing costs
- Increasing efficiency
- Improving company image
- Improving supplier relations
- Contributing towards meeting the UK's environmental challenges

Larger companies would then help to pave the way for smaller companies, such as small production companies, by improving standards, communication and efficiency within the supply chain, and creating a demand for more sustainable practices. Additionally, smaller companies could work together in a cluster to bring about change; to reduce costs and increase buying power, thus encourage a localised sustainable supply chain. Smaller companies will also experience the same benefits as larger companies detailed above; and, due to their scale, positive impacts such as cost savings and public image have potential to amplify business success.



## CHAPTER 3: THE FILM INDUSTRY

During April-June 2007 research was conducted and data collected via the Internet, documentary analysis, semi-structured interviews and semi-structured questionnaires to review any environmental actions being taken by the UK film industry and the international film industry. This Chapter outlines the results.

Research indicates that a degree of environmental awareness and interest exists throughout the film industry, with a number of individuals and organisations proactively moving forward with environmental sustainability and green filmmaking. The majority of activity and guidance focuses on film production. However, it is imperative that all sectors within the film industry consider and implement environmental sustainability, from development and pre-production right through to merchandising and archiving. It is important that messages filter throughout the industry and best practices are brought together.

International and national best practice is detailed throughout this Chapter. Internationally there seems to be more advancement in green filming toolkits and guides, although there is still work to be done. On a national and local level, although environmental initiatives exist (some of which are very worthwhile and successful), there is a pressing need to implement an environmental strategy, disseminate environmental awareness, and formulate best practice and guidance which embraces environmental sustainability, green filming, environmental policies and management.

Therefore, to conclude there is a definite interest in environmental sustainability and green filmmaking and an urgent need for guidance across the entire film industry.

### **International Best Practice**

#### **New Zealand: Greening the Screen<sup>36</sup>**

New Zealand's Ministry for the Environment, in partnership with Landcare Research Institute, South Pacific Pictures, SPADA (Screen Production and Development Association) and Waitakere City Council, have taken a stance to 'nurture and support' their 'fantastic scenery and environment' with the implementation of 'Greening the Screen' during 2005. Greening the Screen is an environmental toolkit which is designed to provide advice to film companies wishing to reduce the environmental impacts of their productions, and is intended to be recognised as best practice in environmental management for New Zealand's screen production industry. The purpose of the environmental toolkit is to:-

- Encourage screen production companies to improve environmental performance;
- Help protect New Zealand's natural, historical and cultural heritage;
- Contribute to sustainable economic growth in the screen production industry;
- Enhance the reputation and competitiveness of the screen production industry; and,
- Support the adoption of environmentally responsible practices.

The toolkit is intended to be used by individuals, companies, productions and industry bodies. The toolkit contains screen production examples, environmental opportunities and benefits in

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<sup>36</sup> [www.greeningthescreen.co.nz](http://www.greeningthescreen.co.nz)



practice, a range of environmental management tools and resources tailored for the screen production industry.

Greening the Screen evolved alongside a pilot study after researchers at the Landcare Research Institute approached a film production company. The result was an environmental toolkit. Researchers at Greening the Screen used the BBC as a model to motivate other companies. Recruiting another ten production companies, researchers worked alongside production team members showing them how to use the toolkit. Emma McConachy from Greening the Screen said the majority of New Zealand's major film companies have used the toolkit.

Current issues are funding; the biggest problem researchers at Greening the Screen found was getting production companies to put money towards environmental management. Researchers are currently working with the New Zealand Film Commission to encourage them to get international production companies to use the toolkit.

Emma McConachy said the UKFC are welcome to use the content of the toolkit as long as Greening the Screen is acknowledged. Emma also expressed her interest in collaborating on a project.

### **Canada: The Greencode Project<sup>37</sup>**

Greencode is a set of voluntary environmental actions, guidelines, standards and principles to encourage environmental sustainability. The National Film Board of Canada (NFB) committed financially to the greencode project for an initial phase of research; the project continues to develop, albeit at a slower pace than the founders would like, due to limited resources and staff working voluntary on the initiative.

Staff at greencode first raised the issues of environmental impacts and the film industry at the IDFA festival in Amsterdam; greencode was launched at Toronto's Hot Docs Festival in April 2007. Current work involves working towards a certification scheme. Companies within the film industry can become 'greencoders' if they demonstrate five actions to reduce the environmental impacts of film production. Current greencoders include UK, USA, Canadian, Indian and Italian film companies. Greencode are planning to develop an international suppliers list, which details environmentally sound individuals and organisations within the film industry and sectors which supply the industry with goods and services.

Many influential festivals support greencode, such as Toronto's Hot Docs, The NFB and The Documentary Organisation of Canada. Greencode had an informal presence at the Adelaide International Film Festival in Australia, the GFFIS Festival (Seoul) and the Banff World Television Festival in June. The Silverdocs festival in Washington, D.C., Sunny Side of the Doc in Laroche, France, and Les rencontres internationales du documentaire de Montréal (RIDM) want greencode representation at their festivals. The first "greencode awards" will be presented at the carbon-neutral Sheffield Doc/Fest in October 2007, where there are also plans to host a green filmmaking/greencode conference.

In February 2007 staff at greencode created a national not-for-profit non-governmental organisation called 'The GreenMedia Institute' to guide the screen industry towards sustainability. Greencode will raise awareness and attract new membership, partners, funders,

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<sup>37</sup> [www.greencodeproject.org](http://www.greencodeproject.org)



and endorsements for the newly-formed GreenMedia Institute. The National Film Board of Canada has already committed to year one. Marie-France Côté of the greencode project expressed her interest to collaborate on a project with the UKFC.

### **Canada: British Columbia Film Commission<sup>38</sup>**

The British Columbia Film Commission launched a website in 2007 called Reel Green. Reel Green serves as a gateway to information and resources that promote positive environmental practices in British Columbia's film and television production industry. It encourages partnership with green initiatives already being implemented in the community and provides tools and information for companies and individuals wishing to become more environmentally responsible in carrying out the business of film and television production.

### **USA: New Mexico Film Office<sup>39</sup>**

New Mexico's Green Filmmaking Initiative is a voluntary program to encourage environmentally sensitive film and television production, and is built around three principles:-

1. Educate and encourage productions in the use of environmentally sensitive production materials and techniques. The New Mexico Film Office will provide all productions with a "Green Information Packet" which will explain the financial and functional benefits of being eco-friendly and provides.
2. Incentives towards the use of green materials and techniques, for example, waiving certain permit fees for productions that adhere to the principles of the green production program.
3. Resources for making New Mexico production Green<sup>40</sup>. The New Mexico Film Office have an online resources page which includes information on the use of alternative materials, environmentally friendly practices, a list of suppliers supplying environmentally friendly products and/or services, and a list of organisations which can offer help.

A Green Filmmaking working group<sup>41</sup> provided the preliminary guidelines for building the Green Filmmaking Program; the group will continue to explore new ways to inform and encourage environmentally sensitive productions and will examine new business opportunities created through servicing these productions.

A voluntary New Mexico Green Filmmaking certification program will also be offered to key production personnel such as Production Managers, Coordinators and other department heads interested in more intensive training in green production. This certification will create awareness throughout the production community.

