ECOMUSEUMS AND CLIMATE CHANGE

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Ecomuseums and Climate Change

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Foreword
Museums, ecomuseums and the global challenge of sustainability and climate change

Alberto Garlandini

In recent years, museology and museums have changed considerably. The view of museums only as conservation institutions is outdated. All over the world, museums have taken on new social responsibilities and expanded their traditional activities and fields. They now work beyond the museum building itself, dealing with cultural, natural, tangible and intangible heritage in the local environment, while maintaining their original objectives. Museums engage in intercultural dialogue and the construction of new cultural identities, promote participation and inclusion, and help citizens and communities to open up to what is new and different.

This preface addresses the theoretical and operational contributions that ecomuseums have made to museology and to the mission and action of museums. It also highlights the new approach of ICOM and museums to the challenges of sustainable development and the climate crisis. In the first section, I describe the interaction between museology and ecomuseology, as well as ICOM's new definition of museums. The second section addresses the new social role of museums, the evolution of the ICOM vision and the concept of extended museums and cultural landscapes. It also refers to the Resolution on Museums, Communities and Sustainability passed by the ICOM General Assembly in Kyoto in 2019. The third section describes how museums could respond to the UN Sustainable Development Goals and climate justice. The last section highlights the role of Hugues De Varine in the history of museology, ecomuseums and community museums.

Museology, ecomuseology and ICOM museum definition

New museological trends and new museums continuously appear. I recently wrote the entry "Museology and Museography" for the *Italian Treccani Encyclopaedia of Contemporary Art* (Garlandini, 2021). In that contribution I highlighted that museums and museology are constantly evolving and addressed the role and impact of New Museology and Ecomuseology on museological theory and practice.

Museums and ecomuseums have different origins and histories. Ecomuseums were created as a reaction against museums as closed institutions, focused only on collections of tangible objects and managed by experts from outside the communities (Davis, 2011).

The birth of the New Museology and ecomuseums, as well as a turning point in the history of museology, can be considered to date back to 1972, when UNESCO and ICOM[1] organised the Roundtable in Santiago, Chile, on the importance of museums in the contemporary world (Do Nascimiento Junior, 2012). The Round Table drew attention to the social role of museums and the need for a 'democratisation of culture'. It defined the museum as an institution that works in close connection with communities and strives to foster their development and improve their quality of life.

In 1974 *Museum,* the Quarterly Journal edited by UNESCO, published the results of the Round Table (Museum, 1974); the Editorial pointed out that:

> *The meeting's central theme was a novel one: the "integral museum", the interdisciplinary museum par excellence, which corresponds with another new concept, the ecomuseums. (....) The museum is not only concerned with the heritage of the past: it is concerned with development."*

The Resolutions adopted by the Round Table expressed the Basic principles of the integral museum:

> *The social, economic and cultural changes occurring in the world, and particularly in many underdeveloped areas, constitute a challenge to museology. (....)*

[1] On ICOM's role in organizing the Santiago de Chile's Round Table see De Varine, 2017

The transformation in museological activities calls for a gradual change in the outlook of curators and administrators and in the institutional structures for which they are responsible. In addition the integrated museum requires the permanent or temporary assistance of experts from various disciplines, including the social sciences.

The new type of museum, by its specific features, seems the most suited to function as a regional museum or as a museum for small- and medium-sized population centres.

Based on the considerations above and considering that:

The museum is an "institution in the service of society which acquires, preserves, and makes available exhibits illustrative of the natural and human evolution and, above all, displays them for educational, cultural and study purposes".

The Round Table on "The importance and Development of Museums in the Contemporary World"

RESOLVES

*That the museum should widen their perspectives to include branches other than those in which they specialized with a view to creating an awareness of the anthropological, social, economic and technological development of the countries ...." (*Do Nascimiento Junior, 2012, Vol I p. 208)

The Round Table expressed the holistic vision of a multidisciplinary museum: a new 'museum in the service of society' that shows visitors their place in the world and makes them aware of their situation as individuals and as members of society. Since 1972, museums have changed dramatically. Museums have strengthened their social role, seeking solutions to social, environmental and economic problems and acting positively towards the urgent need for active responses to climate change.

However, the core functions of museums - conservation, exhibition, education, communication and promotion of collections - remain. But museums have also become centres of communication and participation. They promote inclusion and mediation, engage in intercultural dialogue, address new audiences and use new languages and media.

Many museums have embraced the insights and social experiences shown by ecomuseums. Community activities have become a fertile common ground 'at the service of society and

its development'. In some countries, ecomuseums and museums, in particular small and medium-sized local, community and ethnographic museums, have started to collaborate successfully. The Italian Network of Ecomuseums is a positive example of this cooperative approach with museums. In 2016, the Italian Network promoted the participation of ecomuseums in the ICOM General Conference in Milan (see next section on 'Extended Museums and Cultural Landscapes') and approved the "Strategic Document of Italian Ecomuseums"[2]. The Document expressed:

> *"the need to seek new alliances with conform experiences and subjects to share principles and objectives. Some examples: At local scale: museums, regional institutions, "Soprintendenze", national and regional parks, university departments, environmental and cultural associations, (.....). At national and international scale: ICOM, (....) operators of the new museology, international networks of ecomuseums and community museums." (*The Strategic Document of Italian Ecomuseums, p. 2)

A great number of ecomuseums do not prioritise the conservation and exhibition of traditional collections. The ecomuseums' mission is more focused on the promotion and safeguarding of the intangible and living heritage of their communities and their 'place'. However, I don't think that that feature of theirs should be seen as a distinction between ecomuseums and other museums. On the contrary, the mission of ecomuseums is a further expression of the diversity of museums. Indeed, UNESCO's 2015 Recommendation on Museums (UNESCO, 2015) emphasizes diversity as the strength of museums.

In 2016 ICOM decided to update the definition of museum to respond to the profound, global changes in societies and museums. The first definition of the museum was approved by ICOM in 1974 and since then it had been changed only slightly; the last small-scale modification was approved in 2007[3].

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[2] See http://www.ecomusei.eu/ecomusei/wp-content/uploads/2016/01/Strategic-document.pdf

[3] The definition adopted by the 22nd General Assembly in Vienna, Austria, on 24 August 2007, was: *"A museum is a non-profit, permanent institution in the service of society and its development, open to the public, which acquires, conserves, researches, communicates and exhibits the tangible and intangible heritage of humanity and its environment for the purposes of education, study and enjoyment.*

In 2019 the ICOM General Assembly in Kyoto rejected a first proposal of new museum definition because the content of the proposal was not shared by the membership. In 2020 ICOM Executive Board appointed a new Standing Committee called ICOM Define and two co-chairs, Lauran Bonilla Merchav and Bruno Brulon. ICOM Define developed a new transparent and participatory methodology to involve ICOM Committees and members and carried out four rounds of consultation in 18 months. In May and June 2022 the ICOM Advisory Council, composed of the Chairpersons of National and International Committees, Regional Alliances, and Affiliated Organisations, and the Executive Board selected the new museum definition to be brought forward to a vote at the Extraordinary General Assembly during the Prague ICOM General Conference. On 24th August 2022, the proposal of new museum definition was approved by 92,4% of ICOM General Assembly. The new definition is the following:

> *"A museum is a not-for-profit, permanent institution in the service of society that researches, collects, conserves, interprets and exhibits tangible and intangible heritage. Open to the public, accessible and inclusive, museums foster diversity and sustainability. They operate and communicate ethically, professionally and with the participation of communities, offering varied experiences for education, enjoyment, reflection and knowledge sharing."*

The new definition has been democratically constructed and selected and represents the overall vision of the global museum and heritage community. It aligns with the UNESCO 2015 recommendation on museums, as well as the UN Agenda 2030. It is a balanced melange of terms that already were in the old definition and of new strategic terms, such as accessibility, inclusiveness, diversity, sustainability, ethics, professionalism, participation, communities, knowledge sharing.

Each key term expresses one crucial challenge that museums face globally. The definition takes into account the Resolutions and Strategies approved in the last ICOM General Conferences, with particular reference to the participation of communities, sustainable development and climate change.

The new definition presents what museums are, what qualifies them, what they do, what people experience at museums, what values shape museums, who museums work for. It reflects what

museums are today throughout the world and expresses the geographical, cultural, and professional diversity of the global museum community. Each museum, no matter its dimension, typology, collection, property, may find that its mission and activities are taken into account in the definition and can implement its content in the daily work.

The 2015 Recommendation on the social role of museums: a successful cooperation between UNESCO and ICOM[4]

Before 2015, UNESCO's sole international instrument dedicated to museums was the *Recommendation Concerning the Most Effective Means of Rendering Museums Accessible to Everyone* approved on 14 December 1960[5]. It was an important Recommendation, aimed to ensure greater access to museums by all sections of society. However, after 1960 museums underwent a deep transformation and asked for a new international act. UNESCO and ICOM agreed on the need of a new Recommendation and worked together successfully.

UNESCO's Recommendation *concerning the Protection and Promotion of Museums and Collections, their Diversity and their Role*[6] (UNESCO, 2015) was adopted on 17 November 2015. The Recommendation emphasizes the importance of museums in today's societies and defines the policies for museums and heritage that Member States are invited to promote. It highlights the primary functions of museums – preservation, research, communication and education –, their diversity and their social and economic roles as well as their extended mission. It also underlines how museums shall react to new global challenges, particularly sustainable development. The Recommendation

[4] The International Council of Museums is the world organisation of museums and museum professionals; see: https://icom.museum/en/ [Accessed on 30 May 2022]

[5] The text of UNESCO's 1960 Recommendation is published in UNESCO website; see: http://portal.unesco.org/en/ev.php-URL_ID=13063&URL_DO=-DO_TOPIC&URL_SECTION=201.html [Accessed on 30 May 2022]

[6] The 2015 Recommendation on museums is available in the UNESCO website:http://www.unesco.org/new/en/culture/themes/museums/recommendation-on-the-protection-and-promotion-of-museums-and-collections/ https://unesdoc.unesco.org/ark:/48223/pf0000246331 [Accessed on 30 September 2022].

states that ICOM's Code of Ethics, definition of museum and standards are the most widely shared international reference in museum management.

In order to implement the 2015 Recommendation, UNESCO convened the first High Level Forum on Museums in Shenzhen, China, in November 2016. The Shenzhen Forum brought together over fifty world-class museum directors and experts, policy makers and stakeholders. ICOM actively participated in the Forum and many ICOM representatives, such as Laishun An, Carlos Brandao and Alberto Garlandini, contributed to the Forum's debates and decisions. The Forum approved the *Shenzhen Declaration on Museums and Collections*[7]. The Declaration confirms the social, cultural, educational and economic role of museums and invites the Member States to integrate the Recommendation in their legislation and in local and national policies. I quote here the part of the Declaration dedicated to the diversity of museums:

> *"We, experts and representatives of Member States and institutions assembled in Shenzhen, People's Republic of China, ... call upon museums, national authorities, international organisations, governmental, nongovernmental and private institutions, and individuals directly and indirectly engaged in culture, heritage and museums to:*
>
> 1. *Continuously engage in the revitalisation of museums, so that the diversity of their collections and operational modalities can be adapted to contemporary missions, and so that their activities can continue to promote museums as sites for national and international dialogue, for developing inclusive discourses around heritage in order to lessen social, cultural and economic inequalities and to increase public enjoyment;*
> 2. *Ensure that fundamental functions of museums, as stated in the UNESCO 2015 Recommendation and in the ICOM codes of ethics, such as preservation, research, communication and education, are not compromised by economic concerns, but instead broadened to provide greater learning, enjoyment and exchange opportunities;*
> 3. *Value the role of museums in stimulating contemporary cultural expressions and local cultural economies, and integrate existing and new museum projects into an inclusive cultural landscape, respectful of environmental concerns and impartial in the sharing of benefits."* (from the Shenzhen Declaration on museums and collections, Section *I. DIVERSITY OF MUSEUMS AND COLLECTIONS, AND THEIR OPERATIONAL MODALITIES*)

[7] The Shenzhen Declaration is available in UNESCO website: https://icom-lithuania.mini.icom.museum/wp-content/uploads/sites/40/2019/01/Shenzhen-DeclarationENG.pdf [Accessed on 30 May 2022].

The Shenzen Declaration emphasises the role of museums in addressing environmental challenges as part of the global commitment to sustainable development. The Shenzhen Declaration encourages UNESCO to improve cooperation with ICOM and reference to key ICOM documents. Since 2015, one of ICOM's tasks is to support the implementation of the UNESCO Recommendation. ICOM urges governments to be aware of new challenges and opportunities, to move from words to deeds and to implement what has been decided at international summits.

The evolution of ICOM's vision and strategy

Museums live in the contemporary era and face the crucial issues of our time. In recent years, ICOM has reflected on the impact on museums of the challenges contemporary societies are facing: migration and the crisis of traditional community identities, inequality and racism, diversity and decolonisation, urban regeneration and the digital revolution, sustainable development and climate change, pandemics and conflicts.

ICOM has changed a lot. I would like to address here some milestones in ICOM's debate and action that have been influenced by the experience of ecomuseums. I will start with the contribution of ecomuseums to the 2016 ICOM General Conference in Milan.

Extended museums and cultural landscapes: the contribution of ecomuseums to ICOM's 2016 General Conference in Milan

The 2016 ICOM Triennial Conference was held in Milan from 3rd to 9th July (Garlandini, 2017). Milan's 24th General Conference was the occasion for a fruitful meeting between museology and ecomuseology. Under the leadership of Hugues De Varine, ecomuseums and community museums organized two successful events during ICOM's Conference: a meeting between the international network of ecomuseums and ICOM's International Committee for Museums and Collections of Ethnography - ICME, and a Forum at Milan's Polytechnic University.

The ecomuseums' Forum discussed the new prospects of ecomuseology and gave a relevant contribution to ICOM debate.

The Forum approved the 2016 Milan Cooperation Charter *Ecomuseums and Cultural landscape*[8] that states:

1. *" The Forum has endorsed the Florence and Faro European Conventions, as well as the ICOM Resolution on the Responsibility of Museums Towards Landscape approved by ICOM's General Assembly at the end of the 24th General Conference in Milan, the ICOM Carta di Siena and the ICOMOS Quebec Declaration.*
2. *We consider ourselves capable of being an interface between the world of museums (ICOM) and the world of monuments and sites (ICOMOS). We will work to be associated to the activities of these two organisations and their specialized structures, because of our expertise in the field of participatory management of living heritage and landscape at local level.*
3. *We will work to maintain close relations with the relevant International Committees of ICOM (ICOFOM, ICME), with the International Scientific Committee on Cultural Landscapes (ISCCL) of ICOMOS, and with the international and national NGOs pertaining to the fields of anthropology and sustainable tourism."* (from The 2016 Milan Cooperation Charter)

The Forum expressed the ecomuseums' commitment to cooperate with museums at local, national and global level and to engage with the new challenges emerging from the ICOM's General Conference. The contributions and results of the Forum were published by Milan's Politecnico University: *Ecomuseums and cultural landscapes. State of the art and future prospects* (Riva, 2017)[9] .

ICOM's 2016 General Assembly in Milan approved the Resolution No. 1 *The Responsibility of Museums Towards Landscape*[10]. The Resolution addressed the social role of museums and introduced the concept of "extended museums".

Resolution No. 1: The Responsibility of Museums Towards Landscape

Museums and landscapes are an essential element of humanity's physical, natural, social and symbolic environment.

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[8] The Milan Cooperation Charter is available at: https://www.researchgate.net/publication/315656664_2016_Milan_cooperation_Charter_Ecomuseums_and_cultural_landscape [Accessed on 30 May 2022].

[9] The ebook version can be downloaded for free from Milan Politecnico's web site https://re.public.polimi.it/handle/11311/1041602 [Accessed on 30 May 2022].

[10] See https://www.icom-italia.org/wp-content/uploads/2018/02/ICOM-Italia.MuseiePaesaggiCulturali.Risoluzionefinaleinglese.Documenti.9luglio.2016.pdf [Accessed on 30 May 2022]

Landscape is a highly complex network, defined by relationships between social and natural elements. The richness of landscape arises from its diversity. Museums are part of the landscape. They collect tangible and intangible testimonials linked to the environment. The collections forming part of their heritage cannot be explained without the landscape.

Museums have a particular responsibility towards the landscape that surrounds them, urban or rural.

This implies a dual duty: on the one hand, the management and upkeep of heritage in a sustainable development perspective for the territory; on the other, attention given to images and representations that identify and connote the landscape itself.

Considering the above, and

1. *Remembering UNESCO Conventions, ICOM Code of Ethics and NATHIST Code of Ethics;*
2. *Knowing that the concept of Cultural Landscape incorporates not only the physical size of a territory, but also a wide range of intangible factors - from language to lifestyle; from religious belief to the different forms of social life; from technology to ways of life and production, as well as to power relations and exchanges between generations;*
3. *Recognizing that such concept encompasses soundscapes, olfactory, sensory and mental landscapes, and also the landscapes of memory and of conflict, often incorporated in places, objects, documents and images, endlessly expanding opportunities for museums to take action on cultural landscapes;*
4. *Understanding that museums contribute with the knowledge and expertise of their professionals, to raise awareness among communities - helping the development of decisions that involve a transformation of the landscape;*
5. *Considering that museums share the task with other institutions working to preserve heritage and ensuring its management and development.*

The 31st General Assembly of ICOM recommends that:

- Museums extend their mission from a legal and operational point of view and manage buildings and sites of cultural landscape as 'extended museums', offering enhanced protection and accessibility to such heritage in closed relationship with communities.

- Museums contribute not only to the knowledge of the values of cultural landscapes, but also to the development of symbolic frameworks that determine them, so that the notion of cultural landscape becomes an instrument for the assessment of what needs to be protected, enhanced and handed on to future generations, and what will go instead questioned, criticized and modified." (31st General Assembly of ICOM. Milan, Italy, 2016. Resolution No. 1: The Responsibility of Museums Towards Landscape)

This Resolution shows that today's museums have new social objectives and broader territorial responsibilities than in the past. Museums are not only concerned with the collections they conserve, but also with the heritage and landscape that surrounds them. Museums are territorial structures and resources for their communities. They work far and wide and manage tangible and intangible heritage spread over vast areas.

Many key issues raised by ecomuseums are relevant in the ICOM Resolution: the focus on diversity, intangible heritage and the environment, the importance given to the intangible heritage factors of communities and the sustainable development of the territory.

The most innovative aspect of ICOM's 2016 Resolution is the concept of "extended museums". This concept is influenced by the longstanding studies of Italian museologists on the "museo diffuso". Since the 1970s Andrea Emiliani, a famous Italian art historian, wrote about the relationships between museums and communities. Later, in 1980, André Chastel, a French art historian author of acknowledged works on the Italian Renaissance, brilliantly captured a unique characteristic of Italy, which he called 'a museum of museums'. "All in all, we have to consider Italy par excellence as the 'natural museum'"(Chastel, 1980, p. 12). There are three reasons why Chastel considers Italy to be a natural museum. Firstly, because a large number of sculptures, paintings and works of art are preserved in situ; secondly, because many museum collections are exhibited in historic buildings of great architectural and artistic value; thirdly, because Florence, Siena, Venice and many other Italian cities are art centres designed and built to enhance their monuments and palaces. Italy is a country in which "thanks to an exemplary interlocking mechanism, the (museum) collection is housed in (historic) architecture set in a city (of art). These three types of museum dialogue harmoniously with each other' (Chastel, 1980). Historically, Italian museums have paid special attention to social and territorial activities. They have focused on the tangible and intangible interrelationships of collections with their historical context. The Milan Conference was a significant step towards closer interaction between museology and ecomuseology and greater cooperation between museums and ecomuseums. In 2017, ICOM Europe and ICOM Poland organised a seminar in Wilanow, Poland. The seminar addressed

the topic 'Designing an extended museum: cultural and natural heritage - society - economy - territory and urban landscape'. The contributions of the Seminar were published in the volume titled *Extended Museums in its Milieu* (Folga-Januszewska, 2018).

Museums and ecomuseums, communities and sustainability

I would like to highlight the EU-LAC-MUSEUMS project, which focused on the promotion of cultural, scientific and social cooperation between museums, community museums, ecomuseums and their communities in the European, Latin American and Caribbean regions. The EU-LAC-MUSEUMS project began in 2016, with the support of ICOM and funded by Horizon2020, the European Union's research programme. It finished in 2021. For four years the project dealt with the theme *Museums and Community: Concepts, Experiences, and Sustainability in Europe, Latin America and the Caribbean*. The goal of the project was to reinforce mutual understanding, interconnectivity and cooperation, as well as create a common vision for sustainable, local and regional museums. The project reached 154 countries, with over 100,000 people engaged in on-site or online activities and more than 100 community workshops hosted at 30 museum sites involving 28,000 participants. Karen Brown of the University of St Andrews in Scotland coordinated the project, in collaboration with Peter Davis of Newcastle University, UK, Hugues de Varine, recognised leader of the international network of ecomuseums and community museums, Beatriz Espinosa, President of the ICOM Regional Alliance for Latin America and the Caribbean, and Luis Raposo, President of the ICOM Regional Alliance for Europe.

> *"Societal challenges can lead to opportunities if approached in the right way. Europe is currently undergoing a crisis of identity, seeking to define its past, present, and future position in relation to the wider world, and to consolidate regional cohesion across generations within a wider, global knowledge economy. EU-LAC-MUSEUMS, ICOM Europe and ICOM LAC are committed to the idea that fostering inter-cultural dialogue and creativity through their regional and community museums is fundamental to this process."* (Dr Karen Brown, EU-LAC-MUSEUMS Project Coordinator)[11]

[11] See https://eulacmuseums.net/eulac_museums_docs/EULAC_COMPENDIUM.pdf [Accessed on 30 May 2022]

The results of the project are published in a website[12] and in an e-book (Brown, Davis and Raposo 2019). It is interesting to note that the ICOM members that coordinated EU-LAC-MUSEUMS were also promoters of the resolution on Museums, Communities and Sustainability that was approved by Kyoto's ICOM General Assembly in 2019:

> *Noting the Declaration of Santiago de Chile (UNESCO, 1973), reconfirming ICOM's Resolutions relating to communities, sustainability and cultural landscapes, and noting that the ICOM Resolution concerning the "extended museum" adopted in Milan in 2016 underlined that museums are more than traditional buildings, collections and established curatorial practices, having value for social, cultural, environmental and economic development, thereby furthering the aims of the UN's Sustainable Development Goals,*
>
> *The 34th General Assembly recommends ICOM to:*
> - *provide greater recognition of, and support for, the vast number of community-led organisations that do not currently fulfil the ICOM Definition of a Museum (2007) but that further the goals of safeguarding and promoting access to natural, cultural and intangible heritages and their sustainable use for environmental, social and economic development of communities, towards achievement of the UN 2030 goals and climate justice;*
> - *remain sensitive to local and regional differences, and demonstrate awareness of the geo-political dimension of the concept of the Museum, especially relating to the resource needs of community-based museums in lower to middle income countries;*
> - *recognize the value of community-based museums for the promotion of ICOM, UNESCO and international charter instruments and their values of human rights and peace, and sustainable community development in general, especially in the contexts of indigenous and ethnic minority communities, and in the face of the challenges posed by migration;*
> - *encourage collaborative work with and between community-based museums on national and bi-regional levels;*
> - *contribute to building the capacity of community-based museums and ecomuseums in their transformative approaches towards sustainable living communities and territorial development and the protection and enhancement of cultural landscapes; and*
> - *strengthen, enable and mobilise ICOM National and International Committees, as well as Regional Alliances and Affiliated Organisations, to act as mediators for cultural understanding at the community level and between regions to achieve the above goals."* (34th General Assembly of ICOM. Kyoto, Japan, 2019.Resolution No. 5 "Museums, Communities and Sustainability")

[12] See https://eulacmuseums.net/index.php [Accessed on 30 May 2022]

Museums, ecomuseums and the United Nations' Sustainable Development Agenda

In September 2015, the United Nations adopted the 17 Sustainable Development Goals (SDGs) of the 2030 Agenda for Sustainable Development. The SDGs officially entered into force on 1 January 2016. The SDGs are mobilising the efforts of all countries to end poverty, combat inequality and tackle climate change. The UN SDGs are essential for a post-pandemic recovery towards greener, more inclusive economies and more resilient societies.

In September 2019 in Kyoto, Japan, ICOM's General Assembly passed the resolution "On Sustainability and the Implementation of Agenda 2030: Transforming our world ":

> *Considering humanity's current demands on the planet are unsustainable; the planet and all its inhabitants, human and non-human are facing an entangled series of unprecedented environmental and societal crises, the impacts of which: rising inequality, wars, poverty, climate change and loss of biodiversity, are serving to amplify these crises.*
>
> *Recognizing the members of the United Nations have unanimously agreed to implement Agenda 2030, Transforming our World, to address the crises and to initiate the creation of pathways to a sustainable future. Understanding that museums, as trusted sources of knowledge, are invaluable resources for engaging communities and are ideally positioned to empower the global society to collectively imagine, design and create a sustainable future for all,*
>
> *The 34th General Assembly recommends that ICOM, its Committees, Alliances, Affiliated Organisations and Secretariat:*
>
> - *recognise that all museums have a role to play in shaping and creating a sustainable future through our various programmes, partnerships and operations;*
> - *endorse the urgent call by ICOM's Working Group on Sustainability for museums to respond through rethinking and recasting their values, missions, and strategies;*
> - *become familiar with, and assist in all ways possible, the goals and targets of the UN SDGs and use the 2030 'Transforming our World' Agenda as the guiding framework to incorporate sustainability into our own internal and external practices and educational programming; and*
> - *empower ourselves, our visitors and our communities through making positive contributions to achieving the goals of Agenda 2030, Transforming Our World; acknowledging and reducing our environmental impact, including our carbon footprint, and helping secure a sustainable future for all inhabitants of the planet: human and*

> *non-human.* (34th General Assembly of ICOM. Kyoto, Japan, 2019. Resolution No.1 "On sustainability and the implementation of Agenda 2030, Transforming our world")

With this resolution, ICOM has committed to making the 2030 Agenda the superstructure of museum work over the next decade and beyond. In this commitment, ICOM is supported by the Sustainability Working Group, with the aim of assisting ICOM members in incorporating sustainability and the SDGs into their work, building confidence, expertise and capacity for action. The Group is developing a comprehensive Action Plan for the implementation of the 2019 Recommendation. A first draft of the Action Plan was discussed at the 2022 General Conference in Prague. After a survey of members in the autumn of 2022, the final version will be submitted to the ICOM Executive Council for approval in December of the same year. The Plan will include measures to reduce ICOM's environmental impact and the carbon footprint of its events and committees. The ICOM Secretariat has already registered its carbon footprint. Implementation of the Action Plan will begin in early 2023. The Plan will be monitored and, if necessary, amended at the ICOM General Assemblies in 2025 and 2028.

ICOM, museums and the climate crisis

In 2016, the Paris Agreement on Climate Change came into force, addressing the need to limit the rise in global temperatures. The climate crisis is having a devastating impact on the world's natural and cultural heritage, both tangible and intangible. The relationships between humanity, the biosphere and the geosphere are intertwined. The world's nature and cultures in the Anthropocene are suffering because landscapes, natural resources and livability are under threat. Indigenous communities are on the front line. Not only are their livelihoods threatened, but also their cultural heritage cannot survive without their natural habitats. Native languages are also in steady decline due to the climate crisis.

Museums are in a unique position to support environmental policies, disseminate scientific information and promote knowledge and sustainable practices in their communities. They can also influence public opinion and encourage action.

ICOM participates in international government forums to ensure that decision-makers around the world recognise and integrate museums into their policies regarding heritage, sustainability and climate justice. I would like to mention the 2017 G7 Culture Ministers' meeting in Florence and the G20 Culture Ministers' meeting in Rome in 2021. The final declarations of these important governmental meetings endorsed measures to strengthen the fight against illicit trafficking and to safeguard cultural heritage. These meetings also recognised ICOM as an important international actor and highlighted the role of museums in heritage protection, sustainable development and education. ICOM President Alberto Garlandini's keynote speech at the G20 Ministers of Culture Meeting was about *Addressing the climate crisis through culture*[13]*:*

> *Actively fighting climate change and the loss of biodiversity is one of the ethical imperatives of our time..... The focus on climate change and sustainable development is part of ICOM's commitment on the protection of Cultural Heritage, Education and Capacity Building. As International Council of Museums we propose:*
>
> 1. *to consider museums as relevant institutions in charge of promoting communities' knowledge about the climate crisis and sustainable behaviour;*
> 2. *to foster the educational commitment of museums on sustainability, climatic justice and intercultural pedagogy; to integrate museums' activities with the G20 strategies so as to promote responsibility and civic participation from school children to senior citizens;*
> 3. *to rely on ICOM as an international partner in the fight against the climate crisis and in the protection and promotion of cultural and natural heritage.* (From Alberto Garlandini's speech on "Addressing the climate crisis through culture")

In 2021, on the occasion of Earth Day (21 April), ICOM became an official supporter of the Global Coalition #UnitedforBiodiversity by joining more than 200 institutions and 36 organisations to respond to the appeal launched by the European Commission. ICOM involved its network in the common effort to overcome three ecological emergencies: biodiversity loss, climate change and pollution. ICOM also participated in the 2021 United Nations Climate Change Conference (COP26) in Glasgow, Scotland.

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[13] See https://icom.museum/en/news/the-g20-recognises-the-role-of-museums-and-icom-in-addressing-the-climate-crisis/ [Accessed on 30 May 2022]

On 11 November 2021, the ICOM President joined a panel in the EU pavilion and showed how heritage institutions, practitioners and politicians are responding to the climate emergency. He also called for more integrated and effective action. In 2022, ICOM signed a memorandum of understanding with the Climate Heritage Network (CHN).

The CHN is a voluntary network of mutual support committed to climate justice through the mobilisation of the arts, cultural and heritage communities. As part of this network, ICOM collaborates with partner organisations and mobilises the museum community to promote climate action and sustainability initiatives.

Maximizing the impact of culture and museums on local sustainable development

In 2018, ICOM and the OECD, the Organisation for Economic Co-operation and Development, jointly developed a Guide to help museums, communities and local governments increase the social and economic impact of cultural heritage (ICOM-OECD, 2018). In 2018, more than 20 museums and cities and several ICOM committees tested the Guide. The launch version of the Guide was presented on 6 December 2018 in Venice, at the OECD International Conference on Culture and Local Development. The final version was presented at the ICOM General Conference in Kyoto on 4 September 2019.

The introduction to the Guide states that:

> *"Today museums are increasingly recognising their role as agents of social and economic change. They generate knowledge for and about society, are a place for social interaction and dialogue, and a source of creativity and innovation for the local economy. Conservation and display of heritage are still their core functions, but for local governments museums become not only one of the many actors of local development, but a driver of change".*

The Guide provides strategies, actions and a self-assessment framework:

- for museums to strengthen the linkages with local economy and social fabric
- for local governments to enhance the social and economic value of museums and heritage as part of sustainable local development.

In order to support museums to operate while considering the impact of their activities, the Guide is structured around five themes:

1. Leveraging on the power of museums for local economic development
2. Building on the role of museums for urban regeneration and community development
3. Catalysing culturally aware and creative societies
4. Promoting museums as spaces for inclusion, health and well-being
5. Mainstreaming the role of museums in local development

For each theme the Guide addresses policies and action options to museums and local governments.

Sustainability is a main issue in ICOM's 2022-2028 Strategic Plan and a key term in the new museum definition. OECD-ICOM Guide has become a common reference point in the museum community. No. 283-284 of *Museum International* (2019), ICOM's academic journal, is dedicated to Museums & Local Development. The volume presents theoretical articles and case studies of museums that have specifically utilised or tested the Guide in fostering development and social projects. The Editorial Board points out that the volume "follows on from the high level intergovernmental collaboration between the OECD and ICOM seeking to highlight the role that museums play in local development."[14]

In conclusion

I would like to conclude this preface by recalling Hugues De Varine's leading role in the history of museology, ecomuseums and community museums. In 2021 I talked about Hugues' contribution in one of the ten webinars titled *Babel Tower: museum people in dialogue*. Babel Tower is a project developed by the University of Liége and the Lusòfona University of Lisbon and coordinated by Manuelina Duarte and Giusy Pappalardo. The remarkable results of the project have been collected in a volume titled *Babel Tower: Museum people in dialogue,* published by ICOFOM, the ICOM International Committee for Museology (Duarte, 2022).

The Babel Tower webinars were a journey through the multivalent, diverse, complex and changing world of museums and ecomuseums, museology and ecomuseology. The Babel Tower

[14] See OECD-ICOM, 2019 p. 7

started with Manuelina Duarte's "Insurgent Museologies" and Giusy Pappalardo's ecomuseums, continued with Hugues De Varine's community museums and community museology and ended with Mario Moutino's sociomuseology and the innovative social experiences of many museums.

I had the privilege to write the conclusion of the volume *Babel Tower*, and also to participate in the Babel Tower's webinar dedicated to the last book written by Hugues De Varine *L'Ecomusee singulier et pluriel* (De Varine,2017).

In his long and fruitful professional life Hugues has produced an unlimited number of theoretical and practical contributions on museums, ecomuseums, community museums, cultural and natural heritage, community, local development, sustainable tourism and diversity. Hugues would prefer to be called an agent of local development or a promoter of sustainable development in the service of communities rather than being considered a museologist or an ecomuseologist. When he speaks of heritage, he refers more to the intangible and living heritage of communities than to their tangible heritage.

Hugues is far from being an academic pontificating on the life of museums and ecomuseums from his ivory tower. Since his experience as director of ICOM and his deep involvement in the experience of the Le Creusot ecomuseum in the 1960s and 1970s, Hugues has put himself on the line by participating in the life of community museums, travelling all over the world, engaging in the daily life of communities. Hugues has always worked in the field. He learnt from the real life of museums and communities and taught and inspired generations of museum professionals and volunteers by drawing on his unique experience.

Hugues De Varine's teachings are more important than ever now that ICOM, museums and ecomuseums are facing unexpected and dramatic challenges, from the pandemic to numerous armed conflicts around the world.

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Introduction

Nunzia Borrelli, Peter Davis and Raul Dal Santo

This book is the result of an online meeting held on 30 September 2021 entitled 'Ecomuseums and Climate Action'. This was a satellite event, jointly organised by the Italian Ecomuseum Network and the University of Milan Bicocca, of Pre-COP 26 on climate change, held in Milan, and the World Forum for Democracy promoted by the European Council. The aim of the online meeting, which was attended by some 100 participants from around the world actively involved in ecomuseums, community museums and sustainability, was to share information on how their organisations can contribute to the debate on the climate crisis and promote local action. The conference considered the actions necessary for ecomuseums, working with their communities, to protect our cultural, natural and intangible heritage, those features that make our places special and give us a sense of belonging. Questions were asked about how ecomuseums and community museums are acting as catalysts for transition, renewal and sustainable development and how they can contribute effectively to the Sustainable Development Goals and climate action. These are big questions for small museums.

Milan is an appropriate place to ask such questions, as one of the city's best known inhabitants, Leonardo da Vinci, constantly reflected in his turbulent sketches and dramatic writing on the future of the Earth and the potential for disaster. In Walter Isaacson's *Leonardo da Vinci: The Biography* (2018) there are frequent references to Leonardo's fascination with, and reflections on, apocalypse. It was a vision he frequently returned to, and in the *Codex Arundel* we read this description written by him:

"The rivers will be deprived of their waters, the earth will no longer put forth her greenery; the fields will no more be decked with waving corn; all the animals, finding no fresh grass for pasture, will die. In this way the fertile and fruitful earth will

be forced to end with the element of fire; and then its surface will be left burnt up to a cinder and this will be the end of all earthly nature".

This is not a prophecy, but simply Leonardo's fertile imagination, his vision of what an apocalypse could be. But it is not far from describing many of the terrible events we are witnessing. Huge forest fires have become common in 2021, with disastrous effects on nature and communities. In California, the largest and most ancient trees in the world, some of which are over 2500 years old, were threatened as the Sequoia National Park, faced a huge fire hazard. Many ancient and gigantic trees have been lost and Sequoia National Park has been closed to visitors. The distribution in Italy of the beautiful butterfly used as the logo for the conference – the white letter hairstreak (*Satyrium w-album*) (Fig.1)[1] – has been greatly reduced due to climate change.

Fig. 1. The White Letter Hairstreak butterfly (Satyrium w-album), a signal species of climate change (Photo by Zeynel Cebeci from Wikimedia Commons)

[1] This climate change 'sentinel species' also helps us to reflect on the maxim "The flapping of a butterfly's wings can cause a hurricane on the other side of the world" – in other words, everything is related, everything is connected and small actions (such as those made by ecomuseums) can help to generate big changes.

As we write, in September 2022, there have been other tragic environmental events: typhoons in the Philippines, hurricanes in Cuba, catastrophic floods in Pakistan, heavy rains in Italy, continuous fires in Oregon in the United States, deadly landslides in Uganda, all while, according to the United Nations, the rate of desertification has reached thirty times its historical rate. All these events have had an impact on communities, many of them in remote rural areas, but also in cities. The impact of rising sea levels on societies and cultural heritage was highlighted in Venice, which in 2019 was inundated by exceptional tides over a six-week period, sparking fears of the worsening impact of climate change on coastal communities. It is clear that the climate crisis, the loss of cultural heritage and the biodiversity crisis are interconnected. This has been recognised in Pakistan, where the issue of climate change is a serious concern; the government has approved two related policies - a comprehensive Climate Change Policy 2021 and a Wildlife Policy 2021 - the latter of which generates employment opportunities for local people by involving them in wildlife protection.

Returning to Leonardo, a fundamental characteristic of his life was his love for the town of Vinci, it was his place and he returned there often. We can only imagine how he would have felt about the potential impact of the climate crisis on the town, its people, its landscape, its economy and its traditions. Place and belonging - the intersection of community, culture, traditions, history, landscape and nature - are at the heart of ecomuseums and community museums, and have been since the inception of the idea some 50 years ago. As individuals and communities we cherish these places. We are proud of them, but how can we, against all odds, build for the future? We are not looking for utopia, but simply for a place where we can live in dignity for all of us, a place where we can appreciate the old ways in modern times. Can rural landscapes and communities around the world, with their centuries-old rhythms of work, weather and nature, survive and can we leave a legacy for the future?

The chapters in this book explore how ecomuseums and community museums can play an active role in mitigating the impacts of climate change, using the knowledge and skills of local communities and their tangible cultural and natural assets. The museum world in general, and ICOM in particular, is actively

engaged in these debates. ICOM participated in the G20 Culture Ministers' meeting in 2021 on the topic of climate change and culture, where ICOM President Alberto Garlandini drew attention to the close connection between climate change and the damage to natural and cultural heritage. He emphasised how museums, as trusted institutions, can play an important role in raising awareness and engaging local communities to support climate action and elaborates on these ideas in his Preface to this book.

At ICOM's General Assembly at Kyoto in 2019, two important resolutions were passed that are especially relevant to discussions of the role of museums in relation to climate change and the sustainability development goals. Resolution No.1 "*On sustainability and the implementation of Agenda 2030*" was an overarching statement about museum roles. Resolution No. 5 "*Museums, Communities and Sustainability*" demanded ICOM give greater recognition of, and support for, community museums and ecomuseums. This resolution stressed the contribution that they make to safeguarding, understanding and promoting access to natural, cultural and intangible heritages – in other words they are no longer on the margins of museology and deserve appropriate recognition.

How museums can support climate actions is an increasing part of academic and museological debate. Fiona Cameron's *The Liquid Museum* (2015) explains how museums and cultural institutions could promote governance processes that are less interested in problem solving and are more focused on reflexivity and creativity. She suggests museums can create cooperative ways of considering climate change as a creative opportunity to encourage new ways of living. Rather than treating visitors as a passive audience, museums need to acknowledge their creative potential, as actors having expectations, holding valued opinions, expertise, skills, capacities and desires. McGhie, Mander and Minns (2020) affirm that museums have a potential "as sites for subverting and imaging other potential societies and futures, and a growth of capabilities speaks well to the language of a productive future where, in the language of the Sustainable Development Goals no-one is left behind" (McGhie, Mander and Minns (2020: 189). Jenny Newell (2020) discussed the experiences of five Climate museums in New York, Hong Kong, Rio, Bremerhaven and Olso, highlighting the strategies they have adopted to raise visitors' awareness of the need to change

their lifestyle to tackle the climate crisis. Harrison and Sterling brought together theoretical contributions and good practices related to how museums can contribute to climate action in *Reimaging Museums for Climate Action* (2021), an edited volume launched as an open access book as part of the official COP26 UN Climate Change Conference Green Zone.

Although the ways in which museums can contribute to climate change have been widely discussed, there is currently no book that presents the role of ecomuseums in terms of climate action. Although there are fewer ecomuseums than 'traditional' museums, they are now widespread (there are 244 in Italy alone and hundreds in other countries around the world), so the following chapters highlight the characteristics of ecomuseums and community museums - in theory and in practice - that make them particularly relevant to the climate debate. They are mainly small local organisations with strong ties to the community, not subject to the bureaucratic demands that bind traditional museums. They are in tune with two slogans that emerged in the 1960s as environmental concerns grew: 'Think global, act local' and 'Small is beautiful'. *Think Global, Act Local* – although appropriated by the environmental movement, was actually coined as early as 1915 by the Scottish conservationist Patrick Geddes, but is just as pertinent today, and especially so for community museums and ecomuseums. As community-based organisations ecomuseums are aware of the big picture, but their focus is on their place, their locality, their heritage. Individual ecomuseums can react to local needs, and take small steps to a better future. If all ecomuseums and community museums act together they can make a real difference. *Small is Beautiful* was also adopted by the environmental movement, but was the title of Schumacher's book *Small is Beautiful: A Study of Economics as if People Mattered*. He suggested we used appropriate technologies, actions and policies as an alternative to the mainstream idea of "bigger is better". Ecomuseums and community museums are mostly small organisations, but above all they are rooted in their communities and therefore fit perfectly into this 'small' philosophy. They can be attentive, agile and seize opportunities. Hugues de Varine suggested that ecomuseums should be bold, imaginative and find new ways of working; ecomuseums can do this because they know their territory and its cultural heritage, they are not subject to specif-

ic rules or conventions and their communities can make the important decisions.

This book is divided into two key sections. The first explores and highlights theoretical approaches to ecomuseums and climate change, the second provides examples of a range of ecomuseum practices towards sustainability and the climate crisis from Europe, Africa, Canada and Brazil.

Henry McGhie's introductory chapter sets the scene by reflecting on how ecomuseums can support Agenda 2030 and the Sustainable Development Goals, and how ecomuseums are particularly well placed to support some of the principles of the SDGs. To illustrate this, he uses the 21 Principles of Ecomuseums, discussing each in turn to create an understanding of how these two frameworks – ecomuseum philosophy and SDGs principles – interact and are mutually supportive. Following this, he reveals how the work of ecomuseums can be related to the Seven Key Activities, set out in his *Museums and the Sustainable Development Goals*. In chapter 2, Douglas Worts and Raul Dal Santo question whether museums have the capacity to become catalytic agents, to bring about meaningful cultural change. Are they capable of fostering the requisite levels of public reflection, dialogue and action required? The two authors suggest that while traditional museums tend to operate as providers of education and entertainment in the leisure economy, ecomuseums and community museums engage closely with living local culture and could therefore offer insights to traditional museums on how to better embrace the role of cultural catalysts in the face of climate change. The chapter also presents a planning tool for museums, called the 'Inside-Outside Model: Museums Planning for Cultural Impacts', which seeks to steer the activities of museums towards promoting cultural impact at different levels. In chapter 3, Lisa Pigozzi, Nunzia Borrelli and Raul Dal Santo describe the European project Ecoheritage (funded through Erasmus Plus and involving 4 European countries), which started in December 2020 with the aim of producing learning tools for ecomuseums. Ecoheritage partners conducted a survey that included questions related to the SDGs and their influence on the activities of ecomuseums. The partners strongly believe that ecomuseums can contribute to the achievement of the SDGs and climate action, but recognise the need to identify and share examples of good practice and to develop learning tools. The conclusions reached by the

Ecoheritage project, although limited to the four countries involved in the research, indicate that although most of the ecomuseums interviewed during the Ecoheritage project do not have specific projects concerning climate action, the SDGs are firmly embedded in their strategic plans.

In chapter 4 Michela Rota discusses how culture shapes the way we perceive, make sense of and behave towards changing realities. The author suggests that culture gives meaning to our perceptions; it brings humanity together through thoughts, emotions and imagination and consequently is a very effective tool for disseminating knowledge to citizens and promoting their participation in sustainable development. All museums, as cultural institutions, can act as a vector for the successful implementation of all 17 Sustainable Development Goals (SDGs) of the 2030 Agenda. The author argues that, within the framework of European Union (EU) policy, decision-makers, as well as EU citizens and communities, must make full use of culture and cultural institutions to ensure better promotion of, and response to the SDGs.

Ginevra Addis, in chapter 5, presents how curators in arts institutions have begun to explore how aesthetics can respond to the issue of sustainability and, more specifically, to the 2030 Sustainable Development Goals (SDGs). The author suggests that the increasing convergence between aesthetics and sustainability over the last decade shows a growing response from artists, art institutions, curators and actors in ecomuseums. The author analyses how contemporary art is used as a vehicle for sustainability in Italian and European ecomuseums. She identifies two different ways of approaching the aesthetics of contemporary art, firstly from a conceptual point of view, focusing the artistic operation on different goals of the SDGs, and in particular on climate change, responsible consumption, reducing inequalities, earth life, diversity, peace and migration. The second approach uses the aesthetic beauty of art itself, as beauty has an impact on the sense of place, participatory inventory of heritage, improvement of suburbs and participation of citizens, especially youth groups.

The final 'theoretical' chapter (6) in Part 1, by Ezio Marra *et al*, investigates how local policies, based on community participation (as shown by ecomuseums and community museums), can promote sustainability. Ecomuseums are local community projects that, by promoting the relationship between culture

and the environment, stimulate the growth of ecological awareness, social cohesion and local economies. The thesis proposed is that democratic local community projects can raise environmental consciousness and support the SDGs. However, ecomuseums do not operate in a political vacuum, and the wider political environments within which ecomuseums and cultural institutions operate need to be taken into consideration. The question posed is how national political regimes interact with the environmental performance of cultural institutions and is there a linear or a more complex relationship between democracy and policies relating to environmental sustainability?

The second section of the book deals with practices. chapter 7 begins with a discussion by Glenn Sutter on the role that Canadian ecomuseums can play in relation to sustainability and SDGS. Previous studies on Canadian ecomuseums suggest that there is significant potential for climate action, especially since the ecomuseum model was adopted early in the country and many projects came into being in conjunction with a growing awareness of climate impacts. Unfortunately, the author indicates that Canadian ecomuseums are not able to make much of a contribution to climate action, either regionally or nationally, and investigates why this is the case by examining the development and current state of ecomuseums in Canada and assessing how current pockets of activity align with levels of concern about climate change.

In chapter 8, Gelsom Rozentino reveals how the networks of the Brazilian Association of Ecomuseums and Community Museums - ABREMC - play a key role in empowering ecomuseums. The ecomuseums and community museums that make up ABREMC consider the SDGs fundamental in their projects and actions. These community-based initiatives depend on local collective efforts for their existence and development; they are closer to the community, its identity and its territory. Such collective action is described in a detailed account of the Ecomuseu Ilha Grande which was founded by local people in 1999 and is now a university museum, part of the University of Rio de Janeiro. Ilha Grande is located in the municipality of Angra dos Reis, in the state of Rio de Janeiro, between Brazil's two largest metropolises, Rio de Janeiro and São Paulo. It is an area of 193 km^2, much sought after for its beautiful beaches, rich fauna and flora native to the Atlantic Forest, varied marine life and interesting geomorphological diversity. Ilha

Grande has become one of the most visited tourist centres in Brazil and the rapid development of tourism and the lack of a strategic vision for tourism management have led to problems that the ecomuseum is trying to solve. Fortunately, the ecomuseum has developed rapidly since its foundation, creating the Museu do Cárcere with its craft room and community library, a Museum of the Environment, a Botanical Garden and a Centro de Convivência (Life Centre), a place for meetings, workshops, parties and performances. Using these resources, the Ecomuseu Ilha Grande values and emphasises the relationship between people and the material and immaterial heritage of the island, developing programmes, projects and actions of conservation, research, communication and education related to the SDGs.

In chapter 9, Chiara Razzano reflects on her experiences in the Ngorongoro Conservation Area (NCA), in northern Tanzania, and in particular on her interviews with representatives of the Conservation Authority, the management body of Ngorongoro. The author believes that one of ecomuseology's main objectives, which is shared with the NCA, is sustainable development, pursued through conservation and education. Furthermore, the NCA and ecomuseums share some basic values, ideologies and practices. However, the author is aware that the sustainability mission of organisations such as the NCA and ecomuseums may be compromised due to global dynamics and pressures that characterise the use and governance of natural resources. As in many protected areas, sustainability and climate action in the Ngorongoro Conservation Area comes at the expense of local communities, whose livelihoods and survival inside and outside the NCA are threatened, while tourist access to natural sites is prioritised.

