

UCLA

Getty

Interdepartmental Program in the  
**Conservation of  
Cultural Heritage**



# Preliminary Research into Education for Sustainability in Cultural Heritage Conservation

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# Intro to the Initiative

## Embedding Sustainability into Curricula

- Connecting with UCLA communities and with Global Partners
- Working with faculty on introducing sustainable topics in UCLA/Getty Conservation program curricula
- Implementing interactive and engaging learning exercises
- Building an online platform to aggregate teaching tools and methods for sustainable collections care





Glenn Wharton

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PI / Chair,  
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William Shelley

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Justine Wuebold

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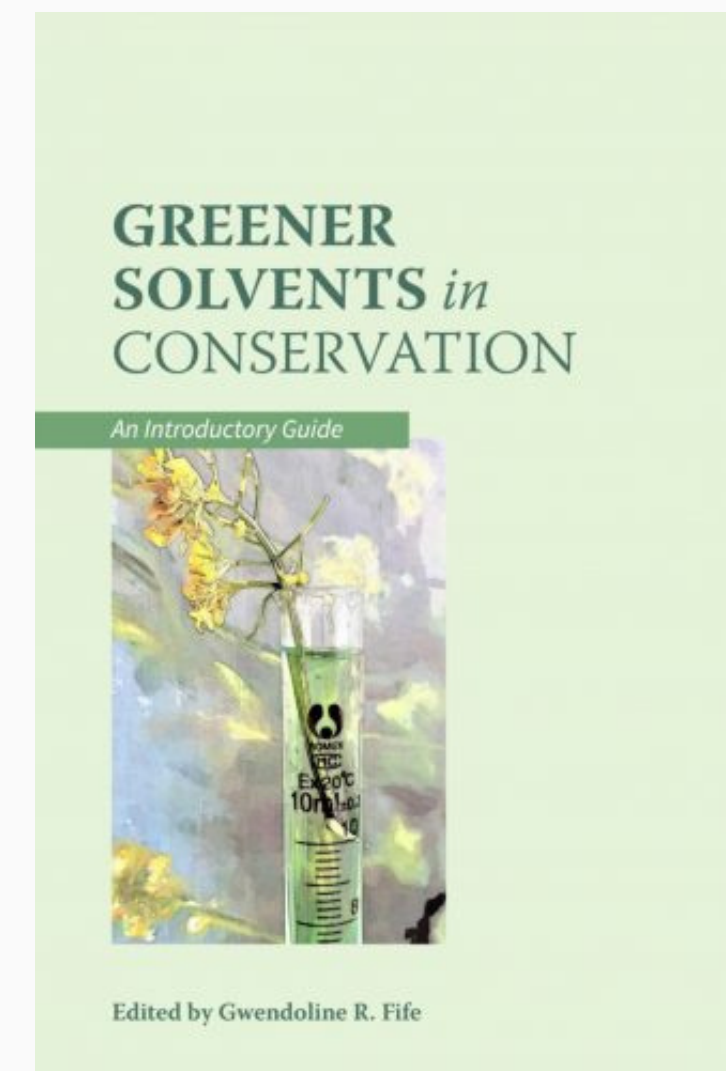
Research Associate for  
Sustainability,  
Conservation of  
Cultural Heritage  
Program

# Project Team

# Ki Culture + Sustainability in Conservation

## Cultural Heritage & Conservation

- Action on Sustainability
- Ki Books
- Greener Solvents Project





# "Our Ancestors Knew Best" Project

- Identifying traditionally used plants and their methods for preservation
- Research took place from March 2016 to December 2017 in partnership with SEAMEO SPAFA and the Queen Sirikit Museum of Textiles.
- Lab testing them for efficacy in use on cultural heritage materials
- Started in Southeast Asia and now looking for ways to partner with Indigenous communities in North America

Table and Image: "Our Ancestors Knew Best: Traditional Southeast Asian Textile Treatments and their Place in Modern Conservation" 2020 editors Julia M Brennan, Linh Anh Moreau