### **USA: Warner Bros Studio**

The Warner Bros Studio in California has had an environmental programme since 1992. The programme started recycling; today the programme has evolved to include the installation of solar panels (with an estimated payback period of 7.2 years), environmental community projects, the first LEED certified green building in the entertainment industry and an interactive website

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<sup>38</sup> [www.reelgreenbc.ca](http://www.reelgreenbc.ca)

<sup>39</sup> <http://www.nmfilm.com/filming/green-filming/>

<sup>40</sup> <http://www.nmfilm.com/filming/green-filming/making.php>

<sup>41</sup> representatives from the Governor's Office, New Mexico Film Office, union members, the production community, local businesses and public interest groups



specific to their environmental programme.<sup>42</sup> The website contains a nine-point environmental commitment and video ecotour, and information and tips relating to environmental best practice for individuals at home and for businesses. Additional environmental programme measures include:-

- Recycling wood, paper, plastics, metals, film, videotapes, printer and toner cartridges
- During 2003 Warner Bros saved \$150,000 in disposal costs, generated \$25,000 in revenue from recyclable sales. During 2003 53% of waste was diverted from landfill, this increased during 2006 to 65%, therefore increased savings (although no figures were available at this time)
- Purchasing recycled products
- Reducing energy through occupancy sensors, energy efficient lighting and painting the roof with a light reflecting paint to lower heat absorption (which reduces the use of air conditioning) – their energy efficiency programmes cost \$150,000, and is saving \$500,000 a year in costs, conserving millions of kWh annually thus reducing greenhouse gas emissions
- Use steel scaffolding instead of wood
- Print scripts double sided
- Compost garden and food waste
- Donate wood, electrical equipment and lighting to individuals, community and not-for-profit groups
- Donate waste food to local shelters
- Use water-based set paints
- Educate all staff on environmental issues

Also Warner Bros. uses opportunities to highlight environmental issues when promoting environmental based films such as *Syriana* (first motion picture to offset 100% CO<sub>2</sub> emissions) Packaging for Warner Home Video Entertainment products such as DVDs will be printed on 30% post-consumer chlorine free paper<sup>43</sup> preventing emissions of 43.4 million gallons of water, and eliminate enough solid waste to fill 115 waste trucks.

#### **USA: UCLA Institute of the Environment**

During November 2006, the UCLA institute of the Environment released a 114-paged report titled 'Sustainability in the Motion Picture Industry<sup>44</sup>'. The report was commissioned by the Integrated Waste Management Board; the focus of the study was specifically on the production side and included the film and television industry. The study was initially commissioned to look at the waste produced in film production; the study assessed the potential environmental impacts of the film and television industry, collected examples of environmental best practices and referenced environmental production guides within the industry.

The report concluded the main impact of the film and television industry is its associated energy use; film and television production contribute significantly to greenhouse gas emissions, and very few people within the industry are involved with trying to actively reduce greenhouse gas

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<sup>42</sup> <http://wbenvironmental.warnerbros.com>

<sup>43</sup> Post-consumer chlorine free paper: Paper produced using waste paper (e.g. paper sent for recycling) as a resource, without the use of chlorine compounds (which are usually used to bleach paper)

<sup>44</sup> <http://www.ciwmb.ca.gov/Publications/default.asp?pubid=1229>



emissions. Environmental Best Case Studies include carbon-neutral production (The Day After Tomorrow), mitigating the environmental impacts of special effects (Dante's Peak and Volcano) and set recycling (The Matrix 2 and 3). Existing green production guides include:-

- Low impact Filmmaking: A Practical Guide to Environmentally Sound Film and Video Production by Larry Fessenden and Michael Ellenbogen (1991)
- Environmental Media Association Green Guidelines (2004)
- Entertainment Industry Development Corporation (EIDC) Production Guide (2005)

Charles Corbett, one of the authors of the report, said the report was initially badly received due to a November 2006, article in the Los Angeles Times misinterpreting some of the key results. Due to press coverage of this work the film industry became a little defensive, however, research is moving forward again. The next steps of the research are to look at building a carbon footprint into budgeting and scheduling software packages, such as Movie Magic. The UCLA team have already had discussions with the software manufacturers, at the time of going to print this project is still in the discussion stages. Charles Corbett commented that there were a number of people who were very proactive in this area, although collectively were reactive due to production pressures and resources.

#### **USA: Environmental Media Association (EMA)<sup>45</sup>**

The Environmental Media Association (EMA) was created in 1989 to educate people about environmental issues and inspire them into action. The EMA:-

- Produce the 'Green Light' newsletter to raise environmental awareness relevant to the entertainment community and the public;
- Produce green guidelines for film and television production including 'how to make a production green' and 'green standards for characters';
- Work with television series and feature film writers and producers on an one-to-one basis to suggest ways to incorporate environmental topics into subtle storylines and characters;
- Conduct "Greening of Hollywood" forums that bring environmental leaders to the entertainment community;
- Advise film companies on being green behind the scenes; and,
- Are responsible for EMA awards which honour film and television productions that increase public awareness of environmental issues and inspire personal action on these issues, and productions which have managed the environmental impact of their television or film production.

#### **Global: Sony Group**

The Sony Group have detailed information regarding their environmental vision and management,<sup>46</sup> and publish details of their environmental activities and data on their website. Since 2005, all Sony Group sites have a certified international environmental management system (ISO 14001), including all Sony manufacturing sites worldwide, and Sony Pictures Entertainment. Sony Group have four key environmental issues: global warming (committed to reducing energy consumption and emissions of greenhouse gases generated by business activities); natural resources (improve resource productivity in its manufacturing processes, reduce the volume of materials and water consumed and recycle and reuse resources where possible); management of chemical substances (maintain strict control over the chemical substances used and reduce,

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<sup>45</sup> [www.ema-online.org](http://www.ema-online.org)

<sup>46</sup> <http://www.sony.net/SonyInfo/Environment/environment/management/vision/index.html>



substitute and eliminate the use of substances that are potentially hazardous to the environment); and, natural environment (take constructive steps whenever possible to contribute to the preservation of the natural environment). Sony's Vision recognises "...the importance of preserving the natural environment that sustains life on earth for future generations and helps humanity to attain the dream of a healthy and happy life. Sony is committed to achieving this goal by seeking to combine ongoing innovation in environmental technology with environmentally sound business practices".

### **Global: Global Cool**

Global Cool<sup>47</sup> is a foundation (Global Cool Foundation UK) and a production company (Global Cool Productions Ltd) that work together to increase awareness about climate change, with the aim to get a billion people to reduce their CO<sub>2</sub> emissions by an average of one tonne by 2017. Global Cool was established in response to a lack of consumer awareness, there did not seem to be enough movement in the masses, with only environmentalists and politicians discussing climate change often using terminology which was inaccessible to the masses. Global Cool took the step to engage with the mass audience through 'Popular Culture', inspiring celebrities to inspire local people. Initially members of Global Cool worked on a strategy to engage celebrity supporters on the issues of climate change and offer advice on how to lead a low carbon lifestyle through the development of a toolkit and coaching service. Today Global Cool is backed by some of the biggest names in popular entertainment and climate/environmental science.

Global Cool encourage celebrities, businesses and local people to take up a low carbon lifestyle and not just offset carbon emissions. Global Cool is also aiming to support alternative energy projects around the world to develop a long-term energy answer.

The International Indian Film Academy (IIFA) and Global Cool worked together to highlight climate change during the IIFA awards ceremony held in Sheffield during June 2007. The IIFA Awards demonstrated good practice by showcasing new, low-carbon technologies and offsetting CO<sub>2</sub> emissions from the ceremony. Global Cool's ten year campaign to get a billion people worldwide to reduce their emissions by a tonne of CO<sub>2</sub> a year was launched at the awards. The campaign was led by Indian Cinema and Hollywood stars who spoke to people through short films in cinemas, on TV and on mobile phones. The Bollywood Oscars used a green carpet instead of a red one to highlight environmental issues.

### **Global: MySpace**

MySpace<sup>48</sup> launched a channel dedicated to climate change during 2007 which features profiles, organisation and forums relating to the environment and climate change.

### **Global: NewsCorp**

During May 2007 News Corporation launched its Global Energy Initiative, committing to be carbon neutral by 2010. Additional information:-

- First global media company to commit to becoming carbon neutral.
- All News Corporation business units will become carbon neutral by 2010 – through energy efficiency, buying renewable power and offsetting otherwise unavoidable emissions.

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<sup>47</sup> [www.global-cool.com](http://www.global-cool.com)

<sup>48</sup> [www.myspace.com/ourplanet](http://www.myspace.com/ourplanet)



- Measured carbon footprint during 2006 = 641,150 tons of CO<sub>2</sub>;
- Joined The Climate Group, an independent, non-profit organisation dedicated to advancing business and government leadership on climate change.
- News Digital Media in Australia and News America Marketing in the U.S. are replacing vehicles in their fleets with hybrids.
- Fox Entertainment Group has offered employees an incentive to purchase or lease hybrid cars.
- Company's first LEED-certified building is under construction on the Fox studio lot in Los Angeles (LEED - Leadership in Energy and Environmental Design Green Building Rating System<sup>49</sup>).
- News International and HarperCollins UK have both entered into agreements to purchase renewable energy and will be carbon neutral by the end of this year.
- The Times of London has measured the carbon footprint of a single copy of the newspaper to strengthen its relationship with its readers, advertisers and suppliers.
- Engage 47,000 employees and millions of readers, viewers and web users around the world on the issue of climate change.
- Fox fall programming presentation and subsequent party held in New York will be carbon-neutral for the first time, implementing measures such as:-
  - Powering the presentation and party tent with biodiesel generators;
  - Using space in freight trucks as economically as possible and combining multiple vendors' equipment into a single trucks to reduce the number of vehicles used for production needs;
  - Staff and crew will be using hybrid vehicles or mini coaches and vans for airport and other runs (more passengers per vehicle); and,
  - Energy-conserving LED lighting will be used where possible.