Chapter 10 by Karen Brown *et al* considers the Community Crafts and Cultures ('CCC') project (2017-2021) funded by the Scottish Funding Council's Global Challenges Research Fund (GCRF) – a collaboration between The University of St Andrews, the National Museum of Costa Rica (NMCR), two community museums and one ecomuseum in Costa Rica. Understanding the intersections between 'living heritage' and community resilience has never been more urgent for community museums and ecomuseums in countries affected by climate change. This situation is exacerbated among indigenous communities, who often remain outside the political mainstream, even in countries like Costa Rica, which has set global standards in

sustainable biodiversity management, including measures that can help alleviate poverty in some communities. Therefore, understanding how indigenous peoples conceive and develop sustainability in this modern context is essential to safeguard identity and cultural heritage. In this chapter, the authors address the role of community-led oral, material and technological methods to collect, preserve and share cultural memory and traditional ecological knowledge (TEK) across generations and relate their findings to the SDGs and climate change.

Clare Cooper, in chapter 11, describes the Cateran Ecomuseums "Cateran Museum of Rapid Transition", founded in 2018 to reveal the area's hidden heritage through a series of itineraries that aim to tell the story of people, places and landscapes across 8,000 years of human history and 400 million years of geological history. Like many parts of Scotland, the Ecomuseum has a rich natural and cultural heritage that includes prehistoric megaliths and Pictish landmarks; little-known stories of the great legends of King Arthur and the Pan-Gaelic hero Finn mac Cumhaill; and tales of the Caterans themselves, the warriors of the Highland clans who were associated with cattle raiding in the 17th-18th centuries. The chapter also reveals other stories: those of the Scottish Traveller Community, the great Jacobite rebellions and the transformations brought about by the agricultural and industrial revolutions. The geography of the Ecomuseum traverses one of Scotland's great geological features, the Highland Boundary Fault, a 400-million-year-old collision of rocks that determined how and where people settled and used the land.

Óscar Navajas Corral and Jesús Fernández Fernández (chapter 12) illustrate the reality of ecomuseums in Spain and assess whether the increase in the number of ecomuseums is due to a new social mentality, more attentive to sustainability and climate change. They analyse the actions carried out by Spanish ecomuseums and present the specific case of La Ponte-Ecomuséu as an entity that generates actions for citizens, who are increasingly aware of the challenges facing societies today. After an overview of the emergence of ecomuseum ideas and the growth of community-based projects in Spain, the authors focus on La Ponte-Ecomuséu, a community and rural heritage organisation located in a small municipality (Santu Adrianu), with less than 260 inhabitants, in central Asturias. It is described as a social enterprise of knowledge, operating on the basis of

rationality of means and economic resources, but with social and cultural aims and a strong link with the territory and its community. One of the cornerstones of the ecomuseum is the idea that the sustainability of rural territories is not possible without valorising the ancestral knowledge of the communities that created our cultural landscapes. For this reason, an important part of the work of the La Ponte ecomuseum is aimed at promoting values and attitudes of respect, coexistence, empathy and collaboration towards rural communities, the heirs of rural memory.

Barbara Kazior (chapter 13) describes how, in 2000, the first projects initiated by the Polish Environmental Partnership Foundation appeared. They aimed to introduce concept of the ecomuseum and to attract local community leaders to consider it as a solution for the protection of natural and cultural heritage and for socio-economic development through sustainable tourism and education. These early ecomuseum initiatives developed mainly in southern Poland and were all based on the informal cooperation of different local actors: NGOs, heritage activists and businesses - mostly related to tourism - and institutions such as cultural centres cooperating under the ecomuseum label. The Dziedziny Dunajca Ecomuseum, a network of 40 sites, is described in detail; it is an area where visitors can discover the beauty of nature and understand the history and traditions of Spisz, Podhale, Gorce and Pieniny. Ecomuseum sites enable visitors to learn about local history, traditions, folklore, cuisine and nature through direct contact with the local community. Sites to visit include, for example, shepherd's huts, workshops, regional mini-museums, a honey farm, small hotels offering home-made preserves, a family bistro specialising in trout dishes, a Hungarian castle, Pieniny National Park, the oldest in Poland, traditional Spisz farms and horse farms and riding stables.

Raul dal Santo and Douglas Worts (chapter 14) offer a practical look at how one ecomuseum in Italy (Parabiago) used the Inside-Outside Model to guide its work towards co-creative and sustainability-based impacts throughout the region. Parabiago is a small town of approximately 30,000 inhabitants, near the city of Milan, in the Lombardy Region. In recent decades, the surrounding landscape has degraded with the loss of biodiversity, ecosystem integrity and resilience. The inhabitants no longer appreciate the living heritage of this bioregion, even

though for centuries the locals felt a deep sense of connection between the land and their lives. The land contained social relationships, guided by customs and traditions that helped define the meanings of places and the resources they contained. There were rules and procedures for co-existence between people and the land. In our contemporary world, there are still opportunities to cultivate vital relationships between the community and the land on which it is based. The Parabiago landscape ecomuseum was established in 2008 to address these environmental and social issues.

In chapter 15, Edo Bricchetti describes the Ecomuseo Martesana, near Milan in Italy, whose mission is to research, conserve and enhance the natural, cultural and social assets and ways of life of the area with the participation of the local population. It encourages participative development projects of local communities, including the protection and preservation of the territorial heritage in its environmental, historical, cultural, productive and ethnographic components. The actions of the Martesana Ecomuseum described have been implemented directly, or in partnership with other institutions and associations, with the support of the local communities that have appreciated the ecomuseum's efforts to tackle the climate emergency. Although it will not be easy to maintain the commitment, energy and vitality of a wide range of projects, they have induced new perspectives, feelings and good practices for environmental protection.

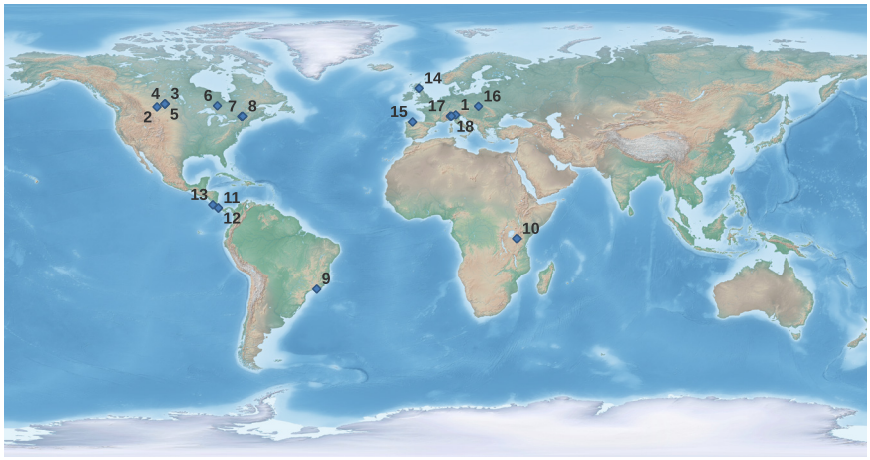

Fig. 2. Case studies described in the book. 1: MUSE - Museo delle Scienze (Italy) page 111; 2: Prairie Wind & Silver Sage (Canada) ; 3: White Butte (Canada) ; 4: Civic Museum of Regina (Canada) ; 5: Calling Lakes ecomuseum (Canada) ; 6: Ecomusee de Hearst (Canada) ; 7: Ecomuseum Zoo (Canada); 8: Écomusée du fier monde (Canada) page 117; 9: Ecomuseu Ilha Grande (Brasil) page 191; 10: Ngorongoro Conservation area (Northern Tanzania) page 217; 11: Liceo Rural Yimba Cajc (Costa Rica); 12: Museo Comunitario de Boruca (Costa Rica); 13: Ecomuseo de la Ceramica Chorotega (Costa Rica) page 239; 14: Cateran Ecomuseum (Scotland) pag 267; 15: La Ponte Ecomuseo(Spain) page 285; 16: Ekomuzeum Dziedziny Dunajca (Poland) page 305; 17: Ecomuseo del Paesaggio di Parabiago (Italy) page 323; 18: Ecomuseo della Martesana (Italy) pag 351. (Basemap from https://www.naturalearthdata.com*)*

In conclusion, the chapters of this book explain why ecomuseums and community museums are important for debates on climate change, biodiversity loss, changing landscapes and livelihoods, and sustainability. Among the main reasons that emerge are: they are locally focused; they are welcoming to all; they are connected, help each other and learn from each other; they inspire wonder and raise awareness of the heritage of specific localities; they increase knowledge of heritage within and outside the community; they encourage participation with and by the community; they are a strong environmental catalyst, encouraging local people to act for the natural and cultural environment; they can equip people to monitor environmental changes and make conservation efforts to protect the heritage we care about; they support other heritage conservation efforts

to sustain culture and nature; and they can review their own carbon footprint and environmental impact.

1. Connecting the 21 Principles of Ecomuseums, the Sustainable Development Goals and Climate Action

Henry McGhie

This chapter gives some reflections on how ecomuseums can support Agenda 2030 and the Sustainable Development Goals, and how ecomuseums are particularly well placed to support some of the principles of the SDGs. Discussion of using the Sustainable Development Goals commonly aims to 'align' work with them, or to 'support' them, which can prevent a proper understanding of some of the fundamental aspects of the over-arching Agenda 2030, namely the vision and principles, and also makes for a shallow use of the goals and targets. This article will explore how ecomuseums can focus instead to help achieve the goals and to realise the vision of Agenda 2030, not just in a 'top-down' manner, which is not the aim of the SDGs. To illustrate the approach, the 21 Principles of Ecomuseums will be discussed in the context of Agenda 2030 and the SDGs, to harmonize the understanding of how these two frameworks interact. Following this, the work of ecomuseums will be discussed in relation to Seven Key Activities, set out in 'Museums and the Sustainable Development Goals' (McGhie 2019) as a blueprint for museums to contribute to the SDGs. This will aim to serve as a practical example of how to plan, deliver, monitor and evaluate, and communicate the work of ecomuseums. Finally, climate action in and with ecomuseums and in relation to the Paris Agreement will be discussed as an example of a bottom-up approach to mobilise museums to sustainable development challenges.

It is not the intention of this chapter merely to align the SDGs and targets with the 21 Principles (Davis, 2018), but to draw attention to some of the particular strengths of the ecomuseum concept in achieving the SDGs, both in terms of the SDGs and targets themselves, and through their localisation to the cultural and museum sector (in the broad sense).

Understanding Agenda 2030 and the Sustainable Development Goals

There are some particular aspects of the SDGs that are often overlooked. Firstly, the SDGs are not a standalone item or an agenda in their own right: they are the results framework for Agenda 2030 itself, which sets out a vision of a better future. Second, the SDGs are not a checklist that we seek to align our work towards: they are a to-do list that we help achieve as a programme for positive change, not for negative stasis. Third, the SDGs are a connected set of goals that are to be achieved together and in working to achieve one or more, we have to check that we are not achieving progress in one area by creating problems elsewhere. Fourth, in many ways, the SDGs are not a new Agenda, but the latest attempt to put the world on a path to sustainable development. Steps along this path have included the 1972 Stockholm Conference on the Human Environment, the 1987 Brundtland Report 'Our Common Future', the 1992 Rio Earth Summit and Declaration, the 2000-15 Millennium Development Goals, and other developments. Fifth, the Agenda is not a programme of new agreements, but a mechanism to better achieve a wide range of existing multilateral agreements, including human rights Conventions and Declarations, and multilateral environmental agreements. The Agenda has all of the major agreements rolled into one programme, which enables us to aim to achieve them simultaneously, and thus avoid trade-offs between them. Sixth, although the Agenda and SDGs are set out as an invitation to all sectors to collaborate as an innovation for multilevel governance, they are too readily subsumed into an old-fashioned mind-set of information flowing upwards to inform national reporting: that is part of the work, but certainly not all of it, and is not really the spirit of either the Agenda or the SDGs themselves.

The failure of governments to secure sustainable development, and the need for mass-participation

Inclusion, participation, access to information, education and public awareness form part of a wide range of international agreements. To give some examples, the Rio Declaration from the Rio Earth Summit notes that "Environmental issues are best handled with the participation of all concerned citi-

zens, at the relevant level".[1] The Framework Convention on Climate Change (1992) notes the crucial importance of public education, training, access to information, public participation and international co-operation to address climate change; these six elements are also included in the Paris Agreement (United Nations, 2015). Similarly, the Convention on Biological Diversity emphasises the importance of education, and also of the sustainable use of nature.[2] Again and again we find the recognition of participation, inclusion and education in international agreements. Why? Because they relate to well-established human rights, such as the rights to education, to participate in cultural life and in public affairs, to information and to self-expression. These rights were all established over 70 years ago in the Universal Declaration of Human Rights, and are incorporated into international law.[3]

In terms of enabling public participation and decision-making regarding environmental matters, in Europe people have rights to environmental information, participation in decision making and to seek environmental justice in the Aarhus Convention (1998).[4] The Escazú Agreement (2018) is a regional agreement covering Latin America and the Caribbean.[5] The Agreement promotes environmental rights, and the protection of environmental defenders, in the context of multiple assaults and even murders of environmental activists: Global Witness reports over 200 environmental defenders were killed in 2020 alone, the worst year since records began in 2012.[6] The rights of Indigenous peoples and of small-scale agricultural producers, rural workers and their families are set out in two agreements, the UN Declaration on the Rights of Indigenous Peoples

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1 https://www.cbd.int/doc/ref/rio-declaration.shtml (Principle 10)

2 https://www.cbd.int/

3 https://www.un.org/en/about-us/universal-declaration-of-human-rights

4 The Aarhus Convention's full title is the 'UNECE Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters', https://unece.org/environment-policy/public-participation/aarhus-convention/introduction.

5 The Escazú Agreement's full title is the 'Regional Agreement on Access to Information, Public Participation and Justice in Environmental Matters in Latin America and the Caribbean', or CEPAL for short, https://observatoriop10.cepal.org/en/treaties/regional-agreement-access-information-public-participation-and-justice-environmental.

6 https://www.globalwitness.org/en/campaigns/environmental-activists/last-line-defence/

(UNDRIP) and UN Declaration on the Rights of Peasants and Other People Working in Rural Areas (UNDROP) respectively. As they are Declarations rather than Conventions they do not have the same legal standing, yet they are important frameworks, and highly relevant to the work of ecomuseums everywhere.

For seventy or more years, governments have largely made agreements on behalf of society, yet the public-facing and all-of-society aspects of these agreements have not always been delivered or fulfilled. Why? On a practical basis, authorities often lack the relationships or physical spaces to interact with people and groups of people. Yet, we must also recognise that the sectors – including museums – have not played the part that they could and should have been playing, to support people's participation in current affairs and sustainable development. The participation has simply not happened.

The Right to Development (1986) is a profoundly important innovation since the original statement of universal human rights, yet few have heard of it, and few institutions – including museums or ecomuseums – incorporate it into their work.[7] The Right to Development is the origin of the phrase "free, active and meaningful participation" which has found its way into subsequent agreements and programmes. The Right to Development articulates that development is a human right that belongs to everyone, without discrimination. The Right to Development is a right on a par with other human rights, such as those included in the Universal Declaration of Human Rights. 'Development' means programmes of activity that aim at the constant improvement of the well-being of the entire population and of all individuals, and the Declaration on the Right to Development gives everyone the right to participate in, contribute to and enjoy economic, social, cultural and political development. Development is set out as a comprehensive process for the advancement of all interdependent, inter-related and indivisible human rights and fundamental freedoms. Importantly, the Declaration identifies "the human person" (ie. the individual) as the central subject, active participant and beneficiary of the right to development, and that they are entitled to free, active and meaningful participation in development. The Right to Development recognizes the right of peoples

[7] https://www.ohchr.org/en/instruments-mechanisms/instruments/declaration-right-development

to self-determination, and that they have full sovereignty over their natural wealth and resources. The Right to Development aims to promote international peace and security, development and human rights. It aims for the fair distribution of the benefits of development activity, with equal opportunity for everyone.[8] While the primary responsibility for the Right to Development lies with governments, the principles can be applied at subnational, and even at community levels. The Right to Development is also unusual as it is a 'group right' rather than just an individual right, so it belongs to people and peoples in groups and communities, to define themselves and their limits as they so desire as part of the process of self-determination.

Agenda 2030 as a rights-based agenda

Let us reflect on the action – and inaction – for multiple human rights conventions and environmental agreements that has brought our natural environment to the brink of disaster, and the steady erosion of rights in many countries. The aspirations of the many agreements for education, participation and inclusion have simply not happened. The old style of 'club diplomacy' where governments make decisions has not worked. Countries themselves have recognised this, and we see increasing emphasis given to participation and access to information in international agreements, as accountability and participation help make better decisions and to ensure their aspirations are achieved.

From 2000-2015, the Millennium Development Goals introduced an innovation, of a public- and sector-friendly approach built around goals. Rather than complex planning processes, a set of eight goals were set out as an invitation to sectors to collaborate to address development challenges in the Global South. This programme had limited overall success, but the goal-based approach was recognised as a success, and consequently incorporated into the successor programme, Agenda 2030 (presented in the document Transforming our World) and the 17 Sustainable Development Goals. There are features of Agenda 2030 and the SDGs that are worth emphasising. The Agenda is essentially a rights-based agenda (not about use

[8] https://www.ohchr.org/sites/default/files/Documents/Publications/FSheet37_RtD_EN.pdf

of resources, as sustainability is often thought of). It is also an attempt to promote multilevel governance of complex challenges. The principle of reducing inequalities is foregrounded by a principle of 'Leave No-one Behind', which means that those most under-served should be given priority. Cultural diversity and the right to development are recognised as important, while universal values in the shape of human rights are a common direction of travel for all countries and sectors to work towards. The Right to Development is also emphasised in Agenda 2030 (Transforming Our World).

While people are often familiar with the 17 SDGs, they are often less familiar with Agenda 2030 (Transforming Our World) or with its aims. The SDGs don't make sense without reference to this document, with its description of Our World Today, and a vision for a sustainable future, as well as the means for implementation through cross-sector and cross-society collaboration. The overall aims of Agenda 2030 are summarised as the '5 Ps':

- People: to end poverty and hunger, in all their forms and dimensions, and to ensure that all human beings can fulfil their potential in dignity and equality and in a healthy environment.
- Planet: to protect the planet from degradation, including through sustainable consumption and production, sustainably managing its natural resources and taking urgent action on climate change, so that it can support the needs of the present and future generations.
- Prosperity: to ensure that all human beings can enjoy prosperous and fulfilling lives and that economic, social, and technological progress occurs in harmony with nature.
- Peace: to foster peaceful, just and inclusive societies which are free from fear and violence. There can be no sustainable development without peace and no peace without sustainable development.
- Partnership: to mobilise the means required to implement the 2030 Agenda through a revitalised Global Partnership for Sustainable Development, based on a spirit of strengthened global solidarity, focused in particular on the needs of the poorest and most vulnerable and with the participation of all countries, all stakeholders and all people.

The 5 Ps can be considered as five intentional commitments and aspirations that are to be achieved by planning and delivering activity through the SDGs and targets. They must be understood as the foundation, purpose and direction for the SDGs. Being committed to the 5 Ps is really essential to contributing to Agenda 2030 and the SDGs effectively, as the SDGs are the more detailed version of how these five super-goals are to be achieved. The SDGs are a means to an end (rather than an end in themselves), which is to achieve the 5 Ps and turn the vision of the overall Agenda into a reality.

The 5 Ps do a clever thing: they take the traditional three dimensions of sustainability (social, environmental and economic) and turn them into three intentional goals, that we commit ourselves to achieving as programmes of action, to be achieved together. The 5 Ps are also carefully worded, so that each of them refers more or less clearly to the other 'Ps'. The SDGs can't be allocated between particular 'Ps', and nor can the 'Ps' be allocated between particular SDGs.

Agenda 2030 does another very useful thing: it adds two further dimensions to sustainable development, Peace and Partnership, although they are rather different to the 'People, Planet, Prosperity' dimensions. 'Peace' is both an enabling condition for sustainable development, and an outcome of sustainable development. As it says in Agenda 2030, there can be no peace without sustainable development and no sustainable development without peace. 'Partnership' is also included as an enabling factor, as working with others is essential to achieve successful sustainable development, and collaboration between different sectors helps create new sustainable development outcomes.

Ecomuseums and sustainable development: Local actions for local and global challenges

We have seen that many international agreements refer to the importance of education, inclusion and participation – rooted in well-established human rights – and that additional special protections have been developed to strengthen these rights (as in the Aarhus Convention and Escazú Agreement) and in relation to particular social groups (including Indigenous peoples, rural workers and small-scale producers). Yet where are these places that can turn the commitments into realities and lived

experiences? Where can people find the information, take part in the deliberation and decision making, and collaborate with one another in culture-based activity? Let us consider a famous quote from Eleanor Roosevelt, from a speech entitled 'The Great Question', delivered in 1958:

> "Where, after all, do universal human rights begin? In small places, close to home—so close and so small that they cannot be seen on any map of the world. Yet they are the world of the individual person: The neighborhood he/she lives in; the school or college he/she attends; the factory, farm, or office where he/she works. Such are the places where every man, woman, and child seeks equal justice, equal opportunity, equal dignity without discrimination. Unless these rights have meaning there, they have little meaning anywhere. Without concerted citizen action to uphold them close to home, we shall look in vain for progress in the larger world."[9]

This powerful quote makes a red thread between the lives of the individual and their aspirations and reality – as subsequently set out in the Right to Development – and the universalism that human rights work has sought to build and defend. We may think of these 'small places' as schools in regard to education, religious buildings for the right to freedom of belief, work places and the right to work and to fair working conditions. We may also consider museums, libraries and community venues as the small places where the various rights already mentioned can be realised, supported, defended and enabled. Where better than cultural institutions and cultural sites to support the right to participate in cultural life, where 'everyone has the right freely to participate in the cultural life of the community, to enjoy the arts, and to share in scientific advancement and its benefits' (to take the full content of the first part of article 27 of the UDHR)? Where else has greater potential to empower everyone to take part in cultural practices, to know their own culture and that of others, and to contribute to the cultural life of the community? Where else is better placed to connect these rights with activity that raises awareness of other rights and helps people enjoy them, and to take part in sustainable development activity? Where better than ecomuseums to support the Right to Development?[10]

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[9] Eleanor Roosevelt, "The Great Question" remarks delivered at the United Nations in New York on March 27, 1958, quoted in https://www.fawco.org/images/stories/UN_NGO/ER-brochure.pdf

[10] See McGhie 2020, Museums and Human Rights, and https://www.refworld.org/docid/4ed35bae2.html.

Rights-based approaches provide a powerful potential for museums, ecomuseums and other cultural institutions to reflect upon the services they provide, the ways they provide them, and who they provide them for. If sustainable development seeks the progressive improvement of places and communities, it can also support the progressive improvement of public services and institutions, including museums and ecomuseums. Yet let us be honest and recognise that human rights remain largely peripheral to the work of museums and museum organisations: they are poorly understood and have been scarcely incorporated into museum codes of practice or ethics (although this may hopefully be changing). We may acknowledge that museums have not necessarily played the roles they could have in supporting people to claim their human rights, but we can also recognise that they offer a tremendous potential to do so, to help more people enjoy their rights to participate in cultural life, in public affairs and other rights, and their Right to Development.

Unlocking the potential of ecomuseums for the SDGs

Peter Davis established a set of '21 Principles' for ecomuseums that we can use to reflect on the potential and contributions of ecomuseums to support sustainable development. The 21 Principles are set out in the table below, but it is worth emphasizing some of the particular aspects of ecomuseums that can contribute to sustainable development.

Ecomuseums primarily achieve their purpose in a particular, identifiable place, and seek to support the positive transformation of that place. This is a strength of ecomuseums, that many 'traditional' museums are less clear on. The existence of the ecomuseum as a tool and actor in the sustainable development of the place or community can be considered in development terms, such as the right to development's articulation of development as the progressive improvement of the living conditions of everyone in the community (see above). This constructive engagement with a process of change and transformation is a strong foundation for ecomuseums and the ecomuseum model as a resource for the progressive transformation of the community and locality. Embracing change and involving people in negotiating, debating and creating that change helps

avoid the brittleness that comes from rigid institutions that cannot adapt to a changing world (Ecomuseum Principles 8-12, 14, 15). Ecomuseums' focus on local identity and sense of place involve the identification, recognition, conservation, development and use of tangible and intangible cultural heritage as assets within their place, although the focus on safeguarding resources in situ and the emphasis on intangible cultural heritage are rather different from traditional museums (Ecomuseum Principles 7, 11, 12).

Ecomuseums blur the lines between the day-to-day management of museums, cultural participation for all, and partnerships and collaborations for sustainable development. The emphasis in ecomuseums as being steered by the community (Principle 1), with participation in decision-making (Principle 2), and with joint ownership of assets (Principle 3) helps to achieve the calls for inclusion in decision-making that are emphasised within Agenda 2030, both in terms of the overall principles of the Agenda and its implementation, and in relation to particular SDG targets outlined in the table below (Ecomuseum Principles 1-3).

Ecomuseums emphasise the potential of heritage – natural, tangible and intangible – as community assets or capitals that can contribute towards sustainable development processes of the community and the locality. They emphasise heritage as an asset to be managed, rather than a commodity or possession (Ecomuseum Principle 4), and they recognise the importance of maintaining connections between forms of heritage and its own place (Ecomuseum Principles 10-13). In recognising the value of cultural and natural heritage, and its relevance to the development processes of the community as a capital asset to be maintained, ecomuseums help strengthen efforts to protect and safeguard cultural and natural heritage, and to ensure it is used and developed to reflect the aspirations of communities and other stakeholders in inclusive ways.

Ecomuseums can support communities and small-scale producers in their livelihood, by supporting skills development, providing employment opportunities, and providing markets for their products. They can also keep economic considerations in perspective, avoiding the problems created by mass- or unsustainable forms of tourism, that lead to problems of over-dependence on income from outside the community, the decline of local industries, high greenhouse gas emissions from tourist

travel, and gentrification. Ecomuseums' emphasis on social capital rather than the all-too-prevalent economic growth model helps create strong communities, with collaborations between creative workers and from contributions to public service from people and organisations as volunteers (Ecomuseum Principles 5-6, 20)

Ecomuseums can be sites of, and catalysts for research, in different forms, and their interdisciplinary nature can promote and support interdisciplinary forms of research (Ecomuseum Principles 16-17).

Sustainable development seeks to secure a harmonious balance of considerations of people, planet and prosperity over time. This ambition is well-reflected in ecomuseums, which aim to stimulate sustainable development and wise use of resources (Ecomuseum Principle 13); to encourage an holistic approach to interpretation of culture/nature relationships (Principle 18), and emphasise connections between technology/ individual, nature/culture and past/present (Principle 19). The last of the Principles, to bring benefits to local communities, through a sense of pride, regeneration and/or economic income, is closely aligned with the Right to Development.

Localising Agenda 2030 to museums and ecomuseums

We have seen how the principles of ecomuseums make them particularly well-disposed to support Agenda 2030 and the SDGs, as there is a clear alignment of interests and aspirations, and because ecomuseums are singularly well placed to support the aspects of the Agenda that emphasise participation and inclusion in agenda-setting, activity development and delivery. How can this commonality be applied in practical terms, to support local implementation of the SDGs, which ultimately contributes to national and global contributions to their achievement?

In 'Museums and the Sustainable Development Goals' (McGhie 2019), I proposed a framework of Seven Key Activities that museums do (more or less) that can be directed towards helping achieve sustainable development outcomes. This framework can be thought of as a kind of localisation of the Agenda and the SDGs to the museum sector, with localisation meaning that the Agenda and SDGs are tailored into existing activities, rather than parachuted in as an add-on or parallel

stream of work. In 'Museums and the Sustainable Development Goals', these seven key activities are aligned to the relevant SDG targets, which connect them with roughly one third of all 169 SDG targets. For the sake of simplicity they can be monitored and communicated in relation to a much smaller list of fifteen SDG targets. The Seven Key Activities are:

1. Protect and safeguard cultural and natural heritage, both within museums and more generally. This can be monitored and evaluated through SDG 11.4 (acknowledging that this also incorporates the considerations of SDGs 14 and 15 for life below water and on land respectively).
2. Support Education for Sustainable Development, which supports SDG 4.7 (Education for Sustainable Development and Global Citizenship) as well as SDGs 12.8 (information for sustainable development and lifestyles in harmony with nature) and 13.3 (education, awareness and capacity development for climate mitigation, adaptation and action).
3. Promote cultural participation for all, which can be monitored through SDG 10.2 (universal economic, social and political inclusion) and 1.4 (ensure access to services), as well as 5.1 (eliminate all forms of discrimination against women and girls) and 11.7 (provide safe, inclusive and welcoming green and public spaces).
4. Support sustainable/responsible tourism, which has its own SDG target (8.9).
5. Support research for sustainable development, for example by supporting research activity and by sharing research findings. This can be monitored as SDG 9.1 (provide sustainable infrastructure) and 9.5 (promote scientific research).
6. Direct everyday activities and operations towards sustainable development, for example through management, recruitment, use of resources, management of waste and management approaches and decisions. This can be considered within SDG 8.8 (support labour rights and provide decent work), 12.6 (adopt sustainable practices and sustainability reporting) and 12.7 (sustainable procurement.), 16.6 (effective, accountable and transparent institutions), and 16.B (support laws and policies for sustainable development).
7. Direct partnerships and collaborations towards sustainable development. This activity can be monitored in reference to 16.7 (participatory decision making), 17.16 for international partnerships and 17.17 for more local and cross-sector

partnerships, and 11.B for integrated policies for Disaster Risk Reduction and social inclusion in the community.

Some particular aspects of ecomuseums work can also be considered, in terms of SDGs 11.3 (participatory sustainable development involving communities), 11.A (connections between urban and rural areas) and 8.2 (job creation with a focus on small-scale producers).

The framework can be readily applied to a wide range of cultural institutions and aspects of the cultural and heritage sectors, such as galleries, libraries and archives, and including sites, monuments, national parks, and other green spaces, acknowledging some slight differences between them. For example, libraries and archives often have less of a focus on attracting tourists than museums; national parks and green spaces often have less of a focus on education and information than cultural institutions.

In the following table, the 21 principles of Ecomuseums are mapped against the Seven Key Activities from Museums and the Sustainable Development Goals, and in relation to the most relevant SDG targets.

	SDG Key Activity	Relevant SDG targets
1. Be steered by the local community	7	SDGs 1.4, 10.2, 11.3, 16.7, 17.17
2. Allow for public participation from all the stakeholders and interest groups in all the decision-making processes and activities in a democratic manner	7	SDGs 10.2, 11.3, 16.6, 16.7, 17.16, 17.17
3. Stimulate joint ownership and management with input from local communities, academic advisors, local businesses, local authorities and government structures	7	SDGs 16.6, 16.7, 17.16, 17.17
4. Place an emphasis on processes of heritage management, rather than on heritage products for consumption	1, 6	SDGs 11.3, 11.4, 16.6, 16.7
5. Encourage collaboration with local craftspeople, artists, writers, actors and musicians	6, 7	SDGs 8.2, 8.9, 10.2, 11.4
6. Depend on substantial active voluntary efforts by local stakeholder.	4, 7	SDGs 10.2, 16.7, 17.16, 17.17
7. Focus on local identity and sense of place	1	SDG 11.3, 11.4, 11.A

8. Encompass a 'geographical' territory which can be determined by different shared characteristics	1	SDG 10.2, 11.4, 11.7, 11.B, 15.1
9. Cover both spatial and temporal aspects, where, in relation to the temporal it looks at change and continuity over time rather than simply trying to freeze things in time	1	SDG 10.2, 11.4, 11.7, 11.B, 16.6
10. Take the form of a fragmented 'museum', consisting of a network with a hub and 'antennae' of different buildings and sites.	1	SDG 9.1, 11.4
11. Promote preservation, conservation and safeguarding of heritage resources in situ	1	SDG 1.4, 11.4
12. Give equal attention to immovable and moveable tangible material culture, and to intangible heritage resources	1	SDG 2.5, 11.4
13. Stimulate sustainable development and wise use of resources.	Overall objective, 6	SDG 6.B, 11.B, 12.6, 16.B, 17.14
14. Allow for change and development for a better future.	Overall objective, 6	SDG 11.3, 11.5, 11.B,
15. Encourage an ongoing programme of documentation of past and present life and people's interactions with all environmental factors (including physical, economic, social, cultural and political)	1	SDG 11.4
16. Promote research at a number of levels – from the research and understanding of local 'specialists' to research by academics	5	SDG 4.A, 9.1, 9.5
17. Promote multi-disciplinary and inter-disciplinary approaches to research	5	SDG 4.7, 9.1, 9.5
18. Encourage an holistic approach to interpretation of culture/nature relationships	2	SDG 4.7, 12.8, 13.3, 15.9
19. Attempt to illustrate connections between: technology/ individual; nature/culture; and past/present	2	SDG 4.7, 12.8, 13.3
20. Provide for an intersection between heritage and responsible tourism	4	SDG 8.9, 12.B, 14.5

21. Bring benefits to local communities, for example, a sense of pride, regeneration, and/or economic income	Overall objective	SDGs 8.9, 9.1, 11.3, 11.B, 12,B, 14.5

An example: ecomuseums and climate action

One of the less well-known aspects of the UNFCCC and Paris Agreement is the public-facing and all-of-society part, in articles 6 and 12 respectively. This is now known as Action for Climate Empowerment (ACE), with the six element of education, training, public awareness, public access to information, public participation and international co-operation on climate change matters. This has been agreed upon by all member states that are signatories to the UNFCCC and Paris Agreement. While the programme is adopted by governments, they have not taken sufficient action, at least in most countries. Nevertheless, the principles and plans of Action for Climate Empowerment can be taken up by sectors. Indeed, the new programme, called the Glasgow Work Programme as it was adopted in Glasgow at COP26, specifically names museums, cultural and educational institutions as important actors in supporting Action for Climate Empowerment. Such recognition also presents a responsibility that museums and ecomuseums can embrace.

Fig. 1. What if museums were small, impermanent structures? An idea suggested by the Existances project for Reimagining Museums for Climate Action, looking across to the COP26 venue. (courtesy of Reimagining Museums for Climate Action).

In addition to the six ACE activities mentioned above, the new programme highlights the importance of four priority areas: policy coherence for climate action, co-ordinated action, sharing and developing tools and support for different sectors, and effective monitoring, reporting and communication. Let us consider these six ACE elements and four priority areas from an ecomuseum perspective. Ecomuseums are already strongly aligned with many of these activities, yet they may not see themselves as actors within a global (as opposed to local) sustainable development agenda. This is understandable, as ecomuseums primarily have a local focus, yet that is not the whole story. Ecomuseums can connect people and communities with the big picture and global challenges, not necessarily in a 'top down' way, but by creating opportunities for people and communities to contribute towards these agendas, in whatever way they wish, and so fulfilling their right to development, from a 'bottom up' direction. As the old saying goes, 'to think global and act local', also contributes to global action, delivered locally, and connecting local and global realities.

In 'Mobilising Museums for Climate Action', part of the project Reimagining Museums for Climate Action, developed by the AHRC Heritage Priority Area for COP26 (discussed below), I proposed a framework for museums to take climate action. Museums – including ecomuseums - can help 1. Reduce their own emissions; 2. Support people and communities to reduce their emissons; 3. Make sure they are fit to face climate impacts (climate adaptation); 4. Support people and communities to face current and future climate impacts; and 5. To make sure that any climate action is fair, and contributes to wider sustainable development, and certainly doesn't add to sustainable development challenges. I developed this framework, as museums currently emphasise climate mitigation (reducing emissions), which is only part of the response needed. Ecomuseums, with their greater emphasis on processes of change and coproduced futures, are especially well-placed to support the actions relating to climate adaptation. Any tools or resources they have produced on these activities could be shared with the wider museum sector, to support more traditional forms of museums to embrace adaptation more readily.

Ecomuseums can mainstream climate action into their activities by combining the Seven Key Activities outlined above

as a localisation of the SDGs and the five-part scheme outlined above from Mobilising Museums for Climate Action.

Strengthening efforts to protect and conserve cultural and natural heritage can consider current and future climate impacts, and also develop cultural and natural heritage to face climate impacts and to contribute to reducing emissions.

Empowering people to know about, care about and act upon climate change and its impacts can involve empowering people to know what commitments governments and authorities have made, who is being affected by climate change and how (both locally and globally) and also how they can make use of their representatives and democratic processes.

Ensuring everyone is aware of climate challenges, options for action, and risks that they and others face, as well as their environmental rights, helps to fulfil the SDG commitment to 'leave no-one behind', acknowledging that different social groups face different priorities in terms of emissions reduction and adaptation. Ensuring that marginalised voices are included in any decision making or deliberation is an important function that ecomuseums can support.

Directing tourism activities towards low-impact and high-benefit models helps avoid the vulnerability that dependence on tourism can create, and helps to reduce the negative impacts of tourism.

Ecomuseums can support research that can in turn support social transformation of areas; ecomuseums can also be sites to share the outputs of research relating to climate mitigation and adaptation measures.

As low-emission organisational models, ecomuseums can continue to work to contribute to climate action through day-to-day management and embrace new, or old, developments to do so.

Finally, ecomuseums can support rights-based environmental action, locally and globally, through participating in initiatives such as the Glasgow Work Programme for the UNFCCC and Paris Agreement (2021-31), the International Decade of Ecosystem Restoration (2021-30), and the new programme for the Convention on Biological Diversity, supporting climate mitigation and adaptation locally and globally, and the conservation, restoration, sustainable use and fair sharing of benefits from the use of nature, as set out in the Convention on Biological Diversity.

An example of bottom-up approaches

The project Reimagining Museums for Climate Action was launched in May 2020, ahead of COP26. The project was co-led by Rodney Harrison (Professor of Heritage Studies, UCL, London) and Colin Sterling (now Assistant Professor of Memory and Museums, University of Amsterdam), working with me and with Glasgow Science Centre. On International Museum Day 2020 we launched a design and ideas competition, inviting people – professionals, academics, museum workers, designers and individuals – to reimagine the museum as an institution, to meet the needs of climate action. The project was launched with two themes, 'green futures' and 'climate justice':

Green futures

How can the relationship between society, the environment and the economy – or 'people, planet, prosperity' – be rebalanced so that human wealth is not created at the cost of the destruction of nature and the environment on which we all depend? How can museums help society decouple economic growth from environmental destruction? How can they help reverse the trends of extinctions, habitat destruction and resource depletion, and become net producers of positive environmental value as well as social value? How can museums help redefine 'wealth' or prosperity to include Planetary Health and One Health perspectives, which acknowledge that healthy humans require a healthy planet? How can they empower people to imagine and work towards a healthier and more just future, by demonstrating the positive impact that living more sustainably can bring to individual lives?

Climate justice

Those who have contributed least to the problem of climate change will suffer most from its impacts, both within and between countries. This is simply unfair. Climate change multiplies a range of social issues, driving up inequality and misery. Climate justice calls for a recognition of the principle of sustainability, that future generations' abilities to meet their needs and live their lives should not be compromised by the activities of the present generation. Climate justice is about

rights – yours, ours, everyone's, and the rights of nature and other species. How can museums build, enhance and strengthen climate justice, in their own places, in broader society, and across the world?

From this call-out, we received 264 entries from 48 countries. Eight entries were selected by a team of judges and developed into exhibits that were on show at Glasgow Science Centre before and during COP26, when the Science Centre was the official public facing aspect of COP26, referred to as the Green Zone). A further 73 of the concepts can be explored on the project website (www.museumsforclimateaction.org), which has been developed as a resource for the museum sector and their partners, and is accompanied by an open-access book (Harrison and Sterling 2021) and the Mobilising Museums for Climate Action Toolbox, which is available both as a PDF and as an HTML version for automatic translation to promote international usage. The exhibition can also be explored in a digital form on Google Arts and Culture, on the Digital Green Zone. The project was listed as one of 'five incredible ideas' from the Green Zone.[11]

Fig. 2. What if the remaining Indigenous lands were thought of as a kind of museum for climate action? Panoramic view of Ipatse Village, Xingu Indigenous Territory, Brazil (courtesy of Reimagining Museums for Climate Action, 2020).

In the context of this chapter, a number of the ideas submitted to Reimagining Museums for Climate Action relate to

[11] https://artsandculture.google.com/story/tAWB_rRlcmpjkQ

ecomuseums and ecomuseum principles. Four of the exhibits are clearly associated with the ecomuseum approach. These include the project 'Existances' (a portmanteau of existence and resistance), developed by a team in Brazil, that imagined a network of small, impermanent ecomuseums supporting African and Amerindian communities to share and maintain the ecological knowledge that has helped to prevent the destruction of ecosystems by large-scale agricultural businesses. Another exhibit was also based on an idea from Brazil: Natural Futures Museums, that imagined the remaining Indigenous territories as a form of living museum, where Indigenous peoples are the experts who can share knowledge with others, through sustainable tourism. A project from the UK, Museum of Open Windows, imagined museums as hubs within networks led by communities, where the museum houses information and data collected by community members of their experiences of climate impacts and climate action responses: the territory is the 'museum' and the people who live there are its curators. This project had some similarities with a project from a team from Jakarta in Indonesia, that imagined communities using traditional museum modalities, such as collecting and interpreting, but where community members build collections of evidence of climate impacts and responses, and these are used in shared discussions between different communities. The exhibits can be explored on the Google Arts and Culture site, or on the Museums for Climate Action website.

Additional concepts on the Museums for Climate Action website can serve as inspiration for ecomuseums. For example, the idea of a 'Museum of Climate Stories' is based around the idea of an ecomuseum model that is mobile and responds to people's needs and climate impacts and responses, with temporary pop-up structures being used to generate and share narratives from people, including scientists and Indigenous perspectives, that are then shared later and more widely via a mobile app.[12] To take another example, Jamtli Living University reimagines the well-known Jamtli open-air museum, in Jamtli, Sweden, to shift beyond exhibition making to become a partner and platform for sustainable development, bringing together a range of

[12] https://www.museumsforclimateaction.org/reimagine/concepts/the-museum-as-popup

stakeholders to explore, debate and address sustainable development challenges.[13]

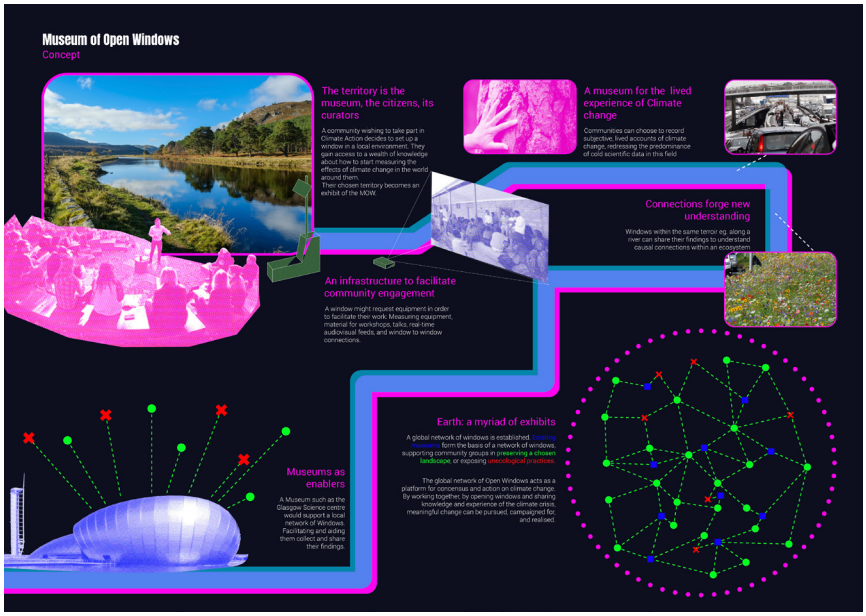

Fig. 3. Museum of Open Windows concept visual, from the Reimagining Museums for Climate Action competition and exhibition: the territory is the museum, and its citizens are the curators (courtesy of Reimagining Museums for Climate Action, 2020).

Concluding remarks

This chapter has sought to highlight both a number of challenges, and a number of scalable, flexible solutions and responses to these challenges, using the Sustainable Development Goals and their targets to select programmes of activity and make plans to achieve them in a holistic manner. The chapter has aimed to highlight that there are many ways to support sustainable development through museums and ecomuseums, and that the ecomuseum model is singularly well-placed to meet some of the aims of Agenda 2030 and the Sustainable Development Goals, in terms of rights-based environmental

[13] https://www.museumsforclimateaction.org/reimagine/concepts/the-museum-as-commons

action, supporting more people to enjoy their human rights, prioritising the needs of those not always best served by more traditional forms of museums, and embracing culture and heritage as tools for people and communities to make use of to support their self-determination and sustainable development, as opposed to top-down or instrumentalist approaches to culture and heritage. The chapter has also aimed to highlight the number of contemporary opportunities to connect the big picture with local contexts, and people and local communities with the big picture. I hope that readers will explore some of the practical resources cited and ask how they can apply them to their own situation, to help us move forward to futures where people and nature flourish together, and to ensure that no-one, no community and no ecomuseum is 'left behind'.

Acknowledgements

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2. The Inside-Outside Model - Animating the Muses for Cultural Transformation Amid the Climate Crisis

Douglas Worts and Raul Dal Santo

Introduction

As human beings living on planet Earth in 2022, finding one's bearings is not for the faint of heart. Global culture, including all of its regional variants, is in disarray (Homer-Dixon, 2006). From escalating human-caused climate change to deepening trends of systemic inequity, the relative stability of human and environmental systems in recent millennia is being dramatically eroded. Each day, new crises seem to destabilise the world ever more (AtKisson, 2010). This moment offers a critical time for humanity to transform its relationships, both to itself and to Nature's complex systems, upon which humans rely. Essentially, the challenge and opportunity of our time revolves around the need for fundamental cultural transformation if Earth's natural systems are to re-establish a balance that includes humanity. But what mechanisms do humans have for adapting the living culture so it aligns with our changing world?

Massive networks of cultural organisations, including museums and ecomuseums, do exist around the planet, but it is unclear what roles these entities might be able to play in fostering meaningful change (Worts, 2003). Most traditional cultural organisations, such as museums, operate as destinations for leisure time activities – often with specialized focuses, like art, history, science, and more. Historically, such museums have not oriented their public engagement to address the issues and forces that shape the living culture. However, it is a worthwhile question whether museums have the capacity to become catalytic agents, capable of fostering the requisite lev-

els of public reflection, dialogue and action required to bring about meaningful cultural change. While traditional museums tend to operate as purveyors of edutainment experiences in the leisure-time economy, it is worth noting that 'ecomuseums' and some 'community museums' have been designed to be significantly engaged with the living pulse of the local culture (Riva, 2017; Sutter, 2016). Ecomuseums may offer insights to traditional museums about how best to embrace the role of 'cultural catalysts' in the face of today's crisis (Riva, 2021). This chapter discusses essential issues, factors and possibilities related to how existing cultural organisations can embrace this challenge/opportunity. It will also introduce readers to a planning tool for museums, called the 'Inside-Outside Model: Museums Planning for Cultural Impacts'. The I-O Model aims to orient public dimension activities of museums towards fostering cultural impacts at a range of levels.

In this chapter, and in Dal Santo and Worts (chapter 14, this volume), the authors will:

- provide commentary on the implications of the changing context for human life;
- reflect on the challenges and opportunities that our moment in time present for humanity, its culture(s), behaviours, values and systems;
- consider how museums and ecomuseums can become catalysts of cultural adaptation and transformation, not simply within the frames of institutionalized culture, but rather across the living culture;
- discuss some of the major issues and forces that need to be engaged;
- introduce and discuss the "Inside-Outside Model: Museums Planning for Cultural Impacts" as a potentially useful tool for museums as they embark on their own transformation processes.

CONTEXT: Challenges

We live in a time of unique challenges, and opportunities. Never before has a single species pushed the Earth beyond its ability to regenerate itself. Never before has a single species dominated, and often damaged, so many other species and their habitats. However, on the other hand, never before have we seen the kind of creativity and problem-solving in any species, other than

humans. And yet, the strategies that humans have developed to realize their visions, and to solve big challenges, have ultimately failed us. Systems of governance, economics, technology, religion and more have largely proven inadequate over time, especially when scaled to global levels. The living culture is multi-levelled, timely, archetypal, contradictory, affirming, messy, creative, always changing, partly conscious and partly unconscious. In many ways, living culture is the opposite of the tidy explanations that are so often the mainstay activities of traditional museums.

For many years, power over how humanity has evolved was largely in the hands of governments, business, religions and powerful individuals. The result has been massive growth in global population, inequality, migration, urbanization, industrialization, pluralization, globalization and more. Sadly, the population growth of our species has not been guided by the necessary wisdom to ensure that human life remains within the balances required by Earth's natural systems. Creating human systems that increasingly upset planetary balance is a perilous path. In the past, cultures were often reasonably successful at assessing negative impacts on local ecosystems, which in turn enabled communities to adapt. However, in more recent times, we have witnessed the expansion and relocation of industrial production to parts of the world in which business goals of 'economies of scale' production, reduced costs and fewer regulations all contributed to the lure of increased profits and the collateral damage of the environment. At the heart of this phenomenon is an economic system that demands endless growth in resource consumption and the centralization of wealth, which have ultimately presented us with existential threats to humanity's own wellbeing, as well as that of other species.

Human survival, and even thriving, remains possible. However, such potential demands adaptation of current systems in order to create balance in the larger world (Sutter, 2017). For humans to remain on our current path is to risk losing everything. The following is a list of some of the major trends that define our time, and which must be redirected towards a safe harbour, if our future prospects are to improve.

The Anthropocene:

Approximately 75 years ago, humanity entered a new geological period – informally known as the Anthropocene. The name

and exact start date of this period is not yet finalised; however a global team of geologists is currently considering these details. There seems to be agreement that the Anthropocene will be an "epoch" - which indicates that it is less than a "period", but more than an "Age". The significance of this new epoch is that it is characterised by humanity having become the largest single factor in how planetary systems are changing (Koster, 2020). The Anthropocene signals that the context for human life on Earth has taken a fundamental turn.

