

Exhibitions - Going Green Survey

Analysis Report - October 2008

The question of addressing green practices within the international exhibition exchange programmes was raised by Stephen Mellor, Exhibitions Co-ordinator, Tate Modern at the International Exhibition Organisers (IEG) Conference held in Rome in April 2007.

In order to assess what is already being done within the Art Exhibition industry and to share ideas and experiences and to promote Green Practices more widely, an on-line survey was drawn up by Stephen Mellor working with Daniel Vega, Deputy Director, Planning and Organisation, Guggenheim Museum, Bilbao.

The email invitation to take part in the survey was sent to all members of the IEG and the North American Group (NAEO) in March/April 2008, to a few other 'known contacts' and sent on to other interested people as the email word spread.

The on-line Survey Period was originally open from 10 March to 10 April 2008. A snap shot analysis of the survey was presented at the 4th Annual Meeting of the International Exhibition Organisers (Bonn, 17-18 April 2008). In view of the interest that the survey had raised among other institutions, the survey was re-opened for another three months, extending the end date until 31 July 2008.

This report is formatted for printing on A4 paper with 2cm top and bottom and 3cm left and 2cm right margins and trust you will double side copy when you have the opportunity!

There is a lot of good information in this report – some ideas very simple to implement – but we have not tested the validity of any of these ideas or processes, cannot be held responsible for any of the information nor can we vouch for any web site links and any information these may contain.

We hope our comments will assist in the interpretation of the survey results.

85 Institutions submitted answers to the survey – 10 answered for different sites so we have 95 responses on which this report is based. However, some did not complete all questions but as all answers were of interest we have decided to include all submissions/answers in our analysis.

The vast majority of the Institutions (98%) send or receive temporary exhibitions.

The international 'spread' of the 85 respondents: (see Institution list at end of report)

3	Australia
1	Austria
2	Canada
5	France
2	Germany
1	Hungary
3	Italy
1	Japan
1	New Zealand
4	Spain
1	Switzerland
26	UK
34	USA

Comment

From the analysis of the responses that follow you will see there is a desire to 'green' how we work but the ideas and information are scattered. In particular the survey raises contradictory data regarding how 'green' we think, plan and develop exhibitions in view of the amount of real facts or examples of good practice which are provided in the responses. As an example, despite the fact that 47% of the respondents acknowledge the use of eco-friendly paint, and that 55% are prepared to share their green strategies and solutions, only 9% have named green exhibition materials – and just 6% use green crating materials they can recommend.

Analysis of Sections 1 and 2 of the survey has been placed at the end of this report.

Section 3 - How is your institution thinking 'green'?

About two thirds (61%) of the institutions that participated in the survey said that their institutions did not have a formalised method or committee for discussing and considering 'green' issues.

- From the 39% of institutions that do have a committee set up for green issues, 61% of them meet regularly (more than every 6 months), 19% meet at least once every six months, and the remaining 19% meets only occasionally.
- When committees exist, 68% of them have a representative from the Exhibitions department, but only 46% of them have an internally published strategy for green issues.

81% of the institutions mentioned that are not required to report on green issues by trustees or government.

Just over half of the institutions said they promoted and raised awareness to all staff and departments regarding green issues. A similar number were eager to share their green issues, strategies and solutions.

Table 1 – How is your institution thinking green?

	YES	NO
Does your institution have an Internal Greening Committee	39%	61%
<i>Meets more than once every 6 months</i>	19%	
<i>Meets only occasionally</i>	19%	
<i>Meets more regularly</i>	61%	
Committee has an internally published greening strategy	46%	54%
Exhibitions department represented in the Committee	68%	32%
Required by government or trustees to report Green issues	19%	81%
Prepared to share its green issues, strategies and solutions	55%	45%
Do you have a green policy for all your purchasing	15%	85%
Do you have a separate 'Exhibitions' greening committee	6%	94%
Do you promote and raise awareness to all staff and departments	56%	44%

Comment

There seems to be still a long way to go towards thinking green institutionally in museums. Besides the fact that a majority of institutions do not have an Internal Greening Committee, where such management committees have been established, only half have a published greening strategy in place. Specifically in the area of exhibition planning and production there is clearly much progress to be made: only 32% of the participants have a representative of the Exhibitions department on the Internal Greening Committee, and - not quite surprisingly therefore only 6% of the institutions participating in the survey have a separate 'Exhibitions' greening committee.

4 – Buildings: Operations

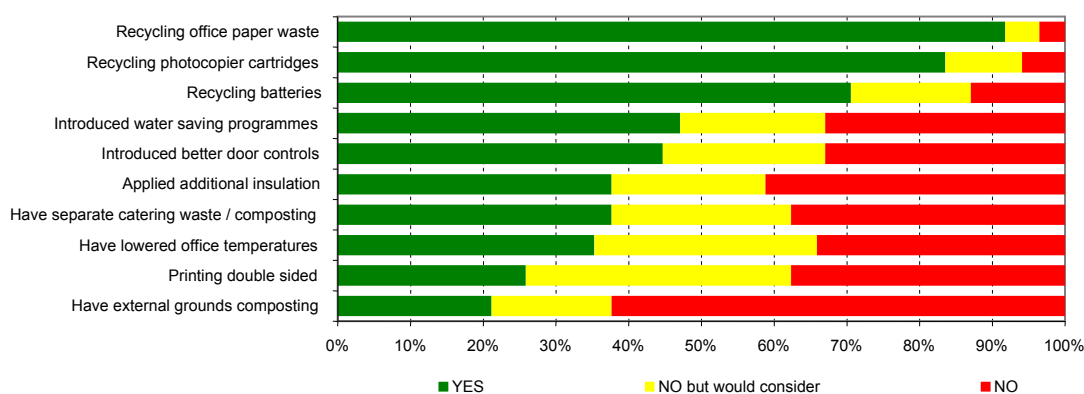
The most widely used changes in building operations introduced were recycling of:

- office paper waste (92% of participants)
- photocopier cartridges (84%)
- batteries (71%)
- water saving schemes (47%)
- more efficient door controls (45%).

Less popular alternatives were:

- having external ground composting (62% not doing and not considering)
- printing double sided (38%, although 36% considering)
- lowering office temperatures (34%, but 31% considering)
- having separate catering waste (38%)
- applying additional insulation (41%, but 21% considering).