## **National: Regional Screen Agencies and UKFC Funded Organisations**

There was a varied response from the Regional Screen Agencies (RSA) and UKFC funded organisations. Regarding in-house environmental issues, of the RSA's and UKFC funded organisations approached (Appendix 3), Skillset, North West Vision and Scottish Screen have an official environmental policy; South West Screen, Screen South, BFI, Film London, First Light Movies, Northern Film and Media, and Film Agency for Wales are in the process of developing an environmental policy and/or implementing environmental management. A few of the agencies are taking positive steps regarding reducing their impact on the environment, environmental management and/or increasing environmental awareness such as:-

- **South West Screen (SWS):** SWS's wholly-owned subsidiary Cornwall Film AVIS-D has a very detailed environmental policy which has been in place since January 2005. The policy details key contacts and green film advice. SWS has a number of projects which have an environmental focus, such as:-
  - Think or Swim: a project to communicate the effects of climate change, working with young people in the production of short films to be used as cultural drivers within their respective communities;
  - Second Life: investigating the communication of conservation messages;

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<sup>49</sup> LEED is a USA nationally accepted benchmark for the design, construction and operation of high performance green buildings. In the UK the Building Research Establishment (BRE) operates BREEAM Buildings which assess the environmental performance of new and existing buildings.



- Eco Doco: SWS and the Community Channel have partnered to create three documentaries based on environmental themes; and,
- Chew TV: Commissioning a pilot programmes relating to time travel and preventing environmental disasters.
- SWS has a number of environmental projects in the initial stages of development:-
  - Exploring the possibilities of a Green Film Festival in the South West;
  - Exploring the possibilities of a fund for media/moving image companies who will make environmental programmes to raise awareness at the local level; and,
  - Exploring the possibilities of running a competition for environmental films.
- **BFI:** BFI has environmental guidelines and initiatives in place for recycling and energy conservation (e.g. occupancy detectors)
- **Skillset:** Skillset was the first sector skills council (SSC) to sign up to the Mayor of London's Green Procurement Scheme and the first SSC to achieve the Green Mark<sup>50</sup> for environmental sustainability. Skillset have an environmental management system, which was partially a funding requirement from the London Development Agency, however due to staff environmental awareness were already in the process of implementing environmental management. Skillset inform all their suppliers of their environmental policy and management system, and choose to work with similar environmentally minded organisations and do not use companies with no environmental credentials
- **Film London:** Film London are currently working with Neil Watson, the Mayors office and environmental consultants Sea-revue on the inclusion of environmental guidelines into their Filming in London Code of Practice. Film London is looking into how to make production (film and television) in London more environmentally sustainable. Film London (Sue Hayes and Michelle Jenkins) met with senior representatives from Pinewood, Ealing and 3 Mills studios and producers (Julie Baines and David Parfitt) at Cannes 2007 to discuss environmental sustainability. Film London have been in contact with a number of production companies and people within the industry discussing this issue, thus raising awareness of environmental sustainability. The Mayor is keen to encourage and implement environmental sustainability within the film industry. Through talks with the Clinton C40<sup>51</sup> initiative (of which London is one of the 40 member global cities), Ealing Film Studios have agreed to participate in a pilot study.
- **Scottish Screen:** Scottish Screen works in conjunction with the Scottish Executive, reporting their environmental action plan and sharing examples of best practice. Scottish Screen have their own environmental team, work alongside their landlord to implement environmental management, encourage other people and companies to take onboard environmental practices and will soon be promoting Scottish biodiversity on their site.
- **First Light Movies:** First Light Movies have just signed up to the Governments 'Cyclescheme'

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50 [www.green-mark.co.uk/](http://www.green-mark.co.uk/) environmental award scheme

51 [www.c40cities.org/](http://www.c40cities.org/) C40 is a group of the world's largest cities committed to tackling climate change through reducing energy use and cutting greenhouse gas emissions, pooling the buying power of cities which will help lower the prices of energy saving products, mobilising expert assistance to help cities develop and implement programmes that will lead to reduced energy use and lower greenhouse gas emissions and creating measurement tools so that cities can establish a baseline on their greenhouse gas emissions, track reductions and share best practice.



- **Northern Media:** Northern Media are currently looking to work with people in order to raise environmental awareness and are discussing the possibilities of joint activities with Carbon Neutral North East
- **North West Vision:** North West Vision is currently interested in environmental sustainability due to staff interest and pressure from ERDF to provide information on sustainability. Staff at North West Vision are looking into commissioning sustainability training. John Barwise (an ex BBC employee and now MD of his own Environmental Consultancy and production company) is interested in pursuing this agenda forward with Northwest Vision and the UKFC.

### **National: UK Film Industry Organisations**

The larger film studios implement some form of environmental management such as recycling and energy efficiency. Although only Granada said they had an actual environmental policy, other studios (e.g. 3 Mills Studios and Leavesden Studios) are in the stages of formulating one. Other film organisation, production and post-production companies contacted are generally aware of environmental issues (awareness is increasing throughout the industry) and have some form of recycling in the office.

**3 Mills Studio:** 3 Mills are committed to the Mayor of London's Green Procurement Code, and has implemented a sustainable procurement policy with the aim to reduce water usage, fossil fuels, materials and waste. 3 Mills has environmental guidelines for use on set and on location for example: sourcing energy efficient equipment, selecting products with environmental credentials, recycling where possible, having facilities for recycling on location, avoiding unnecessary travel, considering the environmental impact on location, minimising the use of vehicles and assessing the environmental impacts of special effects. 3 Mills is currently investigating what incentives would encourage individuals within the film industry to implement environmental practices, options they are considering include waiving additional waste charges when a company use studio recycling facilities. 3 Mills want to develop a recycle programme that limits the time a production company spend segregating waste in order to encourage recycling.

**BAFTA:** Amanda Barry at BAFTA was approached by BAFTA Member Alistair McGowan after he was horrified to see how much waste was produced in the industry. As a result BAFTA invited a number of organisations from the film and television industry and hosted, during September 2006, a roundtable discussion 'Sustainability and the Film Industry'. Representatives from BAFTA, Film London, The Mayors Office, Production Managers Association, and Beyond Green, alongside Alistair McGowan in his capacity as an Ambassador for the World Wildlife Fund, attended the meeting. Since this meeting, Film London and the Mayors office are working on environmental sustainability measures for the film industry. BAFTA are developing an Environmental Sustainability Charter (akin to the UKFC Diversity Charter). Additionally BAFTA will be a carbon neutral organisation from this year, and have for the last 5-6 years picked one BAFTA award ceremony and made that carbon neutral. Due to financial constraints it was not possible to make all BAFTA award ceremonies carbon neutral. BAFTA also have environmental management initiatives such as recycling and energy efficiency in-house.



**BBC:** The BBC recognise that the radio and television programmes they make impact on the environment, thus have an environmental policy committing to waste and energy use reduction, and a medium-term strategy, with clearly defined objectives, to ensure that the BBC is run in an environmentally friendly and sustainable manner. The BBC is a member of Forum for the Future. The BBC strive to be a greener organisation through:-

- Raising awareness of environmental issues through programmes made
- Setting environmental performance targets
- Creating and maintaining environmentally friendly and sustainable building through
  - minimising energy consumption by using more alternative energy sources
  - promoting waste reduction and recycling
  - developing White City<sup>52</sup>, Pacific Quay and Project North on 'brownfield' sites
  - implementing green transport and landscaping policies
- Purchase over 95% of electricity from 'green power' sources
- Encourage others to get involved through BBC environment initiatives such as the Breathing Places campaign.