For the past 12,000 years or so, humans were able to exploit the wealth of nature without causing more than local disruptions to natural systems. This relatively stable period is known as the Holocene, which followed the last Ice Age.[1] However, in the middle of the 20th century, exponential growth in human population, coupled with the ballooning scale of our resource consumption, and vast waste production, have all meant that our species has become the number one force shaping nature and creating monumental perils.

Global/Local Culture versus Planetary Boundaries

For a very long time, humans have been creative forces that have used the resources of nature to address their needs and wants. Humans have analyzed situations and found ways to exploit available resources. There have always been unexpected impacts of this enterprising spirit – but often, these took the form of acceptable and manageable risks and bi-products. Bringing wood burning inside buildings, for heat and cooking, did produce problems with smoke. However, it wasn't long before venting smoke outside led to the old adage "dilution is the solution to pollution". Until recently, our planet has had a massive capacity to regenerate itself and to reprocess pollution into useful materials. However, the sad truth is, the planet's regeneration ability is not limitless. From the mid-20th century onwards, humanity has been systematically violating the 'planetary boundaries'.[2] These boundaries involve large, dynamic systems that require relative balances to be maintained if there is to be overall planetary stability and health.

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[1] See https://en.wikipedia.org/wiki/Holocene

[2] Planetary Boundaries were developed at the Stockholm Resilience Institute, in 2009. https://en.wikipedia.org/wiki/Planetary_boundaries

If these boundaries are not kept within prescribed limits, then planetary systems shift. For example, climate change is one such boundary. The point here is that it is the largely unconscious behaviours and systems of cultures that are generating the activity that is violating 'planetary boundaries', while human feedback systems are failing to prompt adaptive changes. Given this dire situation, important questions need to be asked. Can museums transform themselves sufficiently to become catalysts of reflection, dialogue and co-creative action in the living culture? To what extent do the legal parameters of incorporated museums prevent the museum field from transforming itself so that it plays a more productive and urgently needed cultural role? What new roles could museums develop to improve the relationships humans have with both humanity and planetary systems? What are the opportunity costs of museums trying to address climate change primarily through operational efficiency measures, without prioritizing and optimizing their potential for generating meaningful impacts across the living culture?

Politics and Business at Odds with Adaptive Cultural Change:

If we scan the world for examples of where political and business actions are creatively addressing our multiple planetary crises, there are few convincing heroes bursting onto the scene. However, there are areas of inspiration that warrant examination. The field of economics has produced some very enlightened people who are leading inspired projects. One is Kate Raworth, a UK economist who developed something called the Doughnut Economics Model – which imagines replacing the traditional economic focus on continuous financial growth (Gross Domestic Product) with a commitment to using 'systems thinking' to generate net-positive value generation across social, environmental and economic domains (Raworth, 2018).[3] Raworth's revolutionary approach has also nurtured a global research and development think-tank, called Doughnut Economics Action Lab (DEAL), which is conducting projects in many parts of the world to help clarify what it means to

[3] "Doughnut Economics" is a macroeconomic framework, developed by UK economist Kate Raworth, who published a book with the same name - see www.kateraworth.com

build a 'wellbeing economy'.[4] There are also many businesses that are committed to building enterprises that aim to generate social, environmental value within a viable economic operating framework (Klomp, 2021).[5] And, inspiringly, New Zealand's Prime Minister, Jacinda Ardern, led her government to declare that it would shift its national budgeting process away from GDP and towards a focus on environmental and human wellbeing.

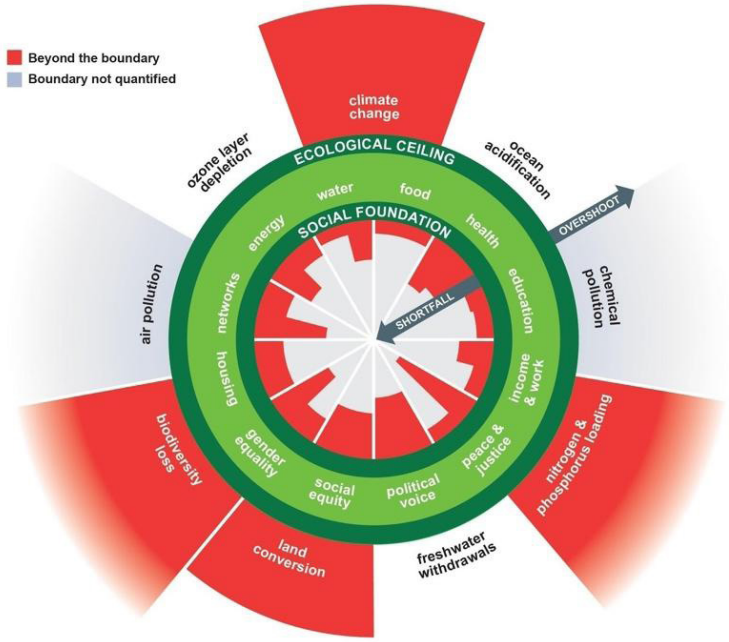

Fig. 1. Doughnut Economics Model, by Kate Raworth - economy that operates between a social foundation and an ecological ceiling. <https://commons.wikimedia.org/wiki/File:Doughnut-transgressing.jpg>.

[4] Doughnut Economics Action Lab (DEAL) - see https://doughnuteconomics.org/

[5] For example, the B Corp Movement - https://bcorporation.eu/country_partner/italy/

CONTEXT: Opportunities

Humanity needs foundational cultural change to thrive, or even survive - but we don't have agreement on what such a culture looks like. Ecomuseums are somewhat oriented to moving communities towards individual and collective wellbeing, often within a defined region. By comparison, traditional museums have tended to focus on objects and telling stories to those who visit. Imagining how museums could evolve their practice in order to be effective catalysts of cultural change and adaptation – especially in the Anthropocene - is a good question (Worts, 2017). One vital aspect of how museums can catalyse change is through the co-creative partnerships that they forge (Koster, 2020).

Co-creativity is a powerful process that many museum professionals already understand well. Educators are perhaps most familiar with the process, because education is always co-creative whenever a teacher fosters in students the ability to 'make meaning' that draws on their own personal experiences, vision and associations. When there is a trusting bond between teacher and student, the latter's creativity is unleashed in new and often unexpected ways. It often results in new learning for both teacher and student. If a museum partners with a vision/values-aligned organisation, and if there is a trusting, collaborative bond established, then the synergy can produce ideas, visions, insights and idea-generating tools intended to challenge current thinking patterns. In the event that such an approach was focused on the issues of our day (i.e. issues of the Anthropocene), then measurable impacts can conceivably be produced within the living culture. The significant point, however, is that if museums are to become catalysts of cultural change, their measures of success would need to be oriented to changes within the larger, living culture – not simply within museum buildings.

It is vital to remember that many museums have built great expertise in very specific areas of concern – history, science, art, etc. While expertise is a potent building block of human development, it may have come at a high cost – the loss of wisdom. While expertise uses narrow and deep focus to master the inner workings of things, wisdom involves the ability to step back and integrate knowledge and understanding from a wide range of experience. Expertise tends to be authoritative, while

wisdom is more humble and open. Both are required - however, wisdom now seems to play second fiddle to expertise. The goal of expertise is control, while the goal of wisdom is wellbeing. Museums have the potential to facilitate the intersection of wisdom and expertise. Through such integration museums can help cultures imagine flourishing, inclusive futures.

In 1972 a combination of expertise and wisdom was offered up to humanity through a 1972 book entitled *Limits to Growth,* which was commissioned by the Club of Rome. In it, a group of scientists analyzed population, consumption and environmental trends that anticipated the crises we see today, including climate change (Meadows, et al, 1972 & 2004). Their projected image of planetary system's degeneration and collapse was about as sobering as one can imagine. And yet, even when presented with accurate insights into threats associated with 'business as usual' approaches, governments, economists and business leaders were dismissive of the warnings. In our current era of misinformation and conspiracy theories, we have learned that science and facts are not enough for humans to act responsibly, courageously and with the interests of everyone in mind. When wisdom helps to marshal expert insights and shape them into visions of viable and ethical futures, it is an essential process. When wisdom has no place, chaos soon emerges.

What if one or more major museum had collaborated with the *Limits to Growth* authors, as well as some other influential, vision/values-aligned partners, to bring the insights of this watershed work into the living culture? And if this was done in collaborative and co-creative ways that generated leverage for societal change, what might have been the effect? Nobody knows for certain. We only know that the inertia of the status quo is a formidable force – especially when that status quo is generated by incomplete and misguided views of complex systems that produce massive societal and environmental damage.

There are many ways to bring about systems change – and if museums are to become catalysts of cultural adaptation, they will need to become very familiar with such processes, beyond their special expertise in traditional academic disciplines.

What may lie at the heart of 'culture', especially in the Anthropocene, is finding new ways to ensure that the wellbeing of the entire planet and all of its inhabitants remains the overarching vision of humanity. Figuring out how museums

need to change in order to help realize such a vision will be a challenge – but what are the alternatives?

One of the central opportunities for any museum that intends to become a cultural catalyst, is to expand its focus from generating cultural outputs for public consumption (e.g. exhibits, programs, publications, etc.), to facilitating processes of public engagement and co-creation that have meaningful outcomes/impacts on individuals, groups, communities, organisations and more. Needless to say, this amounts to a sea-change in the vision and practice of museums in society. Accordingly, it will require the self-selecting few museums to begin working in new ways and then assess and report their impacts widely.

Luckily, there are already models of this approach within the museum world. Specifically, ecomuseums were conceived to serve the wellbeing of humans living within a region (Davis, P, 2011). Many contributors to this volume have written of the myriad ways in which ecomuseums have courageously set out to engage local populations in processes of cultural adaptation.

It is within this thought about museums becoming catalysts of adaptation in the living culture that the *Inside-Outside Model: Museums Planning for Cultural Impacts* (I-O Model), was created (see Fig 2).

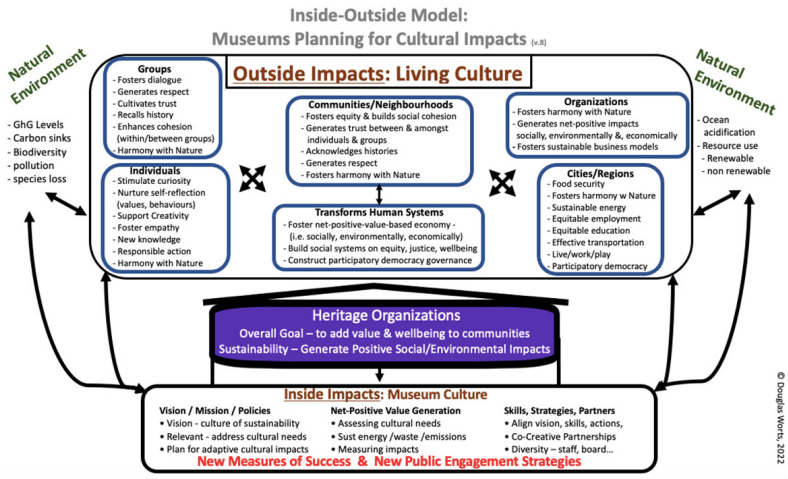

Fig. 2. The Inside-Outside Model: Museums Planning for Cultural Impacts, by D. Worts. <https://sites.google.com/view/drops-platform/tools/books/climate-action-book/io-impacts-model> (courtesy of author).

Douglas Worts developed the model in 2019, initially to help guide conversations within the Sustainability Task Force of the American Association for State and Local History. AASLH aimed to foster museum awareness, engagement and action related to sustainability (Worts, 2019). The I-O Model was created to help manage two competing notions of sustainability. The first was 'sustainability' as a holistic balancing of multiple, interdependent, complex systems, that currently are collapsing. The second was sustainability as 'greening' – which involves making the status quo 'less bad'.

In the following introduction to the I-O Model, there are two fundamental component parts. The first is the 'Inside' dimension, which focuses on the physical manifestation of the museum and its contents, as well as the governance, skills, knowledge, wisdom, processes, and passion that are held by its staff (both paid and volunteer). The second dimension of the model is the 'Outside', which involves all of the component parts of our living culture - people, community, place, processes, values, goals, behaviours, systems, trends and more. Culture, in all of its forms and manifestations, lives throughout the 'outside' dimension.

The purpose of the model is to suggest ways that museums can leverage inside assets and processes, in order to support the complex, co-creative, cultural transformation needed to adapt in a changing world. With this goal in mind, the process is ever-evolving. It requires humility to understand that cultural adaptation can't be controlled as a top-down, mechanistic process. To better ensure that people don't feel left out, it is best to design inclusive and supportive processes. Needless to say, this task is not easy.

The contents of boxes are suggestive and designed to spur conversation and customization. They are not intended to be prescriptive or complete. Let's begin by examining the museum itself. (See Fig 3 – I-O Model-Inside Dimension)

Fig. 3. I-O Model - Inside Dimension (within the museum)

In the most generic sense, public cultural organisations exist to serve the public good, in ways that add value and quality of life to their community[6]. Not all museums fall into this category, but most seem to. Surprisingly, museums are often vague about the ways that value is added and community wellbeing is re-enforced. Ideally, when cultural organisations aim to focus on sustainability, the impacts should be seen as adaptive change to both social and environmental aspects of the community.

The Inside dimension of museums is a highly organised, and often hierarchical, environment. Often adopting a corporate form (usually non-profit), it normally is guided by a vision and mission, as well as its stated values and policies. In addition, people with specific sets of skills are engaged to carry out what is normally considered core activities of these organisations. The privileged skill-sets – including: discipline-based expertise related to collections; educational processes; public program development; partnerships; conservation of collections; organisation and management; marketing; needs and impact assessment; and more - can all help to design the Inside dimension in ways that optimise desired impacts in the Outside Dimension (Hirzy, 1992). If the goal is to foster an adaptive living culture that is aligned with the vision of a sustainable future, it will require astute use of the Inside resources and processes. Also necessary will be adept approaches to forging creative, vision/values-aligned partnerships with entities in the Outside dimension; along with ensuring that multiple feedback loops are in place so the museum can monitor public engagement and impacts.

What is perhaps most novel about the Inside-Outside Model, is that it acknowledges that public cultural organisations are most effective when they respond to the changing trends and needs of the culture, in ways that generate adaptive impacts on that culture. This takes nothing away from collections and discipline-based expertise, but it does focus on impacts beyond those involving individual visitors.

Since humans first walked on Earth, culture has always been in a state of change. Such changes can either be adaptive (moving towards stability and balance) or maladaptive (moving

[6] The term 'community' is complex, involving individuals and a wide range of collectives (e.g. families, groups, neighbourhoods, etc.) that share some experiences, and do not share others. Community is a sense of connection that is continuously being renegotiated.

towards instability and imbalance), within their ever-evolving contexts. Change has also been a characteristic of museums. However, museum change may be less focused on changes in how such organisations relate to the living culture, and more focused on changes related to academic disciplines, collectors, markets, donors, government funders and so on. The idea of museums as catalysts of adaptive cultural change is relatively rare in the museum world, with the exception of ecomuseology.

Before moving to the Outside dimension of the model, it seems important to acknowledge that museums have largely been instruments of colonial thinking and acting. It is widely known that many museums acquired collections that were taken from marginalized and/or oppressed people. There are also museum stories and histories that have mistreated non-dominant cultures by omitting perspectives, erasure of histories and by using stereotypes to perpetuate public misunderstandings and lies. Accordingly, when museums decide to embrace new potential public functions, like becoming catalysts of cultural change, it requires concerted efforts to acknowledge, own and then dismantle residual elements of its own cultural past. Currently, many museums around the world have embarked on processes of rectifying racist parts of their own past. This is vital work in the Inside Dimension – and is necessary for museums to generate credibility as convenors and facilitators of public engagement on cultural issues.

It is important to add that these issues of systemic inequity continue to be deeply problematic within the living culture. As sustainability-engaged museums expand their commitment to addressing environmental crises (both inside and outside the museum), it is vital that they also address the social injustices, especially related to systemic inequity (again, both inside and outside the museum).

Accordingly, the next section will address different facets of the Outside dimension.

The most encompassing aspect of the world outside the museum is Nature. The natural environment contains everything required to support human life - and humanity relies on it for its very existence. For that reason, the health and well-being of the environment should be of paramount concern for humanity. It is imperative that humanity remain in a functional, dynamic balance with nature. When the relatively stable balance of Earth's climate over recent millennia was knocked off kilter

by the onset of the Anthropocene, all life that depends on natural systems must either adapt, or deal with the consequences. So, in Fig 4, a small sampling of the elements that make up nature's complex systems and that should concern humanity are identified.

Pictured here, within the framework of Earth's Natural Environment, is human Society; within that, the human-made Economy. Museums are shown as being a subset contained within the economy and society, enveloped by Nature. Since the deteriorating state of Nature's systems is being driven by humanity's outsized impacts, it is only changes to humanity's way of relating to Nature that can hope to reclaim some sense of relative balance. For addressing the cultural issues of our time, museums will need intelligence, creativity, compassion and leverage. Mobilizing in this way will require courage.

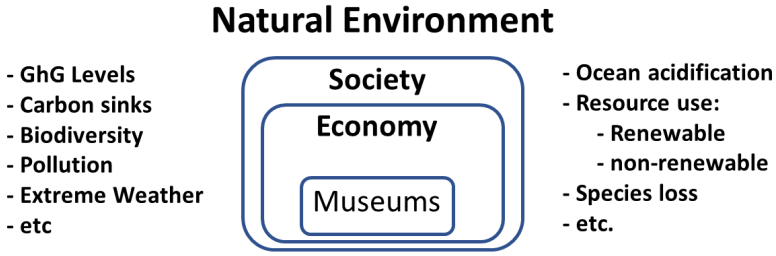

Fig. 4. I-O Model - Situating Museums within the Outside Dimension of Nature, Society and Economy

Humanity interacts with the natural environment at absolutely every turn, because without natural systems, we are deprived of the essentials of life. It is humbling indeed to take full stock of this reality. Despite all of humanity's skills and ingenuity, our species would simply cease to be without the natural systems that we have relied upon for our existence since the human story began. However it takes more than simply acknowledging this relationship to rescue it from the brink of planetary systems collapse (Diamond, 2005). Humanity needs to grasp what scientists understand about rising greenhouse gas (GHG) emissions and the deadly levels that are approaching (Janes, 2009). For a museum to be engaged in reducing their own GHG emissions is all well and good, but it is not nearly enough. The promise of museums is not contained in the promise of more efficient and less polluting versions of themselves. Rather

the promise of museums is that they can become catalysts of cultural change across the entire living culture. And for that, a museum needs to know how it will monitor the essential feedback loops associated with the change it hopes to catalyse. At one level this requires an understanding of the trends in global concentrations of greenhouse gas emissions (causes, impacts, etc.). At another level, it means helping to ensure the public is aware, engaged and creatively active at dramatically reducing these emissions – helping people and organisations to make different decisions and to act with sustainability and wellbeing in mind. Museums can plan to engage the living culture in processes of acquiring and privileging new skills, knowledge and behaviours that address the trends of our time.

If museums aim to become catalysts of adaptive cultures, it is important to consider how different functional units of humanity play different roles in securing a sustainable future. For example, perhaps the most basic unit of the living culture is the individual person. Everyone has the ability to take stock of their world (through cognitive, affective, social, imaginal and behavioural processes). Each person can engage in ways that help meet their needs, and make decisions about how our species can live indefinitely on this planet. To this end, it makes sense that museums understand how individuals interact with Nature and with society, if they hope to play a catalytic role in fostering humanity's approach to sustainability.

In some regards, individuals are quite familiar to museums. Museum visitors are made up of a subset of individuals, some of whom reside in the community, and others who do not. When aggregated, visitors make up an extremely important aspect of museums – attendance revenue. Much of museum planning and economics revolves around these folks - even though attendance is insufficient to address the cultural issues, needs, opportunities or trends of the larger community. While museums may know something about the leisure-time preferences of their visitors, there remains much to learn about how different people fit into the patterns and trends that define the larger living culture. If museums decide that they want to foster meaningful relationships that reach into all corners of community and culture, then forging deeper connections to individuals, groups, neighbourhoods, cities and so on, will be needed.

Museum staff that develop public programs may have a more nuanced understanding about the potential for fostering pub-

lic engagement and impact goals, than those in non-public programming parts of these organisations, however museum planning is frequently designed to serve the occasional visitor to a site. Planning museum experiences for tourists and occasional local visitors is very different from fostering relationships with individuals that evolve over time. New approaches are needed for museums to effectively support communities to address vital issues in ways that are relevant, build social cohesion and foster a shared vision of the future. (Worts, 2012). (See Fig 5 – I-O Model – Outside Impacts – Individuals)

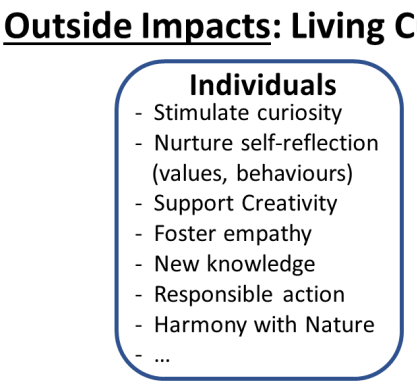

Fig. 5. I-O Model - Outside Impacts - Individuals

It can be extremely helpful when museums understand how well their public engagement strategies actually have measurable impacts on individuals – and conversely, how individual perspectives and experiences can have significant impacts on museums. Although there is a long list of possible impacts of museums on individuals, some of the core ones are listed in Fig 5. When museums create ways of identifying and naming impacts, (e.g. the examples in Fig 5), they generate feedback loops that help guide assessments of how well visitors are motivated and supported in becoming co-creators of meaning. Museums can aim to support individuals who are inspired to understand the issues and forces that are shaping their culture – both intentionally and unintentionally. Such understanding can lead people to act in ways that fosters wellbeing in themselves, their families, communities, cities, bioregions, and social systems. These impacts can contribute to a healthy, engaged, democratic and sustainable culture.

When museums relate to people with respect, honesty, compassion and trust, members of the public can become more cohesive and motivated to engage in the living culture. It is not that museums should tell individuals what to think or do about the issues of the day, but rather a museum's power is to invite the public into processes of reflection, discussion and action that are timely and relevant. This approach to museology is more securely established within ecomuseums than in traditional collection-based museums (De Varine, 2017).

Traditional museums are often designed to welcome visitors who either: a) live away, and happen to be visiting in the role of tourists, or b) appeal to local people who visit occasionally, often for a special exhibit or to entertain out-of-town visitors. In both cases, the opportunity to actually build ongoing relationships with these occasional visitors is extremely limited.

However, if museums could develop strategies that prioritise the building of relationships with local citizens, around contemporary issue-focuses, the potential for more cultural involvement and cohesion can be created. Museums could help support individuals, and groups for that matter, as they: engage with both historical and contemporary issues/materials; connect with wide-ranging visions of proposed futures (from the viable to the non-viable); and exchange perspectives with others about overlapping interests. Such activities can lead to new potential cultural impacts. But such an approach to facilitating new forms of cultural dynamics will require museums to experiment with new public involvement strategies – and assess how visitors actually engage (Worts, 2016).

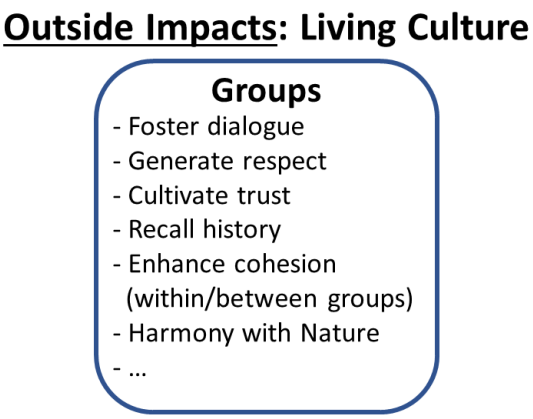

Fig. 6. I-O Model - Outside Impacts - Groups

Beyond individuals, museums can connect with groups in meaningful ways (Fig.6). Individuals spend a lot of their lives in relationships with groups of one sort or another, including groups related to: a common heritage; special interests; a shared neighbourhood; and more. Perhaps the most common example of a group is the family. It is within families that many people learn the basics of how to interact with others, as they gain understanding of how to navigate the needs and opportunities presented by doing things with others. Many mainstream museums have already developed strategies to engage with families – for which there is an extensive museological literature. It is unclear whether family-oriented, or other types of group-based museum programs, have ventured into the sustainability realm. However it is potentially fertile ground for opening up dialogues around issues of values-based decisions, the implications of scaling common practices, assumptions about the future we imagine we are headed towards, and data on where current trends are actually taking us.

For groups to function well there must be trust and respect and a sense of shared values. Interacting with historical topics and materials is a rich way for individuals to explore, understand and ultimately nurture shared visions of the future, ethical ways to live meaningful lives and more.

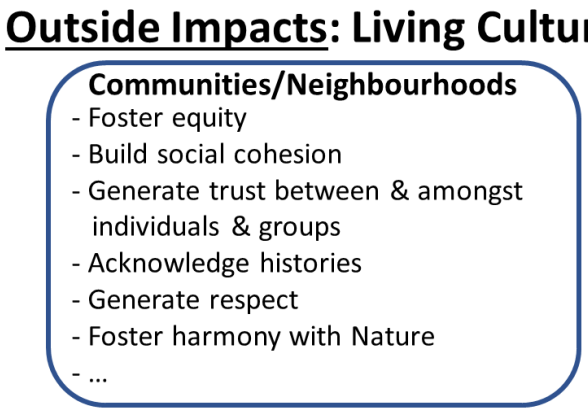

Fig. 7. -I-O Model - Outside Impacts- Communities

While groups are often brought together by meaningful common ground, communities and neighbourhoods (Fig.7) are often characterized by some degree of common interest, but as often as not, considerable differences. Communities can contain much complexity, and once you live in one, then there is a need to work through the challenges that are produced in the course of life.

Most museums exist to serve communities, but not all have strong relationships with them. And if museums always aim to define their relationship to a community only within the context of people visiting the museum building, the relationship can be seen as lop-sided, and more transactional in nature, rather than being relational. Since mainstream museums are built on the notion of audience transactions, as opposed to growing, evolving relationships, they often have difficulty expanding their reach beyond those willing to visit the museum property.

If a museum's intended audience is tourists, then often little energy is put into the community, except to manage/minimize local problems. Some museums are designed specifically to build bridges to local communities and neighbourhoods, while others may involve the complexity of multiple neighbourhoods, or even regions. These approaches are often true for ecomuseums and some community museums.[7]

[7] For example: the Derby Museums, in the UK, https://www.derbymuseums.org/; many museums within the International Coalition of Sites of Conscience; www.sitesofconscience.org; museums involved in the Happy Muse-

For museums that attempt to address issues that define our time in meaningful ways, issues of systemic and historical inequity can pose significant challenges. It is common for inequities to surface in ways that make working together more complicated. It takes a skilled, sensitive and compassionate hand to create space for different groups to come together in meaningful and constructive ways. Some museums have developed such skills, but for many that aspire to do this culture and sustainability work will need to develop them.

One of the big questions that museums must grapple with is 'how can museums play the role of cultural catalyst, without being manipulative'? Another is 'how do museums support the creative interactions of elements making up communities, without making themselves an integral, ongoing part of the dynamic'? These are relatively new skills for museums, so much experimentation, assessment and adjustments will be necessary.

Once again, ecomuseums may have much to share with mainstream museums.

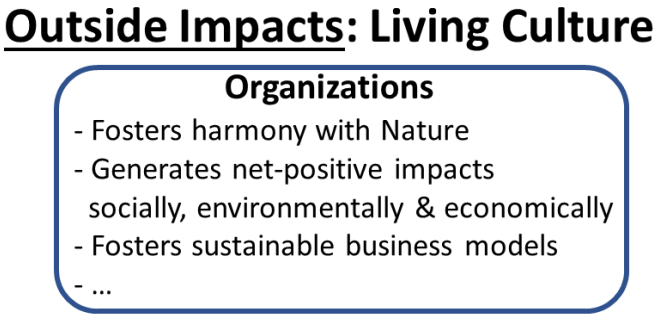

Fig. 8. I-O Model - Outside Impacts - Organisations

Organisations are building blocks of societal systems. Currently they play a wide range of roles, as: for-profits (free-market); non-profits; governments; educational systems and more. Organisations are designed to help achieve goals within cultures (Fig.8). For over a century, corporations have been given various sorts of powers, through laws and conventions, that are built on assumptions, principles and trust. For example, for-profit corporations were historically designed to efficiently

um Project, https://happymuseumproject.org/.

deliver a product or service. Building and operating railways is an example. So too was generating energy, mining, manufacturing and so on. Society envisioned a for-profit sector that effectively generated financial wealth as it delivered material goods and services, while providing jobs. The non-profit sector was largely geared to helping society manage the unintended consequences produced by the for-profit sector (e.g. cleaning up negative environmental and social impacts that needed to be addressed). Charities offered a way to move money and services from those with money to those without. Government was designed to look after societal wellbeing (especially police, hospitals, schools), to ensure democratic governance, as well as address problems that were unanticipated (e.g. disasters). But many organisations that work well at one point, do not necessarily continue to do so over time, unless they adapt to changing circumstances. For-profit organisations that were designed to generate financial wealth, specifically through production and consumption of goods and services, are now facing a rude awakening - the Anthropocene. So-called "for-profit" organisations, for example, have long operated with a false sense that they pay the costs of doing business. However, historically, many costs have been externalized - like pollution and loss of biodiversity. Now, with the Planetary Boundaries exceeded – these organisations must be held to account. Also, systems of competition systematically produce inequality and need to be rethought.

The point here is that status-quo organisations cannot be considered sacrosanct in a world that is fundamentally changing. If humanity's ultimate goal is to retain a healthy balance within planetary systems, over time, then the governing systems for organisations must always be part of the mix as adaptive change is being ever-cultivated. Building agreements on the overarching principles for the living culture, over time, is also part of the ongoing challenge. Museums can play important roles in such processes, because they can engage the public in thoughtful reflection, dialogue and co-creative action.

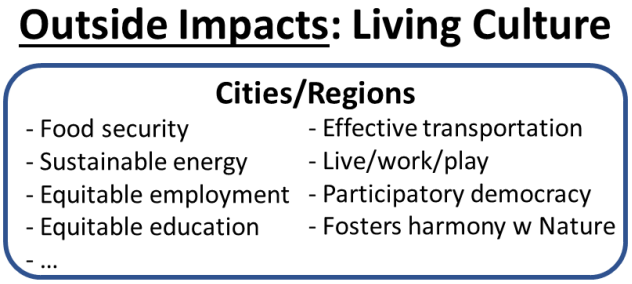

Fig. 9. I-O Model - Outside Impacts - Cities/Regions

Cities and regions are made up of all the components discussed up to now, including the bio-regions in which they are located. Cities/regions have a vital role to play in forging cultures that meet the needs of both present and future populations (see Fig 9). In fact they may become more vital than ever, because of the Anthropocene. Cities/regions are perhaps the largest or highest level of organisation that is capable of understanding, and relating to, all of the other levels - individuals, groups, organisations, communities, natural systems, and more. As time goes on, there may be increasing pressure to organize human settlements around bio-regions, because, in today's world, the vast majority of materials originate beyond the locality where they are consumed. Shipping goods and materials around the world is exceedingly problematic, not because of the monetary cost, but because of how our economic and business systems have 'externalized' so many real costs – leaving nobody accountable for the damage that is done. So, becoming food secure within bioregions makes a huge amount of sense. Agriculture needs to be reconceived so that local produce feeds local populations, by reducing 'food miles', as well as by embracing regenerative farming practices. Governments that are organized to manage bio-regions, not simply politically defined spaces we call cities/towns, may help to plan effectively for balanced approaches to environmentally/scientifically viable and ethically desirable human settlements.

Such an approach could also help connect meaningfully to higher levels of governance (e.g. nations, global), in which the wellbeing of global systems (both human and natural) also must be kept in mind.

It has been a common phenomenon for cities to experience exponential population growth, which necessitates the provision of ever-increasing housing, food, and a host of services.

Much of the housing in our culture is considered a market commodity, and a vehicle for individuals and corporations to make huge amounts of money. Sadly, the pursuit of profit has devastated large amounts of prime agricultural land in the rush to build urban and suburban sprawl. With the loss of open land, both agricultural and 'wild', the human/Nature relationship is threatened. Local populations become more disconnected from a reliable source of food, since local farming is unable to produce sufficient food to meet local demand. The result of that is increased pressure on food production using high-intensity agricultural techniques that erode soil health, and then shipping food around the world, with massive carbon footprints (Rees, 1995).

Cultures that lose their ability to be adaptive in our fast-changing world, risk having Nature rebalance its own systems, with no concern for the wellbeing of any particular species (i.e. humans). As a result, regional approaches to culture could help generate viable, shared visions of the future, monitor current trends, and develop new strategies that ensure wellbeing for all stakeholders within a healthy, conscious and adaptive region.

Beyond the level of city/region, it is clear that national governments play an important role, especially if humanity is to be able to 'think globally and act locally'. It is important to remember, however, that governments that are most distant from their constituents are those at the national level. It makes a lot of sense to enable lower levels of government to address needs and opportunities within a region. National governments, at least in theory, exist to ensure that equity and wellbeing are foundational parts of a population that stretches over multiple regions. They also connect with and help to harmonise realities in other nations and parts of the world.

To reach one step higher and to imagine how global governance might better operate, it is worth looking at existing models. The United Nations is an example of how challenging it is to bring the world's countries together in an effort to agree on a common future. Through the Sustainable Development Goals (SDGs), a consensus plan was developed and agreed in 2015.[8] Using an understanding that all of the world's systems are interdependent, the SDGs tease out 17 goals, which are both unique and entirely interdependent. Each country has agreed

[8] https://sdgs.un.org/goals

to, (but is not legally bound to), address the SDGs in ways that are appropriate for their country. These goals are not a perfect solution, but rather a framework for each country to: a) clarify the nature of the challenge/opportunity in their jurisdiction, and b) develop its own approach to a sustainability vision and plan. Each country feels a sense of ownership for its challenges and solutions. The SDGs provide a useful tool to help guide cultural organisations towards meaningful cultural impacts. (see McGhie, chapter 1, this volume).

The high level of systemic inequality (both social and economic) that exists around our globalized and interdependent world, makes it difficult to design a future that treats everyone fairly, and sustainably. Great economic wealth and power exists in some places and not others, all based on values, systems and behaviours that are not possible to sustain. As a result, it is vital that the foundation of an emerging, globalized future acknowledge and honour its multifaceted past. Equally important is that the future is based on a truly level playing field based on equity, justice and living within the Planetary Boundaries. This brings us to perhaps the most challenging part of humanity's future – to transform systems that have evolved over millennia. (See Fig 10)

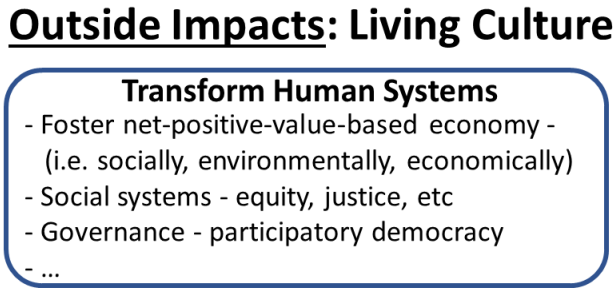

Fig 10. I-O Model - Outside Impacts - Human Systems

Unless humanity can alter many of the systems associated with the accumulation of power and wealth, it is hard to imagine how there is a future for humans on Earth – certainly not a future of wellbeing. Essential for wellbeing is that we live within the biophysical limits of the planet. And arguably, we cannot continue without systems that ensure equity for all. This means that we need to develop and employ economic and governance systems that are designed to achieve these results. There are no quick fixes for systems change. Nonetheless, transforming foundational systems of value-generation, governance and societal equity are

part of the adaptive cultural change that museums can help nurture, as they foster local/global cultures of sustainability.

In order to bring us back down from the stratosphere of puzzling over how best to design sustainable global systems, it is worth returning to the inside dimension of the Inside-Outside Model (Fig. 11). It is here that we must remember that, if museums are to become catalysts of cultural adaptation and transformation, they will need to create 'New Public Engagement Strategies' and 'New Measures of Success'. These are natural bi-products of thinking more holistically. It is the only way we can break out of the cycle of doing what we've always done.

Fig. 11. I-O Model - Inside Dimension Revisited

The Inside-Outside Model is a relatively simple tool that was designed to help map a very complex set of dynamics related to the living culture, sustainability and museums/ecomuseums. It does not contain answers to the question of 'what should museums do to have meaningful cultural impacts?', however, it does offer a framework for designing public engagement strategies that have the ability to catalyse inclusive and transformative change.

In chapter 14 the authors continue this theme of museums as catalysts of cultural adaptation and provide examples of how the Inside-Outside Model has been used over the past few years, by the Parabiago Ecomuseum, in Italy.

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3. Ecomuseums, the SDGs and Climate Action: The Ecoheritage Project

Lisa Pigozzi, Nunzia Borrelli and Raul Dal Santo

The aim of this chapter is to reflect on what European ecomuseums do, or could do, to achieve the United Nations 2030 Sustainable Development Goals (SDGs) and respond to the climate emergency. The role of museums and ecomuseums in this field is recognised and growing internationally. Ecomuseums can, at the local level, empower people in the sustainable use of their heritage and promote a culture of sustainability (Duarte, 2012; OECD and ICOM 2018; Brown 2019; Riva, 2020; Dal Santo, 2021). Globally, they can lead the world towards a sustainable future by working to support the UN's Sustainable Development Goals 2030 (Lanzingher, 2017; McGhie 2019; Brown 2019) and - in particular - develop actions to combat climate change (McGhie 2020). It can be argued that the UN SDGs 2030 represent the largest and 'global' change effort that can set humanity and the biosphere on a path towards a sustainable future. Ecomuseums, defined as a "community-led museum or heritage project that supports sustainable development" (Davis 2011;85), occupy a privileged position among cultural institutions (Dal Santo, 2021).

A European project, Ecoheritage, (funded through Erasmus Plus and involving 4 European countries) started in 2021 to produce national and transnational reports on the state of ecomuseums. Ecoheritage partners conducted a survey that included questions within a section on museum performance, concerning the SDGs and their influence on the activities of ecomuseums. The partners strongly believe that ecomuseums can contribute to the achievement of the SDGs and climate action, but wish to identify examples of good practice and develop training tools.

The last section of this chapter describes the conclusions reached by the Ecoheritage project, although they are confined to the four Countries involved in the research, not ecomuseums more generally. It is important to note that most of the

ecomuseums surveyed during the Ecoheritage project do not have specific projects regarding climate action. Therefore, discussion is mainly centred on sustainability, on the SDGs seen as interdependent objectives in which climate action is the *trait d'union* and will be the specific subject of a training module addressed to the ecomuseums of the Ecoheritage project.

European Ecomuseums and Climate Action

European ecomuseums and their networks work in different ways to try to integrate sustainability discourses into their practices. Several significant initiatives, described below, have raised awareness of how ecomuseums can promote sustainability.

In 2016, on the occasion of the ICOM general conference, the first Ecomuseum Forum was organised, which formalised a cooperation charter: 'Ecomuseums and Cultural Landscape' whose goals are: to create a permanent international working group on the theme of cultural landscapes; to create a scientific publication documenting ecomuseums' potential for cultural landscape management; and to publish DROPS[1], a global platform to make ecomuseums able to share and exchange experiences and good practices around the care of heritage and local development (Riva, 2017).

In 2019, the ecomuseums international movement, through the DROPS platform, discussed and worked on raising awareness of the role of museums in achieving the UN 2030 development goals, and in particular, the theme of climate action. Ecomuseums also took part in the process, promoted by the EU-LAC-MUSEUMS project, to develop resolution no. 5 "Museums, Communities and Sustainability" that was approved by the 2019 ICOM general conference in Kyoto. This resolution recognizes the "*goals of safeguarding and promoting access to natural, cultural and intangible heritages and their sustainable use for environmental, social and economic development of communities, towards achievement of the UN 2030 goals and climate justice.*" A similar statement was approved by the Italian ecomuseums network as an amendment of the Strategic manifesto of the Italian ecomuseums in 2019: *"the Italian ecomuseums are committed to further promote the goals of safeguarding, caring for and enhancing access to natural, cultural, tangible and intangible heritages, and their role for environmental, social and economic development*

[1] https://sites.google.com/view/drops-platform/home

of communities, the achievement of the 2030 UN Agenda goals for Sustainable Development and climate justice".

On a regional scale, in 2019, the Lombardy Regional Council approved minimum standards that ecomuseums must adopt to be officially recognised. These demanded, "*long-term planning shared with stakeholders, and a multi-year programme of activities defining the strategic objectives of social, environmental and economic sustainable local development with regards to global challenges such as the UN 2030 SDGs, including climate justice, are required*". Hence, Lombardy ecomuseums now have to verify and monitor their impacts on sustainable local development and the sustainability of their own activities.

In 2021, the network of Italian ecomuseums promoted the conference '2030 UN Sustainable Development goals and the climate action: the role of Ecomuseums and community museums' as part of the All4Climate-Italy2021 Programme, the satellite events of Pre-COP 26, the pre-conference of the parties on climate change held online, prior to COP 26 in Glasgow. The event focused on the role of ecomuseums and community museums in achieving the SDGs 2030 and climate action.

As of now, we do not have significant data to assess whether the declarations, agreements, conferences and forums promoted by ecomuseums have provided sufficient guidance to help museums become the catalytic agents of transformative change needed to imagine and realise a sustainable future. However, the Ecoheritage project has been able to show that many European ecomuseums have involved community stakeholders in identifying and defining the 'sustainable world' they imagine and intend to build, and will seek to convert policy statements into action.

A brief introduction to the Ecoheritage Project

EcoHeritage is a European project funded by Erasmus+, involving Italy, Spain, Portugal and Poland. It started in 2020 and will end in 2023. It aims to raise awareness of ecomuseums as tools for participatory heritage management, establishing criteria for their recognition and a common methodology to improve sustainability. Furthermore, it aims to provide skills to adult learners by creating innovative training materials on active citizenship and participative heritage management and to generate communication networks between ecomuseums at national and European level, thus fostering knowledge and

the exchange of good practices. Finally, the ambition of this project is to promote the creation of ecomuseums as an endogenous resource for the competitiveness and social, economic and environmental sustainability of rural areas.

The Ecoheritage project is organised in 4 steps. The first was a survey to produce national and transnational reports on the state of ecomuseums in the four countries involved in the project. The survey was conducted in the four official languages of the participating countries and took place between January and April 2021. The second phase, completed in 2022, focused on the identification of best practices of ecomuseums in the countries involved in the project. The third step, completed in 2022, facilitated the development of a participatory heritage management toolkit that will be tested in selected rural areas. The fourth step is a specific capacity-building programme to be designed in 2023 based on the main training needs of ecomuseums, as well as the creation of a platform for networking and proposals to foster cooperative learning between individual ecomuseums and their professionals. All these steps aim to put ecomuseums in a position to respond to the needs of local communities in the face of the climate crisis and to facilitate the strengthening of ecomuseum networks in the European and global context, thanks to the sharing of ideas and methodologies with other regions and countries. The expected results of the project are the mapping of similarities and differences between ecomuseums, the identification of common needs and possibilities, and capacity building.

SDGs and Climate Action in the Strategies and Practices

After a series of initial meetings concerning ecomuseum approaches, the presentation of the Project and the definition of objectives, the Ecoheritage Project conducted interviews to obtain a broad understanding of the ecomuseum specificities of each country. This allowed the design of a questionnaire which was distributed to 104 ecomuseums - 22 in Poland, 42 in Italy, 22 in Spain and 18 in Portugal. The sample was rather heterogeneous and aimed to be representative of the different regions of the four countries - not in a statistical sense, but simply to facilitate a general qualitative understanding (Fig.1).

In Poland, 22 (50%) of the 44 invited active cultural institutions responded, representing 9 of the 16 regions. In Spain, only

22 (24%) of the 92 ecomuseums contacted responded. In Italy, data were obtained from 42 ecomuseums, around 17% of the country's 250 ecomuseums. In Portugal, data were obtained from 18 institutions (25% of the country's ecomuseums).

The questionnaire was structured in five sections, relating to the identification of the institutions, their structure and management, human relations and partnerships, the museum's approach to innovation, and, finally, museum performance. This last section asked questions related to the role of ecomuseums in their territories, educational processes developed at the local level, identification of how the Covid-19 pandemic had an impact on ecomuseum activities, and focused on the strategic significance of the SDGs for ecomuseum objectives and activities.

Fig. 1. Map of the 4 Partners of the consortium, and 102 survey participating ecomuseums in Poland (22), Italy (42), Spain (22) and Portugal (18) (including mainland and islands territories). Scale 1-500km. Ecoheritage data on Google My Maps.

The first series of questions in section 5 was dedicated to the relationship between ecomuseums and their territory. In particular, it aimed to investigate which kinds of sustainability (economic/environmental and social) are implemented by the ecomuseums (Figure 2). The overall data show that importance is given to all areas of sustainability, but that there is greater emphasis on environmental aspects (an average of 79 % of the ecomuseums of the

four countries), followed by social ones (with an average interest of 70 %), and finally economic (on average 68 %).

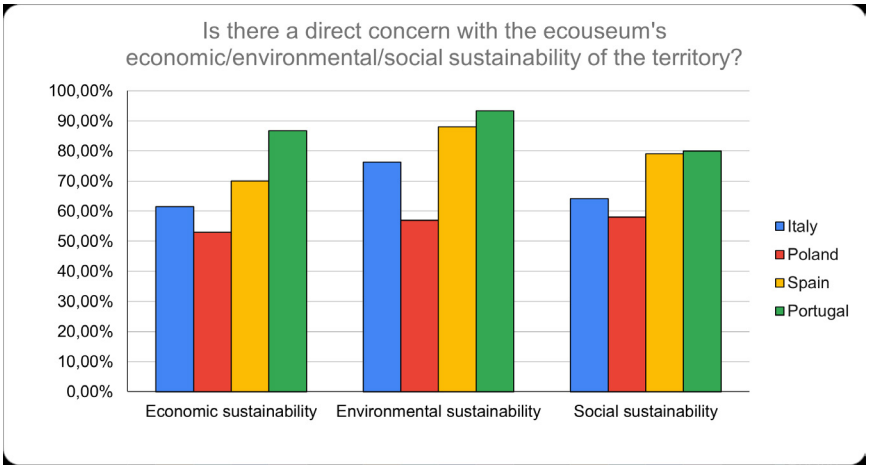

Fig. 2. Interest in territorial sustainability from Ecomuseums. Authors' own elaboration on Ecoheritage data.

The importance of economic sustainability - as shown in Figure 2 - is uneven for the ecomuseums interviewed. In particular, the Portuguese (87%) and Spanish (70%) ecomuseums appear more concerned about this aspect, while there is less concern from Italian (61%) and Polish (53%) ecomuseums. Environmental sustainability appears very important for Portuguese (93%), Spanish (88%), and Italian (76%) ecomuseums, and more than half of the Polish ones (57%). The data show that the social sustainability of the territory is very relevant for Portuguese and Spanish ecomuseums, with about 80% of the affirmative answers, while for the Italian and Polish ones it is on average for more than half of the respondents (64% Italy; 58% Poland) (Transnational report, 2021[2]).

The survey questions dedicated to sustainability also aimed to deepen the relationship of ecomuseums with the SDGs - their strategic actions, activities and policies. Furthermore, it sought to understand if the SDGs were included in all the actions of the ecomuseums and identify which are the most urgent SDGs for ecomuseums to engage with.

[2] https://learning.ecoheritage.eu/transnational-report

Figures 3 and 4 show the results on the SDGs included in the activities of ecomuseums and the most important SDGs that ecomuseums are working on. Climate action is not the SDG most included in ecomuseums, although climate change awareness is naturally absorbed in the actions of ecomuseums. Ecomuseums are promoters of sustainability, e.g. by promoting responsible tourism in a holistic way (respecting the environment and cultures). Only Polish and Spanish ecomuseums have highlighted the SDG Climate Action: Polish ecomuseums indicate the inclusion of climate action in their activities, while Spanish ecomuseums indicate Climate Action as one of their most urgent SDGs. Quality education is the SDG most shared by ecomuseums in the four countries; this highlights the natural approach of ecomuseums in promoting and supporting local communities.

In terms of the most important SDGs (Figure 4), Italy ranks SDG 12 (Responsible production and consumption). as the most important; for Spain, Poland and Portugal, SDG No. 4 (Quality Education) is ranked top. Despite these differences, SDG goal No. 4 (Quality Education) is the choice shared by all countries.

Fig. 3. SDGs included in the activities of ecomuseums. Source: authors' own elaboration on Ecoheritage data.

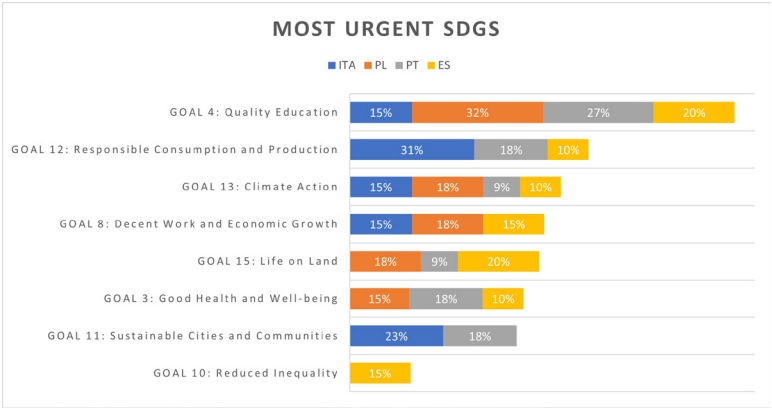

Fig. 4. The most important SDGs for ecomuseums. Authors' own elaboration on Ecoheritage data.