SDG #12 of the United Nations Sustainable Development Goals



Detergents prepared using concentrates extracted from plants



Tectrad Greenhouse, ENCRyM



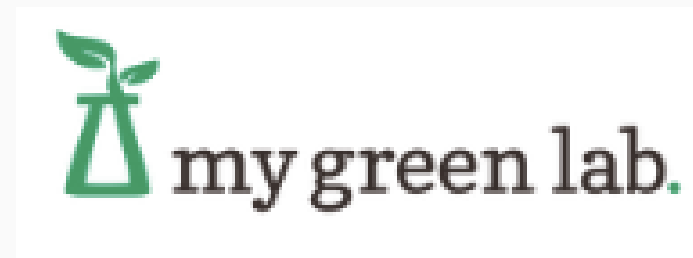
# Training Labs



## Getty Villa Training Labs + Cotsen Conservation Lab

- About the Labs
- Ki Culture Summer Workshop
- Student Summer Project/Report

- Exploring Lab Certifications



# Waste + Materials



## ◆ MuseoCycle

MuseoCycle is a network for museum professionals interested in circular material reuse.

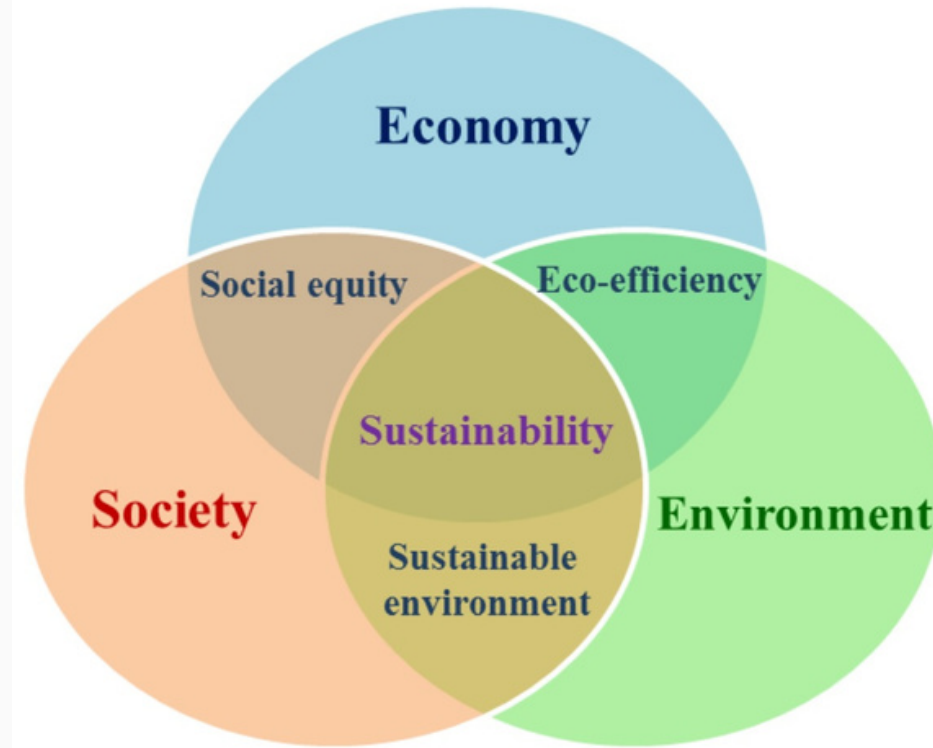
## ◆ LCA/STiCH

Sustainability Tools in Cultural Heritage (STiCH) is a life cycle assessment (LCA) Carbon Calculator and Library of Case Studies and Information Sheets

## ◆ 2nd Hand Equipment - GCI lab remodel

Our lab was able to source laboratory equipment from the Getty Conservation Institute

# Intersectionality



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## ◆ Environmental

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Museum Environment

Labs & Chemical Disposal

Exhibitions, Loans & Transport

Affects of Climate Change on Built Heritage and Collections

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## ◆ Social

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Building collaboration & partnership