**Digital Womens Network:** The Digital Women's Network (DWN) has been actively working on reducing the environmental impacts of film and encouraging environmental awareness. For the last two years they have been researching energy efficiency, and last year they made an educational DVD 'Change Tomorrow, Today' which looked at reducing carbon emissions and was used for a Climate Change tour around the North East for 18 months. The DWN also distribute environmental production guidelines which cover travel, production equipment, eating/drinking, office habits and carbon offsets (as a final resort). Additionally, the DWN are currently comparing the energy use of digital cameras to traditional Bolex cameras. This research is an informal study and purely voluntary, DWN are keen to move this research forward and work with energy experts; resources constraints have slowed the project down. The DWN see a need for research in the area of new technology and energy use. Olwyn Hocking from DWN expressed the following would be appreciated by people in the industry:-

- A register of companies with commitment and accreditation to low carbon production
- For smaller producers, a "pool" of best practice kits such as solar powered battery rechargers which could be rented
- A handbook with tips, contact information and basic guidance (such as what types of solar powered rechargers are suitable for what size of battery etc)
- Advice from green energy specialist and technical experts who can work with the industry to solve problems such as energy use

**Ealing Studios:** Senior management at Ealing Studios are working with Film London and the Mayors office through the Clinton C40 initiative, and with Film London on the environmental guidance for the London code of practice. In addition Ealing are looking to find green solutions to solve any negative environmental impacts of film production. Ealing are currently building new studios, for Phase 3 (which will be built in the next couple of years) sustainability will be built into the design and function of the building (using best practice).

**Edinburgh Film Focus:** Edinburgh Film Focus has had environmental filming policies in place since 2003; the Scottish Borders was the first are to get a policy in place; Edinburgh Film Focus

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52 BBC latest building developments at White City and Broadcasting House in London have both been recognised as environmentally "excellent" by national award bodies



worked closely with the Scottish Borders in developing their own film policy. The policy includes details on planning and preparation, including key contacts, and a guide on how to minimise damage on the environment.

**Elstree Studios:** On the 1st April, the studio was bought by the local authority. As a result, the local authority will be implementing environmental management.

**Glasgow Film Office:** Glasgow Film Office is situated within Glasgow Council, therefore implement the Councils environmental guidelines and policy which was a requirement (on the Council) of European funding.

**Granada Television:** Granada Television has a companywide environmental policy; however this is not site specific. Some environmental management is carried out in the main offices, such as recycling and energy efficiency. Also, there is designated responsibility for a member of staff to research new car technologies with the aim of reducing the carbon footprint associated with travel. Carlton and Granada have now merged, since the merger LWT has appointed Jack Cunningham who has specific responsibility for environmental sustainability within the organisations (see LWT below).

**International Visual Communication Association (IVCA):** The IVCA is a professional body which promotes best practice in the corporate and public sector communications industry. The IVCA include information about climate change<sup>53</sup> and corporate social responsibility on their website. Additionally, IVCA received funds from defra to engage bodies in the climate change debate; the project looks at changing attitudes and raising awareness. IVCA are looking for partners and would be very interested in collaborating and attending any meetings to investigate ways to move the environmental agenda forward.

**Leavesden Studios:** Leavesden carry out a lot of recycling on site and are in the process of developing an environmental policy and management system. Environmental initiatives are driven by Warner Bros who are the main film production company at Leavesden (see Warner Bros. above)

**Lee Lighting:** Have recycling facilities in the studio (via their waste carrier) and have arrangements in place to recycle all electrical equipment.

**LWT:** Jack Cunningham has specific responsibility for environmental sustainability within the LWT group, joined LWT 4 months ago. He is currently developing an environmental strategy, and very supportive and interested in moving this agenda forward with UKFC.

**Odeon Cinema:** Odeon Cinemas implement an energy saving programme across the whole of their estate, and are researching other areas such as waste reduction and renewable energy. For example:-

- Representatives from Odeon Cinemas are liaising with Coca-Cola, who are developing a biodegradable plastic coke bottle;
- Senior management at Odeon Headquarters have explored the potential to fit solar panels and wind turbines on the roofs of some cinemas. Solar panels were not cost effective at this time and planning permission was refused for a wind turbine;

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<sup>53</sup> <http://www.ivca.org/csr/climate-change.html>



- The feasibility of geothermal power is currently being investigated;
- Waterless urinals are currently being rolled across all the UK's Odeon Cinemas;
- Old lamps (used in projectors) are sent to a specialist waste management firm;
- LED lights are used for signage;
- Each screen is fitted with occupancy sensors which operate air conditioning and heating;
- Each cinema has a transport policy. This is a positive step, as the majority of cinemas outside London are large out of town cinemas/complexes, which increases car travel thus increases greenhouse emission which contributes to climate change. How effective Odeon Cinema's transport policy is (and how it is implemented) would be very interesting and worthwhile research;
- Cinema managers receive an energy saving programme document which contains information and details for energy efficiency/energy management; and,
- New buildings are fitted with dedicated low energy light fittings and occupancy detector sensors for lights. If the occupancy detector sensors prove cost effective, they will be rolled out to older cinemas.

**Pinewood Studios:** Senior management at Pinewood are very interested in environmental sustainability. In addition, Jenny Cooper from Screen South is based at Pinewood. Jenny has noticed that there is more environmental awareness within production companies, with some interested in environmental initiatives such as recycling. Pinewood is looking to increase set recycling (Jenny Cooper suggested figures between 70-75%) and reduce energy use. Senior management at Pinewood are in talks with Ridlington & Richards (environmental consultancy based at Pinewood), and Slough Industrial Estate to look at best practice such as recycling and energy generation (Slough Industrial Estates have their own green power plant).

**Pretzel Films:** Pretzel films has recently produced public information for defra regarding climate change, therefore are aware of the issues and implement environmental management in-house such as recycling and use 'Green Tomatoes' a green courier. Pretzel films expressed their interest in a training day, and an environmental guide – however because they are a young company any measures having a financial impact would influence the decision to implement environmental management.

**Scottish Highlands and Islands Film Office:** The Film Office work closely with outside agencies such as Scottish Natural Heritage in order to preserve the scenery of the Highlands and Islands (which is one of the main reasons why film production companies choose the area to film) and advise production companies on how to reduce any negative environmental impact.

**Sky:** Sky has produced a climate change strategy called 'The Bigger Picture'. Sky became the world's first media company to announce, in May 2006, that it is carbon neutral; they have achieved a 20% reduction in CO<sub>2</sub> emissions over the last two years, offsetting what cannot be reduced through renewable energy projects. All Sky owned sites in the UK use 100% renewable energy, reducing CO<sub>2</sub> emissions from those sites by 47%. Sky:-

- Implemented activities to reduce CO<sub>2</sub> emissions such as fitting more efficient chilled beam technology air conditioning systems, implementing solar lighting and presence detection control on the lighting systems, using time controls for car park lighting as well as campaigning for people to turn off PCs, TVs, and lights;
- Switched its preferred taxi supplier to a local firm, 'Green Tomato', which only use hybrid cars;



- National sponsor of The Prince of Wales's May Day Business Summit on Climate Change;
- One of the first companies to acknowledge the role of consumer and media brands in engaging consumers on the subject of climate change. Around 21 million viewers in 8.35 million households subscribe to its movies, news, entertainment, sports channels and interactive services;
- Through a range of business, employee and consumer initiatives, Sky is engaging and inspiring people to tackle climate change;
- [www.jointhebiggerpicture.co.uk](http://www.jointhebiggerpicture.co.uk) focuses on sharing ideas to tackle climate change together, provides tips, information and incentives to make it easier and inspire everyone to join in;
- Launched its Bigger Picture intranet site and carbon credit card system (employees to earn credits for undertaking positive environmental activities) for its employees June 2006. The site keeps Sky employees up to date with the latest news on climate change and offers tips on how they can personally make a difference;
- Offer a range of environmental incentives to its employees to help them reduce their personal carbon footprints (such as cash back on the purchase of a hybrid car);
- Through the introduction of new technologies, has reduced the power consumption of its set top boxes by 50% since their launch and it is taking this further by launching an R&D programme to find ways to allow set top boxes to be powered down completely;
- Launched a new feature on two million Sky+ and HD set top boxes which puts them to sleep when not in use during March 2007; and,
- Are introducing the UK's first commercial trial of Vauxhall Vivaro B30 compliant bio-diesel vans with Vauxhall which reduce carbon emissions by 20%.