Graph 1 - Changes in your Building Operations



- Many respondents mentioned that green building initiatives would be implemented in new buildings more extensively than currently possible. Several others mentioned that green initiatives were made possible only after the refurbishing of their very old buildings (insulation, door closures, temperature control being the main ones mentioned).
- Participants also mentioned other wastage that they are already recycling, mainly plastics, wood, glass, electronic materials, and dangerous materials as paint and solvents, packing, paper, cardboard, porcelain and china, CDs and DVDs.
- Other issues and initiatives mentioned were:
 - *The chiller system upgraded with a water softener which will reduce the amount of water required in the system*
 - *New meter will also identify and reduce water loss through the system*
 - *Difficulty of cooling the building, which we want to do without resorting to energy intensive air conditioning*
 - *The biggest issue for museums to save energy may be being more flexible about setting loan conditions in terms of temperature and RH so that more museums can work without air con.*
 - *Using 'green' cleaning solutions*
 - *Reviewing every product's MSDS sheet*
 - *Shutting off hot water service to public and staff restrooms; or lowering the hot water temperature*
 - *Using Styrofoam cups for coffee*
 - *Guests get paper-based coffee cups, and staff has to use their own ceramic mugs*
 - *Use sugar and creamer in the large containers and no longer using individual packets*
 - *We increase the office temp in summer and decrease it in winter*

- *Recycling all of our light bulbs, both fluorescents and exhibits lighting*
- *Purchasing some recycled/post-consumer paper products*
- *Purchasing locally.*

Section 4 – Buildings: Lighting

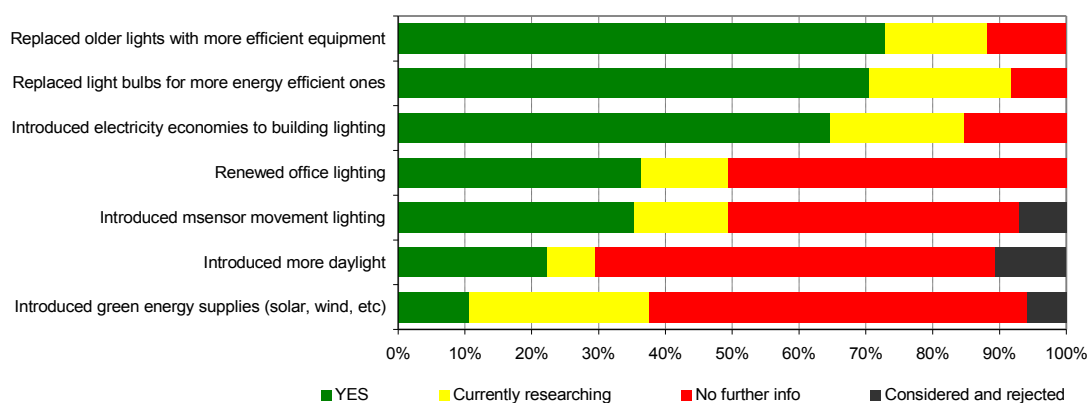
As to lighting solutions, the most popular alternatives being implemented are the replacement of older lights or equipment for more efficient ones (73% currently doing), replacing old bulbs for energy efficient bulbs (71%) and the introduction of electricity economies to the building lighting operations (65%).

The least favourite alternatives were the introduction of more daylight (71% responding ‘no’ or ‘considered and rejected’) and the introduction of green energy supplies such as solar or wind (62%).

Table 2 – Lighting

	NO			
	YES	Currently researching	No further info	Considered and rejected
Replaced older lights with more efficient equipment	73%	15%	12%	0%
Replaced light bulbs for more energy efficient ones	71%	21%	8%	0%
Introduced electricity economies to building lighting	65%	20%	15%	0%
Renewed office lighting	36%	13%	51%	0%
Introduced msensor movement lighting	35%	14%	44%	7%
Introduced more daylight	22%	7%	60%	11%
Introduced green energy supplies (solar, wind, etc)	11%	27%	56%	6%

Graph 2 – Lighting



Other comments regarding lighting initiatives were:

- *Lighting is programmed automatically according to space occupation schedules*
- *Research LED Lighting*
- *There is a problem with sourcing energy efficient light bulbs for some types of display lighting. We have introduced more daylight, but have had problems relating to the technology required to operate such systems*
- *Surveyed night time out of hours usage and adjusted timers in the gallery spaces*
- *Using LED and fibre optics in galleries*
- *We are 99% fluorescent w/daylight. We are switching from T-12 to T-8 ballasts.*

Comment

Whilst the recycling of office paper (92%) and photocopier cartridges (84%) is almost normal practice the initiatives to save lighting in building operations (replacement of bulbs or introduction of electricity economies) can still be clearly improved.

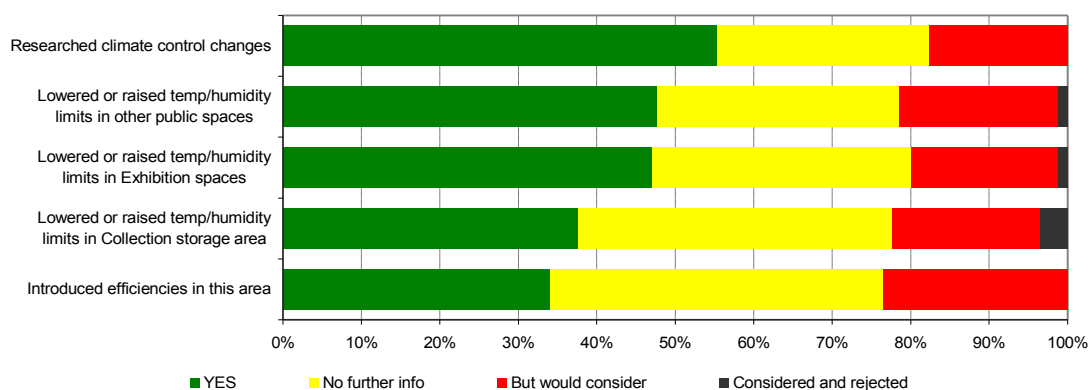
Section 4 – Buildings: Climate Control

As to climate control solutions, about half of the participating institutions had researched possibilities. A similar number had introduced or implemented a climate control measure, with the lowering or raising of temp/humidity limits in public spaces (48%) and in exhibition spaces (47%).

Table 3 – Climate Control

	NO			
	YES	No further info	But would consider	Considered and rejected
Researched climate control changes	55%	27%	18%	0%
Lowered or raised temp/humidity limits in other public spaces	48%	31%	20%	1%
Lowered or raised temp/humidity limits in Exhibition spaces	47%	33%	19%	1%
Lowered or raised temp/humidity limits in Collection storage area	38%	40%	19%	4%
Introduced efficiencies in this area	34%	42%	24%	0%

Graph 3 – Climate Control



Several respondents mentioned that a key difficulty towards improvements in this area is the requirement of lenders and government indemnity schemes specifying temperature and RH limits.