Climate Action Leadership

Inclusion of indigenous knowledge

Re-evaluating the role of the conservator

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## ◆ Economic

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Pay Equity & Recession

Divestment from Oil

Localized Procurement

Financial Stability & Strategy





# Education for Sustainability

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## Systems Thinking

Understanding how systems work -

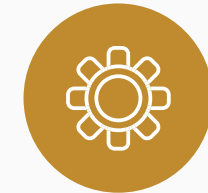
Seeing the relationship between structure and behavior within an interconnected set of elements that is coherently organized in a way that achieves something



## Future Thinking

Horizon Scanning or Foresight

Refers to the systematic exploration, collection and interpretation of external information in an effort to identify trends and drivers of change and their impacts on the future



## Multiple Perspectives

Comes from Indigenous Knowledge

Inherent in the two-eyed seeing approach is a respect for different worldviews and a quest to outline a common ground while remaining cognizant and respectful of the differences.

# "Tabletop" Activities



<p><b>Staging Phase</b></p> <p><b>Identifying Vulnerable Collections</b> <i>Planning Section Chief</i></p> <p>Planning Section Chief works with the head of the "ID &amp; Retrieval" strike team to prioritize a list of vulnerable collections in case disaster strikes sooner than expected. <b>Consider:</b> What types of materials might be on this list?</p> <p><b>Report on Information</b> <i>Information Officer</i></p> <p>Briefed local media and community press. A dozen people want to volunteer and four people showed up at the door, so they were sent to the Staging Area to await further instructions <b>**Consider:</b> What can these potentially un-trained volunteers do to help?</p>	<p><b>Packing Phase</b></p> <p><b>Packing Strategy</b> <i>Planning Section Chief</i></p> <p>Time to organize response means that 5% of vulnerable materials are packed; 15% in the packing area. <b>Consider:</b> How to increase packing speed? Rethink strategy and tactics?</p> <p><b>Volunteer Issue &amp; Recruiting</b> <i>Operations Section Chief</i></p> <p>Based on volunteer forms, two volunteers are determined to have a history of health problems that make them high risk for the museum's worker's compensation system - they are thanked for their willingness to volunteer and dismissed. Disruption means that only 20% of all vulnerable materials have been packed with 40% in the holding area. <b>Consider:</b> How much time will it take to train new volunteers vs using trained staff time?</p>
<p>ACTION CARD 1</p>	<p>ACTION CARD 2</p>
<p><b>Removal Phase</b></p> <p><b>Transport Troubles</b> <i>Planning Section Chief/Incident Commander</i></p> <p>The Planning Section Chief reports to the Incident Commander that they have received word that one of the transport trucks has broken down forty miles northwest of the museum, with rain in the forecast for that region.</p> <p><b>Consider:</b> What vulnerabilities of the objects on board the truck should be considered if the truck does not have climate control (due to unavailability on short notice of art transport trucks)? What is your recommendation to alleviate the situation? What materials would this require?</p>	<p><b>Evacuation Phase</b></p> <p><b>Staff Check-out</b> <i>All</i></p> <p>19-21 hours remain until the hurricane is due, and the rain has become heavier as the hurricane moves toward the shore. Demobilization has begun as supplies and equipment are being returned to the prep room and the Admin Section Chief is checking workers out from the museum. All transport trucks have made it safely to their destination, with materials apparently unharmed. The Information Officer is briefing the media and press.</p> <p><b>Consider:</b> Are there any collections concerns for remaining museum or library collections that can be addressed prior to staff evacuation?</p>
<p>ACTION CARD 3</p>	<p>ACTION CARD 4</p>

**Paper, cotton, starch, bark, leaf**

**Group 2**

**Skin vulnerabilities: Golden spider beetle, shiny spider beetle**

**wood vulnerabilities: furniture beetle, powder post beetles (Wood), weevils, woodlouse**

**Indonesian percussion instrument - "bullroarer"**

**Cellulosic material vulnerabilities: firebrat, silverfish, booklouse**

**Indonesian dragon mask**

**wood vulnerabilities: furniture beetle, powder post beetle (Wood), weevils, woodlouse**

**Protein loving**

**wood vulnerabilities: furniture beetle, powder post beetles (Wood), weevils, woodlouse**

**Indonesian Court Masks (wood, shell, lacquer)**

**Indonesian sarong**

**Vulnerabilities Textiles: webbing clothes moths, case bearing clothes moths, shiny spider beetle, silverfish, firebrat, carpet beetle**