Figure 5 shows the inclusion of the SDGs in the strategic policies of ecomuseums. 89% of Italian ecomuseums responding to the questionnaire state that they integrate the SDGs into their strategic policies, as do 70% of Portuguese ecomuseums. Spanish and Polish ecomuseums are less inclined to include the SDGs in their strategic policies. In fact, in Spain 44% and in Poland only 7% of ecomuseums integrate the SDGs into their strategic policies.

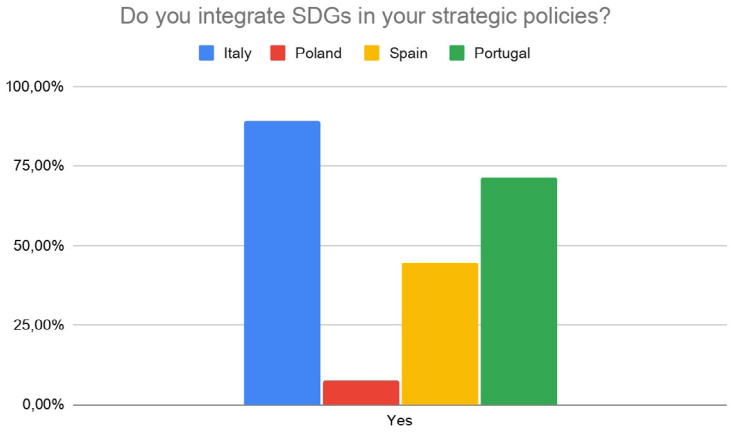

Fig. 5. The integration of the Sustainable Development Goals into the strategic policies of ecomuseums in Italy, Portugal, Spain and Poland. Source: Ecoheritage data.

Ecoheritage data (Figure 6) show that only a low percentage of the surveyed ecomuseums adopt the SDGs in a trasversal way to all their activities.: only 8% of Polish ecomuseums, 30% of Portuguese

and Italian ecomuseums. Spanish ecomuseums are quite different (60%).

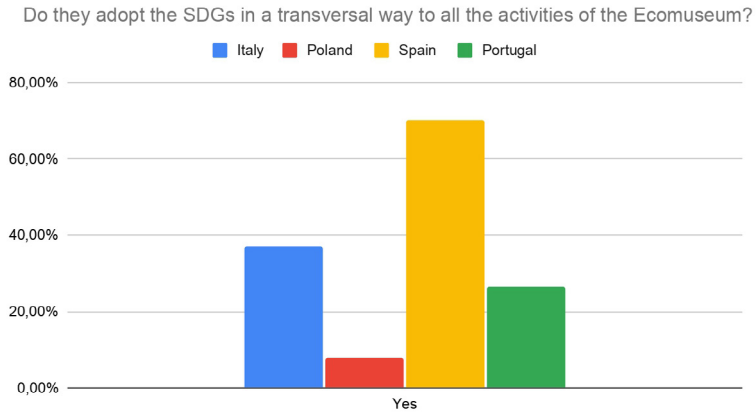

Fig. 6. Comparative data on ecomuseums of Italy, Spain, Portugal and Poland: the integration of SDGs into all ecomuseums activities. Source: authors' own elaboration on Ecoheritage data.

Figure 7 shows that ecomuseums do not organise specific activities for the SDGs. In general, the percentages appear very low (8% for Polish ecomuseums, 5% for Spain and only 3% for Italy). Portuguese ecomuseums are the most active in this respect, with a percentage of 21%. However, 57% of Italian ecomuseums state they are interested in integrating the SDGs into their policies in the future.

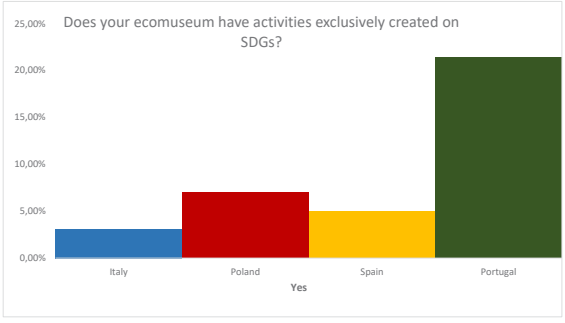

Fig. 7. Comparative data on ecomuseums of Italy, Spain, Portugal and Poland: activities exclusively created on SDGs. Source: authors' own elaboration on Ecoheritage data.

Figure 8 shows the issues on which the actions of ecomuseums believe they have the most significant impacts. The ecomuseums of the four countries are concerned with social impact, with the data indicating a strong interest in the enhancement of local identity and the promotion of community cohesion. Environmental protection is another area considered important for the impacts of ecomuseum actions. On the other hand, strengthening gender equality is not considered important by ecomuseums in Italy, Spain and Poland, whereas it appears quite relevant for Portuguese ecomuseums. Finally, the impacts of actions towards local economies are little considered by Polish and Italian ecomuseums, but more important for Portuguese and Spanish ones.

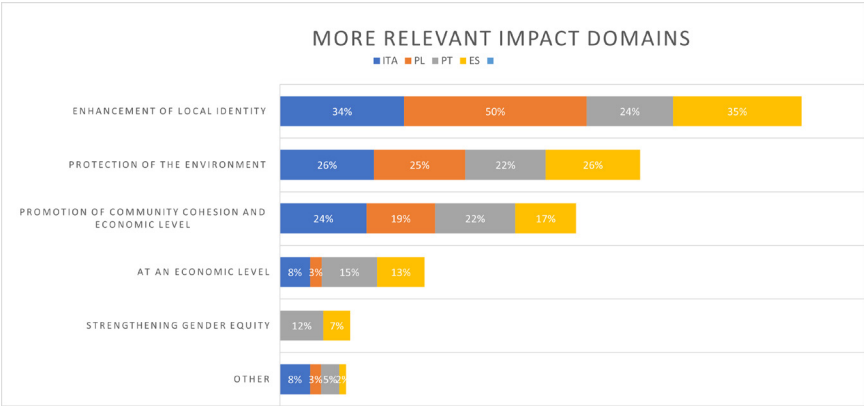

Fig. 8. Comparative data on which domains of ecomuseums have a more relevant impact in Italy, Spain, Portugal, and Poland. Source: authors' own elaboration on Ecoheritage data.

In summary, Ecoheritage data show that ecomuseums have a high potential to do more for the implementation of the SDGs, but also a significant difficulty in doing so. Ecomuseums are aware of this difficulty and a possible strategy to make them more operational is the launch of training programmes that can help ecomuseums to define paths of knowledge, but also methods to build practices focused on the SDGs and climate change.

3.2. Ecomuseums: Best Practices

A second survey was organised to realise a "best practices manual" of case studies from each country of the consortium

(4 ecomuseums in Italy, and 3 for each other country[3]); the manual was published in 2022 to share knowledge between ecomuseums[4]. Analysis of these case studies enabled a better understanding of how these ecomuseums are working in the field of sustainability and the SDGs. The collected data gives the possibility to analyse the ecomuseums' preferred SDGs (Table 1), the number of SDGs they are working on, and which kind of SDGs-related actions were developed, and finally how many of their actions have an impacts on SDGs (Figure 9).

Preferred SDGs	ITA	PL	PT	ES	TOT
Goal 11: Sustainable cities and communities	3			3	6
Goal 4: Quality education		3		2	5
Goal 12: Responsible consumption and Production		2	1	1	4
Goal 15: Life on Land		2		1	3
Goal 3: Good Health and Well-being	1	1		1	3
Goal 5: Gender Equality			1	1	2

Tab. 1 shows the preferential SDGs indicated by the number of case studies carried out in each country. Source: authors' own elaboration on Ecoheritage data.

The data showed that the SDGs preferred by the case studies are No. 11 (Sustainable Cities and Communities) and Goal No. 4 (Quality Education), followed by No. 12 (Responsible Consumption and Production). The interest in quality education

[3] The ecomuseums selected for this stage of the project were: in Italy, the Ecomuseo Casilino Ad Duas Lauros (Rome), the Ecomuseo LIS Aganis (PN), the Ecomuseo del Paesaggio di Parabiago (MI), and the Ecomuseo delle Case di Terra Villa Ficana (MC); in Portugal, the Ecomuseu do Corvo (Vila Do Corvo, Azores Island), the Museu do Traje de São Brás de Alportel (São Brás de Alportel, Faro), and the Rede Museológica do concelho de Peniche (Peniche); in Poland the Carp Valley Ecomuseum (Zator), the *J*ózef Winiarski Milling, Technique and Rural Craft Museum (the Mill Village Ecomuseum, Rożnów), and the *Ekomuzeum "Dziedziny Dunajca"* ('Dunajec River Villages' Ecomuseum, Maniowy, Kluszkowce); in Spain, the La Ponte-Ecomuséu (Villanueva de Santo Adriano, Asturias), the Ecomuseo del río Caicena (Almedinilla, Córdoba), and the Ecomuseu de les Valls d'Àneu (Esterri d'Àneu, Lleida).

[4] https://learning.ecoheritage.eu/case-studies

once again underlines the role of ecomuseums in local community empowerment, confirming the results of the previous survey.

Figure 9 shows that ecomuseum projects have an impact on the SDGs, e.g. Goal 12 (Responsible consumption and production), SDG 4 (Quality Education), SDG 17 (Partnerships to Achieve the Goal) and SDG 15 (Life on Earth). The data show that Italian (75%) and Spanish (67%) ecomuseums are the most focused on SDG 13 (Climate action); no Polish or Portuguese ecomuseum referred to it.

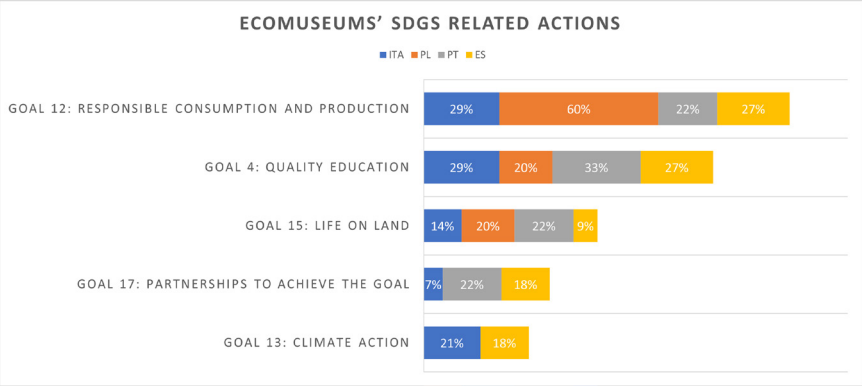

Fig. 9. SDG -related actions made by the case study ecomuseums. Source: authors' own elaboration on Ecoheritage data.

The data collected in the Best Practice Manual showed Data collected for the Best Practice Manual highlighted that actions organised by ecomuseums have positive impacts not only with local communities and territories, but also on more than one of the SDGs. The case study manual described projects and actions related to the SDGs. For example, many ecomuseums organise thematic itineraries that have positive social impacts by promoting intergenerational exchange and positive impacts on SDG 10 (reducing inequalities), 11 (sustainable cities and communities), 3 (good health and well-being) and 16 (peace, justice and strong institutions). Positive environmental effects include encouraging respect for land and supporting SDGs 13 (Climate Action), 15 (Life on Earth) and 11 (Sustainable Cities and Communities). Economic benefits are derived from the provision of visits organised by local professionals, the promotion of local products and handicrafts and the consideration of SDGs 1 (No Poverty), 4 (Quality Education) and 8 (Decent Work and Economic Growth). Furthermore, the data show the focus of ecomuseums on sustainable ways of life (e.g.

with actions to safeguard rural lifestyles and modes of production and the construction of traditional buildings). Some ecomuseums also monitor sustainability and contribute to landscape planning. In general, they all seek to enhance local uniqueness, creating a link between the past and the future (Best Practice Manual, 2022).

Another parameter of the analysis was an indication of the number of SDGs that ecomuseums are working on. The data indicate that Italian ecomuseums are working on an average of 12 SDGs. Spanish ecomuseums have an average of 8 SDGs, Polish ecomuseums 6 SDGs and Portugal 4 SDGs (Manual of Good Practices, 2022).

A First Discussion of the Results

The Italian ecomuseums show a variety of practices and some of them have an environmental or ecological focus. For example, the Ecomuseo delle Dolomiti Friuliane Lis Aganis, located in a mountain area in the province of Pordenone in the North of Italy (Friuli Venezia Giulia), is one of the ecomuseums that has already developed the capacity to protect and develop the territory where it is located. This ecomuseum, through consolidated participation mechanisms, targeted actions and projects, promotes the territorial characteristics and its social fabric. Indeed, the members are grouped into "cells", which are devoted to particular themes -, stones water and crafts -, which recall the peculiarities of the tangible and intangible heritage of the ecomuseum, promoting the inclusion and traditions of the place, in line with different Sustainable Development Goals[5]. One of the many projects of the ecomuseum is the enhancement and discovery of the Magredi[6], through participatory mapping, the construction of itineraries and "placed teaching" with local schools.

In Portugal the Ecomuseo de Ribeira de Pena and the Museo do Linho de Vàrzea de Calde stand out as museums working towards sustainability. Both have stated that they have adopted the SDGs, integrating them into strategic policies, and their working practices. In addition, they both work for the enhancement of a natural material, linen. The Ecomuseum de Ribeira de Pena, located in Ribeira de Pena, north-east of Porto, is known for the handicraft processing of linen, a tradition of the Limões weavers in the elaboration of "rifado" cloths and of the Cerva

[5] https://www.ecomuseolisaganis.it/

[6] "Magredo" is an arid land in Friuli-Venezia Giulia.

weavers in the processing of "mantêses" cloths. In the village of Várzea de Calde, about 12 km from Viseu, the architecture of Beira Alta forms the backdrop to the Linen Museum. Here the daily agricultural life of the region is recreated, in areas such as the service courtyard, the fences, the mill, the cellar, the traditional kitchen, the home oven and the loom. In ancient times, spinning was taught to little girls, and looms were almost always found in the farms. The Museum allows the protection and conservation of the flax and peasant tradition as an identity culture of the territory[7]. Together these two museums enhance an ancient tradition, create inter-generational ties, and preserve local knowledge. Polish Ecomuseums have yet to fully embrace the SDGs, 85% of them do not consider them as important to their strategic policies. However, the ecomuseums that integrate the SDGs in some of the activities are the Blue San River Land Ecomuseum (through exhibitions and demonstrations), the Dziewin Fishing Village Ecomuseum and the Frog Land Ecomuseum (which adopt sustainability in educational services), and the Ecomuseum in Kamień Śląski which states that education and upbringing are its main fields of activity. Only the Jan Pazdur Ecomuseum in Starachowice has activities exclusively created based on SDGs (Polish National Report, 2021).

Half of the Spanish ecomuseums implement the SDGs in their actions, although only a small number of them carry out actions based exclusively on the SDGs. One Spanish ecomuseum related to sustainability, in particular to the environment, is the Ecomuseo del Río Caicena, located in Andalusia, in Almendilla, province of Cordoba. The river Caicena connects the natural elements of the place (forest, waterfalls, vegetable gardens and the Sierra de Albayate), as well as providing energy to traditional mills and olive presses and being the site of greatest archaeological interest.

The ecomuseum is divided into various museological units, including a nature classroom and provides environmental education itineraries.[8] The Alma Serrana Ecomuseum, located in the Natural Park of Cazorla, Segura and Las Villas (in Jaén province)[9] has adopted the SDGs in its strategic policies, and it also has activities exclusively based on them[10].

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[7] https://visitviseu.pt/museu.php?item=46

[8] http://www.ecomuseoriocaicena.es/

[9] https://www.facebook.com/Universidad-Rural-Ecomuseo-Alma-Serrana-460854354701685/

[10] https://learning.ecoheritage.eu/case-studies

Training tools and EEON

The issue of sustainability emerged when designing the training tools of the Ecoheritage project. These will be published online on the EEON (Ecomuseum Online Network) platform[11], an online resource for the training and cooperative learning of ecomuseums. The platform contains the participatory heritage management toolkit designed by the Ecoheritage partners, that were tested and subsequently evaluated by four rural areas (one for each country), to verify the effectiveness of these online training modules[12].

The participatory heritage management toolkit includes several tools that will enable participatory management of local natural and cultural heritage. Among the proposed tools, two are related to the SDGs and climate action and concern the planning and self-assessment of ecomuseums. Both tools seek to focus the attention of ecomuseums not only on the planning and monitoring of their processes and performance, but also on the impacts produced within and outside the cultural institution. For this objective, the models of Hugues de Varine (2005) and Douglas Worts (see chapter 2) are proposed.

The data collected on the training needs of ecomuseums showed that most of the ecomuseums interviewed are interested in integrating the SDGs into their policies: for this reason, specific training is needed.

Four training modules (Ecomuseums and sustainability; Heritage and community; Planning, starting and sustaining the ecomuseum; Participatory processes: how to manage the necessary resources) were developed by the Ecoheritage project and will be included in the Online Ecomuseum Network to promote shared knowledge among ecomuseums[13]. One of the modules, dedicated to "ecomuseums and sustainability", is being developed by the Italian partners.

This training module aims to support the acquisition of competences such as:

- integral development; the interconnections between global issues and local territories; management of the living heritage in a participated and sustainable way with the purposes of local development.
- Managerial skills to develop holistic and co-creative pro-

[11] https://network.ecoheritage.eu/
[12] https://learning.ecoheritage.eu/toolkit
[13] https://learning.ecoheritage.eu

jects: co-learning, subsidiarity, local empowerment and global networking
- How to use the 2030 UN SDGs as cross-cutting objectives in ecomuseums activities and integrating the SDGs into the ecomuseums policies. The role of ecomuseums in the "climate action" goal as transversal SDGs objectives with regards to 2019 ICOM GC resolutions on community museums and sustainability, approved by ICOM at the 2019 Kyoto general conference.
- Use of self-assessment tools to monitor ecomuseums outcomes and specially impacts inside and outside the institution.

Conclusions

The Ecoheritage project revealed significant differences both between the ecomuseums in the four involved countries and between ecomuseums within the same country. While environmental, social and economic sustainability play a key role in the majority of ecomuseums, their practices related to the SDGs, and their interest of the implementation of the SDGs as a tool for sustainable development, varied significantly.

Many ecomuseums are interested in selecting some of the SDGs and integrating them into their strategic policies. The diagnostic stage of the Ecoheritage project made possible the understanding of the differing contexts in the four countries. The conceptual, institutional, legal and practical frameworks are diverse, but they converge according to an understanding associated to the ecomuseum's original philosophical conception related to the triad heritage/community/territory. Additionally, ecomuseums are strictly connected to their time, dealing with contemporary issues including cognitive justice, social development, gender issues, SDGs and climate action. (Transnational Report, 2021)[14]

It is possible to state that for the interviewed ecomuseums: environmental, social and economic sustainability plays a key role; some ecomuseums promote activities related to the SDGs, but many do not; few ecomuseums have planned climate-related activities; few ecomuseums plan activities exclusively based on the SDGs; few ecomuseums adopt the SDGs across all their activities.

[14] https://learning.ecoheritage.eu/transnational-report

As expected, the ecomuseums in the various countries of the Ecoheritage consortium are very different from each other; although most of them are interested in sustainability and plan to achieve the Sustainable Development Goals in some of their actions, their individual goals are different and the SDGs are not used across the board in their daily actions. However, ecomuseums in different countries have the potential, by their very nature, to promote integral sustainability (social, environmental and economic). For this reason, the educational tools addressed to sustainability issues and devised by the Ecoheritage project aim at empowering ecomuseums, each in its own territory, to be active actors in the achievement of the SDGs and Climate Action as interdependent goals.

The main product of the Ecoheritage project was the creation of training tools (both online and face-to-face), which will enable ecomuseums to continue their evolution and development. Applying sustainability in a strategic and transversal way in ecomuseum actions was one of the main needs that emerged from the diagnostic phase of the Ecoheritage project. For this reason, one of the training modules (Ecomuseums and sustainability) included a section dedicated to the Sustainable Development Goals: the SDGs, climate action and the interconnections between global issues and local territories.

It was recognised that training should be differentiated; specific educational paths should be designed for the more 'mature' ecomuseums, to harness their capacity to contribute to the achievement of the SDGs. On the other hand, newer projects and emerging ecomuseums should be approached and assisted differently. In this case, the training programme to be devised should focus on how to help these new ecomuseums embrace the basic principles (involvement of the local community in the management of eco/cultural heritage); how to incorporate the new principles of eco-museology to make ecomuseums true protagonists of sustainable development; and, finally, on the concepts of landscape as defined by the European Landscape Convention and cultural heritage according to the Council of Europe Convention made in Faro on 27 October 2005.

Furthermore, the training programme could become an important tool for the development of practices dedicated to the SDGs and climate change actions. It can be a process to build debate on the SDGs and raise awareness of climate change. With these tools and the implementation of training, ecomuseums can become a vehicle for communication, awareness-raising and dissemination of good practices for achieving the SDGs by 2030.

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Sitography

Ecoheritage learning hub website: https://learning.ecoheritage.eu/

Ecoheritage EEON Platform: https://network.ecoheritage.eu/

4. Museums and Ecomuseums, cultural sustainable places for people and the planet: responses for ecological transition

Michela Rota

The number of cultural institutions and museums dedicated, through their practices and actions, to sustainability and ecological transition is increasing rapidly, but not enough. Cultural places and museums, and the professionals involved, are part of a cultural ecosystem and it has been widely recognised that we need culture to create a pathway for change and transition if society is to overcome, adapt to and mitigate contemporary challenges, including climate emergencies. For example the Rome Declaration of the G20 Ministers of Culture[1] highlighted a call to action:

> *"We affirm culture's transformative role in sustainable development, helping address economic, social, and ecological pressures and needs. In this respect, we call for the full recognition and integration of culture and the creative economy into development processes and policies, involving all levels of societies, including local communities, as a driver and an enabler for the achievement of the Goals set out in the United Nations' 2030 Agenda for Sustainable Development.*
>
> *We recognise culture's role and its potential in leading to solutions to address climate change. We will strive to build resilient societies, facilitate targeted research and increased scientific cooperation on the reciprocal effects of climate change and culture, upscale cultural dimensions into climate change policies, and to mainstream cultural considerations into the global climate agenda, including through the implementation of international preservation and conservation principles and standards, taking into account different national circumstances, sensibilities and priorities. We*

[1] Rome Declaration of the G20 Ministers of Culture under Italy's 2021 Presidency of the G20, (Rome, July 30 2021). Link to the declaration: https://media.beniculturali.it/mibac/files/boards/be78e33bc8ca0c99bff70aa174035096/PDF/DichiarazioneFinale_G20_ENG.pdf

invite the Parties to the Paris Agreement to consider including culture and cultural heritage in their Adaptation Communications."

Culture shapes the way we perceive, make sense of and behave towards ever-changing realities. It gives meaning to our perceptions; it unites humanity through thoughts, emotions and imagination. Culture - with its different sectors and activities - is a very effective tool to spread knowledge among citizens and promote their participation in sustainable development, to initiate action and also to serve as a vector for the successful implementation of all 17 Sustainable Development Goals (SDGs) of the 2030 Agenda. Within the European Union (EU), policy and decision makers, as well as EU citizens and communities, must make full use of culture and cultural institutions to better promote and respond to the SDGs. Culture creates added-value solutions. On the other hand, however, we must recognise that it is, at the same time, a reflection of a collective way of thinking, which can create barriers to change and lead to climate denial. It is central to community-based storytelling, providing the language and tools to articulate and express what can sometimes be challenging narratives. A sustainable future requires cooperation rather than competition. Consequently, we need digital tools that can change minds, create a network of professionals, people, alliances and partnerships with stakeholders and policy makers to advance a cultural agenda.

Many cultural actors have promoted culture as the fourth pillar/dimension of sustainable development, one that is closely interconnected with the other three pillars (social, economic and environmental) and one that is also a pre-condition to successfully achieve the SDGs. Sustainability requires considering and balancing these different domains. Although the cultural sector, museum and ecomuseums must be sustainable institutions, at the same time they operate as a catalyst for action. To foster a culture-based approach to sustainable development, many institutions in and around the EU have committed to resolutions and some key documents have been proposed[2]. The

[2] Some exemples of documents: Recommendation CM/Rec(2022)15 of the Committee of Ministers to member States on the role of culture, cultural heritage and landscape in helping to address global challenges (Turin, 20.05.2022); 2019 ICOM Kyoto Resolution on sustainability; IFLA Statement on Libraries and Sustainable Development (August 2002); UNESCO Culture 2030, Indicators for culture in the Agenda 2030; the UK movement Culture Declares Emergencies and many others.

process of accelaration and implementation continues and is under construction with many connections being established between the pillars of sustainability, the SDGs for Agenda 2030 and the activities of museums as mentioned in the next paragraphs.

Museums and ecomuseums: social responsability and relevance

Museums and ecomuseums have changed dramatically in recent times. They are multidisciplinary institutions, due to their diverse mission, types, collections, departments and functions, and can seize opportunities to address contemporary challenges. These contributions can be implemented through the lens of historical collections, contemporary art, science, digital, to address the SDGs of the 2030 Agenda, including health and well-being, equity, democracy, knowledge manipulation, climate crisis, reconnecting with nature, biodiversity, migration and decolonialism, to name a few. Collections care, exhibitions and conservation remain important roles, fundamental resources that can be used for new meaningful activities. Museums and ecomuseums are in touch with people and communities and work alongside a network of public administrations, local stakeholders, professionals, cultural and creative industries, artists, educators and schools. They have a social responsibility, address issues of social cohesion, inclusion and diversity and are places of democratic dialogue. They are trusted institutions that provide access to knowledge, culture, nature, history and heritage.

Museums and ecomuseums can be activist entities in society, together with others, to support the five key points that are at the heart of the 2030 Agenda - people, prosperity, peace, partnership, planet - with the aim of ending poverty, combating inequality, tackling climate change and building peaceful societies that respect human rights.

All types of museums, and the cultural sector more generally, have the potential to help change attitudes, participate as facilitators of dialogue between different actors, address problems and seek solutions. They can be places to test these ideas through the lens of art and culture, combining science and digital innovation. They also help to understand why climate change is so important and how it affects our future. They

could - with their different activities and programmes - help people explore desirable futures and empower them to be active and participate in public life, stimulating and helping to implement real and measurable changes, balancing top-down and bottom-up approaches, taking into account a plurality of voices around institutions.

There is an ethical imperative set out in the 2030 Agenda: leave no-one behind: this resonates with all types of museums and promotes inclusive dialogue. Museums can share practices and participate in supporting the transition to sustainability, playing a key role within society to increase knowledge and awareness of sustainable development and the climate crisis. Museums can be agents of cultural change, influencing individual and collective behaviour.

The cultural sector, including museums, was severely affected by the Covid pandemic[3]. This crisis hit a sector that was already weak in terms of financial resources and personnel, often lacking strategic planning (including disaster planning) and with a poor social status. The pandemic accentuated these weaknesses and problems. However, one benefit has been that museums have begun to rethink and react to the many challenges and opportunities for the future after the pandemic, pursuing the creation of new activities (on-site and online) for local communities, with an increased digital presence. They are considering changes in management and governance, developing public-private partnerships, working with new stakeholders or starting to collaborate with young climate change and climate justice activists.

Agenda 2030 and the commitment of ICOM - International Council of Museums

To pursue the SDGS and react to climate change needs, ICOM is committed to face sustainable development in the 17 SDGs. To pursue this objective ICOM established a Working Group on Sustainability (WGS) in 2018, with the mission to help the Executive Board consider how to mainstream Sustainable

[3] For museums, the forced closure, the lack of revenue from tickets, the tourism crisis, the inability to carry out exhibition and educational activities onsite and use of the spaces took to an unprecedented economic crisis. Crisis that is expected to continue for some time yet. The crisis has affected the entire outsourced ecosystem even more heavily, for consultants, professionals, and artists.

Development Goals and the Paris Agreement and to support its members to contribute constructively in upholding the SDGs. There are 17 members in the WGS, from different countries and with different professional roles and expertise related to sustainability[4]. The members have regular online meeting every two weeks. The WGS helped to frame the Resolution No.1 on sustainability and the implementation of Agenda 2030, Transforming our World, adopted by the 34th General Assembly 2019 in Kyoto (see Garlandini, this volume, page x), a key document that set and oriented the activities. During the ICOM 2022 General Assembly in Prague the WGS launched a mandate, which includes an Action Plan in connection with ICOM activities. The Action Plan outlines the majority of the work to be done and its implementation for 2022-2030. The WGS has been involved with the new Museum Definition and is frequently invited to participate, (online and onsite) worldwide, in conferences, webinars, panels, such as (in collaboration with the Executive Board) at the conference of the Ministers of culture of the Euro Mediterranean region[5]. The group will focus

[4] Working Group On Sustainability:, lin: https://icom.museum/en/committee/working-group-on-sustainability/. Get to know the WGS: https://icom.museum/en/news/get-to-know-icom-wgs/

[5] Conference of the Ministers of culture of the Euro Mediterranean region: https://icom.museum/en/news/icom-participates-in-the-conference-of-the-ministers-of-culture-of-the-euro-mediterranean-region/. Threats to cultural heritage such as climate change, conflicts and illicit traffic were at the heart of discussion of the Culture Ministerial meeting of the EU-Southern partnership.

The high-level summit, organised by the Ministry of Culture of Italy, in coordination with the French Presidency of the European Union, brought together the Ministers of Culture of the Euro-Mediterranean region, international organisations, and other key stakeholders from civil society in a hybrid format in Naples, on Thursday 16 and Friday 17 June 2022. Topics of discussion focused on the protection and the role of cultural heritage in the face of contemporary issues including climate change, conflict situations as well as illicit trafficking. In this regard, on Thursday 16 June, Michela Rota from the ICOM's Working Group on Sustainability participated in the panel "Human development, good governance, and the rule of law. Culture at the heart of human development and the SDGs" to discuss how to adopt a more integrated and comprehensive approach in the EU-Mediterranean region in compliance with the 2030 UN Sustainable Development Goals. In fact, today, heritage and museums are not immune to the impacts of the climate crisis, as shown by the major flooding events that occurred during summer 2021, which affected several European countries and caused extensive damage to museums in Belgium and Germany.

on more open lines of communication and dialogue with the ICOM membership, including social media engagement and establishing a mini website to house information for members. The WGS will also facilitate more participation of ICOM at international events. The commitment of ICOM to sustainability, the ecological transition, the climate crisis and biodiversity is continuing also through the enlargement of its network. It joined in the last period the Climate Heritage Network, the Global Coalition United for Biodiversity and it has been active last year - also through the ICOM WGS - in many conferences, in the frame of PreCOP and COP 26 in Milan and it will be present in COP 27 in Egypt in Sharm El-Sheikh. The Working Group has been represented ICOM in EU sustainability initiatives and it is also engaged (thanks to the WG member Henry McGhie) in the Race to Resilience, a collaboration with the C40 Cities organisation (see McGhie, chapter 1).

Integrating sustainability in museums

There are many connections between the pillars of sustainability, the SDGs for Agenda 2030 and the activities carried out by museums and ecomuseums. They can contribute to many targets, starting from Goal 11: "Make cities and human settlements inclusive, safe, accessible, resilient sustainable" and Target 11.4 that explicit the link with heritage:" Strengthen efforts to protect and safeguard the world's cultural and natural heritage."

> Museums should incorporate sustainability into internal and external practices, empowering themselves, visitors and communities through making positive contributions to achieving the goals of Agenda 2030, Transforming Our World, also acknowledging and reducing their environmental impact; they must reduce their carbon footprint and become energy efficient, sustainable institutions. Experts and museum professionals share a common goal to explore how museums can become more sustainable. What are their roles to sustain people and the planet? What does this mean for museum buildings, governance, their activities and programs, their educational programs, their relationship with communities and places? A continuous collaboration and stream of ideas is required to assist the process, by developing new methodologies and practices.

Museums are relevant and key subjects for the application of the Next generation EU, the national applications and the eco-

logical transition, as set by the European Green New Deal[6] This set of policy initiatives was agreed by the European Commission in 2020 and suggests ongoing projects and programs for environmental education and to combat educational poverty. It promotes: actions for the development of sustainable and resilient cities, territories and communities; management of activities to reduce the impact of climate change, conserving urban and territorial biodiversity and protecting natural heritage; and encouraging museums to developing innovative projects for the inclusion and participation for people and communities. Museums must be recognized as common homes for active citizenship.

Developing sustainability in museums means to hold together and carry out many aspects and activities, a multi-scenario approach. Although official resolutions, such as those of Agenda 2030, Unesco Culture 2030[7], and One Health[8] exist there is a need for tools, guidelines and documents that cultural institution and museum can use. All museum staff need such guidance to work towards sustainability.

> Sustainability does not mean only to improve energy efficiency and reduce consumption, the use of resources and materials. It concerns and crosses the entire activities of the museum and their new social role and responsibilities including:
>
> - governance and sustainable management;

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[6] European Green New Deal: In 2021, the EU made climate neutrality, the goal of zero net emissions by 2050, legally binding in the EU. It set an interim target of 55% emission reduction by 2030. This goal of zero net emissions is enshrined in the climate law. The European Green deal is the roadmap for the EU to become, climate-neutral by 2050.

[7] Unesco Culture 2030: The UNESCO Thematic Indicators for Culture in the 2030 Agenda (UNESCO Culture|2030 Indicators) is a framework of thematic indicators whose purpose is to measure and monitor the progress of culture's enabling contribution to the national and local implementation of the Goals and Targets of the 2030 Agenda for Sustainable Development. web site link https://whc.unesco.org/en/culture2030indicators/

[8] One Health Approach: One Health is a collaborative approach to health, which recognises that humans and animals live in a shared environment and there is added value to be gained by working together on issues at the interface of different sectors. The World Health Organisation defines One Health as „an approach to designing and implementing programmes, policies, legislation and research in which multiple sectors communicate and work together to achieve better public health outcomes". website link: https://www.who.int/news-room/questions-and-answers/item/one-health

- the building, its grounds and energy efficiency, with reference to comfort and well-being for the occupants;
- the collections and exhibitions;
- the connections with the audience and local communities, developing active participation and inclusion;
- the extended museum in connections with the territory, the urban landscape and the widespread cultural and natural heritage.

All these points are discussed in detail in the book "Museums for Integrated Sustainability" (Rota, 2022), which aims to raise awareness and provide professional tools for the application of sustainability in museums, orienting technical skills in relation to their multiple activities and providing support to the museum directors and staff involved. The book refers to the main challenges and issues related to the 17 SDGs. It also presents some scenarios, which in different ways can inspire and be reinterpreted and adapted for museums, to identify effective pathways towards sustainable development strategies. It promotes 'green management' that acts both on current operation and maintenance, but also considers new projects for improvement, renovation and retrofitting. A number of possible approaches are suggested to start the path towards sustainability of the different and heterogeneous museum experiences and communicate with their audiences to open a dialogue and inspire coherent actions for the importance and urgency of addressing emergencies (climate crisis, inequalities, loss of biodiversity, ...) and related issues. All the museum's activities are considered: the personnel, the building and energy efficiency, the spaces and facilities with a reference to the comfort and well-being of the people who occupy them, the collections and exhibits, the connections with the territory and the diffuse cultural and natural heritage, the connections with the public and local communities in a logic of active participation and involvement.

Fig. 1. The topics carried out in the book Musei per la sostenibilità integrata (courtesy of the author).

Governance And Sustainable Management.

Moving towards sustainability requires a 'sustainable management' system that balances the different aspects of sustainability. The commitment to sustainability must be written into the museum's mission statement; set sustainable goals and targets within the strategic planning; allocate budgets and dedicated human resources to specific activities. Starting with surveys, audits and analysis of the current situation, priorities towards sustainability can be set and reported in an Annual Sustainability Report. This is a practice that few museums are currently pursuing, but it is highly desirable. Sustainable management can be achieved with a circular economy approach, where the one and only measure of success (even more difficult to achieve after the pandemic) is not exponential increases in wealth, expansion of buildings or successful exhibitions. In this circular approach, success is measured by the improvement of all museum activities, following a repeated process of testing, validation and new improvements and actions (see Figure 2).

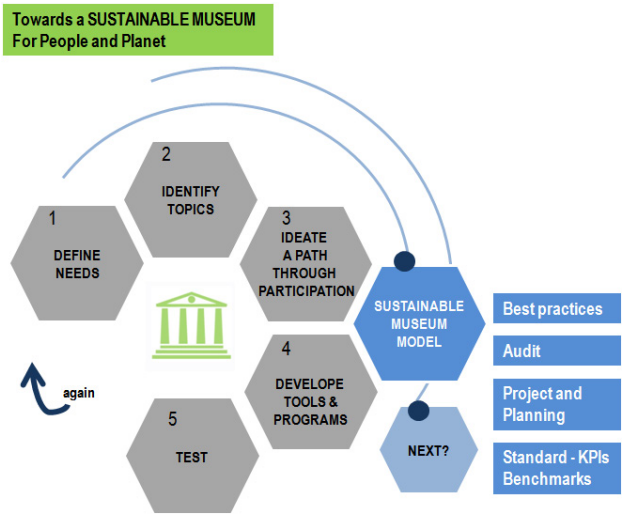

Fig. 2. The reiterative approach to face sustainability (courtesy of the author).

The museum building and energy systems.

By investing in sustainable architecture and operations, museums are both communicators and climate actors. Museums should address the carbon footprint of their activities, including the use of green building design methods, energy efficiency, sustainable care of collections and exhibitions, promotion of eco-mobility and responsibility for the elimination of waste, emissions and use of energy and water. These themes are linked to SDGs 11 and 13.

To improve sustainability, a good way to start is to look at the current situation, using the energy audit procedure to collect data on the overall situation of the museum building, its interior areas and its energy systems. This can help strategies to use less energy and control the museum environment for preventive conservation.

The quality of the indoor environment does not only affect the collections, but also the visitors and staff. The Covid pandemic demonstrated the importance of monitoring the environment to provide healthier and safer spaces. To the classical parameters - air quality, ventilation, comfort, humidity, temperature, water, lighting, sound, safety - new ones are added: other aspects of the museum environment now integrated are

mental well-being, availability of water, materials, food and ease of movement. Museum spaces can now be designed and refurbished according to recent guidelines that aim to improve the well-being of the occupants. More attention is also given to biophilia and connections to the natural environment.

In the last years there is a transition from a sustainability approach that was mainly oriented to energy efficiency, to one that focuses on people and their well-being, following the criteria of the WELLBuilding Standard Protocol[9].

The Extended Museum

Even more than in the past, museums are closely linked to their environment and local communities. The idea of extended museums can be linked to different activities and is central to the philosophy and practice of ecomuseums: Taking people beyond the museum allows for outdoor learning; citizen science; linkage with local development policies; partnerships and networks; sustainable criteria for outdoor areas and green mobility; protection and enhancement of the natural and cultural landscape.

Museums and ecomuseums have responsibilities towards the landscape, to protect and enhance cultural and natural heritage (<> SDGs 11.4) and "Strengthen efforts to protect and safeguard the world's cultural and natural heritage." ICOM highlighted this role back in 2016 in the Resolution on Museums and cultural landscapes during the 31st General Assembly in Milan, Italy: "*Museums are part of the landscape. They collect tangible and intangible heritage linked to the environment. The collections part of their heritage cannot be explained without the landscape. Museums have a particular responsibility towards the landscape that surrounds them, urban or rural. This implies: the management and upkeep of heritage in a sustainable development*

[9] WELLBuilding Standard Protocol: WELL is a performance-based system for measuring, certifying, and monitoring features of the built environment that impact human health and well-being, through air, water, nourishment, light, fitness, comfort and mind. WELL is grounded in a body of medical research that explores the connection between the buildings where we spend more than 90 percent of our time, and the health and wellness impacts on us as occupants. WELL Certified™ spaces can help create a built environment that improves the nutrition, fitness, mood, sleep patterns and performance of its occupants. website link: https://standard.wellcertified.com/well

perspective for the territory; the attention given to images and representations that identify and connote the landscape itself." They have expanded their community outreach and involvement by developing community tours and pathways, and developing exhibitions in public spaces have positive, multiplying effects on their local areas. For example, the relationship between collections and landscape, a feature of Italian museums, means that it is easy to create new stories.

New Narratives For Exhibitions.

Connections between museum collections, the environment and SDGS could be developed to help create new narratives within museum exhibitions, encouraging a shift in priorities towards sustainability. ICOM is well placed to facilitate this process. The Intergovernmental Panel on Climate Change (IPCC) AR6 final report, which includes adaptation and mitigation strategies, will be published in September 2022. Could this be an opportunity for museums to start developing new narratives? Such a collaboration with the IPCC could turn museums around the world into arenas for public participation, debates, exhibitions and events organised in-house or in collaboration with local communities. This is a vision of museums as catalysts for change, raising public awareness and inspiring public action, contributing to the goal of achieving a sustainable future.

An Italian Research Project: Museintegrati

In Italy, ICOM and many museum professionals have embraced the Kyoto Resolution and incorporated its key points into their work. National museum associations and individual institutions are developing new strategies for improving sustainability, as evidenced by the increasing number of best practices on the different topics of the SDGs, presented at numerous Italian conferences, but also by the application to national research projects, such as the Museintegrati project.

MUSEINTEGRATI[10] is a research project that was carried out from September 2019 – March 2022 to support good practices

[10] Museintegrati: Link to the project (in Italian): https://www.icom-italia.org/museintegrati/ . The author of this paper has been involved as the main sci-

in the museum field, with the aim of implementing the Italian National Strategy for Sustainable Development (SNSVS) and the SDGs for Agenda 2030. The project was financed and promoted by the Ministry for Ecological Transition – MiTE as part of SNSVS. The partners are MUSE - Museo delle Scienze di Trento (leader), ICOM Italia - International Council of Museums Italy, and ANMS - Associazione Nazionale dei Musei Scientifici.

MUSE – the Science Museum in Trento (see Figure 3, 4), has taken the leadership of the project because of its role as research center and it is well recognized internationally for its long committment towards sustainability in connection with the local public administration and citizens. The MUSE building, designed with sustainable criteria, received in 2013 a LEED (Leadership in Energy and Environmental Design) New Construction v2.2 Gold Certification. It has placed the Agenda 2030 at the core of its strategy and as a guide to orient the many activities and programs, as shown in the Annual Sustainability Report.[11]

Fig. 3. Trento Science Museum facade and a night view with SDGs projection (courtesy of MUSE Trento).

entific researcher and coordinator.

[11] MUSE, Science Museum in Trento, https://www.muse.it/it/il-muse/Amministrazione-trasparente/Bilanci/Documents/Bilancio%20missione%202022.pdf

Fig. 4. Exhibition space at MUSE. The permanent exhibition area on sustainability - 2021 (courtesy of MUSE Trento).

The project seeks to provide answers to the question: "How can museums and similar cultural institutions make a contribution to the SDGs and local sustainable development and to the systemic change for the cultural ecosystem?". Other objectives - presented below - have been included.

The MUSEINTEGRATI project aims to create a space for dialogue, exchange of practices and issues related to sustainable development, to integrate 'activist museums' within urban agendas for local development, and to promote the function of museums as civic and cultural platforms working in close relationship with other institutions and citizens. It is linked to the concept of 'extended museums' and ecomuseums. It encourages museums, as community arenas for dialogue, knowledge building and capacity building, to promote public engagement in caring for people, society and the planet through their public operations and programmes.

The main targets/objectives of Museintegrati are related to:

- Target 1 (MUSEUM-MUSEUM). Supporting the development of an Italian network of museums as community places and activist for sustainability.
- Target 2 (LABORATORY MUSEUM). Experimenting with the methodology and the dialogue around some topics relevant to sustainability and the role of museums for sustainable development strategies linked with Urban Agendas. This part of the project was carried out with the participation of 30 Italian museums.
- Target 3 (MUSEUM>TERRITORY). Promoting the orientation at the local level towards the 17 SDGs and national and

local strategies, activating systemic process for sustainable and environment education.

- Target 4 (TERRITORY> MUSEUMS). Creating systemic partnerships and alliances at the national and local level for participation in policy-making strategies. Supporting the roles and actions of museums as important places for storing the knowledge of and promoting practices and policies for local sustainable development strategies for communities .

The methodology related to the Target 2 involved an informal network of museums[12], selected by the museum associations through a series of criteria: geographycal distribution (see Figure 5); different typology of museum and collections; if part of a network of museums; relevant sustainable activities already started on different SDGs; a museum engaged and relevant for local communities. All the museums involved in the experimentation are closely involved and active in one or more domains of sustainability.

Fig. 5. The Geographical distribution of the museums involved in Museintegrati (courtesy of MUSE Trento).

[12] List of the museums participating in the research at the link: https://www.muse.it/it/Esplora/Progetti-Speciali/Documents/Museintegrati%20-%20Musei%20Beginner_giugno.pdf

To achieve the targets, the Museintegrati working group structured a methodology that involved:

- a survey addressed to all participating museums, aimed at enhancing the work already carried out in the field of sustainability. For example, to understand if the museum has an ongoing sustainability program; if the building has a program to reduce the energy-environmental impact' if a program has been launched to enhance natural capital; if the institution has a plan devoted to the circular economy; if it has an accessibility program through sustainable mobility paths integrated with sustainable tourism plans; if professional courses are planned to strengthen innovation, skills and knowledge; and what projects have been initiated for participation and inclusion.
- five Workshops were held based on the results of the survey between May 2021 and February 2022, aimed at deepening research topics and developing new ideas for "museology for sustainability". The workshops had a training session, followed by focus groups to deepen and discuss the various issues. The main topics of investigations were related to: future studies, the anthropocene, climate justice, and the engagement of young activist for the environment and climate.
- Throughout the period of the project, best practices that museums have undertaken on the various areas of sustainability were also collected, allocating them accordingly to the connection with the different domains and SDGs. The mapping of best practices has been used by the researchers to monitor the progress of the main initiatives that are present nationally and to highlight trends or signals of interest.

The experimentation phase is aimed both at exchanging experiences and proposing adaptable implementations in the different typologies of museums. Also it aims to inform and direct the institutional bodies (MiTE, the National Strategy for Sustainable Development, Metropolitan Cities involved in the development of urban and territorial Agendas in line with the SNSVS objectives) about the progress of the MUSEINTEGRATI project, its results and the objectives achieved.

The project presents a multi-level approach for the participation and validation structure, many museums had the opportunity to participate and contribute to the different phases and goals of the project. The activities aim to develop a museum ecosystem that can continue over time and be implemented,

thanks to the partnership with other Institutions, which deal with local innovation, policies, urban planning and design, in effect a museum network that will become a space for public debate and community meetings.

First thoughts on the importance of the museums network for cultural sustainability: an ongoing process of improvements

One of the goals of the MUSEINTREGRATI project is to inspire more museums to embrace sustainability and the UN SDGs and to promote good practices in relation to 'sustainable cities and communities', taking care of the cultural and natural environment together with their communities and other stakeholders. In order to achieve this, participants emphasised the importance of dialogue and sustainable networking for sustainability discussions. Museum professionals agreed on the positive effect of networking to share and listen to different experiences and critical issues. The workshops highlighted where museums need to focus more, such as energy efficiency and decarbonisation of institutions, but also the promotion of biodiversity and the adoption of sustainable criteria for outdoor areas, green mobility and the role of responsibility towards the landscape. Several museums already play a key role in relation to their territories and communities, but they are aware that they need to increase their relevance and receive recognition from communities for the activities they offer, as well as the need to reach a wider audience and encourage participation. This effort can also be undertaken in connection with and with the support of local administrative actors involved in local sustainable development (urban or rural). For this reason, the participants in the Museintegrati project agreed on the need for a continuous process of dialogue and strengthening of alliances, oriented towards a common commitment at the local level. Agenda 2030 and other strategies require the contribution of all parts of society and institutions. There is no longer any doubt that museums not only have the opportunity to work for sustainable development, but that in this endeavour they must work in connection with other institutions to promote public engagement through their operations and public programmes, in connection with local governments and their sustainable development agendas. We cannot forget the international role

of the many local and international museum associations - remembering ICOM's motto: 'Museums have no borders'. They can work together, with new alliances with their networks to keep attention and dialogue alive and spread knowledge with new ideas and creative practices on complex contemporary issues.

Acknowledgments

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5. Contemporary Art and climate change in ecomuseums: aesthetics toward sustainability.