Other comments regarding climate control were:

- Use of a world leading passive cooling system called the Labyrinth. This cooling system generates one tenth of the greenhouse gas emissions of conventional cooling systems
- In winter we keep in the exhibition galleries a 19°-20° temperature. In summer we raise the temperature to 20°-21°
- Climate is switched on/off automatically according to occupation schedules in all areas without works of art. In areas with works of art, the gates to outdoor air are closed when there is no public present, as air renovation is therefore not necessary
- Temperature and humidity levels kept constant in response to the requirements of lenders and Government Indemnity. BMS regulates temperature in collection spaces (50 +/-10, 20 degrees centigrade) and exhibition spaces (50 +/-5, 20 degrees centigrade)
- New air distribution system in galleries and new dual plant with modes of operation will reduce energy by more than 50% and achieve close environmental control to government indemnity standards
- Improvements in temperature and humidity control from air conditioning system and variable temperature set point
- Seasonal HVAC setups to minimize energy use by utilizing more or less outside air. - Enthalpy control and optimal equipment setups in central plant on a daily basis
- The open plan of our building does not allow for much difference in temperature and humidity between gallery and public spaces
- Have decided to lower out set points to better reflect what our building is able to maintain in a San Francisco environment (48% RH; 70 degrees F +/-5 or +/- 2 degrees

- *Lower humidity set point in winter for the offices and library*
- *In the exhibition galleries we have to maintain the climatic conditions required for artwork. All other parts of the building are usually very cold.*

Comment

The many initiatives from different international institutions, associations, and professional groups such as ICOM, IIC, AAM, IAMFA, Bizot or IEO Groups should gradually lead to the agreement and adoption internationally of new/revised climate control standards that will enable more pragmatic and greening – but still appropriate and responsible – environmental gallery conditions.

Whilst environmental conditions in exhibition galleries are being modified by 47% of participants this is probably in contradiction to the environmental conditions the same institutions require in their standard 'outward loans' conditions.

Section 4 – Buildings: New Buildings

55% of the participating institutions are currently engaged in or are in the planning stage of a new building. 89% of those planning a new building have said that green issues are being considered in the plans.

- *Associated costs in capital versus recurrent are difficult to balance in government projects with the uncertainty of capital funding*
- *Basic green initiatives are already included and additional funding applied for to extend the scale or number of ESD initiatives that can be incorporated into the building*
- *We have just opened a new external storage area. It has been designed with "green issues" in mind as: use of low-consume lamps, use of very efficient external layer of buffering material, space distribution which facilitates the climate control with reduced energy cost, etc.*
- *It is part of the program regarding heating, lighting, insulation, respecting green public spaces around*
- *Currently, we are completing feasibility study on three new buildings (2 outdoor classrooms and a ticketing office), all featuring methods of sustainable constructions including straw-bale insulation and green (planted) roofs*
- *Green issues are considered and assessed to satisfy work place legislation, comfort and indemnity requirements*
- *Low VOC materials were used in renovations and will be used in special exhibitions*
- *Our building is only 4 years old so we have an advantage of being able to use fairly new technologies to reduce energy consumption*
- *LEED certification for remodel.*

Comment

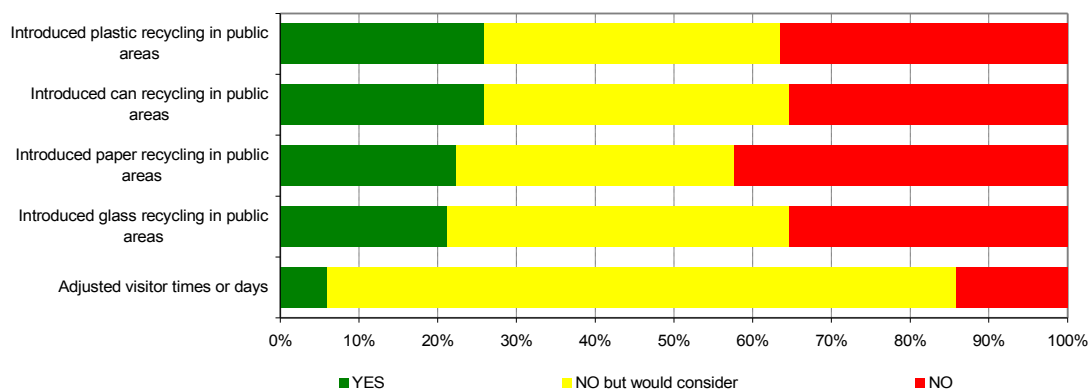
It is good to see that both clients and architects are on the green path with 55% of new building respondents confirming environmental issues are addressed. We are sure this will rapidly increase to become standard practice. The LEED certification process is both encouraging and good practice to follow.

Section 5 – Visitor Operations

In regard to changes to visitor operations, opinions were in general divided. About a quarter of the participating institutions had introduced recycling schemes into public areas (plastic 26%, cans 26%, paper 22%, glass 21%). Those who had not were evenly divided between not wanting such schemes and considering as potential green solutions.

Only 6% of the institutions mentioned having adjusted visitor times or days, with 14% being against such an initiative. However, 80% of the participants mentioned potentially considering reducing visitor days or times as a greening solution.

Graph 4 – Visitor Operations



Other comments related to visitor operations included:

- *Installed collecting poles for the recycling of aluminium buttons (=tickets)*
- *Have introduced the above mentioned recycling schemes in limited areas at present but are actively pursuing rolling it out to other areas of the museum*
- *Encourage visitors to leave behind unwanted gallery leaflets for re-use*
- *Opening hours changed to make the most use of natural daylight, therefore not relying on electrical light*
- *Our Cafe recycles wine bottles and boxes and the grease sent off to be used for bio fuels; Exhibitions reuses wood, paint and other materials when suitable; Gift Shop reuses shipping boxes and packing materials for shipments*
- *Cafe has reduced waste by moving away from disposable plates and plastic ware*
- *We hope to be expanding our visitor recycling opportunities to all small electronics*
- *No paper towels in public washrooms, just air dryers*
- *Public composting is available at two of our sites, and all catering waste is composted. Our catering staff provide compostable 'take-out' containers at all sites*
- *We advertise public transportation options on our website.*

Comment

There is clear evidence that there are more intense 'green activities' 'back of house' rather than 'front of house'. While 92% of participants are recycling office paper waste, only 22% of participants have introduced paper recycling in public areas. It would be interesting to know how much this imbalance responds to aesthetic necessities and constraints.

Section 6 – Exhibition Making Process: Exhibition Builds

As the table below shows, the majority of institutions use temporary display walling (87%). From within these, 69% use reusable equipment for display walling. A similar number have reusable walling surfaces (68%), and have the walling system designed specifically for their buildings (69%).

Around half of the institutions use eco-friendly paints (47%). Only a small share of the participants mentioned having green exhibition materials they could recommend (9%).