**Tay Screen:** Tay Screen has a production code which has been agreed for the whole Tay area, the production code includes environmental issues. As part of their EU funding, Tay film has to make efforts to encourage people to be aware of their environmental responsibilities.

**Twickenham Studios:** Resident companies are conscious of their environmental responsibilities and make the effort to recycle, however there is a need (and a want) for the studio to implement water and energy saving measure, currently costs are preventing this.

The following companies have expressed/may be willing to participate in any pilot studies:-

- BFI; and
- First Light Movies.

The following positions within the film industry are thought to be best placed to have, and/or associated with having, responsibility for the environment\*:-

- Health and Safety Manager;
- Office Manager/Operations Manager;
- Office Administration;
- Production Assistant;
- Line Producer; and,
- Location Assistant.

\*With support of the senior management (within organisations) and the producer and director (within film productions)



## **National: Non-Film Industry Organisations Working on Initiatives Relevant to the Film Industry**

**DCMS Non-Departmental Public Bodies:** The majority of NDPBs within the DCMS have a sustainability champion (e.g. English Heritage, Sport England, CABI and the Royal Parks) and have implemented environmental measures with which to approach environmental sustainability (Table 5).

**Table 5: NDPBs of the DCMS Implementing Environmental Measures**

<b>Body</b>	<b>SD Strategy</b>	<b>SD Action Plan</b>	<b>Link</b>
The Royal Parks	Yes	Yes	<a href="http://www.royalparks.gov.uk">www.royalparks.gov.uk</a>
Arts Council England	Yes	Yes	<a href="http://www.artscouncilengland.com">www.artscouncilengland.com</a>
The Big Lottery Fund	Yes	In development	<a href="http://www.biglotteryfund.org.uk">www.biglotteryfund.org.uk</a>
The British Library	Environmental Policy	Integrated Transport Plan	<a href="http://www.bl.uk">www.bl.uk</a>
English Heritage	Yes	Yes	<a href="http://www.english-heritage.org.uk">www.english-heritage.org.uk</a>
Horniman Museum	Yes	Yes	<a href="http://www.horniman.ac.uk">www.horniman.ac.uk</a>
Museum of Science and Industry in Manchester	Yes	Yes	<a href="http://www.msim.org.uk">www.msim.org.uk</a>
National Museum of Science and Industry	Yes	Yes	<a href="http://www.nmsi.ac.uk">www.nmsi.ac.uk</a>
National Maritime Museum	Energy efficiency strategy	Energy efficiency action plan	<a href="http://www.nmm.ac.uk/server/show/nav.00500600d">http://www.nmm.ac.uk/server/show/nav.00500600d</a>
Sport England	Yes	In development	<a href="http://www.sportengland.org">www.sportengland.org</a>
Olympic Delivery Authority	Yes	In development	<a href="http://www.london2012.com/en/ourvision/ODA">http://www.london2012.com/en/ourvision/ODA</a>

In addition, Sport England has produced an Environmental Sustainability Checklist for clients, designers, contract managers and facilities managers; Sport England's Environmental Sustainability Checklist is a very useful, comprehensive and accessible document to promote



sustainable design for sport. CABE recently commissioned Best Foot Forward to calculate their Ecological Footprint and conduct a carbon audit.

**Friends of the Earth (FOE):** FOE has a short guide to green film making<sup>54</sup> and is in the process of producing a comprehensive ‘Greener Filmmaking Guide’. FOE is working with Charlie Phillips at Fourdocs, who also have produced guides for Green Filmmaking. FOE is also running a one-minute green film competition which will be judged by Lord David Puttnam, Andrew Macdonald (producer), Dilly Gent (currently commissioning/executive producing 60 short films for Al Gore’s Live Earth project to raise climate change awareness), James Mullighan (Creative Director of Shooting People) Tony Juniper (Executive Director of Friends of the Earth) and Neil Goodlad (Managing Partner at the London advertising agency CHI & Partners).

**Arup<sup>55</sup>:** Arup is an international engineering and consultancy firm. Representatives from Arup have been in talks with Friends of the Earth, regarding FOE’s work on their Green Filming Guide, and have been working with British Standards (see below). Arup is currently researching sustainable cinema and sustainable event management, and will be working with representatives of the Live Earth and Princess of Wales concerts to reduce the carbon footprint of these concerts. Arup are expanding their research to look at all media. There is a need to look at the sustainability of cinemas and engage with cinema owners, further discussion with Arup would be advisable.

**BS 8901:2007:** BS 8901:2007 is a voluntary British Standard for ‘Sustainable Event Management System<sup>56</sup>’. BS 8901:2007 evolved from discussions between the 2012 Olympic environmental team and representatives from British Standards. The standard is currently in draft form, available for public comment; it must be emphasised therefore that BS 8901:2007 may be subject to change dependent on conclusions from the public consultation exercise. The draft BS 8901:2007 provides requirements for planning and managing sustainable events of all sizes and types, supplemented by advice on how to meet, and surpass, requirements. It encompasses events ranging from large scale conferences and unique events such as the 2012 Olympics to music festivals and air shows. The draft BS 8901:2007 is designed to manage environmental, financial and social risks and impacts spanning all aspects of event management. The standard covers:

- Environmental impacts such as carbon footprint, waste management and effects on biodiversity
- Social impacts such as community involvement and fair employment
- Economic impacts such as local investment and long-term viability

BS 8901:2007 will help companies to improve sustainability performance within available budgets, it will help reduce carbon emissions and waste, and improve resource efficiency through the event supply chain. The draft standard will be applicable throughout the sector supply chain and is aimed at the following groups:-

- Event organisers
- Venues
- Organisations and/or individuals in the supply chain.

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54 [http://www.foe.co.uk/green\\_film/making\\_green\\_film.html](http://www.foe.co.uk/green_film/making_green_film.html)

55 <http://www.arup.com/europe/>

56 <http://www.bsi-global.com/en/Standards-and-Publications/Industry-Sectors/Environment/Sustainability-Recycling--Packaging/BS-8901-Draft-for-Public-Comment-DPC-/>



British Standards are currently considering developing a British Standard for the film industry. This may be in the form of BS8901:2007, with additional guidance specific to the film industry, or development of a completely new standard. Anne Hayes, Head of Market Development (Sustainability) at BSI, is interested in meeting with representatives from the film industry to discuss this further. This is a very interesting opportunity, and development, for the UKFC.

**Manchester City Council:** Experts claim the millions of PCs in use around the world may emit as much CO<sub>2</sub> as the aviation industry; an estimated 35m tonnes of CO<sub>2</sub> is generated annually from the production, operation and disposal of IT equipment like PCs, printers and monitors, equivalent of more than 1m extra flights in the UK each year<sup>57</sup>. Manchester City Council is piloting a green PC service 'The Green Shift Taskforce' to reduce CO<sub>2</sub> emission levels in the IT Industry in early 2008, ready for roll-out in late 2009.

The Green Shift taskforce will use a central hosting system; all applications will be web-based with users accessing services including Office applications, email and internet surfing through a small desktop box that is less energy intensive. Data centres will use concentrated energy efficiency measures such as non-fossil fuel power and low carbon build achieving 75% fewer resources in production, 98% less energy in operation and lasts three times as long compared to the standard PC.

### **Additional Research Findings**

During April & May 2007, internet research investigated the understanding and adoption of environmental sustainability within the film industry. There is little reference to environmental sustainability and environmental impacts of film production on UKFC & UK Film industry websites, which is generally replicated on a global scale (not including site specific sites such as New Zealand's Greening the Screen, Canada's Greencode Project and Reel Green and USA's Environmental Media Association). However, on contacting members of the industry and undertaking further research (e.g. following up on contacts) there is great interest in the environment, especially in relation to waste and energy.

Environmental awareness is increasing throughout the industry; especially throughout 2007. In the last three months, staff at UK Post have noticed more environmental awareness with some members keen to share ideas and examples of good practice. The common approach to reducing environmental impacts in the film industry is recycling, followed by energy reduction; individual production companies are aware of recycling, however there is a need to incorporate more environmental awareness and management throughout the whole filming process. There is a definite need for clear, accessible, coordinated widespread messages throughout the industry.