Ginevra Addis

Introduction

In the face of the climate crisis, sustainability has been questioned at multiple levels in the field of art, from contemporary art to arts education and arts management (Person *et al.* 2022: 75-98; Turan and Cetynkaya 2022: 83-95; Möller *et al.* 2022: 125-139; D'Ambrosio and Dominici 2019: 521-531; Addis 2018). In art institutions, curators began to explore how aesthetics could respond to the theme of sustainability, and more specifically to that of the 2030 Sustainable Development Goals (SDGs). The increasing convergence between aesthetics and sustainability over the last decade demonstrates that this is a growing field of research that has seen the responses of artists, art institutions, curators and ecomuseums take centre stage (Brown 2019: 1-13; Rota 2022; Addis and Vest Hansen 2022; Addis 2017: 3-16). This chapter aims to investigate how contemporary art is used as a vehicle for sustainability in Italian ecomuseums, but also explores other European ecomuseums. The study is based on the approach of ecomuseums to contemporary art – especially after the adoption of the 2030 SDGs agenda by the United Nations in 2016 - which showed two different ways of approaching contemporary art aesthetics: 1) From a conceptual point of view, focusing the artistic operation on different goals of the SDGs, in particular on climate change, responsible consumption, reducing inequalities, living off the land, diversity, peace and migration; and 2) From the aesthetic beauty of art itself, as beauty has an impact on the sense of place, participatory heritage inventory, improvement

of suburbs and participation of citizens, especially youth groups. This approach shows how beauty produces impacts outside the cultural institution and can lead to the achievement of integrated development on a local scale, which contributes to saving the planet on a global scale[1].

This chapter is based on a literature review and a case study approach. The literature review section will examine: firstly, how in the last decade there has been a rethinking of international contemporary art practices towards sustainability, at multiple levels, as individual artworks (e.g. Berl Berl by Jakob Kudsk Steensen, 2021), as exhibitions (e.g. SOSustainability, Museo della Permanente, 2022, Milan) and within museums (e.g. the National Museum of Singapore with works by DASSAD, Robert Zhao and Ong Wei Ting, 2022). These creative endeavours have seen artists direct their choices towards sustainable materials or the creative use of cutting-edge sustainable technologies, such as the use of wind turbines and photovoltaic panels. Furthermore, curators and artists themselves have begun to question the aesthetics of art itself, trying to understand how aesthetics can be a constructive vehicle for sustainability (e.g. Sarah Hall; Lyman Whitaker). Field initiatives such as the one in Italy (especially in the city of Milan), promoted at regional government level, have invited artists, curators and cultural associations to rethink sustainable energy in a creative way, especially after Expo 2015 (e.g. the exhibit *Creative Energy: Art for renewable sources*, 2016, following a contest promoted by the Lombardy region) and in the wake of Expo Astana 2017. Academic departments at the same time have

[1] The development of projects where ecomuseums used aesthetics in a broader sense, is more related to the concept of beauty to strengthen several of their principles; numerous Italian ecomuseums use art as a main vehicle, through textiles, ceramics, illustration of stories, photo portraits and artworks for social inclusion.They include: Ecomuseo Alta Val Sangone and Ecomuseo Concarena, Lumbardy. They both used textiles and the latter in 2021 promoted the lab *Infeltriamo e creiamo con la lana*, focused on wool that was coloured with natural pigments from dyeing plants, for the creation of decorative and useful objects. Ecomuseo della Montagna Pistoiese, Tuscany, through its Didactic Centre of Sacred Art and Popular Religiousness POPIGLIO – promoted practical activities to approach the ancient art of weaving. Ecomuseo del Tevere, Umbria, organized the Textile Lab, "Weaving the threads". Ecomuseo Urbano Mare Memoria Viva, Sicily, for the theme immaterial heritage and storytelling, illustrated stories with recycled fabrics with Angela Di Blasi and her weaving art, *CUCIARTE*. Ecomuseo di Venere, Puglia, promoted meetings on the art of the ropemaker; Ecomuseo Iblei, Sicily, promoted a *Dyeing and weaving course*, a practice that dates back to ancient times, and in Sicily there are records of it since the Middle Ages.

begun to create research clusters challenging sustainability on an aesthetic level, such as the Art Department of the University of Bern with *Mediating the Ecological Imperative*, a collaborative project with Universidad Nacional Autonoma de Mexico (UNAM), Mexico (SNSF Sinergia 2021-2024: n. p.)[2]. Second, I use the literature to investigate how these practices, especially those of public art, have also interrogated ecomuseums. A recent study *Ecomusei e arte contemporanea* (Di Iorio 2022) shows how new approaches and policies can succeed in enhancing, redeveloping and evolving ecomuseums through contemporary art interventions and projects; the author examined urban contemporary art interventions in Molise. Instances are initiatives such as: VIS à VIS Fuoriluogo (Face to face out of place), an artists' residency in two villages (Lucito and Provvidenti) close to the city of Campobasso (CB); CVTà Street Fest 2022, (Civita Camporamano Street Fest), an international street art festival with artists from all over the words in the village of Civitacampomarano, close to Campobasso too; MAACK (Open Air Contemporary Art Museum Kalenarte) in the village of Kalenarte (CB); the project Casalciprano Wall Drawings presented by ARATRO-Electronic Arts Archive Workshop For Contemporary Art, in the village of Casalciprano (CB).

The case study section focuses on how ecomuseums have begun to challenge the SDGs on climate change and sustainability at an aesthetic level in educational activities or artworks. It explores which ecomuseums have addressed contemporary aesthetics as an implicit or explicit vehicle for climate change, following the ecomuseum principles of inclusiveness, community ownership and approaches, democracy, intangible heritage, place and the natural environment[3]. Do contemporary art initiatives of ecomuseums challenge and promote the SDGs and the theme of sustainability? A review of international ecomuseums indicates not only examples of how ecomuseums address climate change, but also how they use the aesthetic

[2] The new SNSF Sinergia project "Mediating the Ecological Imperative: Formats and Modes of Engagement" is a joint research project of the Institutes for Art History, American Studies and Social Anthropology at the University of Bern.

[3] Parish maps and illuminated alphabets are used to as form of community-based artwork often used to get ecomuseums started. E.g. in Sussex, England, they are used as a starting point for heritage projects. Parish maps and illuminated alphabets are used to identify a place (Davis 2011, 44-45; Clifford and King 2006).

beauty of art to reinforce ecomuseum principles, thus indirectly contributing to the overall improvement of the global scale.

The International artistic responses to sustainability

The overall worldwide aesthetic response to sustainability has been addressed primarily through the use of technology. Artists such as Sarah Hall and Lyman Whitaker pioneered the use of sustainable materials in their art. The former, a Canadian architect who over the past forty years has created hundreds of large-scale artworks for public, private and institutional settings, gained international recognition for her innovative use of solar technology in architectural glass, her *Solar projects* (Figure 1, Figure 2, Figure 3) (Hall Portfolio 2022; Nathanson 2021; Mirtchev 2021). Whitaker, an American sculptor, created *Wind Sculptures*, works (Figure 4, Figure 5) that were hand-produced, demonstrated mechanical integrity and quality craftsmanship, that responded to the changing currents of the wind and were responsive to their surroundings (Wiford Gallery 2022; Lally 2019: 97). Such an artistic response to sustainability, which used technology and materials taken from nature expanded internationally, especially among young emerging contemporary artists. For example, the Icelandic-Danish artist Olafur Eliasson used technology and natural materials to raise awareness on the climate crisis. For the *Ice Watch* project, (Figure 6, Figure 7) Eliasson and geologist Minik Rosing brought free-floating icebergs from a fjord outside Nuuk, Greenland, to public squares in European cities (Copenhagen, in 2014; Paris in 2015 and London in 2018). His *Sonnenenergie 22* sculpture, realized in 2022, and today part of the permanent collection at Pinakothek der Moderne in Munich, is made of a screen which responds to light and weather conditions outside the museum; the artwork does not use electricity and creates what the artist calls "an analogue movie"[4], in which the screen goes dark without direct sunlight (Morton 2018: 71; Heuer 2019: 182). The Italian London-based artist Maria Teresa Ortoleva, realized *Ikaros, Flight of fancy*, projections of wind turbines on photovoltaic panels at the exhibit *Creative Energy. Art for renewable sources* organized in December 2016 at Palazzo Lombardia in Milan, in the post Expo 2015 period in the wake of the Expo

[4] https://olafureliasson.net/archive/artwork/WEK111024/sonnenenergie-22-solar-energy-22#slideshow

Astana on Green Energy. On the same occasion, the artist Raffaella Formenti produced a site-specific installation from a chain made of recyclable material such as waste paper, reflecting on the significance of recycling and saving materials (Di Raddo and Addis, 2016: 14, 33).

Fig. 1. Sarah Hall, Solar project – Hall, Leaves of Light, painted facade, York University, 2013 (courtesy of the artist).

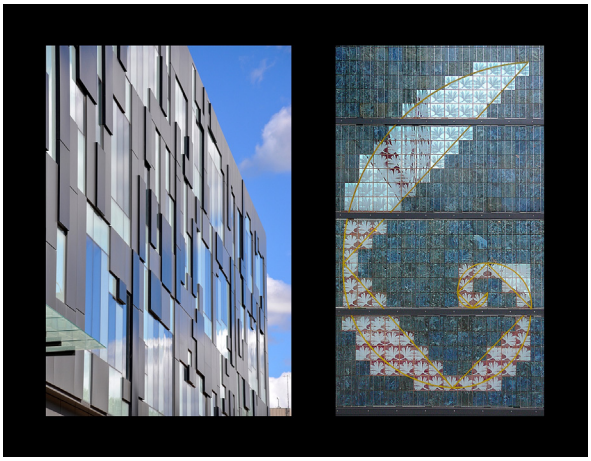

Fig. 2. Sarah Hall, Solar project – Hall, Leaves of Light, site & solar facade, 2013 (courtesy of the artist).

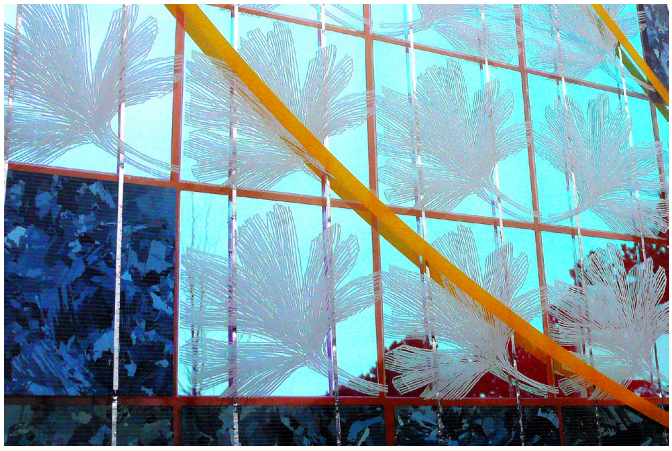

Fig. 3. Sarah Hall, Solar project – Hall, Leaves of Light, York University, Solar Detail, 2013 (courtesy of the artist).

Fig. 4. Lyman Whitaker, Wind Sculptures – Surgaland Airport, Texas, 2016 (courtesy of the artist).

Fig. 5. Lyman Whitaker, Silent Symphony Sculpture – Lancaster, Pennsylvania, 2014-2015 (courtesy of the artist).

Fig. 6. Olafur Eliasson and Minik Rosing, Ice Watch, 2014, Place du Panthéon, Paris, 2015. Photo: Martin Argyoglo (courtesy of the artist; neugerriemschneider, Berlin; Tanya Bonakdar Gallery, New York/Los Angeles, © 2014 Olafur Eliasson).

Fig. 7. Olafur Eliasson and Minik Rosing, Ice Watch, 2014, Supported by Bloomberg, Installation view: Bankside, outside Tate Modern, 2018. Photo: Justin Sutcliffe (courtesy of the artist; neugerriemschneider, Berlin; Tanya Bonakdar Gallery, New York/Los Angeles, © 2014 Olafur Eliasson).

Following the initial artistic response to sustainability using technology and natural materials artists began to question how even aesthetics could answer the issues of sustainability and climate change. For example, some artworks showed at the National Museum of Singapore for the exhibit *Rooting for Change: Artistic Responses to Climate Change and Sustainability*, April-July 2022, addressed them. The following artworks of some prominent Chinese artists were at display: Dave Lim, Adar Ng and Woong Soak (an artist collective whose acronym is DASSAD) with *Indefinite Waters*, a video installation which collapses the past, present and future onto a dystopian landscape of consumer products; Robert Zhao with the video installation *Second Chance*, reflecting on how the secondary Singapore forests that have sprung up over waste land help with climate change in the long run; Ong Wei Ting's video art *Choosing Today for our Tomorrows* used animation inspired by a 1990s cartoon style in hopes to encourage visitors young and old to commit to building a more sustainable future[5] (National

[5] https://www.littledayout.com/rooting-for-change-artistic-responses-to-cli-

Museum Singapore 2022). Further instances of international artists who challenged the 2030 SDGs include the Danish artist Jacob Kudsk Steensen, who worked in the vanguard of art and technology, presenting in 2021 the site-specific installation *Berl Berl*, in 2021 at the Halle am Berhain contemporary art space in Berlin. This immersive installation took visitors back to Berlin's origins as a swamp formed by a glacial valley over 10,000 years old (Enderby 2021). The American artist Wu Tsang, a filmmaker, artist and performer based in New York and Berlin, since 2012 began to investigate the SDG issue of gender equality (SDG no. 5), in her videos such as *Wildness*, 2012, a documentary which aims to represent a number of people who are often stereotyped such as trans people and queer communities (Jushasz and Lebow 2020: 270; Harbison 2019: 159). Additionally, she reflected upon the Life below water SDG (no. 14) producing the video art *Of Whales*, presented at the Venice Biennale in 2022. *Of Whales*, using the film adaption of Herman Melvile's *Moby Dick*, mixed together with psychedelic ocean environments generated from XR (extended reality) technologies, reflected from the perspective of the whale, of her life below water, in the context of mid-19th century maritime history, the transatlantic birth of modern capitalism, and mass civil unrest.

There has been a widespread artistic response to sustainability conducted by non-profit organisations and art institutions, which have actively promoted the work of artists in relation to the 2030 SDGs. A pioneering instance is ART 2030, a non-profit organisation based in Copenhagen, which has been working with contemporary art as the key to achieve the UN Global Goals by opening people's hearts, minds and imagination, to inspire action for a healthy and sustainable future. The Japanese naturalized American artist Yoko Ono, for ART 2030, has created *YES*, 2017, an artwork which invited people to commit to achieving the Global Goals by writing yes in their own language. It was premiered in the UN city Copenhagen in February 2018 to audiences of all ages and backgrounds. Over the four day exhibition, the artwork saw over 500 participants pledge their "yes" to the Global Goals languages from Danish, the Indian Kannada, Japanese, Urdu, Finnish, and Chinese among many others. Besides Yoko Ono, ART 2030 worked with several other artists challenging aesthetics in relation to 2030 SDGs. Bosco Sodi, a Mexican

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mate-change-and-sustainability/

artist, known for his use of raw, natural materials to create large-scale textured paintings and sculpture, creating a dialogue with nature and landscape, challenged the Life on Land SDG, with the work *A Thousand Li of Rivers and Mountains*, exhibited at Axel Vervoordt Gallery, Hong Kong in 2020. Cecilia Vicuña, a Chilean artist whose work has been deeply engaged with contemporary conversations around ecology, challenged the same SDG with the work *Seehearing the Enlightened Failure*, installed at Museo Universitario de Arte Contemporáneo (MUAC), Mexico City, in 2020. Alicja Kwade, a Polish-German artist, investigated the Climate Change SDGs, examining the phenomenon of ice melt in the work *ParaPivot (sempiternal clouds)*, 2020, made of interlocked frames supporting large blocks of white marble that appeared as ice calved from a distant glacier. Viewers were encouraged to move in and out of the installation and observe how the marble appeared to shift from certain angles. This massive, yet fragile universe was Kwade's comment on the instability of perception and the state of the environment (ART 2030 2022).

As a result of the artistic response to sustainability and the active promotion of artists challenging the SDGs by non-profit art organisations, numerous contemporary art exhibitions have been organised with the word sustainability in the title or with words related to the themes of the SDGs (Meireis, Rippl 2019). Examples include SOSustainability, at the Museo della Permanente in Milan 2022, with over 140 works of art reflecting on sustainability (La Permanente 2022); *Naturally,* at the Arken's museum, Copenhagen, 2014, displaying works of artists such as Superflex, Tony Matelly, FOS, Qiu Anxiong, Per Bak Jensen, Torbjørn Rødland, in 2014; the exhibit *Love me gender*, with Jesper Just, Mona Hatoum, Noble& Webster, Peter Land and Elmgreen&Dragset; the *Qiu Anxiong: the new Book of Mountains and Seas II* exhibit at Arken in 2013 (Arken 2014; Arken 2013); *Iamsterdam: Sustainability Art 4*, a travelling exhibition in Amsterdam, 2020, focused on the consequences of global warming and climate change, where a group of 16 artists presented their visions of our planet (Luxiders 2020); *Changing climate*, 2022, in the Australia Museum, Sydney on the effects of global warming (Australia Museum 2022); *Countryside, the future* at Guggenheim, New York, addressing the environmental, political and socioeconomic issues through the eyes of architect Rem Koolhas and architect and curator Samir Bantal, an exhibition exploring the ever changing natural and social landscapes due to climate change, migration, ecosystems and co-existence (Guggenheim 2021).

Italian ecomuseums and contemporary art

Recognising the artistic response to climate change by artists, art institutions and non-profit organisations, ecomuseums have begun to challenge aesthetics both in relation to SDG 2030 and in relation to people's response to the aesthetic beauty of art. Art was seen as a means to promote their activities and events to strengthen the relationship with their principles of democracy, community and sense of place. In the European context, data on ecomuseum activities show how Italian ecomuseums engaged with contemporary art to challenge the SDGs 2030. Most of the ecomuseums that have oriented their activities towards contemporary art are located in the Italian regions of Lombardy, Piedmont, Tuscany, Lazio and Sicily, where art is well established and an active protagonist in the cultural life of the main regional cities. Despite a greater concentration of contemporary art engagement in relation to SGD 2030 by some Italian regions, it seems that almost all regions have ecomuseums that are committed to sustainability issues in general. Many ecomuseums are focused on SDG No. 15, Life on Land, promoting initiatives that establish a relationship with nature, biodiversity and Responsible Consumption and Production (SDG No. 12), while singular cases offer instances on the other SDGs, e.g. on Reducing Inequalities (SDG No. 10), Sustainable Cities and Communities (SDG No. 11) and Peace and Justice (SDG No. 16). The Ecomuseo della Pastorizia, in Piedmont, reflected on Life on Land (SDG No. 15), the importance of the relationship with nature, Responsible Consumption (SDG No. 12) and Production, paying attention to recycling through the *Transhumanance* project. Four contemporary artists, Andrea Rinaudo, Daniele Balangero, Federico Aimar and Annika Pettini, carried out a residency in 2021 in different locations in Piedmont such as Pontebernardo, Demonte, Sambuco and Argentera. Rinaudo chose raw wool as the material on which to focus his work, reflecting on the sustainability of this material, which is often a problem for its disposal or reuse. Balangero worked with chestnut wood, with which he made special shepherd's sticks, partly produced together with the community. Aimar documented the life of some of Pontebernardo's shepherds at pasture and during transhumance: his photographs, exhibited at the Ecomuseum, were accompanied by the poems that writer Annika Pettini composed after her stay and her dialogues with the valley's shepherds (Ecomuseum of Shepherding

2021). Another instance of the focus on the Life on Land SDG is the Ecomuseo Valsugana, Trentino, which in 2020, organized *Pietre d'acqua* (Stones of Water); this granite sculpture symposium, 2022, in its sixth edition, aimed to reknit the thread of a lost sculpture tradition by recovering ancient knowledge and restoring it through the language of art. The exhibition title recalled the power of water, which is a distinctive trait of the Ecomuseum; water is both a a source of wealth, and a generating force that shapes stone and the territory. For this symposium five sculptors (Paolo Apolloni, Luca Molinari, Paolo Dolzan, Andrea Voltolini and Julian Soardi) worked the stones of the Chieppena location. Their works remained along the banks of the torrent, blending into the landscape and constituting a route that can be followed as far as the Brenta river, creating a small open-air museum (Valsugana Tesino 2020). In 2022 the Ecomuseo Lis Aganis, Friuli Venezia Giulia, offered a workshop on nature and color, *Natura&Colore: new perspectives of the Art of Dyeing* with artist Ennia Visentin, (Ecomuseo Natura e colore 2022). The Ecomuseo Val Resia, organized in 2021 the online exhibit *Natura io sogno con colori e pennelli*, by Morena Lettig, with paintings of sea, paths, and wilderness (Ecomuseo Val Resia 2021: The Ecomuseo della Valsamoggia, Emilia Romagna, during 2016-2017, organized the Eco-Art lab with the key words sustainability, outdoor, creative spirit, cooperation, discovering nature through the magnifying glass of art, a journey to understand the bond that united the natural environment (Ecomuseo della Valsamoggia 2016-2017). The Ecomuseo Urbano di Botrugno, Puglia, promoted a museal laboratory for landscape in 2022, the *Laboratorio Museale per il Paesaggio*, with the aim of acting as the municipal museum antenna where an experimental process of education about cultural heritage for the Botrugno community has been launched. The Laboratory will host temporary exhibitions, meetings, promote itineraries in the area; schools will be able to develop special projects, environmental research, and associations will contribute to exhibitions (Ecomuseo Urbano di Botrugno 2022). The Ecomuseo della Montagna sarda e del Gennargentu, Sardinia, in 2019, organized the workshop *Dipingi Aritzo*, a public display of contemporary painting aimed to valorize the local places of nature (Ecomuseo della Montagna sarda e del Gennargentu, 2019). The Ecomuseo del Paesaggio di Parabiago, Lombardy, in 2022, promoted a street art initiative *Tracce d'infanzia* (Figure 8, Figure 9) that was used to engage the community with the

surrounding landscape (Ecomuseo del Paesaggio di Parabiago 2022). The Ecomuseo Lagorai, Trentino, in 2021, held an artistic laboratory with families, on listening to nature and painting it (Ecomuseo del Vanoi 2021). Referring to Life on Land (SDG No. 15) the Ecomuseo Alta Via Oglio, Lombardy, organised an autumn event in 2019 on painting the animals of the mountain (Ecomuseo Alta Via Oglio 2019).

Fig. 8. Street Art workshop – Tracce d'infanzia at Ecomuseo of Parabiago, Lumbardy, Italy (courtesy of Ecomuseo of Parabiago).

Fig. 9. Street Art workshop – Tracce d'infanzia at Ecomuseo of Parabiago, Lumbardy, Italy (courtesy of Ecomuseo of Parabiago).

There are several examples of ecomuseums developing art projects in relation to Responsible Consumption and Production (SDG No. 12). They include the Ecomuseo del Freidano, Piemonte, which in 2019-2020 promoted the project *Eco of art for schools*, guided tours of several temporary exhibitions on ecology art (Ecomuseo del Freidano 2019-2020). The Ecomuseo Simeto, Sicily, in 2020, promoted *#Students4Simeto*, a laboratory of creative recycling, with the objective to encourage students to be protagonists for recycling, to improve their living environment, and to raise community awareness of the importance of waste prevention and the need to change their lifestyle. Through peer education activities, the children became environmental ambassadors to teach the rest of the community how to prevent waste. Specifically, the project consisted of 4 workshops (30 hours each) on: good practices for a sustainable lifestyle; creative recycling, photography and videomaking, graphic design and journalism. Through the co-design and implementation of an awareness-raising campaign on social media, starting from the material produced during the workshops, the young people promoted good daily practices to reduce waste, spreading the culture of a healthy and sustainable lifestyle. They organised public events to involve the community and share objectives, actions and results (Ecomuseo Simeto 2020). The Valle delle Cartiere Ecomuseum in Toscolano Maderno, Lombardy, in 2022 promoted 'RiciclARTE', a creative recycling workshop for children from 6 to 11 years old in collaboration with the Paper Museum (Ecomuseo Valle delle Cartiere di Toscolano Maderno 2022).

On the Transformation of Society (SDG No. 10) several ecomuseums have initiated art projects, including the Ecomuseo del Biellese, Piemonte, which in 2022 developed an exhibit on the social and transformative role of art at the Fondazione Pistoletto, Biella[6] (Ecomuseo del Biellese 2022). The Ecomuseo dell'Argilla, Piemonte, in 2022, with the MUNLAB project, and inspired by the artist Bruno Munari, focused on the promotion of Sustainable cities (SDG No. 11). The ecomuseum organized a workshop with the ceramic artists Andrea Caretto and Raffaella Spagna, on the occasion of the TELLUS Project[7], aimed

[6] https://www.cittadellarte.it/attivita/arte-al-centro-2022

[7] TELL_US (in Italian RACCONTA_CI; TELLUS/TELLURIS from the Latin TERRA) is among the 37 projects selected by the foundation *Fondazione Compagnia of San Paolo* for the call *Luoghi della Cultura* (Places of Culture) *2020*. The project is aimed at enhancing the architectural heritage of the Torri

at stimulating the local economy by promoting cultural and eco-sustainable tourism in ancient village in Liguria, through the scheduling of intensive ceramics courses combined with a stay in the eco-village, designed and taught by the ceramics artists (Ecomuseo dell'Argilla 2022).

On Reduced Inequality (SDG No. 10) examples are the Ecomuseo di Rimini, Emilia Romagna, which in 2022 launched the call for artists' residencies *Public Art Social Portraits*. This was addressed to young contemporary artists (such as draftsmen, illustrators and painters) between 18 and 35 years old, from the vast territory of Romagna or with a connection to the City of Rimini. They were asked to create portraits of the elderly population living in, or enjoying the proximity of the Ausa Park area. The project sought to stimulate transgenerational and transcultural artistic and narrative discussion between people of different ages about their Heritage (tangible/intangible) in the City of Rimini's Ausa urban park area (Ecomuseo di Rimini 2022). The Ecomuseo di Tito, Abruzzo, in 2017, organized the *Children's art* workshop, with questions about the land and culinary tradition being discussed between young and old people (Ecomuseo di Tito 2017). The Ecomuseo del Casentino, Tuscany, from 2016 to 2020, not only worked on the Reduced Inequality SDG (No. 10), but also on and Peace and Justice SDG (No. 16) organizing multiple editions of the project *Stand Up for Africa: Contemporary Art for Human Rights*. This multi-year project used contemporary art, in its various expressions, as an instrument of social action, a universal means to raise awareness, promote and educate the territory on the themes of human rights, welcome and coexistence, as well as knowledge and valorisation of the local cultural heritage. Other specific objectives of the project were: to promote and develop the creativity of young people (student-artists) by asking them to confront

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Superiore Ecovillage, an ancient medieval village in the Ligurian hinterland located a few kilometers from Ventimiglia, through the redevelopment of the ceramics workshop and the scheduling of residencies for artists-ceramists who, during their stay in the ecovillage, will create works and permanent installations, working directly in the area with the aim of enhancing its intrinsic resources and establishing a direct dialogue between the culture of ceramics, history and the architectural elements of the medieval village. An integral part of the project is to stimulate the local economy by promoting cultural and eco-sustainable tourism through the scheduling of intensive ceramics courses combined with the stay in the eco-village, designed and held by the ceramics artists selected for the residency.

themes of particular socio-cultural value (human rights) set in the context of Casentino. The project stimulated awareness of its territory, contemporary art languages and human rights issues. Different modes of intervention were used, including residential workshops, exhibitions, performances, meetings with schools, round tables and social events. In 2016, curator Giandomenico Semeraro organised a residential workshop and exhibition of works by 10 students from the Accademia di Belle Arti in Florence with the direct involvement of a group of migrants from the area. In 2017, curators Serena Becagli and Rita Duina selected the young artists Giuseppe Di Carlo, Alice Ferretti, Leonardo Moretti, Guerrilla SPAM and Gianluca Tramonti to work side by side with some young people and families of refugees and indigenous inhabitants, giving rise to an entertaining and instructive reflection on the territory and the relationships that the language of art can trigger, overcoming linguistic and ideological barriers. The products of the various workshops were the focus of a collective exhibition at the Hymmo Art Lab in Pratovecchio (Ecomuseo del Casentino 2020-2016). Finally, the Ecomuseo Casilino, Lazio, in 2022, organized several editions of the *Ecomuseo Public Art Fest* (E.P.ART), a project format that reached its completion with the creation of M.A.U.Mi. the first Urban Art Museum on Migration. The Museum will be located in the inner garden of the Casa Scalabrini 634 complex, a project of the ASCS – Scalabriniana Agency for Development Cooperation, through 10 works of art that will tell the story of migrations in Rome, with a focus on the territory of East Rome. With this edition, E.P.ART fulfils the promise that has accompanied these years of experimentation: to trigger museums to create social harmony in their territories (Ecomuseo Casilino 2022).

European Ecomuseums

European ecomuseums (Davis 2011) show how several of them promoted SDGs in relations to art and addressed aesthetics in a broader sense. With regard to the Life on Land SDG (No. 15), an instance is the North Pennines AONB (Area of Outstanding Natural Beauty) in England, where in September 2022, *The Great Outdoors*, an exhibition of landscapes painted in traditional oil paint on canvas was exhibit by Tonya Mitchell at the Bowlees Visitor Centre Gallery. Alongside the

paintings there is information about their geological and historical context, reflecting Tonya's research into the traditions, folk songs, history, and geography connected to each of the places she paints. Bowlees Visitor Centre is run by the North Pennines AONB Partnership (which is not an ecomuseum but follows many of its principles) and is the perfect place to start exploring the walks, waterfalls and wildlife in the local area, or to inspire discovery of the AONB (North Pennines AONB 2022). The Samsoemuseum in Denmark, worked similarly on the Life on Land SDG (No. 15), promoting in 2021 the *Earth fast. Jordfast* is a photographic portrait exhibit depicting Samsø's population, architecture and cultural landscapes. The exhibition was created as a collaboration between the Italian art photographer Luca Berti and Samsø Museum. In the photographs, special attention was paid to the traces of the historical rural culture on Samsø, a culture which is a central part of the Samsingers' identity, but which is also challenged by the efficiency of modern agriculture and the rapid growth of the tourism industry. The exhibition's title, *Jordfast,* is a term known in archeology that refers to ancient monuments that are anchored in the ground or that lie in an untouched layer of soil. The title is a reference to the many physical traces that the Sami farmers have left in the landscape over thousands of years. But the title can also be understood in a figurative sense; as a reflection on the life that is lived on the island today (Samsoemuseum 2021).

Examples of how ecomuseums have addressed the issue of sustainability through the aesthetic beauty of art and contributed on a local scale to the global effort to combat climate change showed how the activities promoted used different types of art and materials. The Ekomuzeum Beskidzkie Wędrowanie, in Poland, is an example of how a European ecomuseum focused on handicraft art through its connection with the Artistic Crafts Gallery, a unique place for its atmosphere and collection of objects created by local craftsmen. The gallery presents products and souvenirs of local handicrafts that enrich the tourist offer, promote culture and, above all, maintain handicraft traditions. The gallery is maintained by the 'INITIATYWA' Association, which supports the development of local culture and art by organising artistic events, disseminating the artistic achievements of artists, promoting popular culture and protecting the local tangible and intangible cultural heritage. The permanent exhibition of the gallery includes works by local, art-loving

artists specialising in cross-stitch, icon writing, wickerwork, painting, sculpture, felt, weaving, lace and others (Ekomuzeum Beskidzkie Wędrowanie 2022). Figure 10.

Fig. 10. Map of Italian and European Ecomuseums that dealt with contemporary art for climate change SDGs. Source: author's own elaboration.

Conclusion

In relation to the expanded international response of contemporary art to sustainability, ecomuseums have revealed to be an important player by engaging contemporary artists and by addressing aesthetics to engage communities through different activities from art labs to art exhibits, in order to strengthen ecomuseum's principles and promote sustainability and actions to prevent climate change. Although ecomuseums rarely explicitly address the issue of climate change, they have addressed the main SDGs that contribute to the challenge of the worldwide Sustainable Development agenda. The data on Italian ecomuseums provide a strong example of how many ecomuseums have focused on the connections between sustainability and aesthetics. Furthermore, the examples of other European ecomuseums show a similar response to such entanglements, en-

lightening the role of aesthetics as a fundamental vehicle to help the development of the 2030 Sustainable Agenda.

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6. Can Democracy save the Environment?

Ezio Marra, Giulia Mura, and Monica Bernardi

Introduction

The objective of this chapter is to investigate the basic conditions and national policies that can be used to foster those local policies that promote sustainable and integral development.

The search for community (Nisbet, 1953; Bauman, 2008), in the second part of the 20th century and the first part of the new millennium, is increasing as a demand for greater participation and involvement of local authorities. In parallel, from the 1970s to the present, the demand for environmental and social sustainability is growing (Secchi and Gili, 2021). Among the many initiatives, the most important is the UN Agenda 2030 for Sustainable Development Goals (discussed extensively in this volume).

The demands of community and sustainability have converged in the many examples of grassroots democracy and subsidiarity. The ecomuseum movement is a good example of grassroots democracy (Eliasoph and Clément, 2020). Ecomuseums are local community projects that, by promoting the relationship between culture and the environment, stimulate the growth of ecological awareness, social cohesion and local economies (Davis, 2011). Our thesis is that democratic local community projects can raise environmental awareness and support the SDGs, but they do not operate in a political vacuum and therefore the broader political context in which they are implemented is crucial. We identified a number of significant variables that describe the general concepts of 'democracy' and 'environmental sustainability'. We tested their relationship to answer the following questions: *how do different kinds of political regimes interact with the environmental performance of different countries? Is there a linear or a more complex relationship between democracy and policies relating to environmental sustainability?* We advance some first ideas about the

impact that different aspects of a country's political regime have on environmental performance.

What is democracy?

The democracy of the ancients and that of the moderns

In this section, we do not intend to retrace the historical evolution of the concept of democracy. Our aim is merely to outline a few keywords useful in selecting specific indicators for our analysis.

The democracy of the ancients

For the ancients, *democracy* was one of the three forms of government (Aristotle book III and IV of the Politics), as distinguished by Aristotle (384 BC – 322 BC) according to the number of rulers: 'It is necessary that sovereign power be exercised by one alone, by the few or by the many' (Politics, 1279a). According to Aristotle, one must distinguish whether those who govern do so for the common good or for their own interest. Aristotle, therefore, indicates *Kingship* (exercised by one), *Aristocracy* (exercised by the few) and *Polity* (exercised by the many) as forms of government for the common good. Many years later, Polybius (200 BC ca. – 120 BC ca.) in his *Histories* (Book VI) re-evaluated the term *democracy*, defining it as the government of the many in the common interest while calling its corrupted form *ochlocracy*. Polybius also introduced the theory of *anacyclosis* (Podes, 1991), arguing that the three forms of government are weak and unstable because they can become *corrupt*.

	The One	The Few	The Many
For the Common Interest	Monarchy	Aristocracy	Democracy
For the Interest of the Ruler(s)	Tyranny	Oligarchy	Ochlocracy

Tab. 1. Types of Governments for the Ancients

From Middle Ages to modern political theory

The affirmation of Christianity as universal religion led to a profound rethinking of political categories, and, during the Middle Ages, religion became a powerful institution with which the state had to contend. The Church proclaimed its spiritual supremacy over the power of the state in the name of

the principle "the *imperator* was *intra ecclesiam* non *supra ecclesiam*"[1] (St. Ambrose, *Sermo Auxentium* 36).

In the 15th century, Machiavelli recognised the political supremacy of the state over spiritual power. He reduces Aristotle's tripartition to the monarchy-republic dichotomy (both can include aristocracy). Years later, Montesquieu takes up Machiavelli's biunivocal distinction, but introduces *despotism* (the exercise of absolute power) as a third category that he reserves mainly for the eastern world (Montesquieu, 1749). Throughout the 17th and 18th centuries, even before the French Revolution, economic institutions (as non-states) asserted the supremacy of the private sphere over the public one. In the 18th century, in the United Kingdom, Adam Smith (1776) theorised the inadequacy and inefficiency of state intervention in the economy and the superiority of the free market.

Parliamentary Revolution "No Bourgeoisie, No Democracy":

According to Barrington Moore (1969), after the Renaissance (called the "age of the Despots", Symonds, 2014) three democratic revolutions, activated by the bourgeoisie, created a route to *capitalistic democracy*. The first is the English Civil War and the Parliamentary Revolution (1642-1651), followed by the first industrial revolution; the second is the French Revolution (1789-1799) which disrupted the national economy and led to late industrial revolution; and the third is the American Civil War (1861-1865), followed by the industrial revolution and the abolition of slavery (December 8, 1865) which opened a new era for economic and the industrial development (Mitchell, 2015). In all these cases the farmers had no power and the bourgeoisie gained influence without encountering any real opposition from the aristocracy. We can see that while it is possible to affirm that the Parliamentary Revolution influenced the capitalistic, industrial development of the countries, the reverse is not true.

Moore also identified the conditions for the sociogenesis of fascist and communist regimes by considering the ways in which industrialisation and pre-existing agrarian regimes interacted to produce these different political outcomes. In this view, it is the behaviour of the social classes, and not that of the market, that brings about democracy. In the contemporary situation, we can indeed observe cases of industrial development without democracy, as in the case of China and Russia. For these two countries,

[1] The imperator is "inside" the Church, and not "above" the Church.

it is only in recent years that industrial development has led to a re-emergence of the bourgeoisie, which, however, remains closely linked to the authoritarian role of the ruling political élite.

Parliamentary democracy: party systems and voter alignments

Lipset and Rokkan (1967) attempted to reconstruct how the birth of modern political parties ran in parallel with the second industrial revolution and the construction of centralized states. They proposed the so-called theory of *cleavages* and the *freezing hypothesis*. According to the two authors, the four political cleavages were:

1. owners vs. workers (producing the formation of left and right parties)
2. nationalism vs. regionalism (producing the quest for local autonomism or secessionism)
3. State vs. Church (producing the conflict between religious and secular voters)
4. land vs. industry (producing agrarian or peasant's parties)

With the *freezing* hypothesis, Lipset and Rokkan argued that the cleavages of the 1920s continued to influence the structure of European parties until the late 1960s. It should be noted that, at least until the 1970s, green movements were not yet represented in the political arena. The diffusion of conservation organisations grew rapidly in the 1960s in response to concerns for the environment. But it was not until 1973 that The British Green Party (the first in Europe) was established.

Piketty (2020) explained why, in his view, the Lipset and Rokkan framework is no longer adequate to explain the evolution of political parties from the 1990s to the present day. Piketty's framework aims to identify four different types of electorates according to three variables: level of education, income and wealth. Depending on whether voters are for or against foreign immigration and for or against taxes to reduce inequalities, four different political groups can be identified.

		Migration and International Dimension (1)	
		Against (-)	Pro (+)
Reducing gap btw poor and rich Higher taxes on the wealthy (2)	Important (+)	Egalitarian Nativists (Populist Right 1)	Egalitarian Internationalists (Left?)
	Not important or dangerous (-)	Inegalitarian Nativists (Populist Right 2)	Inegalitarian Internationalists (Centre or Liberal Elitists?)

Tab. 2. New Cleavages by Piketty (adapted from Capital and Ideology 2020).

According to Piketty, in democratic (two-party or multi-party) countries, the four political families identified (particularly in France) potentially share a quarter of the electorate. However, the situation is fluid and rapidly changing. We are not interested here in delving into Piketty's framework, but merely highlight the different positions of the four electorates (as ideal types) with respect to the emergence of green demands. The positions of egalitarians and inegalitarian internationalists are generally in favour of green policies. The positions of nativists (inegalitarian or otherwise) are always against green policies. Strong inegalitarian nativist positions against the Green Deal can be found in Europe (Italy, Hungary), the United States and South America (Brazil). The most emblematic case of inegalitarian nativism is probably that of Donald Trump, who actively spoke out against environmental protection policies during his presidency.

The exogenous (independent) variables

The brief excursus allowed us to identify some keywords to proceed with the analysis of the independent variables:

1. Democracy: it literally means 'government of the people', and reflect a government system in which sovereignty is exercised directly or indirectly, by the people; in modernity it means that every citizen can freely votes to elect its representatives, and, as Moore, Lipset and Rokkan have underlined, it presupposes a multi-party system.
2. Common good: as opposed to the pursuit of the interest of a few.
3. Corruption: from the Greeks to Machiavelli till today, there is great agreement that a level of high corruption lowers the democracy level.

4. Inequality within the society. As the democracy excursus revealed (think to the French motto "liberty, equality, fraternity", or to Piketty's work), it is a crucial variable to describe a democratic country.

The following indexes have been selected to measure these aspects on a global scale.

Level of democracy (Democracy Index)

Since 2006 the EIU (Economist Intelligence Unit[2]) calculates the Democracy Index (DI). The index is based on 60 indicators, clustered in five groups/categories: *electoral process and pluralism, civil liberties, functioning of government, political participation* and *political culture*. Each year the DI measures the state of democracy in 167 countries. Each country is positioned on a scale from zero (poor) to ten (excellent) and the overall index indicates the average of the scores obtained in the five categories. In addition, each country is traced to four types of regimes, based on the average scores obtained, namely: full democracies, flawed democracies, hybrid regimes and authoritarian regimes. The percentage scores for each category are shown in Figure 1.

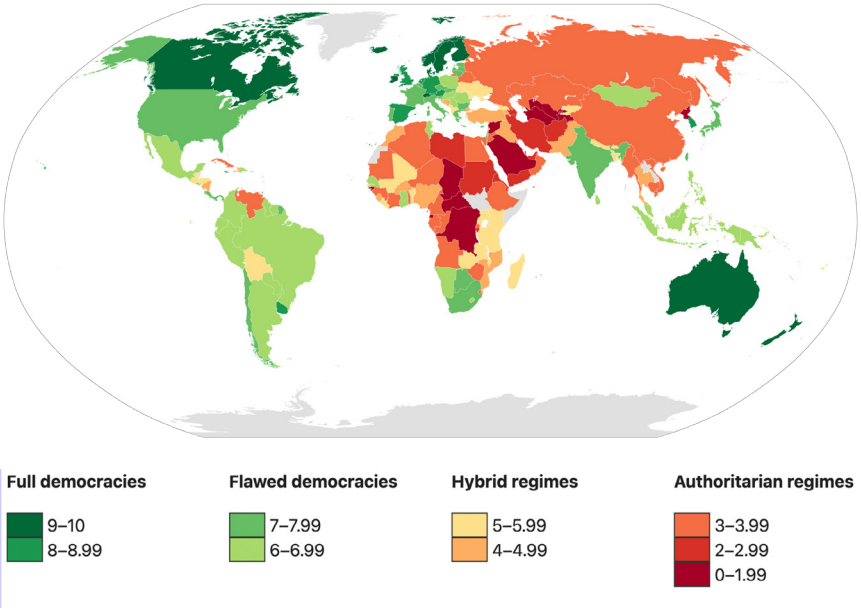

Fig. 1. Map of the Democracy Index 2017, source: www.eiu.com

[2] From the influential British Economist group.

Level of pursuit of the common good (Human Development Index)

The Human Development Index (HDI)[3] (Figure 2) is the first tool created to measure the countries' wellbeing and sustainable development in a comparative way. The concept of wellbeing is focused on people, on their opportunities and choices rather than on the richness of the economy in which they live. The index is based on three dimensions and related indicators: 1. the health dimension (indicator: life expectancy at birth), 2. the education dimension (indicator: mean number of years of schooling), and 3. the standard of living dimension (indicator: gross national income per capita – GNI).

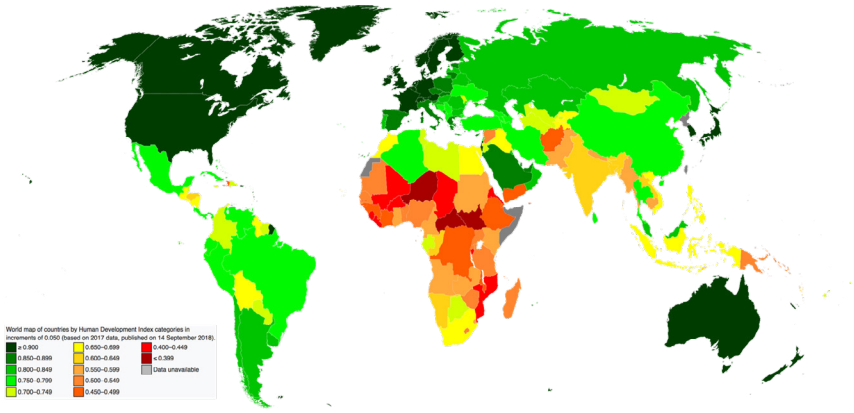

Fig. 2. World map Human Development Index 2017. Source: en.populationdata.net

Level of corruption (Corruption Perception Index)

The Corruption Perception Index (CPI) is a global composite index that captures the perceptions of corruption (abuse of power) in the public sector (public officials and institutions). It includes 175 countries/territories, aggregating different corruption-related data from expert and business surveys carried out by various independent and reputable institutions. The CPI is commissioned by the German association Transparency International. The CPI uses a scale from 0 (highly corrupt) to 100 (very clean), but for this analysis we reversed the scale, so that a higher value means a higher level of corruption.

[3] Information from the UNDP official website https://hdr.undp.org/data-center/human-development-index#/indicies/HDI.

We observe that the Corruption Index has a strong correlation with Gross National Income (GNI) (Pearson = -.815; sig<.001). We find that countries with lower GNI tend to receive a worse rating in the Corruption Index, compared to richer countries that are rated as less corrupt. We therefore used a statistical method to remove the impact of GNI on the Corruption Index by creating a new variable called the Revised Corruption Index (RCI). The new variable makes it possible to compare country scores without the interference of the GNI.

Level of inequality (Inequality Index)

Among the various indicators used to measure inequality, some of the best known are: 1. the Gini index, a formula that calculates the difference in a given measure (such as wealth) between pairs of individuals in a population and then sums these differences; 2. the Palma Ratio, which divides the income of the richest 10% of the population by the income of the poorest 40%.

For our analysis, we created a new Inequality Index (II) that adopts the same logic as the Palma Ratio (thus avoiding the many criticisms to which the Gini Index has been subjected, De Maio, 2007). Based on 2017 data from the World Inequality Database, the index is the ratio of the income share of the top 10% to the bottom 50% of the population of each state.

Table 3 presents descriptive data of the independent variables included in our analysis (in order: number of sample countries, mean, standard deviation, minimum and maximum value).

Independent variable	Year	N	Mean	SD	Min	Max
Democracy Index (EIU)	2017	151	5,53	2,19	1,13	9,81
Human Development Index (HDI)	2017	151	7,18	1,56	3,70	9,50
Revised Corruption Index (RCI)	2017	150	0,0	10,83	-31,9	35,41
Inequality Index (II)	2017	150	33,7	16,5	11	98

Tab. 3. The exogenous (independent) variables.

What is environmental sustainability?

The growing relevance of the sustainability issue

Early interest in sustainability and the disruption of ecosystem balances

The relationship between man and nature is an issue that man has been questioning for centuries, as evidenced for example in works such as De Rerum Natura, composed by Lucretius in the 1st century BC. The term 'sustainability' can be found in a 1713 text, *Sylvicultura Oeconomica*, in which the author suggested strategies for *nachhaltende Nutzung* (sustainable use) of forest resources, based on maintaining a balance between harvesting old trees and ensuring that there were enough young trees to replace them (Von Carlowitz, 1723). In the 18th century, concern about the consequences of population growth and the associated consumption of resources also began to emerge. The most famous work in this regard, "Essay on the principle of population as it affects the future improvement of society", by Malthus (1798), stated that population growth had to be limited as it threatened to outstrip food production.

The biophysical environment encompasses and supports functions essential to the lives of humans and all other living species (Daily et al., 1997), but it is possible to frame three basic activities it performs: 1) providing resources, 2) absorbing waste, and 3) providing space to live. When humans abuse the capacity of the environment to perform these three functions, environmental problems arise in the form of resource scarcity, pollution, overcrowding or overpopulation.

The topic of environmental conservation has developed mainly in the United States (Mertig, 2022) and focuses primarily on promoting responsible use of environmental resources that prevents their destruction and enables their preservation for continued use over time. A more extreme view is that of environmental conservation, according to which the environment, territories and their natural resources should not be consumed by humans and should instead be maintained in their pristine form. While the conservationist approach has a utilitarian view of the environment, in the conservationist approach the environment is endowed with an intrinsic value, which does not depend on its usefulness to man. Both approaches became particularly relevant from the end of the 19th century, when the United States promoted the establishment of national parks

and the Scotsman John Muir (1838 - 1914) founded the first and one of the most important environmental groups still active today, the Sierra Club.

The new wave of ecological consciousness

The current phase of interest in the subject thus has distant roots, but received a considerable boost in the 1960s and 1970s, in the wake of the transformations and demands that characterised Western civil society in those years. Starting from that period, in fact, awareness of the problems linked to rapid demographic growth, pollution and the depletion of natural resources spread, and social movements demanding greater respect for the environment and collective rights appeared on the political scene.

Works such as Carson's 'The Silent Spring' (1962) or Ehrlich's 'The Population Bomb' (1968) clearly expressed doubts about the limits of economic growth and the impact of society and business on the environment.

In 1972, 'The Limits to Growth' (Meadows et al., 1972), the first publication of the 'Club of Rome' group, came out, which reported the results of a study conducted by a group of researchers at the Massachusetts Institute of Technology. Using a computer modelling tool called World3, the paper presented a series of future scenarios based on the development and interactions of five factors:

- population,
- agricultural production
- depletion of non-renewable resources
- industrial production
- pollution.

The study (and its sequels) had an enormous worldwide resonance and remains to this day a milestone in the assessment of the environmental crisis. It focused on five main potentially catastrophic trends related to the progress of modern societies: 1) increasing industrialisation, 2) population growth, 3) the spread of malnutrition, 4) the depletion of non-renewable resources, and 5) the deterioration of the environment.

Using a dozen different scenarios, the researchers concluded that collapse would only be avoidable if a major change in social practices and policies and technological progress were implemented before environmental problems and resource scarcity worsened. Among the main indicators used by the model

to estimate pollution and environmental deterioration was the amount of CO_2 released into the atmosphere.