Table 4 – Exhibition builds

	YES	NO
Do you have and use temporary display walling?	87%	13%
If yes, is this reusable equipment?	69%	31%
Is the walling surface reusable?	68%	32%
Is the walling system designed specifically for your building?	69%	31%
Do you use eco-friendly paints?	47%	53%
Do you have green exhibition materials you could recommend?	9%	91%

Other comments regarding exhibition builds included:

- *We are starting to use eco-friendly paints for light colours but are struggling to find dark colours*
- *We try to re-use exhibition materials for different exhibitions but we have 1 space to store these materials*
- *Temporary display walling is usually made of MDF. We always try to use some of the walls for the next exhibition, sometimes moving or cutting them, but that is usually difficult because of exhibition designs*
- *Issues of conservation are very important when selecting materials. Consequently we don't use things that are easily biodegradable. These materials tend to be tested for their effect on the collections rather than their green credentials. It would be good to have more guidance here*
- *Recycle timber flooring material*
- *We use free standing baffles to section galleries and increase wall hanging space. These walls are heavy, but are easily moved with use of hydraulic lifts*
- *Recommendation: agrifiber board and homasote (see www.ecoexhibits.org), Modular Wall System - Kunstmuseum Wolfsburg*

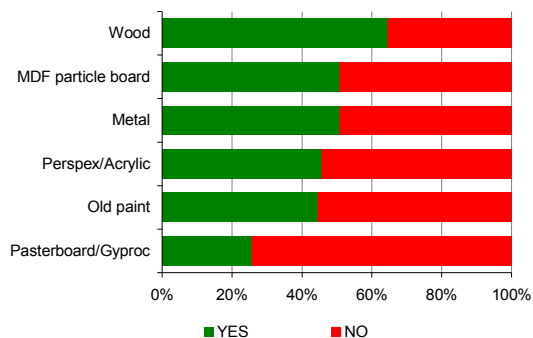
Comment

Almost no information is provided on how the re-use or environmental disposal of MDF – the 'quasi standard' walling surface material - is being done. This lack of firm information, together with the fact that 69% of participants acknowledge the use of a walling system designed specifically for their buildings, suggests from an environmental point of view a need (31%) to develop and produce more types of standard, re-usable or recyclable materials and eco-friendly walling systems. The following question regarding storage of course is also an issue when investing in 'systems'.

Section 6 – Exhibition Making Process: Recycled materials

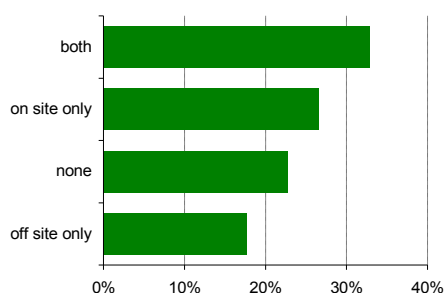
The most commonly recycled material from exhibition builds are wood (65%), MDF particle boards (51%), metal (51%), perspex/acrylic (46%), and old paint (44%). Less common was the recycling of plasterboard/gyproc, at only 25% of the participating institutions.

Graph 5 – Recycled materials



As to storage space for exhibitions materials, 27% of institutions have an on-site storage space, 18% off-site, 33% have both on-site and off-site, and 23% has neither.

Graph 6 – Storage Facilities



Finally, 85% of the institutions donate unwanted furniture to others after an exhibition is finished.

Other comments about recycling of exhibition build materials included:

- *Use water based paint*
- *Dispose of old materials through a recycling firm*
- *Limited space off-site for items such as plinths*
- *Wall colours are often maintained instead of being totally repainted and label foam card is recovered with new information*
- *Wood, paint and perspex recycled via schools and staff; display furniture advertised with UKRG and contacts; off site storage with external build contractors*
- *Acrylic and metal is usually recycled to make mounts*
- *Contractor collects demo materials*
- *May start requiring gyproc(plasterboard) vendors to recycle*
- *Recycle exhibition graphic panels and banners.*

Comment

There seems to be an evident connection between the percentage of institutions that use temporary display systems with re-usable walling surfaces and the percentage of institutions that have enough storage facilities. Accordingly, such good practice should be analysed and reflected in the planning phase of new buildings and external storage facilities.

Section 6 – Exhibition Making Process: Crating for International Loans

Only slightly above half of the participants have ever used ready made hire crates for their own collection loan-outs (56%). Of these, the vast majority (84%) believed this had been an economic alternative, and most thought they would use it again in the future (93%).

Modular or collapsible crating was far less popular, with only 14% of participating institutions having tried it. Two thirds of the institutions believed that stackable crating could be a ‘greener’ and economic possibility for crating, and 63% responded they would allow them in their freight transfers, as the table below shows.

Table 5 – Crating for International Loans

	YES	NO
Ever used ready made hire crates for your collection loan outs?	56%	44%
Was this economic?	84%	16%
Would you use again in the future?	93%	7%
Have you experienced modular/collapsible crates?	14%	86%
Is there any special green new crating material you could recommend?	6%	94%
Do you think stackable crating is a possibility and if so would you allow in your freight transfers?	63%	37%

Other comments regarding crating included:

- *We reuse crates by refitting interiors*
- *We have tried to keep and recycle old crates as much as possible but a lack of storage space is a serious issue*
- *We gave away successfully a large number of crates to small art galleries and commercial galleries by advertising on the local museum press. Generally however, disposing/recycling of old crates and exhibit furnishings is a big problem*
 - *For little pieces we use small suitcases we keep and re-use*
- *New Zealand regulation requires all crate materials to meet ISPM 15 regulations, which limits use of alternative materials*
- *We are planning to start a research program -together with several other European museums, research centers, and crate fabricators- to evaluate the feasibility of alternative recycled materials - as plastics - for the fabrication of crates*
- *We have sometimes used ready-made crates, called SPS crates, provided by Spanish Transport agent SIT. These are more economic than new wooden crates, but our conservators are not happy with them (paintings are suspended inside the crate and they think the straps press the frames too much). Furthermore, these cases are very heavy and packing operations are very lengthy, so the saving you get in crate construction is spent in staff time*
- *We have also bought different size reusable lockable aluminium cases for smaller objects. But there are issues with re-using crates with non-archival quality foam packing, as the foam can deteriorate and damage objects*
- *Artefacts & 3 dimensional objects because of the variety of sizes and shapes usually need specially made crates*
- *Stackable crating is an alternative for some objects but not for paintings*
- *We retrofit crates as much as possible; we keep 95% of our crates*
- *We are exploring the possibilities of recycling exhibition materials, and informally have a ‘take it home’ free program for staff. By no means is this a perfect system, but it beats throwing things away*
- *We have designed and produced a stackable, reusable crating system that we use to transport exhibition materials to/from our museum sites*
- *Under certain circumstances stacking crates has occurred and could be done.*

Comment

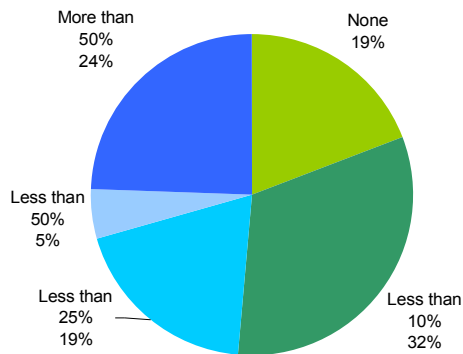
If – as the survey suggests- 93% of the 56% of participants that have used ready made hire crates for collection outward loans are willing to use them again in the future on a frequent basis, the specialised crating industry should be ready to start developing, promoting and distributing such packing products. However, this area of exhibitions logistics that could bring a huge impact in terms of addressing green

practices will not be able to develop until the corresponding packing and crating standards are discussed, agreed and implemented at an international level. As part of this process stackable crate design and an industry standard weight/strength symbol needs to be developed.