The main obstacles to addressing the environmental impacts of film production and/or implementing environmental management are:-

- Time and costs
  - Productions and studios have limited budgets and time;
  - Costly to store sets, and is cheaper to throw them away;
  - Production companies that hire studios for x amount of days have little time to spend sorting waste out as this would incur more costs; and

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57 Gornitzki, D. 2007. Green PC service pilot to tackle 'cyber-warming' EDIE [http://www.edie.net/news/news\\_story.asp?id=13149](http://www.edie.net/news/news_story.asp?id=13149)



- Short term funding of cultural arts organisations limits the implementation and effectiveness of energy efficiency and energy reduction initiatives;
- Perception that the industry is a 'clean industry'
- General lack of practical environmental awareness i.e. how to do

The main benefits to addressing the environmental impacts of film production and/or implementing environmental management include:-

- Potential cost savings such as reduced energy costs, tax savings (low g/km CO<sub>2</sub> car emissions = lower car tax) and reduced waste disposal costs;
- Complying with legislation; and,
- Promoting a green image.

Derek Watts from 3 Mills Studios commented that environmental issues could be seen as a nicety unless there is a strong business case and benefits from addressing them. This is a very valid point; presenting a strong business case with demonstrable benefits is key to the successful implementation of environmental awareness and management within the film industry. This is replicated across all industry. The majority of industries throughout the world, prior to implementing environmental management/environmental sustainability have been shown the benefits and presented with the business case such as increased savings, marketing and PR opportunities, compliance with legislation (therefore reduced risk of prosecution) and increased staff morale.



## CHAPTER 4: APPROACHING ENVIRONMENTAL SUSTAINABILITY

It is necessary to invest in an environmental strategy in order to maintain conditions for future film productions and economic development. The challenge will be to work with the industry not regulate it and stifle creativity. It is important to initiate positive, constructive dialogue with people in the industry, to engage with key industry figureheads, to prevent obstruction, encourage participation and to avoid diminishing enthusiasm for environmental initiatives. The UKFC should take an incentive approach - more carrot less stick, as opposed to regulatory.

### **UKFC Environmental Strategy**

It is recommended that the UKFC should be seen to be formulating an environmental strategy which is innovative and proactive (as opposed to being reactive) with strong messages and clear guidance.

- The UKFC should get its ‘Own House’ in order through developing an environmental policy and environmental management system which is approved by Senior Management and includes long-term strategic goals (for example carbon reduction and short term management targets for reduced emissions)
- The UKFC should work with the industry to define a vision/definition of environmental sustainability and issue a statement which sets an overall vision/target for environmental sustainability such as:-
  - “By 2020 the UK Film Industry will have reduced its carbon footprint by 30%,” or,
  - “By 2020 the UK Film Industry will have increased the amount of waste recycled or composted by 50%.” (Targets to be refined as part of the environment plan)
- The UKFC should initiate an ‘Environmental Plan’ for UK Film, an initiative to drive forward understanding, awareness and improvements in environmental performance throughout the UK film industry
  - An environmental plan could follow the UK Government’s five priorities for sustainable development and four priorities for action; and,
  - An environmental plan could detail specific issues for different sectors of the industry and address the specific regulatory requirements.
- To avoid a fragmented approach to environmental sustainability within the industry it is recommended that the UKFC consider:-
  - Initiating, on behalf of UK film, an industry stakeholder/working group, which brings representatives from the film industry together to look for common ground/common starting point with an agreed environmental vision and environmental agenda;
  - Hosting an industry conference to raise awareness of environmental issues, celebrate best practice, encourage an agenda for change and encourage green filmmaking;
  - Meeting members of the film industry who are working on environmental sustainability such as Film London, BAFTA, South West Screen, Pinewood Studios, 3 Mills Studios and the Digital Women’s Network (for example) to look



- for synergies in research/work, to formulate joined up thinking, to prevent duplicated effort, to offer assistance when and where relevant and to deliver a strong environmental message to the industry;
  - Engaging with other organisations such as NGO's (Friends of the Earth and World Wildlife Fund) and organisations (Carbon Sense, Best Foot Forward, Arup, International Visual Communication Association, Stakeholder Forum, Ridlington & Richards, SEA-renue, for example), to look for synergies in research/work, potentially formulate further research and formulate partnerships which would deliver strong messages to the industry and public;
  - Meeting representatives from the BSI to discuss the development of a British Standard for the film industry, the BSI are already in the early stages of investigating a standard; and,
  - Meeting with representatives within the industry and other interested organisations who are keen to develop green filming guides.
- There is a need to develop the knowledge base, a need for comprehensive environmental training programmes utilising known resources and training routes. Successful implementation of any form of environmental sustainability measures throughout the industry will require skills and experience; this will ensure the sound delivery of environmental sustainability and sound future investment. It is recommended that the UKFC consider:-
  - Funding training placements for members of the production teams e.g. runners and/or fund a sustainability champion placement for each UKFC funded production;
  - Funding educational programs such as training workshops and online resources;
  - Working alongside training providers and/or offering funding to training providers to disseminate message and training throughout industry. There is a clear role for the National Film and Television School, Skillset, Media Training Northwest etc to incorporate environmental training; and,
  - Supplying environmental training to all UKFC funded productions.
- The UKFC needs to promote a clear understanding and commitment to environmental sustainability in order for individuals and companies within the film industry to contribute towards achieving sound environmental practices (Appendix 4). It is important to have clarity of vision and to avoid confusion in message, it is recommended that the UKFC consider:-
  - Developing and maintaining a sustainability portal which brings together all the best and current resources relating to environment sustainability and green filmmaking (including guides, toolkits, best practices within the industry, an environmental industry forum and links to further sources of help), and is accessible through the UKFC site and all UKFC bodies;
  - Producing an environmental sustainability guide which is supplied to all UKFC funded productions; and,
  - Supplying environmental training to all UKFC funded productions.
- The UKFC should consider appointing an Environmental Officer to oversee the development and monitoring of an environmental strategy. The Environmental Officer could also be on hand to advise individuals and organisations on how to reduce their environmental impact.



- The UKFC should consider hosting annual environmental awards, similar to EMA's and the new greencode awards.
- It is recommended the UKFC conduct further research into environmental sustainability and the film industry such as:-
  - A detailed appraisal of industry attitudes, and understanding, towards the environment and the film industry;
  - A feasibility study which examines the development of a UKFC scheme that emulates carbon off-setting. Rather than off-setting carbon emissions through traditional means, companies within the industry can invest into a fund which is dedicated to pursuing environmental sustainability throughout the industry through training, awareness, innovation (researching new technologies), purchasing environmentally sound technologies and green guides; and,
  - Developing sector specific information, e.g. environmental impacts of archiving/distribution for example.

Whichever approach is taken, the environmental strategy should be partnered with a monitoring study (to ensure success, record impacts, provide learning opportunities, strive for continual improvement and comment on best practice) and a facility for members within the industry to feed comments, best practice, concerns and opportunities.

Failure to implement an environmental sustainability strategy both within the UKFC and across the industry as a whole entails a number of risks:-

- Non-compliance with current and future legislation: risk of bad publicity and prosecutions
- Increased costs and insurance premiums
- Reduced funding opportunities, a number of agencies have already experienced pressure from the EU and regional development agencies to account for environmental sustainability in funding applications
- Reduced/discontinued tax breaks in order to divert extra funds needed for flood defences
- Contributing to an already degrading environment which will ultimately impact on the future of the film industry
- Lost credibility; as environmental awareness within the industry gathers pace the UKFC should be seen to be ahead of the game

### **UKFC's Strategy for Action**

Representatives from the Greencode Project are planning a green filming event at the Sheffield Documentary Festival November 2007, Film London is in the process of devising environmental sustainability guidelines for its Filming in London Code of Practice, the BSI has produced a British Standard for Sustainable Event Management and is exploring the potential for developing a British Standard for the sustainability of the film industry, BAFTA is exploring the possibility of developing a Sustainability Charter and the DCMS has targets that specifically relate to NDPBs, one of which is to nominate high level sustainable development representatives to act as contact points for each other and the public by end of July 2007. There is a need for quick wins



as well as long term vision. Table 6 details recommendations for a practical roll-out of an environmental strategy.