Between collapse and counteraction

Planet Earth and its atmosphere are a closed system that receives energy from the sun. This energy is transformed and returned to the environment through processes that have developed over centuries, characterised by balances between the flows of energy, heat and transformation. The earth's climate is regulated by ecosystems through their action of capturing and storing carbon dioxide (CO2) (IPCC, 2006). With the advent of industrialisation, the impact of human activity has exceeded the absorption capacity of the Earth system and the balance has begun to break down, with a steady increase in hazardous emissions released into the environment. Decarbonisation, both at the level of industrial production and the activities of social life, is a fundamental step towards so-called carbon neutrality, i.e. the situation where CO2 emissions in the environment reach a level equal to its absorption capacity.

In order to coordinate countries' efforts to combat climate change and improve the overall sustainability of our world system, several international bodies have been created. The latest framework promoted by the United Nations is the Sustainable Development Goals, included in the 2030 Agenda and signed by all 193 UN members.

The endogenous (dependent) variables

There are two main aspects related to the sustainability of different countries. The first is to have laws and policies in place to preserve the environment and the second is to monitor and reduce each country's actual level of resource consumption and pollution. To assess these two aspects, the following variables were selected.

The Environmental Performance Index (EPI)

The EPI is an index that collects data from organisations, research institutes, universities and government agencies to rank 180 countries according to their performance on climate change, environmental health and ecosystem vitality, using a set of performance indicators. In 2020, the variables included in the assessment were organised into two main focuses: a) environmental health, assessed on aspects of air quality, water quality and heavy

metals, and b) ecosystem vitality, which includes indicators of Biodiversity and Habitats, Ecosystem Services, Fisheries, Climate Change, Pollutant Emissions, Agriculture and Water Resources. The EPI is geared towards assessing the performance of environmental policies implemented by countries (Wendling et al., 2020), and thus their commitment to environmental issues.

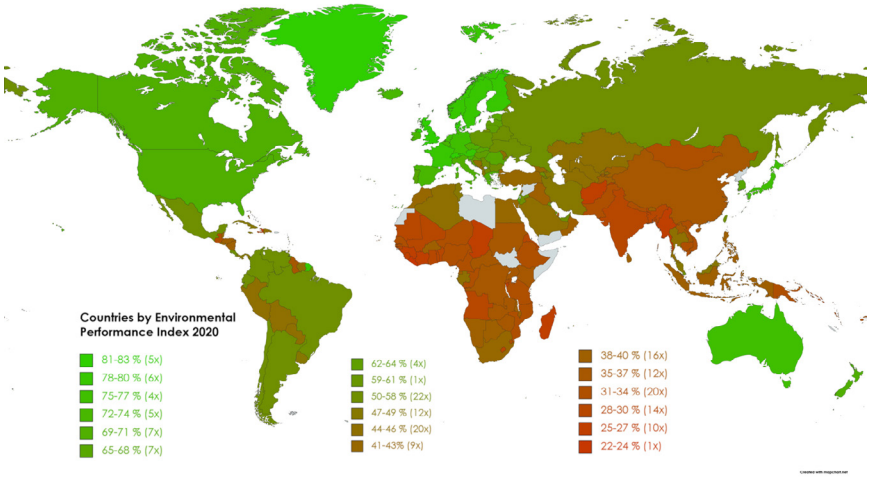

Fig. 3. Environmental Performance Index 2020 world map. Source: Wikipedia.org

The Sustainable Development Goals Index (SDG Index)

The Sustainable Development Goals (SDGs) are a set of 17 global and interconnected goals designed as a "blueprint for achieving a better and more sustainable future for all" over the 2015/2030 period (see also McGhie, this volume).

In 2016, to increase the operationalisation of the goals, 169 specific targets and indicators were also identified to produce an SDG Index, the overall score that measures total progress towards achieving all 17 SDGs in each country. The score can be interpreted as a percentage of achievement of the SDGs. A score of 100 indicates that all SDGs have been achieved. The SDGs encompass aspects of economic, social and environmental sustainability and thus lie somewhere between our endogenous (dependent) and exogenous (independent) variables. For our analysis, we used the SDG Index as an endogenous variable.

Global Footprint Network - Number of Earth Required (NER)

The ecological footprint is a tool that quantifies humanity's impact on the natural environment (Wackernagel and Rees, 1998). The footprint is calculated by estimating the carrying capacity of the natural environment (both in relation to the waste generated and in relation to the environmental reabsorption capacity) and comparing it with levels of consumption and waste generation. In practice, this index encompasses the demand and supply of resources of a given territory. On the demand side, it measures the environmental resources required to make available to a given population the natural resources it consumes, the space for urban infrastructure and the space to absorb waste, in particular CO2 emissions. On the supply side, it considers the capacity of that same territory to produce the necessary ecological resources, i.e. its biocapacity. Both the ecological footprint and the biocapacity of a territory (or product) are measured in 'global hectares' (Wackernagel and Beyers, 2019). Figure 4 shows the difference in the ratio of consumption to carrying capacity for a selection of countries. While in Canada and Brazil (green graphs) carrying capacity exceeds consumption, due to the vastness of their natural resources, the United States and China (red graphs) use more resources than their biocapacity can support.

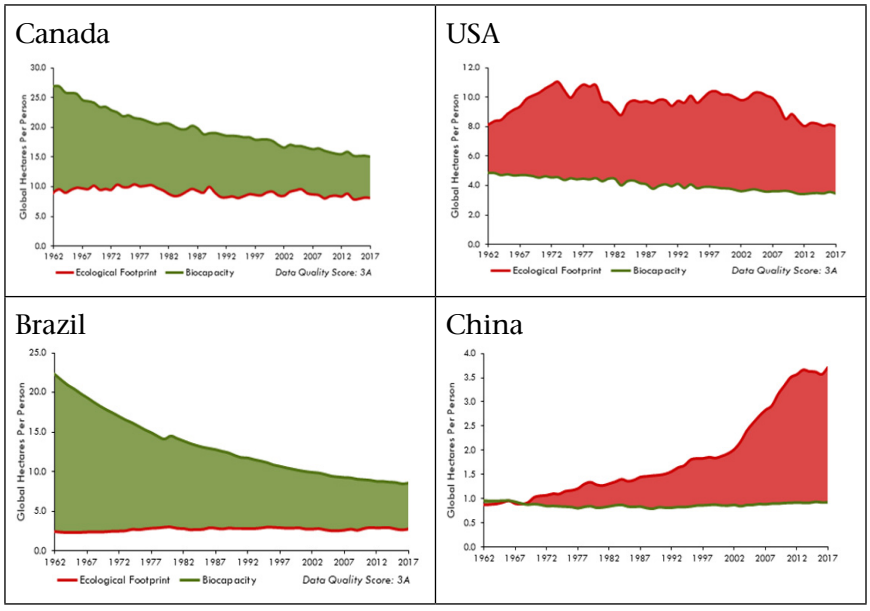

Fig. 4. Ratio between Ecological Footprint and Biocapacity of some Western countries. Source: data.footprintnetwork.org

Among the various indicators that the Global Footprint Network makes available on its website, we have selected the "Number of Earths Needed" for our analysis. This indicator calculates the ratio of each nation's per capita Ecological Footprint to global per capita capacity, allowing us to estimate how much Land would be needed if the world's population lived by that specific nation's standards. This indicator allows us to see which country is consuming the most resources, in absolute terms. From this perspective, Canada's behaviour is highly unsustainable, as 5.1 Lands would be needed to sustain a world population living by Canadian standards, which is the same number of Lands needed if everyone lived like the inhabitants of the United States. This is because the residents of both countries have a resource-intensive lifestyle. On the other hand, if everyone lived like a resident of China, 2.4 Earths would be needed and even less if everyone lived like a resident of Brazil, with only 1.6 Earths ("National Footprint and Biocapacity Accounts", 2022). This indicator was chosen to assess actual consumption and pollution, adopting a global framework.

CO_2 emission

According to the latest data (2019) from the Climate Watch platform[4], about 60% of the global greenhouse gas emissions comes from just 10 countries in the world (first and second are China and USA) while the 100 least emitting contributed less than 3%. The estimation of carbon emissions on a national scale can be describe as the physical measurement and non-economic evaluation of greenhouse gas emissions caused not only directly and indirectly by human beings in a nation or smaller area, but also by natural events. For this analysis, we used the 2017 CO_2 emission (metric tons per capita form) data from the Climatewatchdata.org platform.

PM 2.5

Particulate matter (PM) refers to all solid and liquid atmospheric particles suspended in ambient air. The term PM 2.5 identifies particles with a diameter less than or equal to 2.5 μm (more than 100 times finer than a human hair). PM 2.5 is also called 'fine particulate matter', a name that contrasts with 'coarse particulate matter' (PM 10), which denotes all suspended particles with a diameter between 2.5 and 10 μm. PM 2.5 is

[4] https://www.climatewatchdata.org/.

generated by all types of combustion, including those from car and motorbike engines, power plants, wood for domestic heating, forest fires and many other industrial processes. Like PM 10, these particles are characterised by long residence times in the atmosphere and, compared to coarse particles, are able to penetrate deeper into the human respiratory system, reaching the lungs and bloodstream and thus posing an important health risk.

Since 31 December 2016, the EU Directive on the reduction of national emissions of certain pollutants (2016/2284) (abbreviated as: NEC Directive) has been in force. In Europe, from 2020, annual average values of PM 2.5 must not exceed 20 μg/m3 (E.U., 2016), although, according to the latest WHO air quality guidelines, small particulate matter pollution has an impact on health even at very low concentrations and no threshold has been identified below which no health damage is observed (World Health Organisation, 2021).

For this analysis, we used the 2017 Exposure data of PM 2.5 micro gr per year from the World Bank dataset.

Table 4 presents the descriptive data (mean, standard deviation, minimum and maximum value) of the dependent variables included in our analysis for the entire sample of countries.

Dependent variables	Year	N	Mean	SD	Min	Max
Environment Performance Index (EPI)	2017	151	47,83	16,02	22,6	82,5
Sustainable Development Goal (SDG Index)	2017	149	67,61	9,90	38,5	84,7
Number of Earths Required (NER)	2017	149	2,04	1,51	0,4	9,2
CO 2 Tons per capita (CO_2)	2017	151	4,37	4,94	0,04	32,13
PM 2.5 Exposition micro gr per year (PM 2.5)	2017	151	28,49	19,87	5,86	99,73

Tab. 4. The endogenous (dependent) variables

Discussion

The relation between our endogenous (dependent) and exogenous (independent) variables was tested to assess the impact that different aspects of a country's governance have on its

environmental performances. We used the statistical regression method for our analysis. This method allows to predict the behaviour of the dependent variable based on the values of the independent(s) variables. The R^2 coefficient indicates what proportion of the total variance of the independent variable can be explained and goes from 0% (no variance explained) to 100% (we can perfectly predict the values of the dependent variable based on the values of the independent variables)[5].

We included in our analysis the 151 countries that had available data for all the variables of interest.

The results of our analysis are resumed in table 5 and detailed in the following lines.

Good practices and environmental policies 1 (dependent variable: EPI)

The environmental performance of a country, that describes the kind of policy and actions promoted to support environmental sustainability, is significantly explained by its human development (HDI) and level of democracy (DI): higher values on both variables predict a better environmental performance for the country (as shown by the positive B value in table 5). The Revised Corruption Index and the Inequality Index don't have explanatory power and, overall, the model explain 66% of the variance of our dependent variable (R^2 = 0,660; sig <,001).

The significance of the impact increases in the second model (R^2 = 0.777; sig <.001), when countries falling under the authoritarian form of government are removed from the sample. The increase from 66% of the variance explained to 77% in the second model can be understood by looking at Figure 5: the variance among authoritarian countries (blue dots) is very high, with some relevant outliers, such as Zimbabwe and the United Arab Emirates, while the hybrid regime, imperfect democracy and full democracy groups have a more homogeneous performance in terms of EPI. Excluding authoritarian countries from

[5] For example, we can use an equation of linear regression to estimate a person's weight based on sex and height: if we know the sex and how tall that person is, we can calculate the wight with a certain level of approximation. If the result is statistically significant, that means it's unlikely to be explained solely by chance or random factors. In other words, a statistically significant result has a very low chance of occurring if there were no true effect in a research study. Generally, a statistical significance (sig.) of 0.05 or lower is considered acceptable. The bootstrap method (Efron, 1982) was used for the hypothesis testing. Bootstrap is a computer-based method that consist in re-sampling a great number of sub-samples to verify the reliability of the selected models.

the analysis increases the explanatory power of the model, because the performance of authoritarian countries is less predictable and can be assimilated to the behavour of outlier[6] cases.

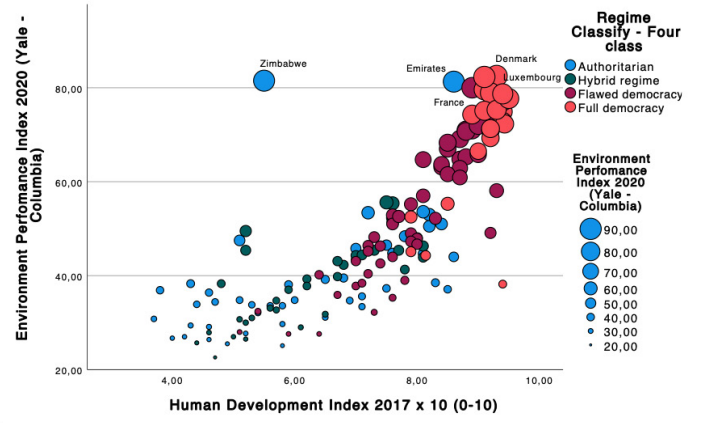

Fig. 5. Scatter plot of Environmental Performance Index in contrast to Human Development Index by Regime (courtesy the author).

Good practices and environmental policies 2 (dependent variable: SDG Index)

The model built to predict performance in the SDG Index performs best. The independent variables assessing the level of human development, perceived corruption and inequality of countries explain much of the variance in countries' SDG performance. As mentioned above, the assessment of the SDGs, similar to the EPI, is based on the assessment of countries' policies and strategies.

The variance explained by the regression is very high ($R^2 = 0.877$; sig <.001), and Table 5 shows that a higher level of human development (HDI) allows one to predict higher values of the SDG index. In contrast, higher values of corruption (RCI) or inequality (II) predict lower performance in the SDG index.

As expected, the results of the EPI and SDG model show some similarity (high level of explained variance, positive impact of the HDI and negative impact of the II), as both variables focus on policies and laws implemented by countries to promote sustainability.

Use of natural resources (dependent variable: NER)

[6] An outlier is an observation that lies outside the overall pattern of a distribution (Moore and McCabe 1999), a data point that differs significantly from other observations. Outliers can be indicative of the fact that, in a given sample, some data belong to a different population than the rest of the sample and may be discharged from the analysis.

The variance explained for the Required Earth Number model is 54% (R^2 = 0.545; sig <.001), and the independent variables with explanatory power are HDI and RCI. As shown in Table 5, both independent variables have positive B-values, meaning that a higher level of human development and a higher level of corruption predict a higher level of NER.

Excluding authoritarian countries, the explained variance rises to 60 per cent (R^2 = 0.600; sig <.001), and while the NER is no longer significant, the B-value in Table 5 indicates a higher level of human development and democracy. Similar to the EPI model, we can see in Figure 6 how authoritarian countries (blue dots) can have very high and very low levels of resource consumption, and the same happens with their HDI values. In the other groups of countries, the differences between high and low performance are less pronounced.

On the other hand, this regression clearly shows that countries with a high level of human development are, in many cases, also strong resource consumers (and polluters, as we will see in the next two models), due to the standard of living of their citizens.

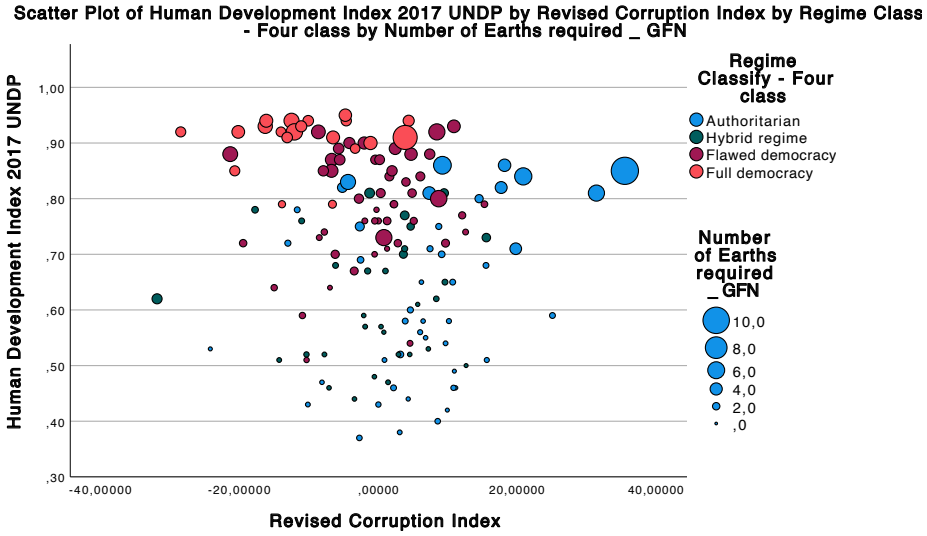

Fig. 6. Scatter plot of Human Development Index in contrast to Revised Corruption Index by Regime and Number of Earth Required (courtesy the author).

Level of air pollution 1 (dependent variable: CO_2)

The explanatory power of the independent variables for the level of CO_2 emissions of each country is lower than that of the previous models ($R^2 = 0.523$; sig <.001) and even the exclusion of authoritarian countries leads to only a slight improvement ($R^2 = 0.533$; sig <.001).

The first model, which explains 52% of the variance, includes all countries in our sample and is therefore considered more satisfactory. Table 5 shows that higher levels of democracy (DI) lead to lower CO^2 emissions, while higher levels of human development (HDI) and corruption (RCI) predict higher CO_2 emissions. This result is in line with those of the NER model, as, once again, we see how human development leads to higher resource utilisation.

Level of air pollution 2 (dependent variable: PM 2.5)

As introduced, the variable PM 2.5 assesses a more specific aspect of sustainability, namely the exposure of the human population to toxic particles produced by combustion. In this case, the explanatory power of the variables so far included in our model is only moderate ($R^2 = 0.333$; sig <.001), which means that other aspects have a significant impact on its distribution. However, Table 5 shows that a higher level of democracy (DI) predicts lower PM 2.5 emissions.

The exclusion of authoritarian countries from the model leads to a substantially equal explained variance ($R^2 = 0.332$; sig <.001), but allows us to highlight, alongside the level of democracy, the similar role played by the level of human development, meaning that higher levels of democracy and human development predict lower levels of PM 2.5.

			Indipendent variables B value				R^2
		costant[7]	DI	HDI	RCI	II	
Dependent variable							
EPI	All included	-9,339	1,521	6,791	--	--	,660**
	No authoritarians	-15,868	2,491	7,246	--	-,142	,777**
SDG Index	All included	32,360	--	5,309	-,127	-,090	,877**
	No authoritarians	--	--	--	--	--	--
NER	All included	-3,125	--	,720	,023	--	,545**
	No authoritarians	-3,636	,227	,565	--	--	,600**
CO_2	All included	-11,299	-,430	2,510	,114	--	,523**
	No authoritarians	-10,763	--	1,980	--	--	,533**
PM 2.5	All included	57,447	-5,245	--	--	--	,333**
	No authoritarians	71,516	-3,417	-3,446	--	--	,332**

Tab. 5. Selected regression models results.
*** level of significance < of .001*

Conclusions

Our analyses illustrate a complex relationship between different aspects of democracy and environmental performance measured at the country level. The most policy-focused indices, namely the Environmental Performance Index (EPI) and the Sustainable Development Goals (SDG) Index, show a positive correlation with countries' level of democracy and human development. This means that democratic practices favour environmental performance. On the other hand, a higher level of human development is associated with higher levels of resource consumption and pollution. Since human development and democracy are strongly correlated, the most democratic countries are often also the most environmentally impactful.

The most democratic and developed countries have historically had a large impact on the environment, but they are moving in the direction of greater sustainability. They seem to have assumed that certain forms of democratic practices,

[7] The constant can be defined as the mean of the dependent variable when all the independent variables in the model are set to a value of zero.

rooted at the local level (e.g. ecomuseums), are fundamental to achieving local and global development goals.

Countries with authoritarian regimes perform very differently, moving from one extreme to the other on the scale of values taken into account. In some cases, 'enlightened' despots seem particularly sensitive to the environment, in other cases the level of environmental protection is very low, while consumption and pollution levels are high.

An ecological consciousness is also developing in authoritarian countries, but understanding their specific dynamics requires more in-depth study. The natural evolution of this reflection leads us to point out the need for a global data collection, a census of ecomuseums and the actions they develop in relation to sustainability and climate change.

Such data would make it possible to investigate the real and potential impact, on a global scale, that state policies can have in favouring virtuous local practices of sustainable development.

On the other hand, since the ecomuseum model of direct and participatory democracy is also spreading in so-called authoritarian countries (see, for example, among many: Colasanti and Frondizi, 2018; Inokoba and Kalagbor, 2021; Kennedy, Liu and Nagao, 2018; Tong and He, 2018; Borrelli and Ge, 2019) an in-depth study could investigate whether, in authoritarian countries, the ecomuseum participatory model and that of grassroots democracy can foster the transition towards less authoritarian forms of government.

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7. Canadian Ecomuseums and Climate Change: Assessing the Potential

Glenn C. Sutter

Introduction

As a cultural concept and heritage conservation strategy that has been defined and applied in many different ways, an ecomuseum is generally understood as "a dynamic way in which communities preserve, interpret, and manage their heritage for sustainable development" (Murtas and Davis 2009). From a global perspective, ecomuseums are widely distributed and depend on the active involvement of people who are aware of local sustainability issues, including the importance of encouraging responsible tourism (Metodijeski and Filiposki 2017), conserving biodiversity (Hall and Sutter 2019), and fostering resilient communities (Riva, Aldovini, and Dal Santo 2022). This suggests that ecomuseums and their networks should be ideal organisations for drawing attention to climate change impacts and coordinating responses aimed at mitigation and (or) adaptation.

In theory, ecomuseums should face fewer hurdles than traditional museums do when it comes to climate-related actions and messaging. Hugues de Varine's depiction of traditional museology as MUSEUM = BUILDING + COLLECTION + VISITORS (Rivard 2019) provides a frame of reference for traditional museums that want to address climate issues, but the options around how buildings and collections are constructed and maintained or what messages are conveyed through exhibits and programs are fairly narrow. Also, since these approaches require visitation, traditional museums can easily be overlooked or seem irrelevant, as people go about their daily lives. By comparison, de Varine's suggestion that ECOMUSEUM = TERRITORY + HERITAGE + RESIDENTS (Rivard 2019) describes a broader, relevant, and more flexible framework that offers

a wide array of possibilities, such as in situ experimentation with different adaptive strategies (e.g., traditional approaches to water management that could be revived to address current issues), activism aimed at wasteful practices (e.g., stock car racing), and support for climate-friendly ones (e.g., community gardens). The main challenge for ecomuseums is to avoid becoming mostly about tourism, with its associated emissions and potential social problems (Moscardo and Murphy 2014), and instead aim for climate-friendly outcomes that are likely to foster local wellbeing and sustainable livelihoods.

This chapter looks at the role that Canadian ecomuseums are likely to play on this front. Presumably, their collective contributions would offer a strong example, given that Canada is the second largest country in the world and our 2020 per capita carbon dioxide emissions were on par with the USA at 3.2x the world average (Our World in Data 2021). Previous studies of Canadian ecomuseums (Davis 2011) would suggest that there is significant potential for climate action here, since the model was applied early, in different parts of the country, and many projects emerged alongside a growing awareness about climate impacts. Unfortunately, my central thesis is that Canadian ecomuseums are not likely to make much of a contribution to climate action either regionally or at the national level. The article looks at why this might be the case by reviewing the development and current status of ecomuseums in Canada and assessing how current pockets of activity align with levels of concern about climate change.

Climate Change and Canada

Global climate change is an urgent and growing existential threat, with the potential to affect all human communities both directly and through complex globalized economies (Decker 2020). According to a 2017 federal report (Auditor General of Canada 2017), climate change is likely to have a range of impacts on Canadian landscapes, waterways, cities, and rural communities, with concerns ranging from damage to infrastructure, transportation networks, and traditional ways of life, especially in the north, to impacts on game populations, agriculture, forests, coastlines, water supplies, and human health. Many of these effects already appearing, and people in the Maritimes, across southern Ontario, and on the

west coast report being very worried about the regional effects of climate change (Mildenberger et al. 2018). At the same time, despite emerging impacts on agriculture, forestry, and local water supplies, the percentage of adults who believe the Earth is getting warmer is relatively low on the prairies (Mildenberger et al. 2018).

Predictions about warming due to rising greenhouse gas levels date back to the early 1900s (Anonymous 1912), predating the rapid post-war increases in prosperity and disparity – known respectively as the Great Acceleration and the Great Divergence – that have taken humanity out of the Holocene and ushered in the Anthropocene (Nixon 2014). Global responses to climate change have a much shorter history but can generally be traced to pivotal international meetings, including the 1988 World Conference on the Changing Atmosphere, held in Toronto, which featured addresses from then Canadian Prime Minister Brian Mulroney and Gro Harlem Brundtland, Chair of the World Commission on Environment and Development (World Meteorological Organisation 1989).

Around that time, Canada was also playing a key role in climate change research. Facilitated by the Royal Society of Canada and other academic groups, Canadian climatologists and ecologists planned and carried out major international projects, including CRYSYS, which would look at alpine ecosystems and northern ice cover (Bernier and Gauthier 2006), and BOREAS, which led to important insights about the role of boreal ecosystems in the global carbon cycle (Landis 1999). Other Canadian researchers focused on the human dimensions of global change, shedding light on the social aspects of adaptation (Smit et al. 2000) and developing vital planning tools, including ecological footprint analysis (Rees 1996). Canadians museologists were also making important contributions as the international museum community started talking about ways to implement the principles of sustainable development (Worts 1998).

By the turn of the century, the country seemed to be well-positioned to address the effects of climate change, or at least raise awareness about the issue through its museums and other cultural institutions. Some long-standing museums rose to the opportunity, including my home institution (Sutter 2000), and a series of workshops organized around the annual Canadian Museums Association conference helped keep the topic alive

at the national level (Sutter and Worts 2005). More importantly, some communities and regions were ideally placed to raise concerns about climate impacts as they experimented with the ecomuseum model (Heron 1997, Bouchard 1993, Wood 1992, Keyes 1992). Unfortunately, no national framework emerged to connect these experiments, provide them with ongoing support, or encourage other communities to follow suit. As a result, many of these initial projects have faded away or transformed into a different sort of entity, e.g., a Heritage District, and "ecomuseum" has not become a major part of the Canadian heritage lexicon[1]. This makes the task of studying how Canadian ecomuseums are responding, or have responded, to climate change especially challenging.

Canadian Ecomuseums

In the 1970s and 80s, as ecomuseums took root across Europe and the concept started to spread, some parts of Canada were quick to adopt and experiment with the model. Heritage advocates in Quebec were especially active, leading to the development of long-standing ecomuseums like Haute Beauce and Fier Monde, catalytic documents like the Declaration of Quebec, and the first international ecomuseums workshop (Rivard 2019). As other parts of the country took note, the model was soon being applied in other parts of the country, including New Brunswick, Ontario, Alberta, British Columbia, and Nunavut (Fig. 1), but there were different visions and motivations behind this work. For example, while the people behind Haute Beauce focused on cultural development and viewed themselves as 'animateurs' and consultants, those involved in the Crowsnest Pass Ecomuseum wanted to rejuvenate the local economy and saw themselves mostly as administrators (Caron 1993). Based on their current online presence, most of these initiatives are now either defunct or no longer describe themselves as an ecomuseum.

[1] The term "ecomuseum" is not often used in Anglophone parts of the world (Peter Davis, pers. comm.)

Fig. 1. Map of Canada showing provincial locations where the ecomuseum model has been, or is being applied. Check marks indicate sites that are currently being promoted as ecomuseums, including 4 sites in Saskatchewan (Calling Lakes, Civic Museum of Regina, Prairie Wind & Silver Sage, and White Butte), 2 in Quebec (Ecomuseum Zoo and Fier Monde), and one in Ontario (Hearst) and Alberta (Kalyna Country). The X's denote sites that are no longer being promoted as ecomuseums, including 2 sites in Ontario (Deux-Rivères and Georgian Bay), 2 in British Columbia (Cowichan and Chemainus, and Ksan Historical Village) and one each in Alberta (Crowsnest Pass), Nunavut (Keewatin), Saskatchewan (Torch River), Quebec (Haute-Beauce), New Brunswick (Miramichi Open River) and Newfoundland (Winterland). The inset shows the percentage of adults who think the Earth is getting warmer by federal riding, with darker colours indicating higher percentages, from Mildenberger et al. (2018) (courtesy the author).

Heritage advocates in Saskatchewan discussed the ecomuseum concept in the 1970s, but none were established here until 2010, when a small group revived the idea, and a series of planning discussions were organized through the Royal Saskatchewan Museum and other provincial heritage organisations. This led to a flurry of activity over the next 10 years, including several demonstration projects, provincial workshops, an ongoing university course, and recent interviews with Indigenous heritage advocates (Peigan, Sutter, and Fletcher 2022, Sutter 2020). Saskatchewan is currently an ecomuseum hotspot in Canada,

with an emerging network supported by the provincial museums association through a special Members Group (Fitch 2019).

As the ecomuseum model was being applied across the country, climate change issues informed some of this work. For example, the Écomusée du Fier Monde developed an exhibit called "Living in a Sustainable City" which traveled around Quebec from 2009-2013, drawing attention to a range of sustainability issues. While the exhibit was not specifically about climate change, it made room for that topic and was designed to be catalytic by encouraging "individual and collective choices oriented towards the maintenance of essential ecological processes and systems supporting life... [The exhibit] stimulates the development of individuals, groups and organisations that are socially and environmentally responsible" (Lemaire-Caplette 2009).

More recently, climate change was part of initial discussions around the development of Saskatchewan ecomuseums concerned with forestry (Nipawin), agriculture (Val Marie), and water management (Qu'Appelle Valley). Climate concerns are also being addressed by an ecomuseum project in White City, a bedroom community in the White Butte area near the City of Regina. The Nipawin ecomuseum lost momentum and was eventually derailed when key proponents moved away or took on other work. Heritage-related topics continue to be the focus of a local Facebook group (Friends of the Torch River Forest) but none of their recent posts deal with climate change. The project in Val Marie has become an ecomuseum called Prairie Wind and Silver Sage initially aimed at telling stories through an "integrated exhibit" about local human and natural history (http://pwss.org). Climate change is not among their main themes (landscape, wildlife, ranching, and night skies), so how it might inform their activities remains to be see. The potential for climate messaging to become prominent is high, given the semi-arid conditions in that part of Saskatchewan and concerns about climate-related impacts on local water supplies (Pomeroy, Fang, and Williams 2009). In the Qu'Appelle Valley, people involved in the Calling Lakes Ecomuseum (https://www.facebook.com/CallingLakesEcomuseum/) often point to climate issues as part of the rationale for their work, especially in connection to the UN Sustainable Development Goals, but their main focus is on raising awareness and influencing policy around land uses and urban activities that affect local water

quality. To this point they have not taken on projects that address climate change impacts directly.

The one place where climate change is addressed in detail involves a grade school outdoor education program offered through the White Butte Ecomuseum (Fig. 2). Through an interactive outdoor game of tag developed and facilitated by graduate and undergraduate students from the University of Regina Faculty of Education, Grade 4 and 5 students learn about factors that are causing climate change (e.g., greenhouse gas emissions) and how to differentiate between human and natural causes. The game begins by talking about what climate change is, what it might affect, and how CO2 emissions are associated with fossil fuel consumption. A long rope is then laid in a circle on the ground to represent the Earth and 2 students are asked to stay in the circle, to represent CO2 molecules. The other students act as Light Rays from the Sun by lining up along a nearby fence before running towards the Earth and touching inside rope circle with their hands. Those that are touched by a CO2 molecule must stand behind that student, while the others run back to the fence. The results show what happens when there is a normal amount of CO2 in the atmosphere, i.e., some solar energy is captured. For the next round, 8 students are asked to be CO2 molecules, representing current CO2 levels, and the game is run the same way to show how much more energy is being trapped. The third and last round starts by asking about ways people can produce less or get rid of some CO2, e.g., driving less, planting trees, etc. After a number of options have been identified, 5 CO2 students are asked to become Light Rays again and the game is run once more. The program ends by getting the whole group to talk about the results of each round, and what they can do to reduce their own emissions (Hall 2018).

Fig. 2. Grade school students taking part in outdoor education programming associated with the White Butte Ecomuseum (courtesy of the author).

Programs like the one at White Butte are the exception, though, and the potential for Canadian ecomuseums to tackle climate change issues appears to be limited for several reasons. Most are, or were, motivated by things that have little to do with climate change, like local identity (e.g., White Butte, Haute Beauce), or by a desire to foster economic development through tourism (e.g., Crowsnest Pass, Miramichi, Kalyna Country). The ones that are still active also continue to work in isolation. Presumably, the Canadian Museums Association, the Federation of Canadian Municipalities, or another national body could set up a network so sites that are currently active and communities that are interested in the concept could interact and share ideas about climate action. This would take significant time and funding since so many sites have either fallen dormant or no longer call themselves ecomuseums (see Fig. 1), and it might also take a substantial organisational shift. For example, while the CMA is certainly aware of ecomuseum projects (Kett 2016), most of their attention and resources are focused on the traditional museum practices of collecting, preserving, and exhibition.

Reflections and a Look Ahead

Despite being an early adopter and an initial wave of interest that swept across the country, ecomuseums have not become as popular in Canada as they are in other parts of the world. The same can be said for the USA, where even fewer have taken root and interest in the concept also seems to have waned (Sutter et al. 2016). Political ideologies may have hampered the movement, especially where ecomuseums are not seen as a neoliberal approach to community development (Larner 2003), but the low ebb has persisted across liberal and conservative administrations, so other factors may also be at play. As suggested above, the lack of momentum may partly be a function of institutional priorities. With all of the challenges facing traditional museums and their networks (Waiser 2017), there may be little appetite for an approach that is more about community engagement than collections and exhibitions. There may also be deeply-rooted cultural factors involved, including beliefs, attitudes, and actions associated with the industrialized worldview (Winter 1996). Many of these beliefs are not restricted to this part of the world (Shepard 2011), including the notion that our species is separate from other aspects of nature as part of a 'great chain of being' (Lovejoy 2021), but they are reinforced in North America by the "myth of the wilderness" (Cronon 1996), which has deep colonial roots. The wilderness ideal took root and spread as early settlers encountered expansive and apparently empty landscapes, possibly unaware that these areas had only recently been cleared of their Indigenous inhabitants either by the effects of disease or through intentional government policies (Daschuk 2013). Over time, experiences with this "wilderness" added to the misconception that humans are separate from nature (Winter 1996), fostering a strong sense of individualism – the pioneer spirit – that continues to be a powerful cultural force for Canadians of European descent.

Presumably, when cultural norms separate people from nature and favour strong individuals over the collective, it can be very difficult for a holistic, community-driven concept like an ecomuseum to gain traction. As noted, some Canadian ecomuseums face an additional education challenge around climate issues since they are situated on the prairies, where the percentage of adults concerned about climate change is relatively low (see inset in Fig. 1).

Despite these challenges, there is room for optimism where climate change and Canadian ecomuseums are concerned. As the Canadian flagship, Fier Monde has the capacity to take on high-visibility projects, and the emerging Saskatchewan network is being guided by robust, holistic principles (Fitch 2019), so some prairie projects may focus on climate change impacts. Saskatchewan advocates have also taken steps to identify and build on synergies between the ecomuseum model and Indigenous ways of knowing, where land is sacred, all things are imbued with spirit, and actions are usually informed by the needs of the collective (Peigan, Sutter, and Fletcher 2022). Ecomuseums that are developed on this basis might aim to attract tourists, but this would be secondary to more climate-related goals like striving for increased inclusion and equity, and fostering a healthy environment (Saskatchewan Ecomuseum Partnership 2018). In theory, if Indigenous communities in Saskatchewan start to protect and revitalize their cultural heritage using ecomuseum principles, like the Ak Chin did in developing the Him Dak Ecomuseum in Arizona (Doğan and Timothy 2020, Fuller 1992), many regions of Canada could eventually see Indigenous-led ecomuseum projects aimed at localized climate change issues.

If Rivard's (2019) predicted third global wave of ecomuseum development comes to pass and is taken up by the Canadian heritage community, Saskatchewan is well-positioned to lead by example. Recent experiences in Saskatchewan have clarified some of the pitfalls around ecomuseum development, and how communities might avoid them. Instead of depending on a few local champions, for example, a successful ecomuseum needs to build networks and foster wide public support. Instead of drawing on traditional museum practices, governance models, and performance indicators, ecomuseum projects need to emphasize local engagement, democratic decision-making, and measures of well-being. And most importantly, instead of focusing on non-climate issues and missing opportunities to be locally relevant, ecomuseums need to include positive climate action in all of their desired outcomes. Where a community is interested in cultural revitalization (Pilgrim, Samson, and Pretty 2010), for example, climate issues can be addressed and positive steps taken through topics ranging from food and healthcare, to public education and local ways of life. The flexibility, nim-

bleness and breadth of the ecomuseum concept make it ideal for this sort of work.

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8. Climate actions of the Ecomuseu Ilha Grande (Brazil) for the Sustainable Development Goals

Gelsom Rozentino de Almeida

Climate change is a reality, the devastating consequences of which affect the environment, natural resources, economies and society. Due to their connection with communities and territory, ecomuseums and community museums occupy a privileged place in the work to achieve the Sustainable Development Goals (SDGs), the IPCC (Intergovernmental Panel on Climate Change) recommendations for climate action and the ICOM (International Council of Museums) resolutions for sustainable development.

The networks of the Brazilian Association of Ecomuseums and Community Museums - ABREMC - play a key role in empowering ecomuseums in these roles, helping to strengthen, develop and support their members. The ecomuseums and community museums that make up ABREMC consider the SDGs fundamental to their projects and actions. These community-based initiatives depend on local collective efforts for their existence and development; they have a greater closeness to the community, its identity and its territory (Valença, 2021; Santos, 2017).

The museum, as a scientific, political, recreational and cultural institution, exerts - or potentially can exert - a positive influence on a heterogeneous public, as well as contributing, through its various actions, to achieve a change of attitude, formation of values and greater sensitivity. However, the ecomuseum is also a space for the construction of memory and the appropriation of culture by the community, through the socialisation of information, the practice of citizenship and the administration of natural, built and intangible heritage. Ecomuseums seek to develop their proposals for action through the consideration of

local needs and a shared local vision, addressing real problems, whether related to cultural or natural heritage, and the influence of political, economic and social factors.

The Ecomuseu Ilha Grande

The Ilha Grande Ecomuseum was founded by the local population in 1999, but in 2007 it became part of the University of Rio de Janeiro and recognised as a university museum. In 2009, the first location of the ecomuseum, the Museu do Cárcere, was established; in 2012, this museum occupied two buildings and in 2014, a craft room and a community library were created. In 2015, the ecomuseum created the Museu do Meio Ambiente (Museum of the Environment) and the Parque Botânico (Botanical Park) and in 2018 the Centro de Convivência (Coexistence Centre), a place for meetings, workshops, parties and performances. Ilha Grande is located in the municipality of Angra dos Reis, in the state of Rio de Janeiro, between Brazil's two largest metropolises, Rio de Janeiro and São Paulo. It is a 193 km² area, much sought after for its beautiful beaches, exuberant fauna and flora native to the Atlantic Forest, rich marine life and high geomorphological diversity.

Map of Ilha Grande, with the location of villages and main beaches (courtesy of Ecomuseu Ilha Grande Collection).

Access to Ilha Grande is exclusively by sea. There is only one dirt road on the island, between Vila do Abraão and Vila Dois Rios. Communication with the other 15 villages is on foot via long paths, of medium or severe difficulty, or by sea. Of the 15 villages, only Abraão has most public services and seven villages have schools for the first and third cycle of basic education. Others lack electricity and other services. There are no bank branches or ATMs on the island. In some places, there is no internet signal.

Its history is strongly marked by a human presence dating back some 3,000 years. From the 16th century, farms were established and in the 19th century a quarantine hospital and correctional facilities, making Ilha Grande a 'prison island'. The island's community consists of caiçara, the traditional inhabitants of the coastal region of south-east and south Brazil, of mixed African, indigenous and European origin. The caiçara communities have a particular way of life that combines fishing, small-scale agriculture, handicrafts and plant quarrying, having a profound knowledge of the environments in which they live. As a result of this close relationship with nature, they have created practices and knowledge that take advantage of what the tropical environment can offer mankind.

The main features of this culture are fishing and agriculture, the importance of cassava cultivation and flour production. Society emphasises relationships within a larger group and in the nuclear family, and the notion of formal authority; official religion and marriage as a civil and religious institution, respect for elders and attachment to place of birth are significant. These values, worldviews, cognitive practices and shared symbols guide individuals in their relationships with each other and with nature; they are expressed in material products (such as dwellings, boat designs, work tools) and intangible heritage (language, music, dance, rituals, myths). The rich environmental, historical and cultural wealth of the island contributed to UNESCO's recognition of Ilha Grande as part of Brazil's first Mixed World Heritage in 2019.

Faced with large-scale tourist invasion and real estate speculation, residents of these traditional communities fear that their customs, traditions and local identity will be threatened by the incursion of many other elements from different cultures. Tourism, however, has provided opportunities by hosting

visitors in hotels and restaurants and working as boatmen or informal guides.

After the closure of the Instituto Penal Cândido Mendes (IPCM) in Vila Dois Rios in 1994, Ilha Grande became one of the most visited tourist centres in Brazil. However, the rapid development of tourism and the lack of a strategic vision for tourism management have led to some problems, such as the inadequate movement of visitors through the forests and the introduction of plant and animal species alien to the island. The rich cultural heritage of the region has been largely ignored.

It was in this scenario that the Universidade do Estado do Rio de Janeiro (UERJ) took over the management of the old IPCM facilities. In the contract of cession of use (1994), signed by the government of the State of Rio de Janeiro, a Centre for Environmental Studies and Sustainable Development (CEADS) and a museum were to be installed in Vila Dois Rios. These facilities were expected to preserve and promote the memories and characteristics of Ilha Grande. In accordance with the legal provisions and seeking to capitalise on the island's heritage, the UERJ proposed the creation of the Ecomuseu Ilha Grande, a project initiated in 1999 and officially recognised in 2007. With the inauguration of the Museu do Cácere in 2009, its expansion in 2012, the opening of the Museu do Meio Ambiente e do Parque Botânico in 2015 and further new actions and projects starting in 2018, the ecomuseum has brought together a series of facilities that have reached out to different segments of the academic community, the local population and tourists.

The Ilha Grande Ecomuseum is both an ecomuseum and a university museum that falls under the EBU's Deanery of Extension and Culture, a department that carries out conservation, in-depth study and dissemination of the island's environment, history and socio-cultural life. The objective of the Ecomuseu Ilha Grande is to enhance and emphasise the relationship between people and the island's material and intangible heritage, developing conservation, research and communication programmes, projects and actions. (Almeida, 2020; Almeida e Valença 2020; Valença, 2021)

The main elements of the Ecomuseu Ilha Grande are:

- Museu do Cárcere (Prison Museum) is installed in the bakery and guard buildings of the former Agricultural Colony of the Federal District (CADF) and the IPCM. Its purpose is to serve as an important source of reflection on prison policies

and their effects on Brazilian society, based on the history of successive penitentiary units on Ilha Grande.

- Museu do Meio Ambiente (Environment Museum) isbased on exhibitions and other socio-educational activities. It publicizes issues related to biodiversity and the sustainable use of the environment of Ilha Grande and its surrounding Bay. y. It is located in the building of the former Dois Rios farm that dates from the beginning of the 19th century, later the Colônia Correcional de Dois Rios (1894).
- Centro Multimídia (Multimedia Center) – Its objective is to contribute to the research, registration, dissemination and memory of Ilha Grande in terms of heritage, history and culture, through digital media and virtual access.
- Parque Botânico (Botanical Park) – Located in the courtyard of the extinct IPCM, it is the first collection of Brazilian plants organized in the form of an ecomuseological collection and has as its primary mission: the inventory, sampling, cultivation, cataloging, conservation and exhibition of plants native to the Atlantic Forest.

Fig. 1. Museu do Cárcere (Prison Museum) (courtesy of Ecomuseu Ilha Grande Collection).

Fig. 2. Museu do Meio Ambiente (Environment Museum) (courtesy of Ecomuseu Ilha Grande Collection).

Fig. 3. Parque Botânico (Botanical Park) (courtesy of Ecomuseu Ilha Grande Collection).

Fig. 4. Centro Multimídia (Multimedia Center) (courtesy of Ecomuseu Ilha Grande Collection).

Fig. 5. Sede do Ecomuseu Ilha Grande com Administração, Biblioteca Comunitária, Sala do Artesão, Sala Multimídia, etc. (Headquarters of the Ecomuseu Ilha Grande with Administration, Community Library, Artisan Room, Multimedia Room, etc.) (courtesy of Ecomuseu Ilha Grande Collection).

Fig. 6. Centro de Convivência (Living Center) (courtesy of Ecomuseu Ilha Grande Collection).

An ecomuseum consists of the interweaving of different social, historical and environmental factors set in motion by a local population and operating within a specific territoryIn the case of the Ilha Grande Ecomuseum, the territory is the island itself; the local population is made up of the residents of the communities of Ilha Grande - Vila Dois Rios, Vila do Abraão, Palmas, Parnaioca, Aventureiro, Provetá, Praia Vermelha, Praia da Longa, Araçatiba, Matariz, Bananal, Sítio Forte, Japariz, Freguesia de Santana and Saco do Céu - and the academic community that carries out its research there. The heritage includes all the natural and cultural assets of the region. This museum complex is articulated within a socio-environmental sustainable development perspective that has close links to global issues, including the recognition of the United Nations Sustainable Development Goals (SDGs). The articulation of the Ilha Grande Ecomuseum with plural communities makes it clear that it is not an 'island museum' concept, even if physically anchored on an island; on the contrary, it is a museum-process, open and connected to the extra-insular world.

Reflecting the social function of the museum and the university, the Ilha Grande Ecomuseum acts as a space that brings together different fields of knowledge, promoting the study of relevant and strategic issues and the elucidation of problems, in order to contribute effectively to sustainable development. In this way, the interaction and integration of knowledge, subjects

and interests invests in the transformative power of knowledge and its very forms of production, enabling the realisation of an 'ecology of knowledge'. The ecomuseum becomes a multiple field of research, encompassing the study of the heritage of the territory of Ilha Grande, with its fauna, its flora, its rivers, its sea, its anthropic processes, and the histories and memories of the local population.

Projects and sustainable development goals of the Ecomuseu Ilha Grande

The mission of the Ilha Grande Ecomuseum is to incorporate the community as an agent in the process of conservation and sustainable development of the island. This is done through the conservation, research and dissemination of information on the history, memory, culture and identity of the island, its natural, material and intangible heritage. A main objective is to promote reflection on these assets and to encourage conscious action. The Ecomuseum invites everyone to look at the present in a sustainable way and to participate in building a better and fairer future.

To encourage participation, the Ilha Grande Ecomuseum has developed several internal and external training courses to provide information and skills, encouraging qualification and new learning. Courses have been provided on museums, heritage and cultural management, as well as environmental and heritage education activities, educational workshops, language courses, firefighter courses and curatorial training for young people and professionals. The ecomuseum does all it can to encourage learning and help people gain qualifications.

Fig. 8. Projeto Ilha Grande e Saúde Comunitária: atividade de prevenção ao suicídio. (Ilha Grande and Community Health Project: suicide prevention activity) (courtesy of Ecomuseu Ilha Grande Collection).

Initially, and perhaps predictably, there was a distance between the EBU and the local population. The Ecomuseum realised it had to overcome this barrier and sought to recruit and train residents as members of its team, respecting their local knowledge and empowering them, which helped generate positive cultural and physical impacts within and outside the organisation. The creation and provision of vocational training courses and the encouragement of formal education have improved educational standards on the island. EcoMaster's actions were inspired by Paulo Freire, who considered the student as a producer of knowledge and that teaching is not about transferring knowledge, but creating possibilities to produce or construct it. These actions were not planned as a specific 'project', but as fundamental principles of our management of the ecomuseum in a democratic, inclusive and collective nature. Later, we realised that these actions were a key feature of the UN Sustainable Development Goals, as they could transform people's lives.

A specific project - 'Ecomuseu Recicla' - was born in 2011 out of concerns about the accelerated, disorganised and irregular growth of Ilha Grande. A particular problem is accentuated in the summer months, when the population increases considerably due to the intense flow of tourists, namely the accumula-

tion of waste, transported and dumped on the island. continent. The main result of the Ecomuseu Recicla project has been to establish a separate waste collection practice, with Vila Dois Rios as a starting point. In addition to a cleaner island, an important by-product has been the use of some waste materials for the production of artefacts and the encouragement of craftsmen in the community. A travelling exhibition was created that reached out to educational and research institutions, with the aim of spreading the practice of recycling and conscious handicrafts, as well as presenting some of the island's culture and biodiversity.