Section 6 – Exhibition Making Process: Crating for International Loans

To the questions of what percentage of crates for collection works were kept - other than long term storage protection – approximately a quarter (24%) of institutions replied ‘more than 50%’. Roughly, another quarter of institutions responded between 10% and 25% (24%), while a third (32%) of them responded ‘less than 10%’. Around 19% of institutions do not keep any of the crates for collection works.

Graph 6 – Re-used crates



Comment

The usually high operating costs of storing crates for collection works points again to examining the feasibility of using - and re-using - ready made hire or modular crates - the internal fit out of such crates can be more of a problem and not cost effective against greening benefits. With the percentages above one could say over 50% of crates are being disposed of - so how can we reduce this waste?

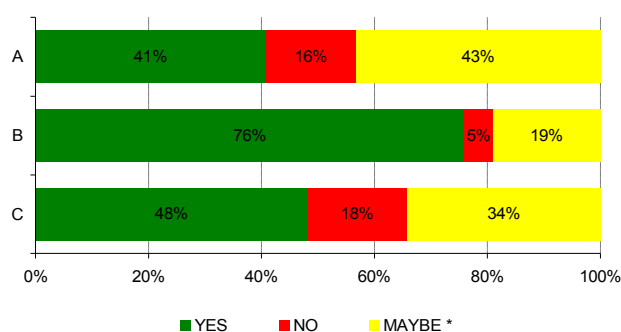
Section 6 – Exhibition Making Process: Exhibition ‘Loans Out’ Couriers

To the following statements,

- A. *Would you ever loan your collection works without sending a courier if there are no conservation concerns?*
- B. *Would you loan your collection works using another institution's professional conservation staff as courier?*
- C. *Would you ever loan your collection works without sending a courier if there are no particular installation concerns?*

Participating institutions responded that they were in general happy to use another institution’s professional conservation staff as courier (76%). Not sending a courier – when there are no installation or conservation concerns – was something only just under half of the institutions are comfortable doing, as shown in the graph below.

Graph 7 – ‘Loans Out’ Couriers



* If suitably trained borrower staff are available

Comments made as to exhibition loans out couriers included:

- *Exhibition loan courier needs are individually treated - we seek to reduce courier costs wherever possible either by consolidating loans, sharing courier responsibility or using the professional resources in the borrowing institution.*
- *Insurance policy requires a courier over a certain insurance value. Otherwise couriers are assessed according to complexity of installation or freight schedules, or conservation requirements.*
- *We are currently undertaking a piece of research to see if it is possible within the UK to agree the standards that a borrower would have to meet in order to reassure the lender that they do not need to send a courier. Our ambition is to agree a standard with the main lending institutions and then to ensure training is provided so that borrowers can meet the standards. We would be happy to share details of this research*
- *For direct flights: Lender to local airport to supervise palletising - no courier on flight. Borrower's courier meets flight and supervises from there.*
- *Value, conservation and installation issues are our main concerns for sending a courier. We try to consolidate shipments, using one institution's courier as much as possible. We appreciate the cost savings when someone does this for us and are willing to do this for others as well.*
- *For an International tour, send courier for international transport (outgoing and final return). Courier trains proper installation methods and discusses conservation concerns. Borrower is responsible for supervision during tour.*
- *We only use couriers for international loans, not for domestic loans (unless there are serious conservation concerns). I think more institutions should forego using domestic couriers.*

Comment

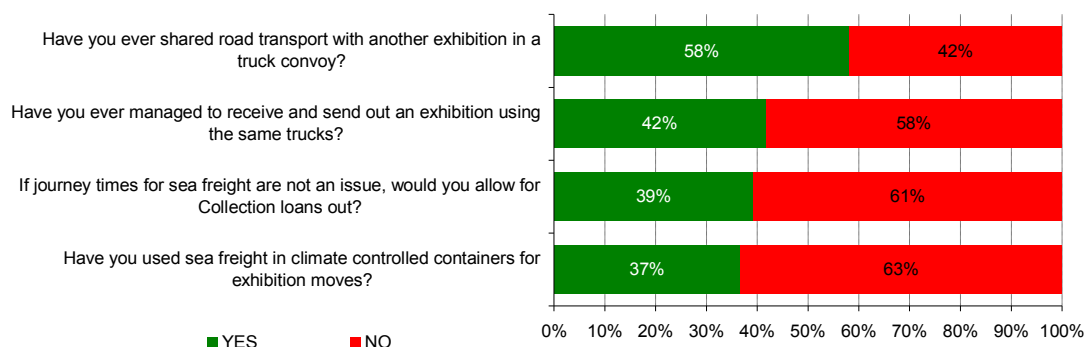
We have all begun to question the role and costs associated with having couriers. The relaxing of this ‘custom and practice’ will need a very co-operative approach between lending institutions. BIZOT group are already in discussion. Private lenders may eventually follow....Indemnity requirements will need to be negotiated.

Section 6 – Exhibition Making Process: Exhibition Transport

As to options regarding exhibition transport, 58% of the institutions have shared road transport in a truck convoy with another exhibition venue. Sending and receiving an exhibition using the same trucks ingoing and outgoing was slightly less common (42% of the institutions).

Sea transport was also not very common; less than half of the institutions (39%) would allow for Collection loans-out by sea freight (assuming timing is not an issue), and 37% have tried sea freight in climate controlled containers for exhibition moves, as show in the graph below.