**Philippine Wall Hanging**

**Wood loving**

**Booklouse**  
*Liposcelis bostrychophila*  
Adult: 3-4mm  
Transparent with dark eyespots. 6 legs. No wings.  
Hatchlings are like tiny, colourless adults, becoming darker after each moult.  
Can produce young without mating. Feed on moulds.

**Firebrat**  
*Thermobia domestica*  
Adult: 12mm (body)  
Yellowish with darker bands. Antennae and tarsi longer than body.  
A good indicator of damp conditions.

**Silverfish and Grey Silverfish**  
*Leptisma saccharina, Ctenolepisma longicauda*  
Adult: 10mm (body)  
Grey or brown, sometimes with paler markings. Distinctive dorsal plates. One pair of legs per segment.  
Adult: 15mm (body)  
Grey, hairy. Antennae and tarsi longer than body.  
Feed on moulds. A good indicator of damp conditions.

**Golden Spider Beetle**  
*Nyctelia kassabicus*  
Adult: 3-4.5mm  
Round thorax and abdomen, covered with silky spider hairs.  
Can bore through hard substances, leaving neat holes.

**Shiny Spider Beetle**  
*Gibbium psyllodes*  
Adult: 3-4mm  
Oval, shiny, dark red-brown, glossy with tiny pits. Small dark thorax and head.  
Can bore through hard substances, leaving neat holes.

**Furniture Beetle**  
*Anisotoma punctatari*  
Adult: 3-5mm  
Dark brown. Humped thorax. Lines of small pits along back of wing cases.  
Larvae tunnel through wood, plywood and even books for up to 3 years.

**Powder Post Beetle**  
*Lyctus brunneus*  
Adult: 5-6mm  
Very long, flat, reddish-brown.  
Larvae tunnel through newer hardwoods for up to 1 year.

**Wood Boring Weevil**  
*Euclyptus costar*  
Adult: 2-3mm  
Dark brown or black. Short, stocky legs.  
Elongated head (rostrum) with antennae that bend sharply forward.  
Tunnels into damp wood. A good indicator of damp conditions.

**Woodlouse**  
*Trigona sp.*  
Adult: 2-12mm  
Grey or brown, sometimes with paler markings. Distinctive dorsal plates. One pair of legs per segment.  
Hatchlings are like tiny, colourless adults, becoming darker after each moult.

**Two-spot Carpet Beetle**  
*Attagenus pello*  
Adult: 6mm  
Oval, dark brown, almost black with tiny white hairs forming two spots in the centre of the back.  
Larvae: 1-13mm  
Yellow/orange with brown bands. Long, rounded front, tapering to the rear with long tail bristles.  
Look for an adult to determine the species.

**Varied Carpet Beetle**  
*Anthrenus verbasci*  
Adult: 3-5mm  
Small, round, black surface with white, yellow and orange scales. Underneath grey.  
Larvae: 0.5-5mm  
"Woolly bear" Creamy with brown bands and bristles.  
Empty larval cases often seen.

**Webbing Clothes Moth**  
*Tineola bisselliella*  
Adult: 6-8mm  
Pale golden wings with feathery ends, orange tuft on head. No markings.  
Larvae: 2-10mm  
Cream with brown head.  
Produces strands or webs of silk.