The general methodology used in the recycling project is participatory. The workshops provided by the ecomuseum emphasise various modes of community participation. The project was divided and executed in phases, using methods and techniques developed to enable the various activities, as follows:

1. Diagnosis and awareness: lectures, conversations with residents, extension course for professional qualification, an awareness tool.
2. Application of recycling, reuse and reuse techniques: holding workshops and beginning the production of objects for commercialization, with emphasis on the income for the artisans.
3. The design and , assembly of a traveling exhibition, which is currently in the Cárcere Museum.
4. Holding workshops on recycling, reuse and reuse techniques, not only in the communities of Ilha Grande but also in other cities and in UERJ.

The project fosters the development of appropriate social attitudes, the building of a healthy environment and encourages the reuse of disposable materials, in a movement that links Brazil with other like-minded nations and international organisations.

By offering techniques for handicraft production, the project also contributes to the elimination of carbon in the environment, as well as providing a source of income for residents. In addition, the items created for sale playfully present the local culture, flora and fauna. This project has eliminated PET waste in Vila Dois Rios and served as a model for other communities on the island.

Fig. 9. Artesã Marilda Caiares (Marilda Caiares, artisan) (courtesy of Ecomuseu Ilha Grande Collection).

As part of the recycling project, the Ecomuseum Media Centre focused on Goal 11 of the United Nations 2030 Agenda: Sustainable Cities and Communities. Activities were aimed at the reuse of waste materials such as PET and Tetra Pak. Several workshops were organised to help reduce the impact of these items, working together with communities to promote discussion and awareness, especially among children. The importance of preserving the ecosystem and, with it, the well-being of future populations was discussed. In addition, the ecomuseum has established important partnerships with groups and companies that deal with the reuse of recyclable materials, enhancing the removal of residues, including paper, that are irregularly thrown into the environment.

Fig. 10. Oficina de Tetrapak (Tetrapak workshop) (courtesy of Ecomuseu Ilha Grande Collection).

As part of the recycling project, the Parque Botânico started building a wall of PET bottles in 2019. This will reduce the costs of conventional building materials and, at the same time, approximately eight thousand PET bottles will be reused. This sub-project will not only contribute to the reduction of solid waste, but also train residents in the use of this type of construction, provide a new opportunity to generate employment and income, and at the same time promote environmental education and conservation. In this way, we realise SDG Goal 15 and its objectives: 'Protect, restore and promote the sustainable use of terrestrial ecosystems (...)'. The PET wall is part of the visit circuit of the Botanical Park and is equipped with a bilingual (Portuguese and English) sign with basic information about the project.

With the 'Sustainable Construction and Products Project', the Parque Botânico of the Ilha Grande Ecomuseum has dedicated efforts to mitigate impacts on nature, reduce the amount of waste produced as much as possible and make efficient use of natural materials and goods (Callado et al, 2020) The actions are particularly important as almost the entire Ilha Grande is located within Conservation Units (Parque Estadual da Ilha Grande, Reserva de Desenvolvimento Sustentável do Aventureiro, Área de Proteção Ambiental Tamoios, Reserva Biológica da Praia do

Sul), which requires adaptations and the creation of new methods and technologies for the maintenance and management of a collection of living organisms.

Through another sub-project 'Identification and Reuse of Construction Wood', the ecomuseum aims to identify the tree species used in old constructions on Ilha Grande, providing their scientific and popular names and, when possible, ensuring their reuse in new constructions on the island itself. One of the results of this project is the identification of the roof beams of the abandoned IPCM cinema. After identification, they were used to create the structure of the Plant Nursery in the Parque Botânico. This sub-project is a further element of information retrieval on the island's plant history, identifying the past existence of local flora species that are no longer found today. It has also contributed to the accumulation of knowledge on the technological properties of wood in the construction of these constructions.

The location of the Botanical Park in an environmental protection area, the Parque Estadual da Ilha Grande, demands the adoption of actions that favor the conservation of natural resources and the reduction of impacts on the environment. To meet this premise, the Botanical Park, through the Natural Adubo Subproject, has made efforts to avoid compromising the balance of local ecosystems. It is with this objective that the substrate used for the cultivation of plants in the Botanical Park has been prepared from the raw materials of the place itself. The substrate is composed of materials found only in the residential area of Vila Dois Rios, such as capybara manure (*Hydrochoerus hydrochaeris* L., 1766), plant remains resulting from mowing grasses, and from village food waste as composts. The preparation of this substrate does not produce any contaminant and results in a natural fertilizer that promotes the good development of plant seedlings.

Fig. 11. Construction of the PET Wall in the Botanical Park (courtesy of Ecomuseu Ilha Grande Collection).

For SDG Goal 4 – "Ensure inclusive and equitable and quality education, and promote lifelong learning opportunities for all" – the Ecomuseu Ilha Grande has promoted a variety of courses, workshops, lectures, conversation circles and various activities for all age groups in the the communities, especially encouraging young people to engage in Science, environmental and heritage education, and language courses and to gain qualifications.

The oceans provide several ecosystem services, from climate regulation, to oxygen for human respiration, through the supply of food resources, such as fishing or mariculture, in addition to impacting the local economy, with the transport of goods and services, and tourism. (Skinner, 2021) Ilha Grande Bay is nationally and internationally known due to its high biolodiversityand being fundamental for the Rio de Janeiro state economy. In its surroundings, there are eight protected areas, supporting several ecosystem services and many traditional communities. Consequently for SD Goal 14 – "Conserve and promote the sustainable use of the oceans, seas and marine resources for sustainable development" – the ecomuseums delivers the projects: "Marine biodiversity of Ilha Grande Bay"; "Marine Biology: a way of telling sea stories"; and "Monitomar: Marine Monitoring of Ilha Grande Bay", coordinated by the Museu do Meio Ambiente. These are projects that result from research and partnerships with BENTOS – the Laboratory

of Ecology and Marine Benthic Dynamics of the Faculty of Oceanography at UERJ.

The region has the highest concentration of marinas, fishing boats, tourist and recreational vessels, representing the largest fleet in Latin America (Skinner, 2016). In addition, the Angra dos Reis Waterway Terminal is the largest oil and oil terminal in Brazil, with 51.3 million tons in 2019, with 452 berths in 2010, 383 in 2019 and 325 until September 2020.[1] In the east and west access channels to the Bay, there are two important anchorage areas for ships heading to the ports of Sepetiba Bay and Ilha Grande Bay, representing a major environmental risk. Additionally, just 90 km from the limits of Ilha Grande Bay, the Santos Basin Pre-salt exploration area is located.[2]

The growth of activities linked to the movement of oil in Ilha Grande Bay or its extraction in a nearby region raises great concerns. Direct environmental impacts associated with oil spills on this coast have already been felt, in addition to indirect ones such as the introduction of two highly invasive species of cup corals in the region: *Tubastraea coccinea* and *T. Tagusensis;* antifouling paints from vessels has caused sexual morphophysiological modification (imposex) in gastropods (Creed, 2007).

The aims and objectives of the 'Monitomar: Marine Monitoring of Ilha Grande Bay' project are: the detection of polycyclic aromatic hydrocarbons, in seawater, sediments, fish and seafood consumed by the population; the monitoring of the destination and reuse of oils; the research of health effects from exposure to oil spill products; the assessment of the impact of environmental disasters at sea on socio-economic activities; the construction and installation of instruments and sensors for coastal monitoring and oil spill detection; monitoring the effects of environmental disasters on mangroves, beaches and rocky shores; training and qualification of technical personnel using oil spill monitoring equipment.

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[1] ANTAQ - Agência Nacional de Transportes Aquaviários, Anuário 2020. http://ea.antaq.gov.br/QvAJAXZfc/opendoc.htm?document=painel%5Cantaq%20-%20anu%C3%A1rio%202014%20-%20v0.9.3.qvw&lang=pt-BR&host=QVS%40graneleiro&anonymous=true

[2] Pre-salt is a layer of oil located at great depths, under oceanic waters, below a thick layer of salt. At the end of 2007, an extensive reserve of oil and natural gas was found in this layer, in a strip that extends for 800 km between Espírito Santo and Santa Catarina, especially in Rio de Janeiro.

These numerous tasks are carried out by a multidisciplinary team of researchers from local universities specialising in chemistry, ecology, oceanography, zoology, materials, biosciences and geography. They all have experience in oil spill impact assessment and clean-up processes. Their joint research allows them to officially participate in ICMBio's work in the Cairuçu Environmental Protection Area in Paraty.

The application of scientific knowledge as a basis for the sustainable use of the oceans is one of the goals set by the international agenda of the United Nations, which has defined the period between 2021 and 2030 as the Decade of Ocean Sciences for Sustainable Development. The marine biology research, linked to the Ilha Grande Ecomuseum's Museu do Meio Ambiente, aims to investigate the presence and quantity of microplastics in the bay's waters. Surprisingly, residues of this material were also found on beautiful, well-preserved beaches in Ilha Grande, such as Lopes Mendes. Ingestion of microplastics by marine invertebrates, such as ladybirds and amphipods, has been discovered in several locations, even in areas considered remote. These data reflect the need for increased monitoring of the effects of microplastic ingestion on the area's marine biota, as well as signalling new threats to the region's biodiversity. The Monitomar research was the first to identify the presence of microplastics in organisms in the Ilha Grande basin.

For Sustainable Development Goal 5 - 'Achieve gender equality and empower all women and girls' - the ecomuseum developed the 'Girls and Women in Science' project. The project aims to encourage an interest in science in girls in the public elementary schools of Ilha Grande. This is done through recreational activities held by researchers and scholars from the Ilha Grande Ecomuseum and other research groups of the UERJ. Our goal is to introduce, attract and encourage girls to pursue careers in science and technology, and to encourage women who have already chosen these careers to overcome adversities and barriers, in order to become agents in the scientific and technological development of Brazil This task is difficult in the context of large urban centres, where chauvinism, patriarchy, prejudice and discrimination exist, but it is even more difficult for the girls and women of Ilha Grande, where women are expected to play a domestic role. At the 1st meeting of the women of Vila Dois Rios, promoted by the Ilha Grande Ecomuseu and the community, as part of the Ilha Grande and Community

Health project, the role of women in Brazilian society and in their community was discussed, including how to improve their self-esteem and how to prevent violence against women.

The 'Ecomuseu Ilha Grande and Community Tourism' project responds to UN Sustainable Development Goal 1 - 'Eradication of Poverty' - by encouraging local initiatives to develop products and use local raw materials for income generation and local development, and by enhancing and utilising the history and culture of local communities. The project aims to develop tourism promotion actions that lead to the social, economic and environmental sustainability of the community of Vila Dois Rios - Ilha Grande, integrating the work of the community and the university. Among the project's objectives, we want to promote community tourism linked to local development. We intend to develop tourist itineraries that enhance local culture, history and memory and act as an incentive to reaffirm the identity and place of the local community. By generating income through tourism, we can contribute to the preservation of the environment and improve the quality of life of the island's inhabitants. The Ilha Grande Ecomuseum is therefore a tool for social transformation and local development through a tourism-sensitive approach.

Extremely important for the ecomuseum is the project 'Conhecendo a Nossa Ilha', in which the team of the Ecomuseu Ilha Grande carries out visits to schools in the villages of Abraão, Saco do Céu, Matariz, Bananal, Araçatiba, Praia Vermelha, Praia da Longa, Provetá and Aventureiro periodically every two months. The distance between these communities makes the operation difficult and expensive, as it is necessary to hire maritime transport. The Ecomuseum team visits schools presenting a sample of the collection, such as native plants, an augmented reality exhibition and storytelling about Ilha Grande. There are also presentations of research and exhibitions by research teams from the UERJ. Schools then carry out a mediated visit to the Ilha Grande Ecomuseum's spaces and exhibitions, with a maximum of 30 (thirty) students and teachers carrying out activities together.

Periodic activities in school units, especially for children and adolescents, aim to promote scientific knowledge, exchange of experiences and traditional knowledge between communities and the university, bringing together the Ilha Grande Ecomuseum, the UERJ, schools and communities. Among the

actions we have developed are: an exhibition of photos and other scientific materials and equipment used in Biodiversity and Oceanography studies; exhibitions on the terrestrial and marine biodiversity of Ilha Grande Bay; and illustration workshops, an important technique for recording environmental wealth. We also consider it essential to promote the recognition of this biodiversity through the narratives and knowledge of communities, represented in their history and traditions.

Targeting a young audience, we try to interact with social networks and digital communication channels with activities. One is related to plant identification: community members send in photos of plants and our experts and guests identify them. Another does the same with animals. Community members are encouraged to 'share a story' - in writing, audio, video or photo - about facts, local events or objects of the tangible and intangible heritage of the island and region. Participants appreciate these activities and the ecomuseum benefits greatly.

The "Ilha Grande and Community Health" project is linked to Sustainable Development Goal 3 – "Health and Well-being" – and promotes preventive health actions for the isolated communities of Ilha Grande. It encourages the development of healthy habits and the improvement of community quality of life, with a focus on women's health. The Ecomuseu Ilha Grande is a mediator, catalyst and propagator of actions aimed at the well-being and integration of the population and its environment. This project received an honourable mention from IBERMUSEUS (the Ibero-American Museum Observatory) in 2019.

In response to the COVID-19 pandemic, this project produced brochures, posters, and digital content with scientific guidelines on prevention measures, the importance of vaccines, and combating vaccine refusal. These guidelines were distributed and disseminated through social networks and Internet platforms. The Ilha Grande Ecomuseum provided disposable masks and alcohol gel to the community of Vila Dois Rios.

The 'Community Health Project' is based on reaching out to isolated communities in Ilha Grande, providing guidelines and health products where health services cannot reach. The work of the ecomuseum prioritises preventive measures aimed at each community, but also identifies recurring health problems and promotes solutions.

Inspired by the public health program "Médico de Família" ("Family Doctor"), the ecomuseum project "Museólogas de

Família" (Family Museologists) doesn't concern health but social museology. It promotes interaction between the Ecomuseu Ilha Grande and the island's communities. Since 2011, the ecomuseum has held five editions of "Museólogas de Família", in the villages of Vila do Abraão, Araçatiba, Aventureiro, Sítio Forte and Vila Dois Rios. Here residents had the opportunity to share their memories with the ecomuseum. In this way life trajectories intertwine and complement each other, forming local identities. Through visits to local houses and doorstep conversation, and in "Rodas de Conversa" (Chatting circle or dialogue workshop**)** residents share with the ecomuseum - and theirselves - their memories and life experiences. The project is a strategy for the population of the villages to perceive and value their own culture, thier own place.

The participation initiated in the "Family Museologists Project", expanded to the entire Ilha Grande from the "Project Inventory of the Historical, Cultural and Environmental Heritage of Ilha Grande", through funding from FAPERJ (Carlos Chagas Filho Foundation for Research Support in the State of Rio de Janeiro) in 2019, encouraged local communities to identify, select and register the cultural references that are important to them – their memories, places, objects, and social histories. This was their musealization process. The Ecomuseum will use these data in a publication that will include the outstanding experiences. In addition to serving as a reference point it will enable the development of priority objectives for the Ecomuseum and as a tool for the management of cultural policies. Both the publication and the database are expected to be completed by the end of 2022. Knowing the communities and their specificities will help the ecomuseum to develop actions aimed at local development and based on the demands and needs established through the relationship between the university and the island's community.

Fig. 12. Family Museologists Project in Vila do Abraão ("Collection of the Ecomuseum Ilha Grande") (courtesy of Ecomuseu Ilha Grande Collection).

Fig. 13. Family Museologists Project on Araçatiba beach ("Collection of the Ecomuseum Ilha Grande") (courtesy of Ecomuseu Ilha Grande Collection).

The project 'Museu do Cárcere: Culture and Freedom' is linked to Sustainable Development Goal 16 - 'Peace, Justice and Effective Institutions'. The project aims to record, preserve and enhance the island's prison memories within the community of Vila Dois Rios. Based at the Ilha Grande/Museu do Cárcere Ecomuseum, a 'human inventory' of residents who worked in the prison will be prepared. The inventory consists of interviews, photo and video recordings of former employees, prisoners and their families who still reside on the island. The 'Espaço Cultura e Liberdade Nilcéa Freire' is planned to be built in 2022 and the exhibition 'Dois Rios em Três Tempos', which will tell the stories and memories of the prison as told by the community from the perspective of three generations, will be set up at the beginning of 2023. The project also aims at recovering the old prison facilities, where the infirmary and the outpatient clinic were located, which will be destined to become an "Art Nouveau" space, where socio-cultural activities and exhibitions will take place.

An important initiative related to the respect and support of human rights was the meeting held at the Museu do Cárcere in 2018, concerning the respect and support of human rights and the fight against any discrimination of diversity. The meeting of childhood friends from Vila Dois Rios brought together around 50 children and family members of IPCM employees, guards and prisoners, who lived together in the 1970s and 1980s, indicating the continuous recognition and respect between them. The ecomuseum promoted discussions and reflections on human rights with the exhibition 'Seu Júlio e Assim Sucessivamente', which tells the story of the last prisoner of the Ilha Grande and how he overcame his imprisonment.

The Ecomuseu Ilha Grande is an important bridge between different social actors, such as the university, the municipality, the state park, the tourism business sectors, residents' associations and non-governmental organisations. In taking on this important role, it is necessary to have the willingness to listen, to know and to learn through experience, as well as to share. The Association is also part of a broader network through the Brazilian Association of Ecomuseums and Community Museums (ABREMC), which has played a key role in the organisation and formation of networks between ecomuseums and community museums throughout Brazil, a territory of continental dimensions and with considerable regional differences.

Through its Observatory and other ABREMC initiatives, opportunities are created for the exchange of experiences and good practices; it is also a welcoming place in the midst of many adversities, challenges and demands. In addition to its national scope, ABREMC has initiated a fruitful dialogue with the Italian Network of Ecomuseums (EMI), in relation to SDG 17. This networking and partnership work, reflecting on the responsibilities of museums in times of crisis, led to the construction and approval of the cooperation letter 'Distant but united. The Ecomuseums and Community Museums of Italy and Brazil'. The letter identifies the ten-year commitments of the signatories for the implementation of a cooperation programme, as well as defining an annual calendar of promoted actions. The themes and strategic objectives agreed upon (Exchange, Reception, Publication, Training, Invitation, Organisation, Communication and Monitoring) are established, as well as the timeframe and tasks to be carried out by the actors on both sides. (Dal Santo, Almeida and Riva, 2021)

The letter emphasises the role of ecomuseums and community museums in the promotion of museum practices and in the transition towards the creation of resilient communities, supporting them in their goal of renewing themselves and addressing contemporary crises, including climate change, in an effective and sustainable way. (Dal Santo, Almeida and Riva 2021) present the main themes and objectives of cooperation and propose a theoretical model to understand how strengthening communities and their 'social imaginaries' is crucial to promote integral community development and social innovation. The paper discusses the changes needed to overcome contemporary crises on the basis of theoretical models, before examining how ecomuseums in Italy and Brazil have responded to the limitations imposed by the Covid-19 pandemic. It also presents some of the ecomuseum practices developed during the pandemic and illustrates the main results, limitations and development perspectives of the cooperation experience.

Conclusion

Brazil under the Bolsonaro government has suffered multiple tragedies, with some 700,000 Brazilians killed by Covid, the return of hunger and food insecurity for more than a third of the population. Inflation, unemployment, misery, violence,

fascism, attacks on indigenous peoples, their defenders and the environment continue; there has been a significant increase in deforestation and fires in the last 3 years, especially in the Amazon. Brazil must address the defence of the environment as an inseparable part of the national development process, but above all understand the conservation of the environment as an inseparable part of human dignity and life.

Faced with the gravity of the local and global situation, development commitments with social justice and effective global climate action are needed more than ever to reverse the damage caused by climate change. Human degradation goes hand in hand with environmental degradation; both result from the exploitation of capitalism. Is development within the framework of capitalism that preserves the environment and ensures a decent life for all possible?

The Ilha Grande Ecomuseum has managed to realise many projects and actions, despite the obstacles. These projects have had a positive impact within the ecomuseum and the University that manages it, and in particular for the communities of Ilha Grande and the stakeholders involved. But, considering the potential of the local social actors involved, it is necessary and possible to do more and better. The Ilha Grande Ecomuseum, as well as other ecomuseums and community museums, can and must do their part, through local actions and in collaboration with other forces that can contribute to transformative action.

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9. Climate action and Ecomuseum practices in Africa: the Ngorongoro Conservation Area Experience

Chiara Razzano

At the 2021 Ecomuseums and climate action meeting I reflected on my experience of the Ngorongoro Conservation Area (Northern Tanzania, from now on NCA), which had started with interviews[1] with Mr. Andrew Lowassa, Senior Cultural Officer at Ngorongoro Conservation Authority, the management body of Ngorongoro (from now on NCAA). One of ecomuseology's main objectives, which is shared with the NCA, is sustainable development, pursued through preservation and education. The idea behind this chapter is that NCA and ecomuseums share some foundation values, ideologies and ecomuseum practices. However, it happens that the sustainability mission of organisations like NCA become compromised, due to the global dynamics and local high stakes that characterize the governance of natural resources. As we are going to see through the chapter, in the experience of Ngorongoro conservation area, climate action occurs at the expenses of local communities, whose livelihoods and survival inside and outside the CA are under threat, while tourists' access to the natural site is under no discussion.

The Ngorongoro Conservation Area is located in the Ngorongoro Crater, where savannah and grassland landscapes (extremely valuable ecosystems) are home to a multitude of wildlife, so its conservation is of paramount importance; it was recognised in 1979 as a UNESCO World Natural Heritage Site. In 2010, UNESCO inscribed the NCA as a property on the list of World Heritage Mixed Sites. The area is also home to the Maasai community, nomadic pastoralists who have maintained their

[1] conducted in 2019 in Arusha. Follow-up phone interviews in 2021 and 2022.

traditional culture and livelihoods, and other indigenous groups, whose livelihoods and cultural traditions are protected within the boundaries of the NCA, which also has a rich archaeological heritage.

Interviews with the NCA Authority Officer on the NCA's cultural contribution and its caring, albeit controversial, relationship with indigenous communities, as well as the organisation's pursuit of sustainable development goals, stimulated my research on the adoption of ecomuseum practices in the Ngorongoro Conservation Area. Using interviews and with the support of secondary data and literature reviews, I researched ecomuseum-inspired practices in Ngorongoro and found that these practices could help the institution undertake sustainable and community-sensitive climate actions. Extracts from the interviews are quoted in inverted commas throughout the chapter.

The conservation area has particular characteristics that match the ecomuseum ideology. It is a complex conservation institution that, from its origins, has gone beyond environmental protection to become a multi-inheritance cultural institution supporting the local community with the mission of sustainable development. This integrated approach to conservation could stimulate further reflection on environmental protection and the useful application of ecomuseum-inspired practices in Africa. Environmental protection in Africa inevitably has an impact on indigenous communities, and by problematising the relationship between environmental policies and indigenous communities, this chapter makes an interesting contribution to the climate action debate. Although the vast continent has no officially recognised ecomuseums, scholars have analysed some cultural and environmental protection institutions within the framework of ecomuseology. Robben Island in South Africa, for example, which has been a leper colony, a psychiatric hospital, a defence training base and a prison for anti-apartheid activists, is recognised as a UNESCO World Heritage Site. The site encapsulates the country's complex history and its controversial relationship with Apartheid. It is not an official ecomuseum, although Corsane (2006) identified it as such. Another example is the Berber Ecomuseum of Tafza in Morocco (Rogers, 2012), although it is now closed according to the Trip Advisor webpage. The discourses and practices of ecomuseology, especially those concerning the relationship

between territory and local community, can help overcome the limitations of climate action as currently conceived on the African continent.

The origins and mission of the NCA

Since the 1950s, several game reserves and conservation areas have been established to protect African wildlife, primarily for white colonizers leisure hunting activities. This took place in what was the ancestral Maasailand, namely that land extending from central Kenya to central Tanzania. Communities were deemed a threat to the integrity of the area and therefore pushed away from recently established conservation schemes (Århem, 1985; Child, 2012). In an early understanding of the pursuit of what would would become sustainability goals, in 1959, the NCA was purposely separated from the Serengeti National PArk to maintain a balance between pastoralism, conservation, and tourism,[2] and to protect the community, as well as the environment and wildlife (Århem, 1985). Mr. Andrew Lowassa, Senior Cultural Heritage Officer at NCA explained this as:

"The NCA is a conservation area, the difference with a National Park is that the land uses are multiple, not just nature conservation. We allow the community to live there. In addition, the [community representatives, organised through the] pastoral council has an environmental committee for tourism. The function of this specific committee is to make sure that the local people carry out tourism activities, in cooperation with the conservation area. In our protected area, tourists can visit local traditional houses. Within the protected area, there are campsites owned by the local community. All this ensures that local communities benefit from conservation activities through tourism.

Unfortunately, the land rights that indigenous communities believe they have over their ancestral lands are rarely recognised. The lack of enforcement of these indigenous ancestral rights, rights that existed long before the creation of conservation areas or national parks, puts communities like the Maasai at risk. As a result, by the end of the 20th century, they owned less than two-thirds of their ancient territory. Colonial land policies in the area favoured white settlers and small-scale in-

[2] https://www.ncaa.go.tz

digenous agriculture, while pastoralists' land uses and interests were neglected. Not only colonial policies, but also those of national governments heavily influenced pastoralists' access to land and resources. For the most part, the Maasai living within the Ngorongoro CA have been spared the worst consequences of this process, although Maasai communities not living within the CA have been severely affected, increasing competition for land both within and outside the NCA. The main grazing areas in the Conservation Area were closed to grazing and settlement in the late 1970s. The reduction of the pastoral resource base has created resentment among pastoralists towards the Conservation Authority:

> "The problem with those who are living outside the park is the issue of encroachment inside park boundaries [...] pastoralists will always be attracted by the high quality of pastureland inside NCA. People were removing [NCA] boundary signs and claiming that land is theirs, even if it is not true. [...] NCA is a government property with a title deed. People bordering NCA do not have any property title, but they keep on encroaching inside NCA"

Furthermore, the prohibition of agriculture and the ability to grow crops within the NCA occurred in the 1970s, jeopardized the Maasai's already vulnerable subsistence economy. However, NCA offers support services to the community, helping them understand the benefits of the conservation area, especially in terms of climate action and maintenance of ecological services.

> "The conservation area is very important even to the local community, indirectly, but local people need direct benefits. We give them money, we built them schools, we also supply food for them, as they are not allowed to do cultivation. Farming is in contrast with conservation purposes. We assure eco-system services, but if you tell local communities about them, they do not understand. They need to be educated "

Ecomuseums and the urge for climate action on behalf of cultural institutions

At the 2021 Conference the President of the International Council of Museums, Alberto Garlandini, stated that ecomuseums and cultural institutions, in general, should take on a prominent role in climate action, especially in addressing the threats jeopardizing the lives of indigenous groups:

> "The pandemic has jeopardized millions of lives around the world, but the devastating effect of the climate crisis continues to impact our cultural heritage at a global level. Indigenous communities are at the forefront of the climate crisis. Not only are their livelihoods under threat, but also their cultural heritage cannot survive without their natural habitats. Museums, Ecomuseums, and all cultural institutions are essential to ensure a sustainable future. [...] It's time that [...] museums fulfill their role in addressing climate change. [...] Only together we will be able to move forward".[3]

An ecomuseum is a process in which communities preserve, interpret, and manage their heritage, with the goal of sustainable development. The institution places democracy and community at the very core, allowing the conservation of environmental, natural, or man-made heritage while pursuing the activation and participation of the community in the process. *Heritage* indeed means anything socially identified as valuable (Davis and Borrelli, 2012; Davis, 2007; Davis 1999).

Davis and Borrelli (2012) define ecomuseums as a practice beyond conservation, being a system of values to be employed for the valorization of local *genius loci,* or *"sense of place"*. Briefly, the community identifies and attributes value to its territory and the material and immaterial heritage, re-interpreting it, and increasing awareness of territorial identity. Consequently, it changes the collective point of view on nature-culture dynamics.

Furthermore, according to Davis (2007), an ecomuseum can be defined as a 'dynamic' process insofar as there is no single, pre-established way to achieve it, its implementation process includes dialogue and constant feedback between stakeholders and requires social action and participation. These elements empower the community, contributing to a positive outcome.

In conclusion, the key components of the ecomuseum are territoriality, holism, democracy, and an inclusive definition of heritage (culture, nature, tangible and intangible heritage), in which sustainable development goals are embedded (Borelli and Davis, 2012; Davis, 2007; Davis 1999). All these factors are potentially relevant for NCA.

[3] https://sites.google.com/view/drops-platform/forums/climate-action-2021

Controversy and the importance of Climate Action in Africa

Climate change is severely affecting much of Africa, and reversing desertification and forest loss is of paramount importance: Africa has 17% of the world's forests and about 25% of the world's biodiversity. Africa hosts the largest intact assemblages of large mammals roaming freely in many countries (UNEP-WCMC, 2016). These ecosystems provide numerous products and services, including food, fuel, shelter, fresh water and protection from hazards.

Every year, almost three million hectares of African forests are lost (Mansourian and Berrahmouni, 2021). Ecosystem services are particularly important for African communities and must be restored, as most people live in rural areas where poverty levels remain unacceptably high and where livelihoods are derived directly from nature. Due to forest and cropland degradation, Africa spends more than USD 35 billion annually on food imports (Mansourian and Berrahmouni, 2021). The lack of protection of ecosystem services directly affects regional food security, with rural households most affected. Therefore, degraded forests not only intensify the effects of climate change, but also severely threaten the ecology that is vital for communities to be resilient to shocks. Climate action is critical in sub-Saharan Africa, an area of 24 million square kilometres where 58% of the total population lives in rural areas (projected to 2021) and 38.3% (2019)[4] live on less than USD 1.9 per day (2011 PPP) Their food security is directly dependent on healthy ecosystems.

A central role in climate action in the African region is played not only by central governments, but also by conservation organisations of various kinds. Protected areas are a legacy of colonialism, which profoundly influenced African political ecology and natural resource governance, and still does. Nevertheless, environmental protection efforts in Africa are vigorous, with almost 9,000 protected areas (terrestrial and marine) preserving about 14% of the total region in 58 countries. [5]In Tanzania, where the NCA is located, 39% of the country is protected. These protection programmes undertake valuable climate action on a local and regional scale. In comparison, in Europe, where one might expect the sustainability discourse to

[4] wordlbank.org/indicator
[5] https://www.protectedplanet.net

be more advanced than in Africa, only 13.5% of the total area is under protection programmes. [6]

Unfortunately, protected areas often extend over indigenous ancestral lands, over which communities hold a customary right, and often these areas are managed collectively. This is a very controversial element from which conflicts can arise. Land conflicts occur because governments often do not recognise indigenous rights and claims to communal lands, which are considered under-utilised or under-capitalised (Wily 2011).

The NCA Experience: searching for a balance between climate action and community wellbeing

Given the complex and layered heritage preserved within the NCA, it is evident that it is not simply an environmental conservation institution, but could be identified as a place where some of the practices and discourses of Ecomuseums can be identified. To explore this idea, in addition to consulting literature on ecomuseums and climate action in Africa, I reviewed institutional documentation and websites of the NCA, consulted publications of international organisations involved in the NCA and human rights monitoring,[7] and conducted a semi-structured interview and subsequent follow-ups with Andrew Lowassa, Senior cultural Heritage officer of the NCA. Andrew Lowassa was interviewed as a key informant on the work of the NCA and in particular on the relationship between the NCA and the local community.

The Ngorongoro Conservation Area (Figure 1) is located in the Arusha region and stretches from the plains of Serengeti National Park to the eastern arm of the Great Rift Valley. According to Andrew Lowassa, 'Ngorongoro is a conservation area where the land uses are multiple, not just conservation. We allow the community to live there, but the only activities allowed are animal grazing and community tourism'.

[6] Ibid.

[7] Such as UNESCO, IUCN, and Oakland Institute.

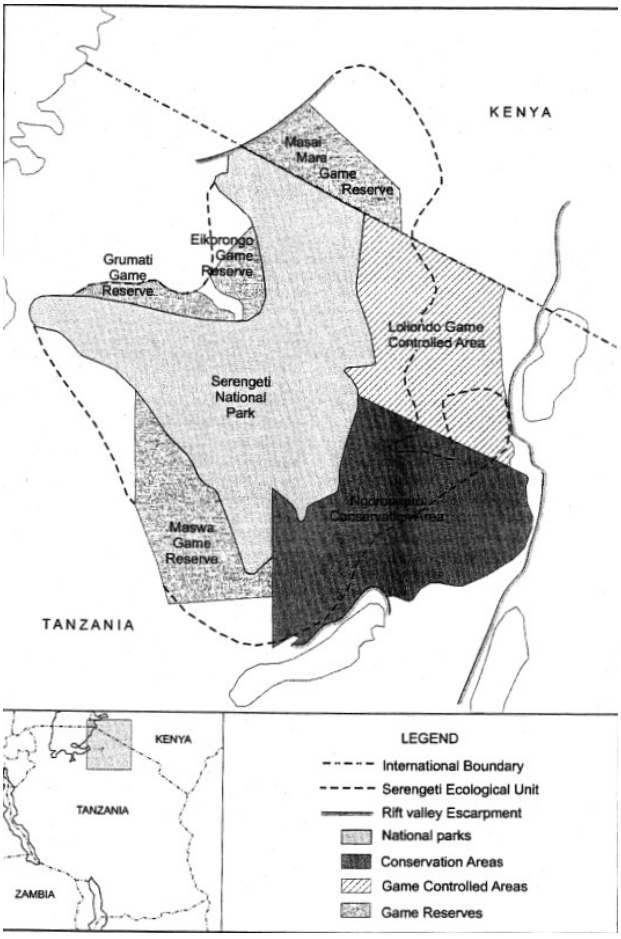

Fig. 1. Location of Ngorongoro CA (in black) within the wider Serengeti Ecological Unit in Northern Tanzania (see legend). Source: Charnley, S. (2005). From nature tourism to ecotourism? The case of the Ngorongoro Conservation Area, Tanzania. Human Organisation, 64(1), 75-88. P. 77. The original image is from Shivji, Issa G., and Wilbert B. Kapinga.1998. Maasai Rights in Ngorongoro, Tanzania: International Institute for Environment and Development and Land Rights Research & Resources Institute. London.

Its perimeter includes the spectacular Ngorongoro Crater (Figure 2, a and b). The site has global importance for biodiversity conservation, for the highest density of mammalian predators in Africa, and the highest populations density of lions[8] (Figures 3, a and b). NCA extends over highland plains, savannah, woodlands, and forests. The variations in climate and

[8] https://www.ncaa.go.tz/

altitude created several ecosystems. Between the Ngorongoro area and Serengeti, every year the largest animal migrations on earth occur, involving over 1 million wildebeest[9]

(a)

(b)

Fig. 2 (a and b). Ngorongoro crater (courtesy of the author).

[9] whc.unesco.org/en/list/39

(a)

(b)

Fig. 3 (a and b): Wildlife in NCA (courtesy of the author).

The area has been subject to extensive archaeological research for over 80 years. The famous fossilized footprints of Laetoli were discovered at the site and are associated with the development of human bipedalism. Testimony of the transition to the use of iron can be found in the area too. This archeological evidence is of paramount impor-

tance, underpinning the theory of human origins in the African continent.[10] In 2016 the NCAA put forward a proposal to create the Laetoli Hominid Footprints Museum, but the museum has not been realized yet[11], although the proposal is still active[12] (URT, 2016). The Museum could enrich the array of cultural and educational services at NCA and act as a base for an NCA ecomuseum.

Cultural heritage is of special importance in the NCA, notably the tangible and intangible value of Maasai traditional livelihoods which are under protection mandate:

> "At NCA, we define Cultural Heritage as the ways of living developed by a certain society or a community and passed on from generation to generation."

Compared to other environment conservation institutions in Africa such as National Parks, the model and governance structure of NCA have a very special commitment toward the local community and the Sustainable Development Goals. Climate action is a priority. All these elements lead to the hypothesis that NCA discourse and practices are very similar to those found in ecomuseums. This is reflected in this statement: "The NCA is not a national park, but it is a pioneering experiment in multi-purpose land use".[13]

NCA is home to different Indigenous groups, namely the Maasai and Datoga, who are pastoralists, and the Hadzabe, hunter- gatherers. The Maasai outnumber the other groups; their social and economic life centres around livestock and pastureland. Livestock underpins their subsistence although agricultural crops frequently supplement their diet, particularly during droughts. The Maasai turned to agriculture due to the reduction of available grazing within the Serengeti National Park and NCA, and growing pressures from the outside to create permanent settlements. Farming became a food security necessity. Their need for grain firmly ties the Maasai to the modern, globalized economy (Istituto Oikos, 2016; Århem, 1985).

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[10] https://www.ncaa.go.tz/; whc.unesco.org/en/list/39

[11] Personal communication between the researcher and the interviewee occurred in May 2022.

[12] https://www.ncaa.go.tz/pages/community-services

[13] https://www.ncaa.go.tz/

> "Food provision from NCAA is a form of compensation after the prohibition of farming activities in the CA. Our organisation goes to the market and buys food that we re-sell at lower prices. We use a local leader to make sure that food will reach the entire community."

From an ecological perspective, Maasai society is designed to strike a viable balance between people, livestock, and the physical environment, water and pastures. In Maasai tradition, the land is viewed as a common resource, one requiring careful shared management that ensures its sustainable use by keeping grazing areas seasonally fallow. This practice allows grasslands to regenerate. The land is also regarded as sacred and invested with cultural value and social meaning. The Maasai social system reflects the capability of adaptation to environmental changes. The cattle serve as a store of food and a stock of capital and as also a medium of exchange, it symbolizes social status. Cattle are objects of supreme religious significance. (Oikos, 2016; Århem, 1985). Their typical settlement, the *boma*, is visitable by tourists willing to undertake a cultural tourism experience. Cultural bomas are run by the local Maasai community (Figure 4, a and b)

> "We use more methods for conservation, we use people's traditional knowledge for conservation purposes, for instance, we use that knowledge to trace endangered wildlife. They hold knowledge about indigenous trees, and they know local species of animals, named in their traditional language. Maasai communities already have their traditional methods for soil conservation. Besides, we encourage them to plant indigenous trees and not exotic ones and they are doing so. "

(a)

(b)

Fig. 4 (a and b): Typical Maasai settlement, the boma. Figure4 (a) depicts a residential boma in NCA, where communities live, while figure 4 (b) depicts a cultural boma where tourists meet the Maasai community (courtesy of the author).

Human population densities among Maasai groups are low, but cattle-man ratios are relatively high, and this is the primary element stoking the controversy about overgrazing (Oikos, 2016; Århem, 1985) that is deemed to be the primary reason for soil and environmental degradation.

> "One of the main problems is the increasing number of people. The pressure is too high on resources, and the number of people has increased quickly. It means they need more land, for a greater number of activities. The number of cattle is increasing. We also witness conflicts between wildlife and local communities when wildlife and livestock are in touch. It is a problem because there are diseases that go from wildlife to livestock and livestock disease to wildlife."

UNESCO, during its latest site inspection of the NCA, identified Maasai community demographic growth as major threat to the site's Outstanding Universal Value [14] . In a recent speech by the President of Tanzania[15], the current model of conservation and human settlement- in NCA was regarded as unsustainable, due to the rising indigenous population. However, she also stressed[16] how Ngorongoro is critical for tourism in Arusha. Therefore, the future of the NCA Maasai community is unpredictable. Currently, sedentary settlements are being built in the Tanga region for Maasai from Ngorongoro[17]. The government is committed to a comprehensive relocation plan, which will give compensation to those willing to move there, in line with country laws and regulations on re-settlements. However, The Oakland Institute – in a study conducted in 2021 by Currier and Mittal - denounces the voluntary relocation plan, regarding it as a massive eviction plan. Their study "dismantles myths, including that of *the rising population*"[18]: evictions are not about ensuring conservation, but about expanding tourism revenues within the World Heritage Site. The Oakland Institute stresses that the latest NCAA strategy document explicitly mentions the financial impacts of relocation, admitting that "leaving the NCA to Indigenous pastoralists, the government would lose 50% of expected tourism revenue by 2038"[19]

Unfortunately, at present, the Maasai of Tanzania find it increasingly difficult to achieve satisfactory living standards. Their ability to self-determine their lives is reduced and their very existence as an ethnic group is threatened. On the one hand, they are becoming more and more dependent on the modern economy through tourism, and on the other, the re-

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[14] https://whc.unesco.org/en/news/2419/;https://www.oaklandinstitute.org/dispute-unescos-claim-never-asked-displacement-maasai
[15] Ibid.
[16] Ibid.
[17] Ibid.
[18] https://www.oaklandinstitute.org/looming-threat-eviction
[19] Ibid.

duction of their resource base is jeopardising the survival of their traditional culture and livelihoods.

> "People at NCA are changing, shifting from their traditional way of living to new modern lifestyles. They are now building modern houses and they have many business activities."

However, the Maasai's land management practices have a significant positive impact on the conservation of the landscape and ecological corridors between protected areas in northern Tanzania, where the highest density of mammals in the world is concentrated. It is no coincidence that wildlife thrives in pastoral areas, and many ecologists agree that it is pastoral activities in the area that have fostered the abundance of biodiversity and savannah wildlife (Homewood and Rodgers, 1984; Oikos, 2016; Århem 1985). With careful land use planning and enforcement through zoning, wildlife and Maasai conflicts can be reduced:

> " Wildlife and livestock get in contact and some conflict will always. We are trying to reduce these problems by doing zonation."

I believe that adding ecomuseum-inspired practices and values to land-use planning could have great benefits. Factors such as increased community participation in conservation (both through the valorisation of indigenous knowledge and through their education in modern ecology) and increased community control over tourism in the area (not only by managing campsites and cultural activities, but also by participating in planning and monitoring) could foster community self-determination, consequently reducing resentment towards the CA and promoting a strong Maasai 'sense of place' and local pride.

Paradoxically, the contentious and controversial situation of access to land and resources was largely created by national rural development and environmental conservation policies that reaffirmed exclusion, just like the policies of the colonial period. Unfortunately, the dynamics of private and overseas investment fuels cronyism and the accumulation of vested interests of political elites towards tourism, which in turn results in the expropriation of land from communities and a reduced interest - not to mention antagonism - towards environmental protection programmes and the implementation of the climate action agenda on behalf of local communities. The use of violence and coercion is reported in land disputes and resettlement

operations involving the Maasai, including those living in or near Ngorongoro CA and Serengeti NP (Århem, 1985; Nelson, 2012; Currier and Mittal 2021). Is a brighter future for the NCA and the Maasai community possible, together with effective and community-sensitive climate action? This will only be possible if the welfare and self-determination of the community take priority over the interests of tourism. Interestingly, these values are already embedded in the NCAA (as illustrated in the next paragraphs), so they must be put back at the centre of the NCAA's management.

The NCA Mission and vision and the pursuit of the SDGs and climate action through ecomuseum ideology

Ngorongoro Conservation Area Authority's mission is "To sustainably conserve biodiversity and cultural heritage, enhance the livelihood of the indigenous communities and promote tourism for the benefit of the Nation and the World" to become "The best conservation area in the World"[20].

The area is managed with a holistic concept of protection, mutual education (for tourists and for local communities), and sustainable development, a vision it shares with ecomuseums'. Furthermore, a list of values is presented in the guiding framework of NCAA action, among which are included Sustainable Development, and intergenerational equity, the core pillars of the definition of sustainability[21].

> "We have been working with local communities in harmony. We have witnessed in these recent years that the local community understands the benefit of conservation, they see that kids benefit from what they are conserving. Now, they agree with conservation issues. "

The multiple land use policy has made the NCA a unique protected area in Africa. Land uses are planned and different land uses are associated with each area. In 2018, part of the NCA site was recognised as being of universal value by UNESCO, an area of international geological importance that can now be protected under the first institution of its kind in Africa, called the Ngorongoro-Lengai UNESCO Global Geopark. In addition to preserving NCA's geological Outstanding Universal Value (OUV), the Geopark is also used for educational purposes and

[20] https://www.ncaa.go.tz/
[21] Ibid

sustainable tourism experiences. In this way, NCA is expanding its educational reach, once again adopting a split-site model very close to that used by many ecomuseums.

The NCAA ensures an accountable governance framework, with internal monitoring and evaluation units and external monitoring on behalf of UNESCO. The NCAA has mechanisms for transparent local community participation through its Community Development Department. It develops and implements strategies and programmes to promote harmony between the Authority and communities in and around the area through food, education and veterinary programmes, and provides communities with technical guidance on sustainable development. The NCAA Department of Cultural Heritage coordinates the preservation of cultural heritage and establishes and manages NCAA museums, such as the aforementioned Geopark and the Laetoli Museum, which has not yet been realised. Finally, the Pastoral Council is a community organisation whose mandate is to oversee the actual needs of pastoral communities living in the NCA and to work as an advisory body to the NCAA, but not as part of the Authority, on pastoral matters.

"The council sends representatives from every ward[22] [to bring community's interests before NCA Authority] It was registered by community members at the District Council[23]. We also have a Women and Youth Pasture Council. Members discuss the issue, and representatives note what has to be done.

The presence of community-dedicated department and the inclusion of an external community-based organisation, such as the Pastoral Council, can be identified as ecomuseum-related practice. However, the issue of transparent relation with the community is subject to ongoing scrutiny on behalf of the UNESCO World Heritage Committee (IUCN, 2020). The lack of transparent community-authority relations (IUCN 2020) may fail "to encourage a sense of ownership of, and responsibility for, the conservation and sustainable use of the property's natural and cultural resources[24]"

[22] Local administration unit
[23] Ibid
[24] https://whc.unesco.org/en/decisions/3993/

Discourse and practices in the Ngorongoro conservation area: Ecomuseum features

The NCAA's mission reflects the inclusive definition of heritage (i.e. culture, nature, intangible heritage), as reflected in the literature and ecomuseum practice. Within the NCAA, a multi-layered type of heritage is protected, comprising natural heritage (related to the rich biodiversity of the area), cultural heritage (including specific objects, structures and archaeological sites) and intangible heritage (traditions and norms passed down from generation to generation). Whether lateoli museum is going to be created, it would become another feature of a cultural institution and tourist destination multi-faceted (=ecomuseums). Similarly, the Ngorongoro-Lengai UNESCO Global Geopark is a nature-based tourist site with educational purposes. More generally, the entire heritage is managed with a holistic concept of protection, education and sustainable development. These are, according to Borrelli and Davis (2012), the key ecomuseum components that can be identified in the NCA. However, the community-driven heritage identification process is a key component of the ecomuseum process, but according to Peters (2009), the process of creating the NCA has been heavily influenced by international thinking on wildlife conservation, tourism interests and a wildlife-focused approach to conservation; this has contributed to resentment towards the NCA on the part of the local community. I argue that this top-down heritage identification process, in which the local community played no role, with no appreciation for its own genius loci and identity, was a mistake. The creation of national parks and game reserves, as was the case on the African continent, alienated indigenous peoples from their land, setting them apart - as islands of nature - for international wildlife tourists (Child, 2012; Århem, 1985).

In this context, the elements that link NCA's discourse to ecomuseum ideology are those that can renew NCA's environmental action and centre it on indigenous communities: sustainability and intergenerational equity, climate action, and education for tourists and local communities. The NCA also has other important goals: preventing hunger and combating malnutrition and making communities resilient to climate change. These core values are closely related to the UN sustainability goals and form the framework for the NCAA's action.

The NCAA is addressing several development goals, pursuing a holistic approach in line with the UN sustainability goals. According to Davis and Borrelli (2012), an ecomuseum is a value system that can change society's perspective on human-nature relations; the NCA has a similar complex system of guiding values, and both share a revolutionary approach to environmental protection. It is possible to identify the NCA experience as a fulcrum for innovation in the community-nature relationship and the possibility of overcoming the current limitations of environmental protection that pose a direct threat to the survival of indigenous communities and biodiversity.

Indigenous knowledge is used in environmental monitoring and protection on behalf of the NCA authority; work with the pastoral community can be identified as an ecomuseum practice. Mixing indigenous and scientific knowledge, both of which are employed to preserve and monitor habitats and wildlife, could, on the one hand, strengthen the indigenous community's commitment to conservation and, on the other hand, help the NCA reinterpret the human-nature relationship, moving away from the narrow view that western conservationism has. In this sense, the NCA's collaboration with the pastoral community through knowledge could change the collective view of nature-culture dynamics: the NCA's scientific approach is enriched by indigenous knowledge, and the indigenous community can benefit from western-designed science for more effective nature monitoring.

Relations with the local community can be improved: the controversial resettlement programme conceals human rights violations and the use of violence and coercion; pastoralists are confined within the NCA, settlements are destroyed and the land currently accessible to the community is shrinking. This scenario is at odds with the practice and discourse of the ecomuseum, where the cultural institution is developed by the community for the community, embodying the values of democracy, equality and full respect for human rights. However, the governance structure of the NCA has a very particular and unique commitment to the local community, pursuing community development and participation primarily through a dedicated department (the Community Development Department) and a community-based organisation such as the Pastoral Council. This type of governance structure can be asso-

ciated with Ecomuseum practices, where both the institution and the community participate in heritage management.

To fully realise the UN sustainability goals and respond to climate change, it is necessary to pursue both environmental and socio-cultural sustainability, and this is crucial in Africa, where environmental policies and natural resource management hide many threats to indigenous groups and local communities. In this sense, the experience of ecomuseums could provide useful ideas and guidance for NCAs in favour of a holistic and integrated vision of sustainable development, which is crucial in the face of the climate crisis.