Graph 8 – Exhibition Transport



Other comments regarding exhibition transport included:

- *We consolidate loans from different lenders from the same area as much as possible, for example contract a fine art shipper in California, USA to collect and consolidate several lenders*
- *Our experience with sea transport hasn't been good - works damaged or dripping with humidity. We have received very mixed reports from our colleagues*
- *Will never use Sea freight transport again, permanent damage to object occurred*
- *The problem with sea freight is not only journey times, but the lack of control at the ports. Containers are often left unattended, under adverse climate conditions. We have sometimes sent exhibitions by sea, but only for short distances, and the whole truck has been put inside a ferry*
- *There seems to be potential in a UK-wide shared road transport system, but it's hard to see who might organise that at present*
- *We try to consolidate shipments as much as possible for each exhibition and we rely heavily on the co-operation of the lenders to help us with this. For this reason we work closely with our Permanent Collection department to ensure that our practices as borrower coincide with their demands as the lender to external exhibitions*
- *Is sea freight proven to be less carbon costly?*
- *Combine air transport with other exhibitions*
- *We only used sea freight once and it was for exhibition furniture, not art. We have heard of freight containers with temperature control, but not humidity control.*

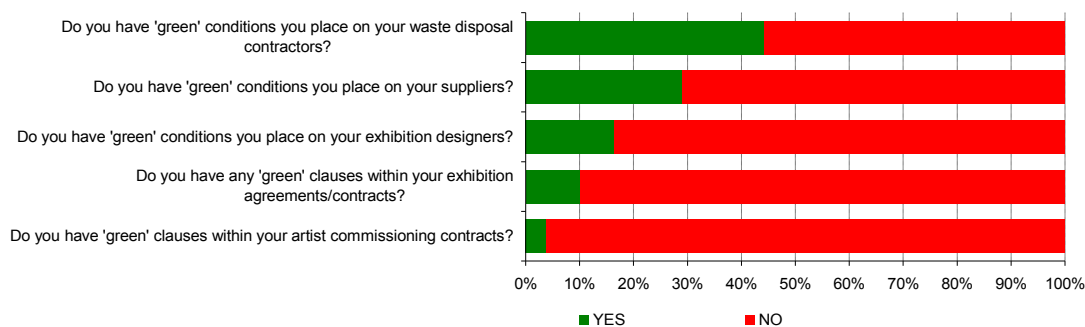
Comment

The use of sea freight has - if it proven to be 'greener' - a bad reputation to overcome to gain the trust of the fine art industry.

Section 6 – Exhibition Making Process: Contracts

The 'green' agenda had not been pushed to a great extent yet by using law, with green conditions not being put in place in contracts with contractors, designers, artists, etc. Green conditions have been more frequently applied to waste disposal contractors (44%), and general suppliers (29%), but less frequently to exhibition designers (16%), within exhibition agreements or contracts (10%), or within artist commissioning contracts (4%).

Graph 9 – Contracts



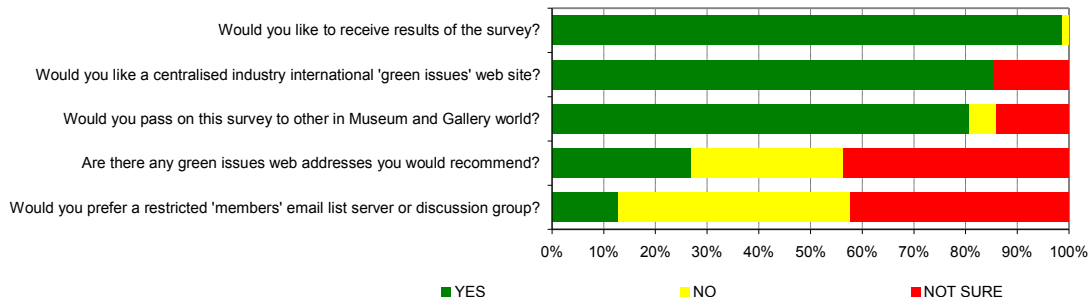
Other comments on this issue included:

- *We are willing to learn from others! We have green clauses with electrical and cleaning contractors*
- *Although we do not have "green" clauses in our commissioning contracts, we do work effectively towards the use of "green" materials and techniques in the fabrication of major installation works. As an example, the recent and huge "Arcos Rojos" by Buren is finished with Formica plates (fabricated with recycled Kraft paper) and incorporates a very efficient LED lighting system*
- *Since the changes to UK regulations surrounding the collection of waste from businesses (30 October 2007) it is now necessary to sort, or 'Pre-treat', waste into types: paper, plastic, metal, general, etc. We are now working with a local (Kineton based) company Environmental Connections Ltd (ECL) who have committed to recycling 80% of our waste and sending at least 10% of the remaining for incineration rather than landfill*
- *As part of a County Council, we operate as part of a central procurement system, which can limit some options. In terms of selecting materials etc. for exhibition design, these decisions tend to have more to do with H&S of the individuals who will be working with the materials, and conservation requirements*
- *Although we have no restrictions, per se, we highly encourage green practices*
- *Look for green options, but not in contracts.*

Section 7 – Green Information Sharing: Information sharing within the Industry

A lack of ‘green’ information seems to be an important factor, with 99% of participants saying they would be interested in receiving the results of the survey. Additionally, 86% of participants would like to have a centralised industry international ‘green issues’ website where they could share their knowledge; most want this to be an open discussion forum, with only 13% wanting it to be a restricted member email list.

Graph 10 – Sharing information



A few ‘green’ issues websites were mentioned, as good sources of information:

- www.globalactionplan.org.uk
- ADEME, a French national institution dedicated to the saving of energy and green issues
- www.design.ucdavis.edu/museum
- www.museums-aotearoa.org.nz
- www.aia.org/walkthewalk
- www.iamfa.org
- A very interesting survey on Travelling Exhibit Industry and Sustainability, which focuses very specially on crating and packaging materials, has been recently done by Lea Foster Warden, a researcher from the Smithsonian. 127 museums or institutions- have participated in this survey. A very brief discussion of the results can be found in the following web page:
<http://museumstudies.si.edu/fmp.htm#alum>
- www.museumsassociation.org/sustainability (Museums Association Sustainability Discussion paper and workshops)
- www.museumsassoctaion.org/collections
- ICON - Care of Collections Group
- British Museum Conference: Going Green; towards sustainability in conservation. Friday 24 April 2009
- Sustainable Exhibitions for Museums group - this group has only met twice so far and we are in the process of setting up a Yahoo group email exchange to enable the easy exchange of 'green' ideas and sharing of information with a view to setting up a website in the future.
- Sustainable Exhibitions - UK Voluntary Industry group (Maritime Museum. DCMS UK Arts Ministry in process of setting a green policy for Government Funded Institutions.
- There is a group in the United States, Retroactif, that takes the old cloth and vinyl exhibition banners to make purses and other bags to sell in museum gift shops (<http://www.retroactif.net/1724.aspx>). Or similarly, Freitag (<http://www.freitag.ch/shop/FREITAG/page/frontpage/detail.jsf>).
- Green Museum (www.greenmuseum.org)
- California Academy of Sciences (www.calacademy.org)
- National Building Museum <http://www.nbm.org/Exhibits/greenHouse2/greenHouse.htm>
- Grand Rapids Art Museum http://threeminds.organic.com/2007/10/gram_green_museum.html
- The International Association of Museum Facility Administrators (IAMFA) has been having annual surveys benchmarking their standards (including green initiatives). My facilities manager is a member and they will be having a meeting at AAM in Denver this spring.
- Chicago Green Museums Wikipedia page: http://green.adlerplanetarium.org/wiki/index.php/Main_Page
- Green Museums Wiki: <http://greenmuseums.wetpaint.com/>
- The Sustainable Nonprofit - Board & Staff: Welcoming the Green Revolution in Your Museum
<http://foundationcenter.org/pnd/tsn/tsn.jhtml?id=176400001>