**Table 6: Recommendations for a Practical Roll-out of a UKFC Environmental Strategy**

Activity	Short term actions	Medium/ long term actions
In-house environmental sustainability	5. UKFC Environmental Policy <b>Signed off and distributed to UKFC staff, RSAs and UKFC funded organisations by September 2007</b> 6. Appointment of sustainable development representative (as per DCMS) and/or an environmental officer/environmental champion (this could be the same person or a group of people) <b>Responsibility designated by end July 2007</b> 7. UKFC Office Environmental Audit <b>To be completed before October 2007</b> 8. UKFC Environmental Management System with set objectives and targets for energy, waste, water and transport reduction, and sustainable procurement for example <b>Commencement October 2007 for implementation January 2008</b>	Environmental reporting <b>To produce first report January 2009</b>
Lead the development of an environmental plan for UK film	5. Establish a UK Film Industry Working Group <b>Initiate contact October 2007, aim for first meeting during December 2007</b> 6. UKFC Vision statement <b>Signed off and distributed to UK film industry and DCMS by February 2008</b> 7. Draft Environmental Plan <b>Distributed to UK film industry and DCMS by March 2008</b> 8. UKFC sustainability portal website <b>Ready for launch January 2008</b>	UKFC hosted environmental conference <b>Spring 2008</b>
Partnerships	2. Meet with interested bodies to identify research synergies and/or explore research areas <b>Initiate contact November 2007</b>	Develop a research programme <b>Signed off and distributed to UKFC and UK Film Industry Working Group by March 2008</b>
Environmental Awareness	3. Liaise with training bodies to develop training courses <b>Initiate contact November 2007</b> 4. Produce an environmental sustainability guide <b>Signed off and distributed to relevant bodies by January 2008</b>	3. Fund training placements <b>From January 2009</b> 4. Host, or work with other organisations to host, Film Industry Environmental Awards <b>Spring 2009</b>



## APPENDICES

### Appendix 1: Climate Change

Global warming is a part of a natural process known as the greenhouse effect. The Earth receives energy from the sun, reflecting approximately 30% straight back into space, the remaining is absorbed by the land, oceans and atmosphere. The solar energy that is absorbed is re-emitted as infrared radiation; a portion of the infrared radiation goes out into space, and some captured by greenhouse gases\* to warm the planet. This natural process keeps the Earth's average surface temperature at about 15°C. Without this the temperature would be about minus 18°C which is too cold for the life on earth we are accustomed to. However, human activities such as burning fossil fuels (oil, coal and gas) and sending biodegradable waste to landfill\*\* have increased greenhouse gases such as CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O in the atmosphere dramatically exaggerated an otherwise natural process and enhanced the atmosphere's ability to trap heat. This has led to an increase in the average surface temperature of the Earth 'global warming', contributing to climate change.

In addition to global warming, deforestation is accelerating climate change. Deforestation occurs when forests are cut down to make way for arable land, roadways and urban development or for wood products, industry or fuel. Scientists estimate that 25-30% of the greenhouse gases released into the atmosphere each year (1.6 billion tonnes) is caused by deforestation. According to the UN's Food and Agriculture Organisation 2006 figures 13 million ha of forests worldwide are lost every year, almost entirely in the tropics. Trees are 50 percent carbon, when they are felled or burned, the CO<sub>2</sub> they store escapes back into the air. Deforestation remains high in Africa, Latin America and Southeast Asia (FAO, 2006).

\* The main greenhouse gases are:-

- **Carbon dioxide (CO<sub>2</sub>)**
- **Methane (CH<sub>4</sub>)\*\***
- **Nitrous oxide (N<sub>2</sub>O)**
- **Hydrofluorocarbons (HFCs)**
- **Perfluorocarbons (PFCs)**
- **Sulphur hexafluoride (SF<sub>6</sub>)**
- Water vapour H<sub>2</sub>O

\*\* Biodegradable waste sent to landfill releases methane from the anaerobic decomposition of organic materials; CH<sub>4</sub> is around 20 times more potent as a greenhouse gas than CO<sub>2</sub>. Cows release 4% of methane emissions (methane is emitted as the animals turn grass into milk); this figure is set to rise as meat and dairy consumption increases.

The greenhouse gases in bold are the six greenhouse gases whose emissions are covered by the Kyoto Protocol.

**The Intergovernmental Panel on Climate Change and Impacts of Climate Change (IPPC):** IPCC was established in 1988 by the World Meteorological Organisation (WMO) and the United Nations Environment Programme (UNEP) to evaluate the risk of climate change brought on by humans, based mainly on peer reviewed and published scientific/technical. The IPCC publish special reports and summaries for policy makers based on peer reviewed and



published scientific literature through their three Working Groups WG1 (assess the scientific aspects of climate change), WG2 (assess negative and positive consequences of climate change, the vulnerability of socio-economic and natural systems and options for adapting to climate change) and WG 3 (assess options for limiting greenhouse gas emissions and mitigating climate change).

**Climate Change Impacts Specific to Europe:** For the first time, wide ranging impacts of changes in current climate have been documented of unprecedented magnitude:-

- Retreating glaciers
- Longer growing seasons
- Shift of species ranges
- Health impacts due to a heat wave

The observed changes described above are consistent with those projected for future climate change. Nearly all European regions are anticipated to be negatively affected by some future impacts of climate change and these will pose challenges to many economic sectors.

Climate change is expected to magnify regional differences in Europe's natural resources and assets. Negative impacts will include increased risk of inland flash floods, and more frequent coastal flooding and increased erosion (due to storminess and sea-level rise). The great majority of organisms and ecosystems will have difficulties adapting to climate change. Mountainous areas will face glacier retreat, reduced snow cover and winter tourism, and extensive species losses (in some areas up to 60% under high emission scenarios by 2080).

In Southern Europe, climate change is projected to worsen conditions (high temperatures and drought) in a region already vulnerable to climate variability, and to reduce water availability, hydropower potential, summer tourism and, in general, crop productivity. It is also projected to increase health risks due to heat waves and the frequency of wildfires.

In Central and Eastern Europe, summer precipitation is projected to decrease, causing higher water stress. Health risks due to heat waves are projected to increase. Forest productivity is expected to decline and the frequency of peatland fires to increase.

In Northern Europe, climate change is initially projected to bring mixed effects, including some benefits such as reduced demand for heating, increased crop yields and increased forest growth.

However, as climate change continues, its negative impacts (including more frequent winter floods, endangered ecosystems and increasing ground instability) are likely to outweigh its benefits.

Adaptation to climate change is likely to benefit from experience gained in reaction to extreme climate events, by specifically implementing proactive climate change risk management adaptation plans.

Source: Climate Change 2007: Impacts, Adaptation and Vulnerability  
Working Group II Contribution to the Intergovernmental Panel on Climate Change Fourth  
Assessment Report Summary for Policymakers (April 2007)  
<http://www.ipcc.ch/SPM13apr07.pdf>