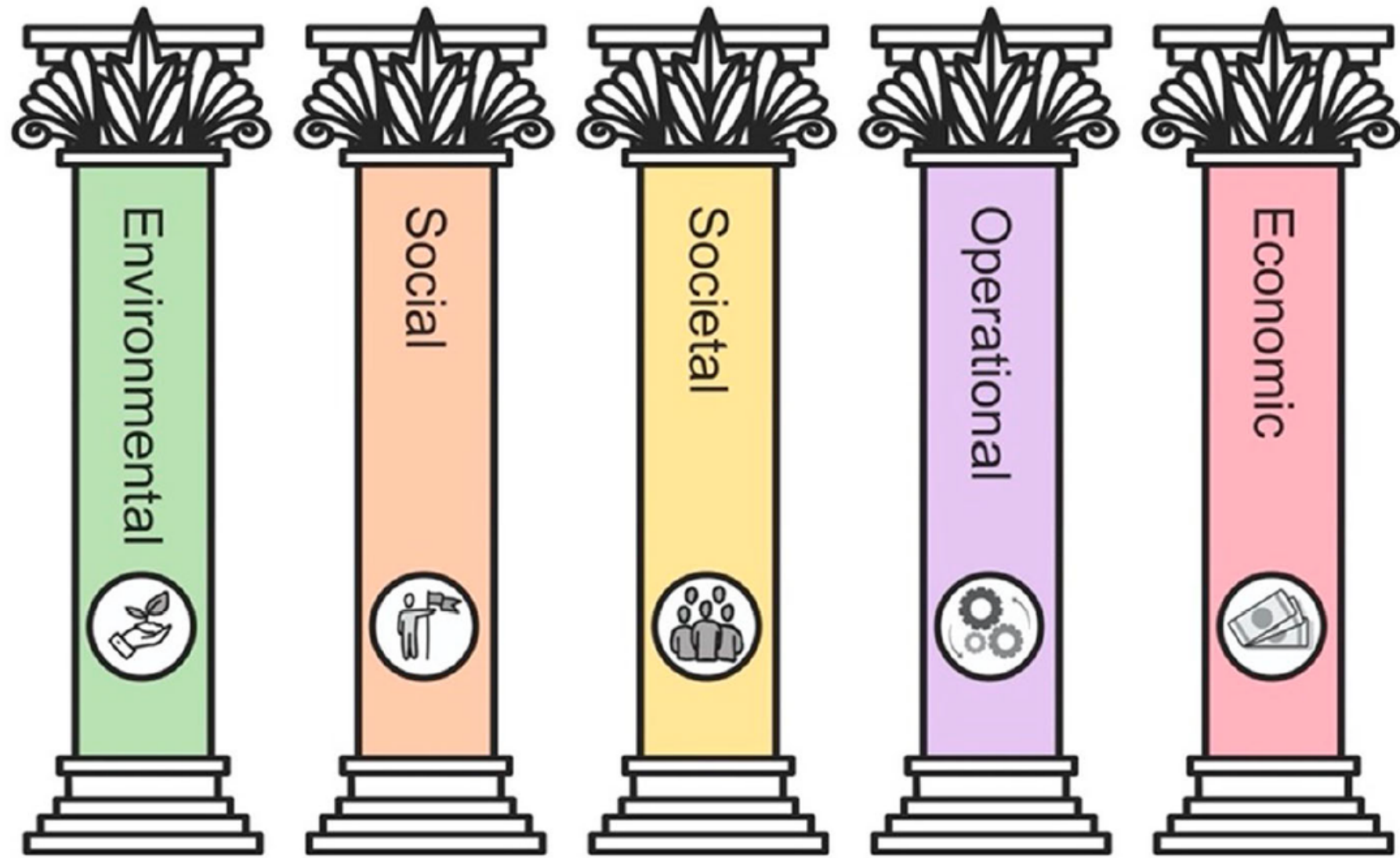
**Case Bearing Clothes Moth**  
*Tinea pellionella*  
Adult: 6-8mm  
Silvery grey wings with indistinct brown markings.  
Larvae: 2-10mm  
Cream with brown head, usually in a silk cocoon.  
Look for an adult to determine the species.  
Can burrow into wood.

**Brown Carpet Beetle**  
*Blattella germanica*  
Adult: 3-5mm  
Oval, orange brown wing cases with black "V" on head.  
Larvae: 1-10mm  
Yellow/orange with brown bands. Long, rounded front, tapering to the rear with long tail bristles.  
Look for an adult to determine the species.  
Can burrow into wood.