<http://foundationcenter.org/pnd/tsn/tsn.jhtml?id=156500003>

<http://foundationcenter.org/pnd/tsn/tsn.jhtml?id=170300002>

- www.bmuse.net
- International Association of Museum Facility Administrators (www.IAMFA.org)
- UC Davis Design Museum web and wiki site: <http://design.ucdavis.edu/museum>
- www.ecoexhibits.org
- www.greenexhibits.com
- www.calmuseums.org (see Green Museums Initiative).
- www.exhibitoronline.com/topics/greenexhibiting.asp
- www.bmuse.net/greenmuseums.html
- www.greenmuseums.wetpaint.com
- USGBC LEED Certified (pending) Museum buildings: California Academy of Sciences, Denver Museum of Contemporary Art, Grand Rapids Museum of Art Getty Center (LEED-EB)

Comment

There is a lot of information that is spread widely – our exhibition industry needs an international green information point to bring this all together and make this easily accessible.

Section 7 – Green Information Sharing: Spreading the ‘green’ word to visitors

About a third of the institutions (35%) are making a point about the recycled paper content in their printed materials, but this does not seem to go any further than that. Museums and galleries have not actively engaged in spreading green messages to their visitors, with only 19% of institutions actively highlighting the use of green materials within their buildings and for their programmes.

Table 6 – Spreading the word...

	YES	NO
Do you highlight the green materials you've used?	19%	81%
Do you make a point about recycled paper content in printed materials?	35%	65%

Comment

Obviously we focus on the exhibits' content and building operations information for our visitors rather than this kind of information but we can gently encourage and show our visitors our green intent.

Section 7 – Green Information Sharing: Final comments

- *Not aware of any in NZ but in Australia the Northern Territories Museum and Art Gallery does have to report to its state government on green issues.*
- *The UK based ‘Sustainable Exhibitions for Museums Group’ - this group has only met twice so far and we are in the process of setting up a Yahoo group email exchange to enable the easy exchange of 'green' ideas and sharing of information with a view to setting up a website in the future.*
- *Unfortunately the green committee within the Smithsonian Institution (of which the Hirshhorn is only one unit) only functions as an advisory group. Without larger Institutional buy-in, the green committee does not have the resources or authority to publish and share its findings and ideas.*
- *The AAM has formed a new professional interest committee on green museums. Our President and CEO, is the co-chair of that professional interest committee.*

- *Green ideas are new to our organization. Many staff members already take it upon themselves to think green. As an organization, I am sure we will formally address the Green issue.*
- *The International Association of Museum Facility Administrators (IAMFA) has been having annual surveys benchmarking their standards (including green initiatives). My facilities manager is a member and they will be having a meeting at AAM in Denver this spring.*
- *The Clark green committee is just beginning and not ready to share ideas at this time. We will be willing to share in the future.*
- *Upcoming events: Go Green, an exciting event taking place at Gressenhall Farm and Workhouse on Sunday 28 September. This special family day out aims to showcase what's being done in Norfolk to promote a sustainable lifestyle, combat global warming and reduce the county's carbon footprint. This is building on the success of last year's event, which attracted in excess of 1,500 visitors. Museums, Sustainability and Growth conference at Norwich Castle on Thursday 23 and Friday 24 October, to explore how heritage can help deliver the sustainability and planned growth agendas.*
- *We regularly have various displays and information points highlighting 'Green' issues. As part of our Green Dragon Environmental Award we have to actively educate staff and visitors in sustainability and what we are doing and the impact it has on our environment.*
- *The Whitworth Art Gallery is currently reviewing its green policies in light of both the University of Manchester's drive towards and environmentally aware institution and in the light of our own position as a learning institution, situated in a literally green context - the Whitworth Park. Over the past few years a substantial programme of changes to the building have taken place - all of which have been carefully considered in relation to environmental concerns: the changing of lighting systems, replacement of boilers, additional installation of insulation, environmental monitoring to allow the adjustment of heating/air conditioning, the re-use of temporary exhibition materials. Furthermore, and bearing in mind our current capital development bid, we are working with the charity Global Action Plan to change behaviour in order to make a measurable difference to our impact on the environment.*
- *I am very interested in having the museum I currently work at to become more green and I have been working on discussions with staff members to organize and start a committee. I'm sorry that I could not offer more information. Thank you for circulating the survey.*
- *We are concerned that exhibit content regarding green issues not fall victim to poor science or politics. To maintain the public trust, and serve our mission, both sides of the arguments must be presented.*
- *We are planning a new building which will take into account Greening Issues. With the building at present, we can only do the best we can.*
- *A member of the museum's maintenance staff is currently following a course on environmental management and he will in the future be responsible for any projects in this area.*
- *Loan conditions should take into account the environmental conditions of the lending institution and be more pragmatic rather than an international "standard" which may be unnecessary for the safety of the objects. Special exhibitions should wherever possible, be programmed at the most appropriate time of year at the venue taking into consideration light levels, temperature and RH. This would reduce the need for airtight showcases and humidifying/dehumidifier units. The Museum and Gallery community should carefully consider the ethical ramifications of touring certain shows of particularly delicate material. Historic buildings should not have to "perform" to the same standards as new build. The strain on services and the cost is unsustainable. It should be easier and not as resource hungry to recycle and pass on material from temporary exhibitions. We need a national swap shop and an internationally agreed register of sustainable materials, suppliers and contractors. Research and development costs are inhibiting progress. H&S law needs to be aligned with green best practice. The two are at odds at the moment. Museum policy needs to link the concerns of design, Health & Safety, conservation, curators and the green lobby.*
- *The musée du Louvre has constituted a specific internal committee dedicated to the green issues one year ago. The musée aims to apply a plan of green action in the three next years.*

- *We would like a centralized website for international 'green' issues -- one that could be broken out by country/region with resources and suppliers. We would also like information shared and posted regarding packing materials -- what types of materials are best to recycle...or reuse. What materials might be sounder and have less of an impact on our environment. What alternatives might exist?*

Section 1 & 2 – About the participating institutions

A total of 85 institutions took part in the questionnaire.

The vast majority of these (98%) send or receive temporary exhibitions.

Around half (47%) of the institutions charge an entrance fee to their buildings (which includes access to temporary exhibitions).

A third (33%) of the institutions charge only to temporary exhibitions and entry to the rest of the building is free, while the remaining 20% are completely free.