## **Appendix 2: Additional Impacts of Climate Change**

<b>Ecosystems<sup>58</sup></b>	<ul style="list-style-type: none"> <li>• The resilience of many ecosystems is likely to be exceeded this century by an unprecedented combination of climate change, associated disturbances (e.g., flooding, drought, wildfire, insects, ocean acidification), and other global change drivers (e.g., land use change, pollution, overexploitation of resources).</li> <li>• Over the course of this century, net carbon uptake by terrestrial ecosystems is likely to peak before mid-century and then weaken or even reverse, thus amplifying climate change.</li> <li>• Approximately 20-30% of plant and animal species assessed so far are likely to be at increased risk of extinction if increases in global average temperature exceed 1.5-2.5°C.</li> <li>• For increases in global average temperature exceeding 1.5-2.5°C and in concomitant atmospheric carbon dioxide concentrations, there are projected to be major changes in ecosystem structure and function, species' ecological interactions, and species' geographic ranges, with predominantly negative consequences for biodiversity, and ecosystem goods and services e.g., water and food supply.</li> <li>• The progressive acidification of oceans due to increasing atmospheric carbon dioxide is expected to have negative impacts on marine shell forming organisms (e.g., corals) and their dependent species.</li> </ul>
<b>Food, fibre and forest products</b>	<ul style="list-style-type: none"> <li>• Crop productivity is projected to increase slightly at mid- to high latitudes for local mean temperature increases of up to 1-3°C depending on the crop, and then decrease beyond that in some regions.</li> <li>• At lower latitudes, especially seasonally dry and tropical regions, crop productivity is projected to decrease for even small local temperature increases (1-2°C), which would increase risk of hunger.</li> <li>• Globally, the potential for food production is projected to increase with increases in local average temperature over a range of 1-3°C, but above this it is projected to decrease.</li> <li>• Increases in the frequency of droughts and floods are projected to affect local crop production negatively, especially in subsistence sectors at low latitudes.</li> <li>• Adaptations such as altered cultivars and planting times allow low- and mid- to high-latitude cereal yields to be maintained at or above baseline yields for modest warming.</li> <li>• Globally, commercial timber productivity rises modestly with climate change in the short- to medium term, with large regional variability around the global trend.</li> <li>• Regional changes in the distribution and production of particular fish species are expected due to continued warming, with adverse effects projected for aquaculture and fisheries.</li> </ul>
<b>Coastal systems and low-lying areas</b>	<ul style="list-style-type: none"> <li>• Coasts are projected to be exposed to increasing risks, including coastal erosion, due to climate change and sea-level rise. The effect will be exacerbated by increasing human-induced pressures on coastal areas.</li> <li>• Corals are vulnerable to thermal stress and have low adaptive capacity. Increases in sea surface temperature of about 1-3°C are projected to result in more frequent coral bleaching events and widespread mortality, unless there is thermal adaptation or acclimatisation by corals.</li> <li>• Coastal wetlands including salt marshes and mangroves are projected to be negatively affected by sea-level rise especially where</li> </ul>

<sup>58</sup> Community of animals, plants and bacteria and the environment in which they live and react



	<p>they are constrained on their landward side, or starved of sediment.</p> <ul style="list-style-type: none"> <li>• Many millions more people are projected to be flooded every year due to sea-level rise by the 2080s.</li> <li>• Those densely-populated and low-lying areas where adaptive capacity is relatively low, and which already face other challenges such as tropical storms or local coastal subsidence, are especially at risk.</li> <li>• The numbers affected will be largest in the mega-deltas of Asia and Africa while small islands are especially vulnerable.</li> <li>• Adaptation for coasts will be more challenging in developing countries than in developed countries, due to constraints on adaptive capacity.</li> </ul>
<b>Industry, settlement and society</b>	<ul style="list-style-type: none"> <li>• Costs and benefits of climate change for industry, settlement, and society will vary widely by location and scale. In the aggregate, however, net effects will tend to be more negative the larger the change in climate.</li> <li>• The most vulnerable industries, settlements and societies are generally those in coastal and river flood plains, those whose economies are closely linked with climate-sensitive resources, and those in areas prone to extreme weather events, especially where rapid urbanisation is occurring.</li> <li>• Poor communities can be especially vulnerable, in particular those concentrated in high-risk areas. They tend to have more limited adaptive capacities, and are more dependent on climate-sensitive resources such as local water and food supplies.</li> </ul>
<b>Health</b>	<ul style="list-style-type: none"> <li>• Projected climate change-related exposures are likely to affect the health status of millions of people, particularly those with low adaptive capacity, through:-             <ul style="list-style-type: none"> <li>○ increases in malnutrition and consequent disorders, with implications for child growth and development;</li> <li>○ increased deaths, disease and injury due to heat waves, floods, storms, fires and droughts;</li> <li>○ the increased burden of diarrhoeal disease;</li> <li>○ the increased frequency of cardio-respiratory diseases due to higher concentrations of ground level ozone related to climate change; and,</li> <li>○ the altered spatial distribution of some infectious disease vectors.</li> </ul> </li> <li>• Climate change is expected to have some mixed effects, such as the decrease or increase of the range and transmission potential of malaria in Africa.</li> <li>• Studies in temperate areas have shown that climate change is projected to bring some benefits, such as fewer deaths from cold exposure. Overall it is expected that these benefits will be outweighed by the negative health effects of rising temperatures world-wide, especially in developing countries.</li> <li>• The balance of positive and negative health impacts will vary from one location to another, and will alter over time as temperatures continue to rise. Critically important will be factors that directly shape the health of populations such as education, health care, public health prevention and infrastructure and economic development.</li> </ul>

Source: Climate Change 2007: Impacts, Adaptation and Vulnerability<sup>59</sup>

59 Working Group II Contribution to the Intergovernmental Panel on Climate Change  
 Fourth Assessment Report Summary for Policymakers (April 2007)  
<http://www.ipcc.ch/SPM13apr07.pdf>



### **Appendix 3: Organisations and Individuals Contacted**

During April – June 2007 the following people were contacted\* in relation to this study:-

<b>UK Organisation</b>	<b>Contact</b>
3 Mills Studio	Derek Watts
BAFTA	Amanda Barry
BFI	Jeff Gay
Defra	Robert Grant
Digital Womens Network	Olwyn Hocking
Ealing Studios	James Spring
Edinburgh Film Focus	Rosie Ellison
Elstree Studios	Paul Clarke
Film Agency for Wales	Pauline Burt
Film London	Sue Hayes & Michelle Jenkins
First Light Movies	Charlotte Dolman
Friends of the Earth	Claire Weir
Glasgow Film Office	Jennifer Reynolds
Global Cool	Lia Abady (Lia is no longer working with global cool)
Granada Television	Stuart Wynne
Granada Television	Tracey Costello
IVCA	Henry Hicks
Leavesden Studios	Daniel (studio manager)
Lee Lighting	Colin Smart
LWT	Jack Cunningham
MPH Accessible Media	Hayley McLaren
North West Vision	Mike Brunt & Catherine Bryce
Northern Ireland Screen	Julieanne Crothers-Gibson
Northern Media	Helen Stearman
Pinewood Studios	Nick Smith
Pretzel Films	Joe Radworth
Quality of Life	John Barwise
Scottish Highlands and Islands Film Office	Chris Shortage



### **UK Organisation**

Scottish Screen  
Screen Academy Scotland  
Screen South  
Silverfish TV  
Skillset  
South West Screen  
Tay Screen  
Twickenham Studios  
UK Post Ltd

### **International Organisation**

British Columbia Film Commission  
Environmental Media Association  
(EMA)  
Green Code Project Canada  
Greening the Screen  
UCLA Institute of the Environment

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\* A number of other people were contacted, however did not comment on any issues relating to this report or did not return my calls/email.



## **Appendix 4: Approaching Environmental Sustainability – Large Film Studios**

Environmental sustainability should be understood and adopted by everyone within the film industry. Due to the scale and nature of the industry it will be difficult to produce one definite approach, however, a series of environmental sustainability principles can be agreed and measures adopted specific to the sector of the industry. For example Big Studios, large post-production houses and cinemas could: -

- Devise their own environmental policy and environmental management system (which covers, where applicable, waste management, recycling, energy efficiency, donating unused/unwanted items to community groups/local charities, water efficiency, transport, leasing hybrid vehicles, purchasing locally made and/or organic products, new technologies, products, biodiversity, resource use etc);
- Implement a sustainable procurement policy;
- Issue guidance, incentives to recycle, reduce water, waste and energy, and formulate a central purchasing list which includes companies that have environmental credentials;
- Investigate the feasibility of generating their own energy on site<sup>60</sup>, purchasing water saving devices and/or installing rainwater harvesting, setting up recycling schemes and community programmes (to distribute old sets, equipment etc.), setting up large composting facilities (the University of Salford are currently researching a composting process whereby all biodegradable waste, e.g. including meat, can be sent to compost)
- Distribute an environmental guide for use by resident and visiting film production companies (not applicable to cinemas although cinemas could produce guides for their staff and the public). Currently there are a number of guides available on the Internet, however, there is a need to bring best practice, toolkits and links together.

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<sup>60</sup> The Cooperative group reduced their CO2 emissions by 70% through energy efficiency measures and through the generation of their own renewable energy (5%) such as photovoltaic panels on the CIS building Manchester and wind turbines on their farms. By 2012 the Cooperative group aim to reduce their energy by 25% on 2005 levels; this figure is based on a £7million investment which will deliver (estimated) savings of £17million (they are actively involved in developing their own renewable energy).