Carmichael, David W. (2010) *Implementing the Incident Command System at the Institutional Level*.

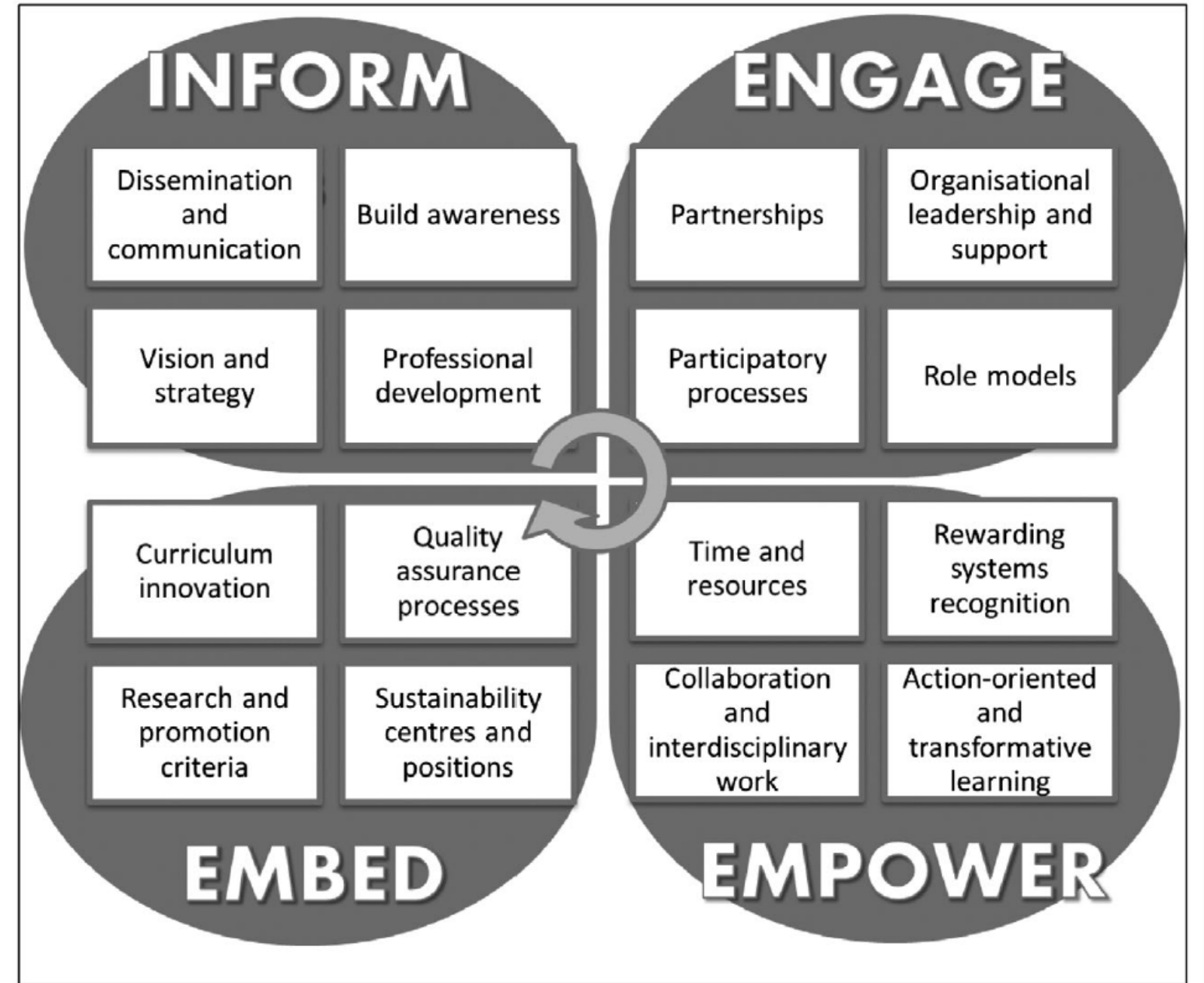
"Save the Museum" Pest Cards, created by South West Museum Development as part of Pest Partners, a Historic England funded project

# Sustainability Frameworks



The five 'pillars' used to model sustainable decision-making.