Survey Institution name	Country
Art Gallery of New South Wales, Sydney	Australia
Powerhouse Museum, Sydney	Australia
The National Gallery of Victoria	Australia
Kunsthistorisches Museum, Wien	Austria
Musee nacional des beaux-arts du Quebec	Canada
Vancouver Art Gallery	Canada
Château de Versailles, Paris	France
Musée d'Art Américain Giverny/Terra Foundation	France
Musée de Cluny - Musée National du Moyen Age	France
Musée d'Orsay, Paris	France
Musée du Louvre, Paris	France
Haus der Kunst, Munich	Germany
Städel Museum, Frankfurt	Germany
Museum of Fine Arts Budapest	Hungary
Azienda Speciale Palaexpo - Palazzo delle Esposizioni, Rome	Italy
Azienda Speciale Palaexpo - Scuderie del Quirinale, Rome	Italy
Museo d'arte moderna e contemporanea, Rovereto	Italy
Tokyo National Museum	Japan
Auckland Art Gallery Toi o Tamaki	New Zealand
Guggenheim Bilbao Museum	Spain
MUSAC. Museo de arte contemporaneo de Castilla y Leon	Spain
Museo Nacional del Prado, Madrid	Spain
Museu Nacional d'Art de Catalunya, Barcelona	Spain
Kunsthaus Zürich/Zürcher Kunstgesellschaft	Switzerland
Amgueddfa Cymru - National Museum Wales	UK
Compton Verney, Warwickshire	UK
Dulwich Picture Gallery, London	UK
Glynn Vivian Art Gallery, Swansea, Walrd	UK
Hartlepool Museums and Heritage Services	UK
Horniman Museum, London	UK
Leeds City Museum	UK
Manchester City Galleries	UK
Museum of London	UK
Museum of the History of Science, Oxford	UK
Museums Association UK	UK
National Maritime Museum, London	UK
National Portrait Gallery, London	UK
Norfolk Museums & Archaeology Service	UK
Powysland Museum, Wales	UK
Royal Academy of Arts, London	UK
Science Museum, London	UK
Swansea Museum	UK
Tate Britain, London	UK

Tate Modern, London	UK
The Ashmolean Museum, Oxford	UK
The British Museum, London	UK
The National Gallery, London	UK
The Natural History Museum, London	UK
Victoria & Albert Museum, London	UK
Whitworth Art Gallery, Manchester	UK
Amon Carter Museum, Fort Worth	USA
Dallas Museum of Art	USA
Detroit Institute of Arts	USA
Frist Center for the Visual Arts, Nashville	USA
Hammer Museum, Los Angeles	USA
High Museum of Art, Atlanta	USA
Hirshhorn Museum and Sculpture Garden, Washington DC	USA
Indianapolis Museum of Art	USA
Lakeview Museum of Arts and Sciences	USA
Los Angeles county Museum of Art	USA
Minneapolis Institute of Arts	USA
Museum of Contemporary Art, Minneapolis	USA
National Museum of the American Indian, Chicargo	USA
Nevada Museum of Art	USA
Peabody Essex Museum, Salem	USA
Saint Louis Art Museum	USA
San Francisco Museum of Modern Art	USA
Seattle Art Museum	USA
Smith College Museum of Art	USA
Smithsonian National Museum of the American Indian, Northampton, MA	USA
Sterling and Francine Clark Art Institute, Williamstown	USA
The Art Institute of Chicago	USA
The Cleveland Museum of Art	USA
The Contemporary Arts Museum, Houston	USA
The J. Paul Getty Museum, LA	USA
The Metropolitan Museum of Art, NY	USA
The Museum of Contemporary Art, Los Angeles	USA
The Museum of Fine Arts, Houston	USA
The Museum of Modern Art, NY	USA
The Walters Art Museum, Baltimore	USA
Toledo Museum of Art	USA
UC Davis Design Museum, Davis CA	USA
Virginia Museum of Fine Arts	USA
Walker Art Center, Minneapolis	USA
Winterthur Museum & Country Estate, Delaware	USA

The graph below shows the type of institutions that participated in the survey, as well as their main funding source.

Graph A – Participating institution type and funding sources

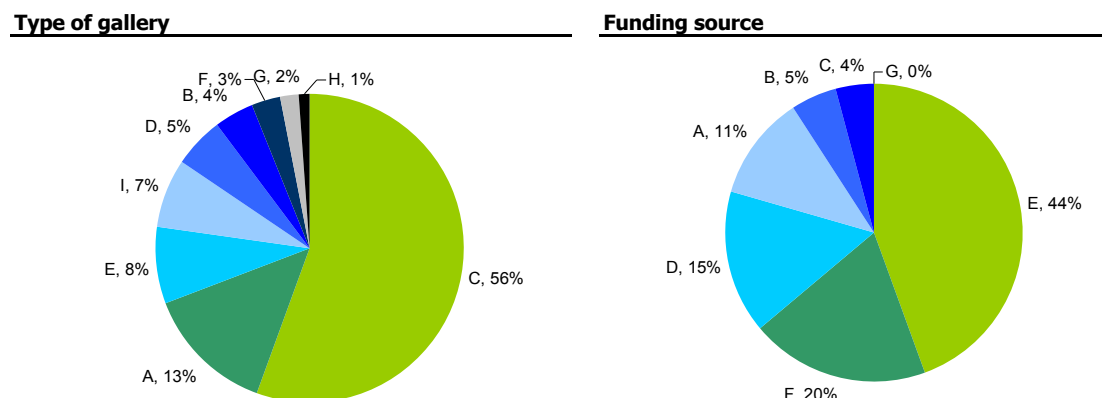


Table A – Participating institution type and funding sources

Type of gallery of survey participants:	%
A/ Art Gallery with a collection and a temporary exhibitions programme	14%
B/ Art Gallery temporary exhibitions programme only without a collection	4%
C/ Museum with more than one collection area and a temporary exhibitions programme	55%
D/ Museum with one specialised collection area and a temporary exhibitions programme	5%
E/ Combined Art Gallery and Museum with a temporary exhibitions programme	8%
F/ Institution associated with a University and with a temporary exhibitions programme	3%
G/ Institution associated with a centre of research and a temporary exhibitions programme	2%
H/ Institution associated with a particular location or site with a temporary exhibitions programme	1%
I/ Other	7%

Institution Funding source:	%
A/ National Government	12%
B/ State Government	5%
C/ City	4%
D/ Combination - one of the above and with private funding	16%
E/ Combination - one of the above and with self generated income? inc exhibition admission charges	43%
F/ Private or trust funding only	20%
G/ Other (please specify)	0%

I would like to take this opportunity of thanking all who took time on the survey. I hope we can together all take a wider green path in our exhibition practices.

I want to thank Daniel Vega for his enthusiasm, help and friendship in working on the survey. I also want to acknowledge the hard work of my colleague at Tate Modern, Federico Braun, who has successfully pulled the analysis into such a presentable format.

My apologies for the use of the word 'green' as a verb, noun, adjective and adverb!

Stephen Mellor

Tate Modern,
23 October 2008

If you or any of your colleagues would like a pdf version of the original survey please email me stephen.mellor@tate.org.uk.

Please forward this report to any person interested.