David Saunders (2022): A Methodology for Modelling Preservation, Access and Sustainability, Studies in Conservation



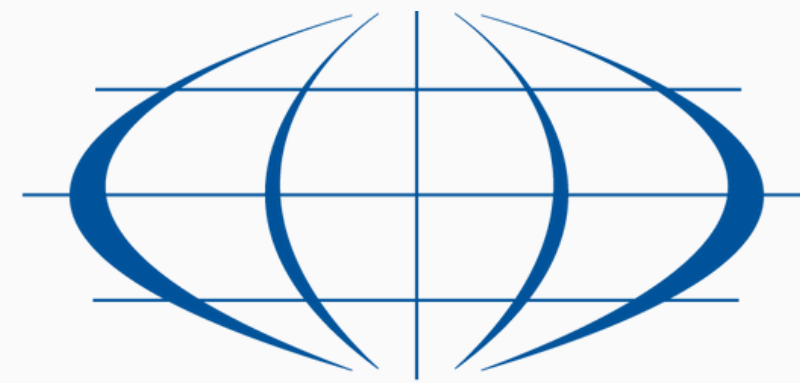
The I3E model to embed EfS within higher education.

Gisela Cebrián (2018) The I3E model for embedding education for sustainability within higher education institutions, Environmental Education Research, 24:2, 153-171

# Sustainability Projects



**Climate Heritage**  
N E T W O R K

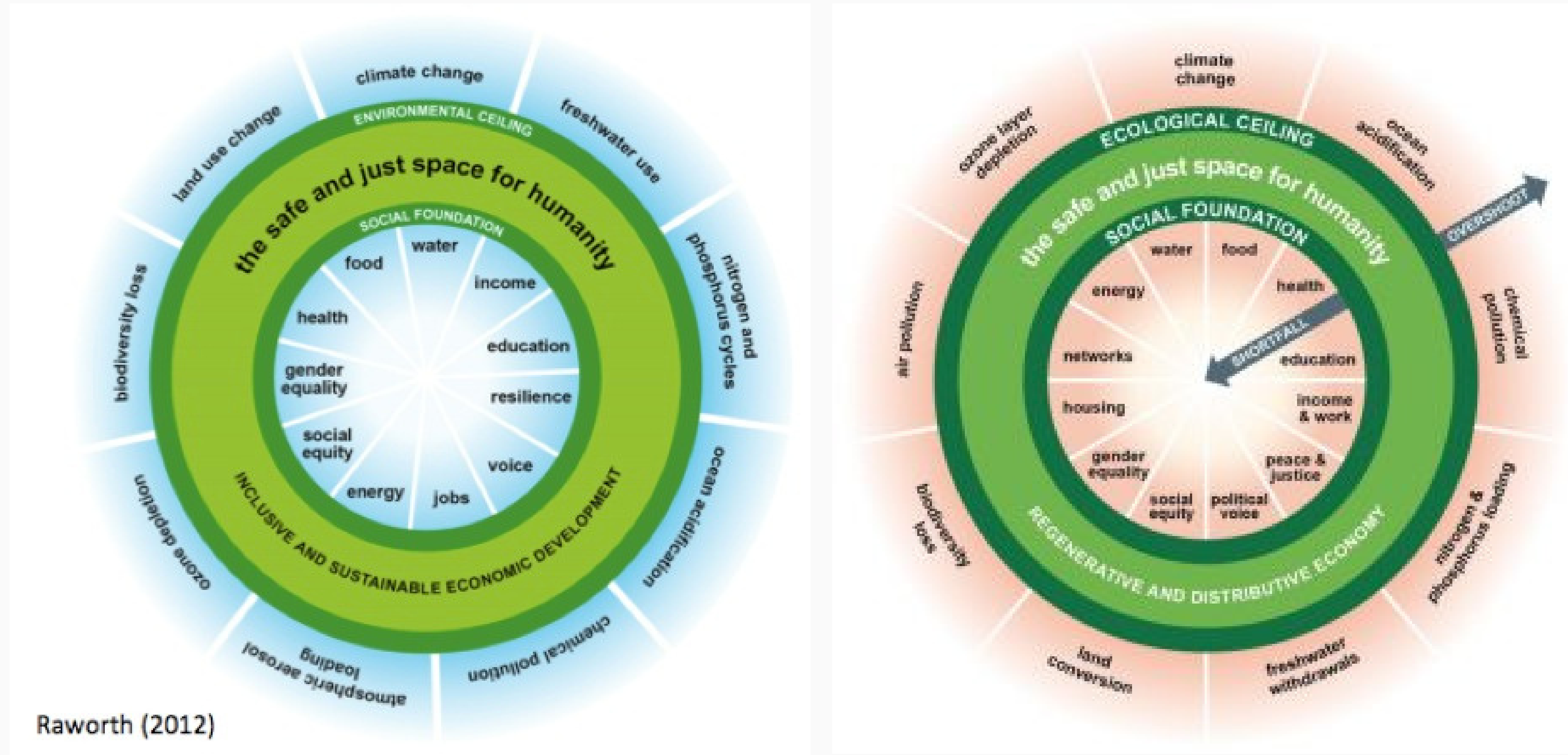


**ICCROM**



# Economic Sustainability

## Planetary Boundaries - Doughnut Economics



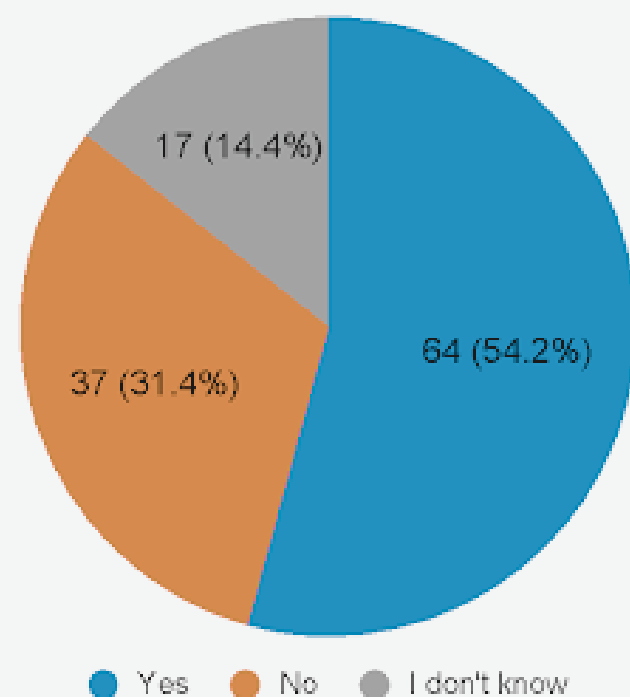
“the economy embedded within society, within nature, and powered by the sun”

# State of the Field



Sept 2021 (95 respondents from 21 countries)

Does your cultural heritage conservation/preservation department include sustainability topics in your curriculum?



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How do other programs incorporate sustainability curricula?

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- Exercises / Req. Reading / Guest Lectures
- Integrated (68%)
- Environmental - Cultural - Social Sustainability

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## Green Lab Initiatives

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- Reducing Waste
- Eco-friendly Alternatives
- Greener Solvents
- Reusing Materials



# The work continues

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Preliminary Research into Education for Sustainability  
in Cultural Heritage Conservation (2022)  
Studies in Conservation, IIC Wellington Congress  
<https://doi.org/10.1080/00393630.2022.2059642>

# Credits

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Fife, G. R., & Sustainability in Conservation. (2021). Greener solvents in conservation: An introductory guide.

"Our Ancestors Knew Best: Traditional Southeast Asian Textile Treatments and their Place in Modern Conservation" (2020) editors Julia M Brennan, Linh Anh Moreau

Weaving Ways: Indigenous Ways of Knowing in Classrooms and Schools. (n.d.) Alberta Regional Professional Development Consortium.

Meadows, D. H., & Wright, D. (2015). Thinking in systems: A primer.