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10. Community Crafts and Cultures in Costa Rica: community resilience in response to climate change

Karen Brown, Jamie Allan Brown, Althea Davies, María Laura Villalobos, Ronald Martínez Villarreal

> "*As a material for development, heritage should be managed as a non-renewable but creative resource by the community itself as a whole, and by each one of its members or groups of members. This should be recognised by all other actors of development, whether public or private.*"
>
> (Hugues de Varine, in Brown, Davis and Raposo eds, 2019).

Understanding intersections between 'living heritage' and community resilience has never been more urgent for community museums and ecomuseums in countries adversely affected by climate change. This situation is exacerbated amongst indigenous communities which often remain outside the political mainstream, even in countries like Costa Rica, which has set global standards in the sustainable management of biodiversity, including measures that may help alleviate poverty for some communities (Naidoo et al. 2019). For indigenous communities living outside conservation areas, however, like the Brunca peoples in south-eastern Costa Rica[1], the need to maintain essential health, education, food security, and income constrain the intergenerational transmission of skills and knowledge required to conserve cultural heritage as a non-renewable but creative resource, all the while adapting to changing socio-economic and environmental conditions.

[1] The *Borucan* people are one of the eight originary Costa Rica´s people. They live in the territories of Boruca and Rey Curré, located in the south side of Costa Rica. It has about 2,500 members.

This chapter case study considers the Community Crafts and Cultures ('CCC') project (2017-2021) funded by the Scottish Funding Council's Global Challenges Research Fund (GCRF) – a collaboration between The University of St Andrews, the National Museum of Costa Rica (NMCR), two community museums and one ecomuseum in Costa Rica.[2] The University of St Andrews has collaborated with NMCR since 2015 in supporting the community museums of Costa Rica through a suite of research projects, with CCC funded specifically to provide Overseas Development Assistance.[3] The community museums involved are Museo Comunitario Yimba Cajc and Museo Comunitario de Boruca, both located in the southern region of Buenos Aires de Puntarenas, and Ecomuseo de la Cerámica Chorotega in the north-western region of Guanacaste.[4] In addition to presenting this project as a case study of museums' relationship with sustainable development and the climate crisis, the chapter offers reflections by the researchers on their roles in relation to the communities, highlighting the benefits of self-determination in local conception and delivery of practice-based research projects. Over all sites, we have sought to explore links and articulate research findings in line with scholarship and practices of safeguarding cultural heritage, ecotourism, slow food and food security, agrobiodiversity and ethnobotany (Callot 2013, Holdridge et al. 2020, Sauini et al. 2020). There has been a strong sustainability element on multiple levels – health, livelihood, representation and sharing of

[2] These museums form a network of community museums in Costa Rica, and are also strongly connected to the wider Network of Community Museums of América coordinated through Mexico led by Cuautémoc Camarena Ocampo and Teresa Morales Lersch. See https://www.museoscomunitarios.org. Accessed 15 June 2022.

[3] These research projects are: Royal Society of Edinburgh Museums and Social Sustainability in Scotland and Costa Rica (2015); EU-LAC Museums (2016-2021); Community Crafts and Cultures (2017-2021).

[4] The CCC project assistant John Large created a Google Map to show where these museums are, found here: https://communitycc.wp.st-andrews.ac.uk. An interactive Timeline for these museums and their development was also created by University of St Andrews Museum and Gallery Studies student Leonie Leeder supervised by the project team. See here: https://communitycc.wp.st-andrews.ac.uk/community-museum-timeline/.
The respective community museum website may be found here: https://www.museoscomunitarios.org/yimba. Accessed 15 June 2022. https://www.museoscomunitarios.org/boruca. Accessed 15 June 2022. https://www.museoscomunitarios.org/sanvicente. Accessed 15 June 2022.

cultural heritage via food (production, restaurant); as well as an ecological/conservation perspective via permaculture or soil management, i.e. avoiding the need for artificial fertilisers and pesticides, possibly using some medicinal plant knowledge.

As with other indigenous communities in Costa Rica, the Bruncans do not live in isolation: although internet connectivity is limited, they have adopted technology and participate in market economics (particularly tourism) alongside - and often as part of - efforts to maintain indigenous cultural heritage. Understanding how indigenous peoples conceptualise and develop sustainability within this modern context is essential for safeguarding cultural identity and heritage. In the project, we therefore addressed the role of community-led oral, material and technological methods for gathering, preserving and sharing cultural memory and traditional ecological knowledge (TEK) between generations.

TEK is an important component of the world's biocultural heritage. It helps to maintain biodiversity and ecosystem services, is especially important with regard to climate change, and builds resilience in the face of global change. Globally, indigenous biocultural diversity is increasingly valued and being eroded at alarming rates (Aswani et al. 2018). This is evident in our communities: the Brunca language is on the brink of extinction (Seibert Hanson 2019), and despite Costa Rica's international reputation for protecting its high biodiversity, landscape degradation (especially forest loss) is a feature of this part of the country, which lies outside protected areas. This is placing stress on remaining natural resources, particularly those gathered for traditional crafts such as textiles, carved masks and pottery which contribute to tourism-derived income (Cedeño Montoya et al. 2010), and it constrains community resilience to shocks like the hurricane-induced flooding that occurred at Rey Curré in 2017, and COVID-19. The resulting stress and poverty are leading to outward migration, which contributes to intergenerational erosion of knowledge about culture and natural resources. This generates 'shifting baseline syndrome', where each generation accepts the situation that they see as normal, thus leading to a lowering of expectations and diminishing the sustainability of local management skills and knowledge (e.g. Lyver et al. 2019). For all of these reasons, in our research approach, we combined heritage/museums/memory studies, ecology and participatory techniques to promote inter-

generational sharing of TEK so to both avoid shifting baseline syndrome and support adaptive use of TEK and indigenous ecological knowledge among the communities.

Therefore, as regards the relationship between community museums, ecomuseums and sustainable development, this project addresses key issues in 21st century indigenous sustainability, centred on biocultural diversity and community resilience. We drew on best practices in participatory ethnobotany to aid community recording, exploring how technology can be used to help local communities conserve TEK and prevent intergenerational erosion of knowledge by going beyond oral transmission to record the knowledge in danger of being lost. This has begun to build on the corpus of work on participatory ethnobotany, which has not yet focused on indigenous communities in Costa Rica where modern technology (e.g. smartphones, the use of which is prominent in Costa Rica) are part of the social norm (e.g. Gilmore & Young 2012, Sauini et al. 2020, Rodrigues et al. 2020). Moreover, as well as generating practical outcomes to meet community needs, this work contributes to the current debate over the role of TEK and social memory (i.e. cultural heritage and genealogy) in supporting adaptive capacity (e.g. Fonseca-Cepeda et al. 2019, Rodríguez Valencia et al. 2019). In particular, it provides insights into the potentially competing notions that traditional knowledge and practices are being merged with contemporary experience and technologies to create hybrid knowledge systems which are adapted to changing times, and the risk that reduced intergenerational exchange under modern conditions is weakening indigenous adaptive capacity that is relevant to climate change (Caballero-Serrano et al. 2019, Lyver et al. 2019).

Considering this wider context of sustainable development discourse and in relation to the expressed needs of the Costa Rican communities involved, the project asked:

- What does indigenous sustainability [SD] look like in Costa Rica in the 21st century in the face of climate chage?
- How can ethical heritage preservation support this goal?
- What are the roles of youth and intergenerational transmission of knowledge in processes of remembering and building resilience?

The research focus for this project has therefore been inherently interdisciplinary, moving between Heritage Studies, Sustainable

Development and Memory Studies, to greater understand and respond to the issues being faced by the community museums of Costa Rica. Intertwining Heritage Studies and Memory Studies, the majority of activity has fallen under the umbrella of Intangible Cultural Heritage (Stefano and Davis eds, 2019; Akagawa and Smith eds, 2019). The UNESCO Convention for Safeguarding Intangible Cultural Heritage (2003) demands that ICH (including oral traditions, traditional craft skills, performing arts, social practices, and knowledge and practices concerning nature and the universe), are key to community resilience throughout the world as people seek to engage with the past, understand the present and plan for meaningful futures. The Convention proved especially important for indigenous and native populations living in areas of natural significance and, at the time, the Convention was widely supported by countries from the so-called global south – not least the Latin American and Caribbean countries – as the agreement validated their heritage and worldviews.

Museos comunitarios in Costa Rica

As has been written about elsewhere, *museos comunitarios* address contemporary issues including identity, sustainability, decolonisation and climate change in ways often under-recognised by the academy and policy makers (Camerena Ocampo and Morales Lersch, in Brown, Davis and Raposo eds, 2019, pp. 38-53; Brulon Soares 2021). Costa Rica has a good system of protected natural areas, but this system does not include cultural protection. For example, located in the indigenous Brunca territory of south-eastern Costa Rica, Rey Curré Museo Comunitario Yimba Cajc (inaugurated in 2015) lies outside the national network of protected areas. Consequently the ecosystems and communities that are vulnerable to changing climate impacts are much less prominent in the scientific literature and rarely feature on policy agendas. To the best of our knowledge, there are not specific actions or policies that involve protected areas, community culture and prepare for natural disasters in these areas, and the way that Costa Rica attends to cultural diversity and minorities comes from the Cultural Rights Policy.[5]

[5] Costa Rica 'Cultural Rights Policy'. Available at: https://www.dircultura.go.cr/documentos/politica-nacional-derechos-culturales-2013-2024. Accessed 15 June 2022.

Yet, Rey Curré, which has been severely affected by storm intensification and flooding in recent years, has managed these environmental changes through collective action, making it a valuable case study for climate action at *the* local level.

This and the other two community museums involved in CCC form part of the Network of Community Museums of Costa Rica, which is supported by the Regional and Community Museums Program (PMRC), established in2003 and co-led by Ronald Martínez Villareal. A branch of the National Museum of Costa Rica (founded 1887), PMRC supports museums managed by communities and civil society groups. Established on the premise that self-determined and self-sustaining management of the national heritage is possible, the programme focuses on advising and accompanying regional or community organisations under a participatory management methodology of cultural heritage through museums. It is the only specialised state entity defending and respecting identities and heritage within the framework of the cultural rights of citizens. It consolidates the role of museums and develops programs for the positioning, development and sustainability of museums and communities. Beyond the museums, Brunca communities have a history of strong self-mobilisation to address perceived development threats (Hite 2018, Wallbott et al. 2018), a further indication of their proactive approach to maintaining community resilience.

Fig. 1. Group of participants at the Final Encounter, Community Crafts and Cultures project, Museo Comunitario Yimba Cajc, December 2021 (courtesy by the Project Researchers).

Geographically, Rey Curré is in a valley close to the Grande de Térraba river (locally known as "Diquís"[6]), and it is easily accessible from the inter-American highway, while its neighbouring *museo comunitario* Boruca is high up in the mountains and accessed by a rough track. In the case of Rey Curré, in an interview with K. Brown in 2018 the community identified as "Bruncan" and "cien por cien indigena" (one hundred per cent indigenous) to Costa Rica.The beautiful, small *museo comunitario* built by local craftsmen in the traditional 'rancho' style is in the grounds of the Yimba Cajc School (Figure 1). The museum works with the school and local families to strengthen the historical memory of ancestral culture among young people. This community action takes place through intergenerational workshops for the transmission of knowledge around craftwork (especially the carving of Bruncan masks, and weaving), as well as the traditional use of plants and other natural resources such as sea snails that are used for making natural dyes. As with Boruca, the local community also organise an annual festival in January or February featuring the "Baile de los diablitos" / *Kagrúˆ rójc* (Dance of the Little Devils) that has become a tourist phenomenon; they enact a battle with the Spanish conquerors in the form of overthrowing a bull (Amador, 2020).

The Yimba Cajc *museo comunitario* collection and museography itself focuses on themes of the town's origin, archaeology, founding families, the knowledge of the ancestors, trips along the Térraba river, political achievements, traditional crafts, medicine and medicinal plants, as well as the origin of the names Curré and Yimba. This *museo comunitario* works in alliance with the general objectives of the Yimba Cajc Indigenous School, seeking to strengthen the ancestral historical and cultural memory of the young people of the community. For example, the organisation and annual celebration of the Yimba Cajc Cultural Festival takes place through the agency of the museum, which is also active in the development of projects for the sustainability of basic services and for the development of the museum. Guided tours are also provided by appointment.

In response to the COVID-19 health crisis, in March 2020 Boruca took collective action and demonstrated communal resilience when they patrolled their borders to prevent the virus being imported by visitors. Shoring up against the loss of income and the

[6] Diquís is a Spanish derivation of the Boruca language voice Diˆ Cri. It means big water.

threat of a food shortage caused by the pandemic and loss of sales of their native craft goods, the Rey Curré *community* also innovated a community food and medicinal garden in a paddock in the grounds of the school and museum – a collaborative initiative of the school, the museum, and local families. These actions demonstrate the strength of local systems of governance and collective decision-making and action, as well as their ability to adapt to increase resilience (Whitfield et al. 2019). However, this work was badly affected by the hurricanes of November 2020 which brought unexpectedly severe flooding. This disaster, together with the flooding of 2017, when the water reached as high as the school ceiling and flooded the museum, signals an increase in levels of flooding through climate change. In response to the 2020 disaster, the community were able to petition the Costa Rican authorities to reclaim land on higher ground where some families would relocate (Martínez 2021).

While this kind of community-based collective action seems intuitive among the indigenous communities in question, it also aligns with growing high-level governmental concerns and discussions around climate change and traditional ecological knowledge. For example, within both the Intergovernmental Panel on Climate Change (IPCC) and the Intergovernmental Panel on Biodiversity and Ecosystem Services (IPBES),[7] there is increased recognition of the need to learn from indigenous traditional knowledge, not only because of their connection to biodiverse areas, but also because of growing respect for their opinions and concerns through meaningful dialogue (Löfmarck and Lidskog 2017; McElwee et al. 2020). This global effort remains at a relatively early stage, however (Petzold et. al. 2020). When considered in this context, the community museum alongside researchers, can become an active agent at community (Boruca) and national levels, and help provide financial support and leverage wider political awareness and involvement, thereby opening up new and important pathways for climate change adaptation and mitigation. An ecologically-minded

[7] Formed in 1988, the Intergovernmental Panel on Climate Change (IPCC) is the United Nations body for assessing the science related to climate change. The Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) is an independent intergovernmental body established in 2012 to strengthen the science-policy interface for the conservation and sustainable use of biodiversity, long-term human well-being and sustainable development.

community museology, therefore, can and should conceive of how community museums – through their rootedness in the community and intrinsic identity work – have the capacity to articulate local responses to natural, cultural, societal, and environmental challenges through the well of ancestral knowledge, and to address them on their own terms. In this way, when considered in the frame of North–South relations and questions of climate justice, one could even argue that community museums offer the best solutions to address the climate challenge by focusing on human–environment relations with sustainability strategies that are in sympathy with movements in deep ecology and preservation of TEK. However, this paradigm shift necessitates breaking down divides between museum studies, heritage studies and climate science, anthropology, and memory studies, and engaging with endogenous ideas to find common ground in approach and methodology. In this sense, community museums can benefit from exposure to 'outside' ideas and support, such as coping strategies for unpredictable climate stresses that may lie beyond community experience and capability (da Cunha Ávila et al. 2021).

The Boruca *museo comunitario* was founded more than 30 years ago, organised through the women's group La Flor de Boruca Producers Association. It deals with topics associated with the tradition, crafts and history of the Boruca people. It has a space for the sale of its handicrafts that helps to finance some of its projects, maintain the building and pay a person to welcome exhibition visitors. Through the years, the group, by participating in community museum meetings and workshops, has overcome many challenges to make the museum sustainable, including a credit system based on local forms of governance to maintain production activities. Recently, the community museum has also improved access for people with disabilities in compliance with Law 7600 ("The Equal Opportunities Law For Persons With Disabilities"). In the course of the CCC project, Boruca sought to develop new projects to diversify the visitor experience through rural community tourism, allowing visitors to taste traditional foods, live in the home of a local indigenous family, participate in craft activities and enjoy tours on the lifestyle of the indigenous community of Boruca (CCC documentary, 2022). At San Vicente, the ecomuseum (since 2017) has a permanent exhibition about the history, traditions, traditional pottery and territory resources. The main activities

include talks on the history of the community, visits to sites of scenic and natural beauty, walks to the clay extraction sites and demonstrations of pottery making.

CCC and its support for communities

Contrary to many studies where researchers instigate or lead conservation and development projects, CCC represents a non-traditional methodology, a partnership where researchers increasingly respond to solutions identified by the community and enable community autonomy and self-determination. The role becomes that of a facilitator, to promote community skills.

A primary income of Boruca and San Vicente in particular is derived from craft sales – hand-dyed weavings and painted carvings using traditional native materials and techniques; pushing back against trends throughout Central America for selling poorer quality crafts, which are often goods imported for the tourist market. However, each community museum has experienced setbacks in recent years, mainly owing to natural disasters and the COVID-19 pandemic, to which the CCC project has needed to respond and adapt. For example: at San Vicente, the ecomuseum has suffered a drop in visitor numbers from an inability to facilitate intergenerational workshops in relation to traditional craft, food and recipes.

In relation to climate change, in February 2018 CCC offered to assist community resilience in the face of annual tropical storms by delivering, with partners from the Museo Nacional de Costa Rica, ICOM Costa Rica, ICOM Latin America and Caribbean Regional Alliance, a community disaster preparedness workshop in Finca 6 Museum and Arqueological Site (listed as a UNESCO World Heritage Site in 2014). Unfortunately, in March 2020, the Boruca and Rey Curré communities' economic activity declined radically when they closed their territorial borders to outsiders in an effort to mitigate the worst effects of the COVID-19 pandemic on their indigenous community. Tourist activity stopped, and the government ordered movement restrictions and closed all public places. This created a new impetus for the CCC project to reflect on and react to the shifting pressures affecting the community. In response, the CCC project was extended to include researchers and practitioners from Scotland and Costa Rica with experience in sustainable development, botany and memory studies. The aim was to

create a collaboration that goes beyond the 'citizen science' of today, whereby the public engages in complex scientific debate and action with experts at local level, to a situation where decision-making about a local territory is shaped by community-based values rooted in Intangible Cultural Heritage – cultural or spiritual roots – and not only by economic measurements of value. For CCC, this meant maintaining a focus on community museums as a hub for local identity, knowledge and action, while reacting to immediate and longer-term health and income challenges. Here, the difference between responses to natural and health disasters by well-funded large museums that are focused on collection and conservation and those small, local museums rooted inside the community is clear.

In the face of Covid-19 impacts, a rapid community response to a potential food crisis emerged, owing to the closure of borders: the community in Rey Curré reacted through their collective decision-making processes to develop a community vegetable garden in the paddock beside the local school, involving students, parents and teachers in growing basic grains, fruits, and tubers to complement the propagation of fruit trees and other crops: papaya, mangos, watermelon and melon.[8] The community also had visions for the transmission of TEK between village elders and youth through a medicinal garden located in front of the museum. By responding to local needs and diversification into food production, the project supported the three communities in 2021 in their efforts to improve food security and to bring in new disciplinary perspectives to strengthen this adaptive response as part of a longer-term sustainability strategy. As a result of community consultation held inside the communities through their local community museum committees, the communities stated their objectives for this research project would be to:

1. "Use the principles of participation and indigenous identity developed via the community museum to strengthen food security"
2. "Develop research led by young people into genealogy to understand how the family origins of the community contribute to a sense of indigenous identity"; and
3. "Rescue information on traditional values to prevent intergenerational erosion of indigenous knowledge".

[8] See TV show, 21 May 2020: https://www.youtube.com/watch?v=v7vGEUCRm8Y&t=6s. Accessed 15 June 2022.

Initial scoping interviews with key researchers in the MNCR team and lead community contacts determined the most appropriate methods for each of the three research strands identified: food, medicine and genealogy. Workshops, transect walks, and participatory mapping were all envisaged and conducted with respect for strong community feelings on the need to protect ancestral knowledge from outside forces. With women as key tradition-bearers, this aspect was also clarified and reflected in the knowledge-gathering, training processes and project documentaries carried out with the community.

Working together for sustainability

Museos comunitarios are understood to be community projects of collective development, where consensus-based approaches to decision-making and actions become a permanent principle and practice. On a practical level, this understanding translates into the constant development of integration and motivation activities, requiring local forms of organisation and decision-making (Morales et al., 2009). This perspective makes sense when working with elements of collective property and identity representation of the community, such as historical memory and cultural heritage associated with the local territory. These components build an experience of participation aimed at social transformation and form a particular pedagogical practice. Therefore, for the purpose of the CCC project, *museos comunitarios* and ecomuseums here refer to museums that:

- Are driven by the needs of their local communities.
- Give significance to often-neglected aspects of community heritage such as everyday objects, 'intangible' (non-physical or 'living') traditions and skills, and relations with the local environment and landscape that are shaped and maintained through practice.
- Act as 'social tools' by encouraging community governance, conversation, cohesion, and the formation and preservation of identity.

Historical memory and cultural heritage are elements of collective property, constructed through the historical evolution of a human group cementing identity and justifying ideologies. They come from being present in and belonging to the territory inhabited by particular cultural groups, which in turn make it possible to differentiate some communities from others. The

collective property is, therefore, a resource to reaffirm collective identity and make alternative and counter-hegemonic memories visible (Walsh & Cuevas Marín, 2013; Walsh 2017). This common, local and particular history is evident in the expressions of both tangible and intangible cultural heritage, but above all it is recreated in the collective memory, and is especially well appreciated in the testimony of the elderly.

The figure below illustrates these project characteristics, adapted from the core idea of ecomuseums and living heritage as differentiated from 'traditional' museums.

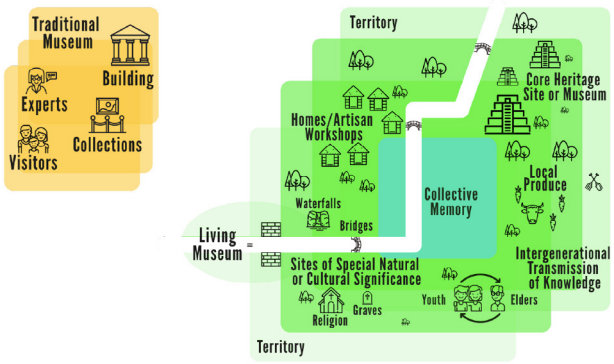

Fig. 2. Illustration showing the project concept of 'living heritage' and the role of intergenerational transmission of knowledge. Adapted from René Rivard's Subjects vs Objects Museology drawing (1984) (courtesy by the Project Researchers).

Co-design reflects community needs and allows the community to decide whom they share their indigenous values and knowledge with, since knowledge 'ownership' is a sensitive issue. A participatory methodology meets current best practice-based research on community sustainability. To support community capacity and autonomy, the project's approach to participatory/community ethnobotany, heritage preservation, empowerment and intellectual property were understood to mean allowing the indigenous peoples to take the lead, with researchers training communities to record/formalise some knowledge transmission, but with no expectation that they would necessarily share this data beyond the community. The role of the St Andrews' researchers was to learn from this collaboration to deepen their approach to interdisciplinarity and insight into the connections between sustainable develop-

ment and cultural heritage (tangible and intangible), and at a local level to be merely facilitators and enablers. The communities have stressed this approach in all communications. In the words of Dayana Jiménez, from the committee of Museo Comunitario Yimba Cajc, "The main impacts of the projects carried out were working together, being able to establish clear goals and purposes together. [...] the community was impacted and benefited from these processes."

Progress towards sustainability and resilience at the community museums and ecomuseum

Among the main challenges faced by the CCC project was the coordination between all the entities involved in Scotland and Costa Rica, and especially with regard to the different regulations and standards to reach partnership agreements in the GCRF programme. Another important challenge was preparing work plans, carrying them out and organising activities in a short time frame. These challenges were overcome thanks to collaborative work, as a team and dividing the tasks. In this regard, the communities were able to quickly build their lists of processes and implement them immediately to meet the project deadlines.

The project was implemented in the community museum and ecomuseum sites in 2021, with much of the practical work taking place between June – December. The Museo Comunitario Yimba Cajc purchased building materials and held workshops on the construction of a vegetable garden and the cultivation of fruits, vegetables and medicinal plants in various spaces of the Yimba Cajc Lyceum and *museo comunitario*. A "chiquereta" was also built for raising chickens and egg-laying hens. For these activities, training was coordinated with the Ministry of Agriculture and Livestock (MAG). In an effort to keep the project outcomes sustainable, produce from the garden, chickens and eggs were sold to the parents of students and the wider community. The proceeds from these sales are re-invested, through the purchase of equipment such as a scythe to keep the grass short in the common green areas of the high school and the museum, and a coffee percolator to use in museum events, and it is expected that these funds will sustain production.

Twenty people participated in the project workshops: 11 women and 9 men, with young people from the school, teachers, and the Community Museum Committee. Training was conducted on orchard management and poultry development, both on raising chickens and caring for laying hens. Currently, the community is working in shifts to maintain, care for, harvest and manage the birds and crops. Thanks to project resources, it has been possible for the community to establish practices via the community museum that will maintain food production. In the long term, similar integrated training and practice of projects could be expanded at the community level, providing cultural, educational and economic benefits to a greater number of people. A community leader from Rey Curré involved in the project reflected, "As lessons learned, collective work is very important, the commitment of each of the participants is very relevant, wanting to do the task or committing to something and fighting for that is the main thing, it is the engine of a project. For the community to be interested, however, requires a lot of organisation, to be able to involve the community, the families, to be able to inform them and make them feel part of it, it makes things go in the best way."

a.

b.

c. 

d. 

e. 

Fig. 3. Museo Comunitario Yimba Cajc, (a and b) Workshop for constructing the garden (c and d) Seedbeds in the garden greenhouse, (e.) Garden during the Final Encounter (courtesy by the Project Researchers).

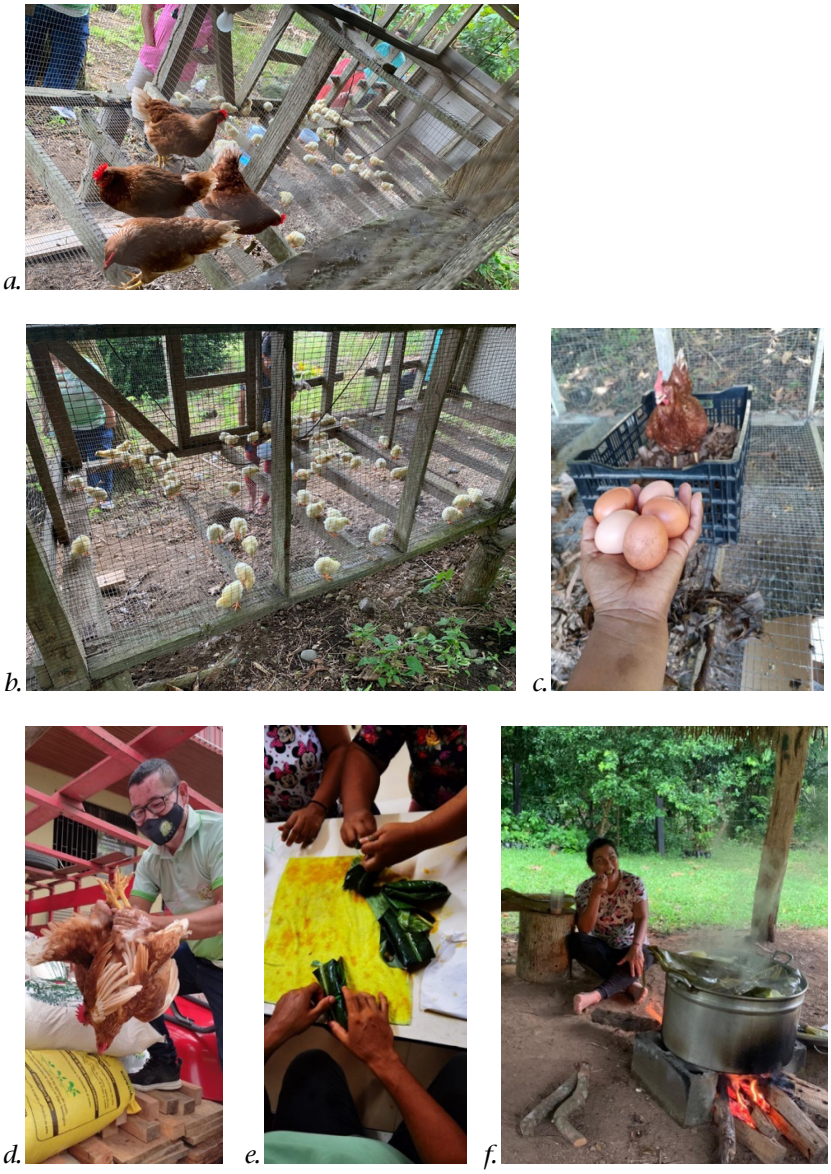

Fig. 4. Museo Comunitario Yimba Cajc,"Chiqueretos" (a) egg-laying hens, and (b) chickens for fattening, (c) harvested eggs produced by the project, (d) chicken processing, (e) making tamales, (f) cooking tamales (courtesy by the Project Researchers).

In the context of the continued closures due to confinement caused by the COVID-19 pandemic, the community of Rey Curre Yimba Cajc, has expanded their orchard in anticipation of future need for community food security. This aspect was already in-

creasing as a result of land takeovers in recent years[9]. Growing vegetables and fruits, and raising chickens and eggs has had a domino effect: the school now also has a garden, extending the original project area from the community college and museum. The community has also been drawn into this effort, as more families now have developed their gardens to produce food.

At Museo Comunitario de Boruca, the kitchen and dining areas were renovated and fully equipped for use in the preparation and sale of traditional meals during end of the year parties and the traditional celebration "Juego de los diablitos". The funds from these will be used to continue with the museum's renovation plans, including an area repurposed as a "soda" or small restaurant providing traditional food to museum visitors. For its official operation, the permission of the Ministry of Health is in process, and expected for 2022.

At the same time, the museum is in the process of remodelling the store and the exhibition area, to grow and develop this community museum. The CCC project included the renovation of the previous construction, replacing weakened structural timbers and replacing the roof as well as the electrical system. The kitchen was fully equipped, and traditionally built tables and chairs were purchased from a member of the community. As traditional construction involves covering the roof and walls with palm and cane (highly flammable materials), security measures for the prevention of fires or other threats were also installed. This remodelling of the space "is a dream for us, it made us cry with emotion for what we achieved" shared a Boruca community leader and member of La Flor de Boruca women's group.

The cooking workshops included sharing recipes for rice tamales and guaraco. "Sapitos" (fried sweets made from corn dough, coconut and sugar cane) were also prepared for workshops transmitting ancestral knowledge to the young people (see CCC project

[9] Costa Rica indigenous communities have worked on reclamations to recover lands inside their territories in recent years, where lands had been taken for non-indigenous owners. In some cases the takeover is a violent process, in other cases the process is fluid and accompanying with legal authorities. Rey Curré recovered around 500 hectares in peaceful terms in the last three years". See: https://www.kerwa.ucr.ac.cr/bitstream/handle/10669/81965/Senti-pensarnos-tierra.pdf?sequence=4&isAllowed=y. Accessed 15 June 2022.
See also: https://www.swissinfo.ch/spa/costa-rica-ind%C3%ADgenas_costa-rica-espera-avanzar-en-construcci%C3%B3n-de-pol%C3%ADtica-para-pueblos-ind%C3%ADgenas/47235572. Accessed 15 June 2022.

documentary, 2022).[10] At the end of the workshops, a closing party was held, sharing "chicha de mujer" - a corn-based drink whose fermentation does not produce alcohol - and other foods cooked with ingredients grown in-community. The intergenerational workshops involved children and young people from school and college, as well as members of the La Flor de Boruca, amounting to a total of 44 people participating, 31 women and 13 men, aged from 8 years onwards. A woman leader shared, "children and young people learned that the museum has its doors open for them. [...] The main impacts of the project are human warmth, human relationships, interacting with children of different ages, with the same adults. Feeling one that at least something is doing on this earth. For me that is the greatest impact, the relationship that exists with the community, with young people, children and meeting people, making alliances, making friends. At the infrastructure level, then, rejoice in so many beautiful things that we have, which are already assets of the museum."

a.

b.

Fig. 5. Museo Comunitario de Boruca (a) new eating area, (b) students at the final workshop on traditional cooking (courtesy by the Project Researchers).

[10] See: https://communitycc.wp.st-andrews.ac.uk/documentary/. Accessed 20/08/2022.

Finally, at the Ecomuseo de la Cerámica Chorotega, the ecomuseum kitchen was destroyed in a 2012 earthquake, so the project allowed the purchase of construction materials and kitchen equipment. A new kitchen represents a resource for the sustainability because it be used to attend visitor´s groups and offer food service to generate museum incomes. A series of traditional cooking workshops were carried out between elders, children and youth to exchange ancestral knowledge. In the activities, refreshments and lunch were bought in-community and provided to the participants, with the parents in charge of its preparation, ensuring they were also part of the activities. A total of 32 workshops were held involving 39 children and young people between 4 and 17 years old. 12 workshops were for traditional cuisine, 10 for ceramics, and another 10 for pre-Columbian ceramics. Among the recipes learned in the kitchen were: corn rice, tamales, the local pujagua corn atol, and rice with chicken and tortillas. In these last workshops, for safety reasons (the use of knives and other potentially dangerous objects) only young people between 12 and 17 years old participated.

According to a facilitator of the Chorotega Ceramics Ecomuseum, the children and young people were very motivated by the workshops: "they expected it to be the day of the workshop on Saturdays, and they did not want to leave [...] so they were assigned tasks so that they will continue practicing during the week." Some children did not know and had never tried some of the recipes that were taught in the workshops, and in the pre-Columbian ceramic workshops "you can see very talented children," he added.

In a similar fashion to Rey Curré and Boruca, the cooking ingredients and materials for the Chorotega pottery workshops were purchased from community residents, thus expanding the project's range of impact at a local level. The parents of the students who participated in the project helped with the preparation of food. The workshops have generated an enhanced closeness between the parents and families, and with the museum's actions, and the trust of the community in general with the museum. In the future, it is planned to give continuity to the workshops, both for cooking and for making and painting ceramics. The success of these activities is reflected in the interest of children and young people in continuing to participate, while the new facilities and equipment facilitate this work.

At a general level, for the three community museums, the CCC Project process has been enriching since it has provided necessary and important resources and community skills, promoting the transmission of intangible culture and TEK. It has brought children, young people, parents and the local community together, providing confidence and a positive projection on the part of *museos comunitarios*. It has also facilitated a challenge and learning at the internal organisation level that will serve as the basis for the implementation of future projects.

a. 

b. 

c. 

Fig. 6. Ecomuseo de la Cerámica Chorotega, (a and b), workshops on traditional cooking (c) cooking tamales (courtesy by the Project Researchers).

A facilitator and member of the Ecomuseo de la Cerámica Chorotega testified, "We did an excellent job so that all the workshops could be developed with the kids from the community. Everything we have developed has been a success, and that is what we have as a proposed organisation. As the main challenges we face, the issue of the pandemic has set these processes back a bit. The number of people, of students, had to be reduced. We have limitations to obtain certain things, for example having the distance, the space, the capacity, the number of students ... this was something that really put us to work because we could not have all the students in a single classroom, they had to be different. But finally we saw the motivation of the different young people in the community, boys who wanted to participate in this process, in these training and educational workshops, and the number was great. But thank God we managed to handle it, and to be able to give space to these young people. We organised ourselves with alcohol gel, with masks, with sinks, distancing ourselves to be able to opt for this process. It was an improvement that when we could count on that we were able to develop the workshops as they should be.

As for the lessons learned during this process [...] we already have the knowledge and experience to be able to develop to continue presenting other projects. I think this is a lesson learned from these projects, we stay calm, but not only do we stay there but we are going to continue working with the boys, with the community, with the companions of the board of directors to continue developing and presenting other projects to different institutions to continue fulfilling our objective."

Final meeting

The Final Gathering of the CCC project took place between 12th and 15th December 2021, bringing all three communities together with the Yimba Cajc community as the host and organised by the Committee of the Museum and the Yimba Cajc Lyceum. Several social and cultural exchange activities were carried out among the participants, and the event also provided the opportunity to visit the homes of important elderly people of the Yimba community, where the group was received with traditional food and talks about aspects of the culture of the place. During this important moment for the project, over the four days the participants, community project facilitators, com-

munity museums committees and CCC representatives had the opportunity to exchange experiences with other communities. In addition to presenting their projects, the participants of the Final Encounter worked together on topics such as heritage and cultural identity, traditional food, festivities and way of life.

a. 

b. 

c. 

d. 

Fig. 7. Final Gathering in Museo Comunitario Yimba Cajc (a) visit to the house of an Elder and archaeological site (b) group activity between children and young people of the 3 communities (c) presentation by students on the theme of cultural identity (d) group work between the students of the 3 communities (courtesy by the Project Researchers).

Work sessions were also held with the facilitators and those in charge of the project of the 3 communities, where the main results, and the challenges and impacts of the project were discussed. The future vision for the development of new projects can be summarised as follows:

1. During the last session of the Final Gathering, the interest to maintain periodic communication between the 3 communities was raised. The group will communicate via the 'WhatsApp' application that was created for the organisation of the meeting. Also, the communities will hold virtual meetings and manage resources to be able to hold face-to-face meetings at least once a year; touring the different communities is planned, thereby supporting each other in the development of their goals and giving continuity to the work in the Community Museum Network.
2. As a result of the project and Covid-19 pressures, activities that were intended as an immediate problem-solving issue have allowed new exchanges (training, food culture, intergenerational learning) that are allowing the communities to discover a renewed sense of indigenous identity. The 3 communities see the need to continue carrying out the cooking workshops and transmission of traditional knowledge. The high motivation of the children and young people who participated in the workshops, as well as other residents of the community who did not participate this time, is seen as an indicator of the success of the project. The infrastructure and equipment provided by the project will facilitate this continuity.
3. From now on, all the communities plan to continue proposing projects along these lines and to deepen issues around the intangible heritage of each community. It is considered to continue opening spaces to create new alliances and contact with organisations such as Slow Food Costa Rica, for example, on the issue of food security and sovereignty.

Conclusion

Since the beginning of collaboration between USTAN, MNCR and the network of community museums of Costa Rica in 2015, the territories have encountered some very difficult global challenges, including massive flooding at Rey Curré school and community museum during Hurricane Nate in 2017, and most

recently, the food security and economic impacts of COVID-19 and the country-wide lockdown since March 2020. The shocks created by climate and the pandemic gave impetus and focus to the most recent CCC efforts, which responded directly to such crises to enhance possibilities for sustainable livelihoods by working alongside the communities to develop needs-based resources that they have identified themselves. These included a community and medicinal garden, genealogical research, and intangible heritage transmission between generations, all of which are strengthening their identity and "roots", thereby managing heritage as, "a non-renewable but creative resource by the community itself as a whole, and by each one of its members or groups of members." (de Varine, 2019 op. cit.). In this sense, the project strengthens community preparedness or resilience for future climate and environmental challenges (Whitfield et al. 2019) by creating a more structured process through which they were able to use the existing museum-based networks to coordinate initiatives, and connect intangible and practical knowledge across generations. The long-standing relations between the project partners considerably improved responsiveness, including the ability to leverage new sources of funding and rapidly co-design the activities to meet the urgent needs of the community. This generated a responsiveness not always associated with conventional research project timeframes.

Increasingly, sustainability agendas are focusing not only on innovations in climate science, but also on the human dimension to account for the fragility of cultural identities and memories at risk of being lost. Today, in the context of a time fraught with the effects of the COVID-19 pandemic, the topic has never seemed more prescient and necessary. As this project has demonstrated, at their best, museums rooted in their communities can offer community cohesion and resilience. They can bring people together from multiple generations to share and celebrate their history and heritage, and they can ask questions of society and government that a large, national institution cannot. Significantly, in the face of the pandemic, as described above, certain small, local museums are also demonstrating remarkable self-determination, creativity, and adaptation in the face of the health crisis and rapid change, born out of their habit of collective voluntary action, such as the actions of Museo Comunitario Rey Curré in Costa Rica.

Therefore, to understand what a community museum is and what its prospects and potentials are, while it is helpful to trace the possible origins and history of a movement in museology, we also need to recognise these small but powerful museums in multidisciplinary and discussions around colonial matrices of power. With modest investment, community and ecomuseums can be the hub for climate change adaptation and conscious effort to maintain and reinvigorate indigenous identity and cultural heritage (Aswani et al. 2018). Our experience also emphasises the value of sustainable development partnerships that focus on community autonomy as a means to strengthen indigenous identity and agency, rather than on externally-led development projects, which are often not self-sustaining (e.g. Ohl-Schacherer et al. 2008). By responding to local needs in a processual way and by relying on local systems of decision-making, such museums and the discourse of ecological community museology required to frame them have much to contribute to knowledge not only in museology, but also for decolonising the agenda in sustainable development and South–North relations.

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11. The Cateran Ecomuseum's 'Museum of Rapid Transition'

Clare Cooper

The Cateran Ecomuseum in rural Tayside, Scotland is set across 1,000km's of the beautiful and dramatic landscapes of eastern Perthshire and western Angus, it is the country's second Ecomuseum and the only one on the mainland.

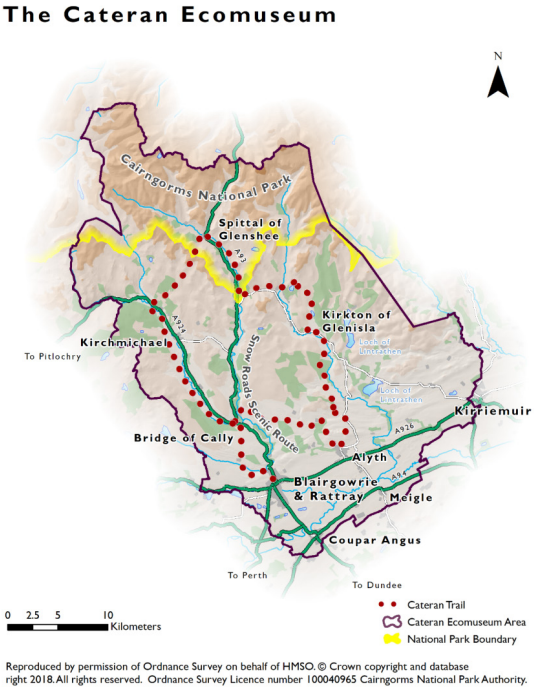

Fig. 1. Map of the Cateran Ecomuseum, image Cairngorms National Park Authority (courtesy the author).

Constituted in March 2018, the Cateran Ecomuseums' first phase of development began by revealing some of the hidden heritage of the area through a range of itineraries (Fig. 1), which aimed to tell the story of its people, places and landscapes across 8,000 years of human history and 400 million years of geological history.

Like many parts of Scotland, the Ecomuseum has a rich natural and cultural heritage to draw on. This includes huge prehistoric Megaliths and Pictish Symbol Stones; little known stories from the great legends of King Arthur and the Pan Gaelic hero Finn mac Cumhaill and fables of the Caterans themselves, the Highland clan warriors who came to be associated with cattle raiding in the 17th/18thc. There are more contemporary histories too, such as those of the Scottish Traveller Community, important events linked to the great Jacobite rebellions and the transformations brought about by the Agricultural and Industrial Revolutions. In terms of natural heritage, the geography of the Ecomuseum traverses one of Scotland's great geological features, the Highland Boundary Fault, which divides the northern hills and glens from the fertile straths[1] of the south. This 400 million year old collision of rocks has also been a great cultural boundary, determining how people settled and used the land differently on each side of the divide. 20,000 years ago these landscapes were covered in glaciers and their effects can still be seen and amazed by today. Diarmuid's Tomb (Fig 2.) for example, is a prehistoric stone circle placed on a natural mounded 'kame'.[2]

Fig. 2. Diarmuid's Tomb (courtesy of the author).

[1] 'Strath' Wikipedia, Wikimedia Foundation, https://en.wikipedia.org/wiki/Strath accessed 18th July 2022

[2] Cateran Ecomuseum, Explore, Pre-Designed Itineraries, The Last Glaciers In Glenshee, https://cateranecomuseum.co.uk/itinerary/the-last-glaciers-in-glenshee/ accessed 18th July 2022

In preparation for the formal launch in November 2019, the newly formed Director group began to discuss plans for the Ecomuseum's second phase of development and quickly arrived at the conclusion that it had to focus on mobilising heritage for climate action.

With global heating accelerating faster than most scientists expected and with a sixth mass extinction underway, they felt that not only was it imperative that a community-led cultural organisation such as the Ecomuseum took a leadership role in helping local people and visitors build more regenerative, resilient lifestyles, but that heritage had a powerful role to play in encouraging that necessarily urgent and rapid transition.

The Directors considered that engaging people with their natural and cultural heritage, either in traditional repositories such as building-based museums, or in an outdoor Ecomuseum setting, had huge, currently underutilised potential. Firstly, they are a knowledge and learning resource which can help contextualise what is happening; develop skills and mitigation strategies that help build adaptive capacity and offer pathways to livelihoods and enterprises that are motivated by much more than profit. Secondly, they are a participative force which can bring people together, challenge the status quo and create spaces both physically and in our minds to imagine that anything is possible.

The idea for 'Museums of Rapid Transition' was first proposed by Andrew Simms, Co-ordinator of the Rapid Transition Alliance in 2019[3]. In a statement prepared for the launch of the Ecomuseum's 'Museum of Rapid Transition' programme, he said "A few years ago I fantasised about a Museum of Rapid Transition and it is amazing to see one becoming reality in Scotland in the very year (2020[4]) that the country hosts critical climate talks at COP26. Museums are physical manifestations of civilisations' collective memories, inventories of the traces left in us by the past. They are also vital stories of change: in our behaviour, culture, economy and technology. And, by showing us how much we have changed before, museums remind us of our ability to change now and help us learn the lessons of the past to illuminate the paths ahead. They are more important now than ever as we face a challenge unprecedented in

[3] Simms, Andrew (2019) Museum of Rapid Transition: museums in a world facing existential crisis, Rapid Transition Alliance 30 April, https://www.rapidtransition.org/commentaries/museum-of-rapid-transition-museums-in-a-world-facing-existential-crisis/. Accessed 15.6.2022

[4] COP 26 was postponed to 2021 as a result of the COVID-19 pandemic

scale and speed to prevent the loss of the climate and biosphere which give civilisation a home."

Inspired by Andrew's call to action and following internal discussion and research, the Cateran Ecomuseum Directors resolved to design a programme that encapsulated his appeal – one which showed how the story of our past can help guide the story of our future.

Taking an integrated nature-culture approach[5] and involving a broad mix of heritage typologies[6] the Directors began planning a three year programme of work with the following objectives:

- For local people the programme would create opportunities to engage with their cultural and natural heritage in ways that inspired and mobilised them to undertake the rapid transition to the more regenerative, resilient ways of living that we need.
- For visitors, the programme would cultivate and grow a 'regenerative tourism'[7] approach to visiting the Ecomuseum, one which replenishes and restores both them and their host communities and helps create the conditions for local environmental, social and economic flourishing.

Designed around the Ecomuseum's three main themes of people, places and landscapes, content would be co-created with local people which drew on the 8,000 years of human history in the area and its 400 million year old geological history, which showed how past generations have gone through rapid transition in the face of new challenges and how communities adapted to continuous change and found ways to flourish.

With the planned start in 2020 cancelled as a result of the COVID-19 pandemic, the programme finally got underway in 2021 with a focus on landscapes. Fundraising success enabled

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[5] ICOMOS Climate Change & Cultural Heritage Working Group (2019) The Future Of Our Pasts: Engaging cultural heritage in climate action, Paris, https://indd.adobe.com/view/a9a551e3-3b23-4127-99fd-a7a80d91a29e

[6] both tangible and intangible. Accessed 15th June 2022

[7] Pollock, Anna (2019), Regenerative Tourism: The Natural Maturation Of Sustainability, October 1 2019, https://medium.com/activate-the-future/regenerative-tourism-the-natural-maturation-of-sustainability-26e6507d0fcb. Accessed 15th June 2022

most if not all of the events and activities originally designed to take place and started with a focus on the visitor experience.

Research by the Ecomuseum Director group had established the congruent values between the emerging concept of Regenerative Tourism and the 'Museum of Rapid Transition' ethos. In a nutshell, the idea of regenerative tourism is to 'leave things better'. Sustainable tourism, the current mainstream concept, tends to focus on reducing the negative impacts of tourism. Regenerative tourism practices on the other hand aim to replenish and restore what we have lost by helping to build communities that thrive, while allowing the planet to thrive too.

Fig. 3. Glen Beanie (courtesy of Markus Stitz).

The context for this shift of worldview has been well documented. It is now globally recognised that mass international tourism, based on an industrial operating model, is falling far short of its promise. Even pre COVID-19 it was producing diminishing returns for providers and host communities; overcrowding destinations; placing excessive pressure on scarce resources of land, water and energy; failing to take sufficient responsibility for managing and minimizing its waste or preserving the environmental and cultural resources on which it depends. Consensus was building around the view that too often this kind of tourism was commodifying unique places into homogenised 'products' and viewing guests as targets to be exploited.

In Scotland, as in the rest of the world there are a growing number examples of the negative impacts of this industrial operating model – Skye, the site of the only other Ecomuseum in Scotland (Staffin ecomuseum, Druim nan Linntean) thus far - being one of the locations that suffers most from over tourism.

The impact of the COVID-19 pandemic has served to underline the precariousness, fragility and lack of resilience of most tourism businesses and the economies of the communities which are dependent on it. In recognition of this there is growing agreement that what is urgently needed is the development of a form of tourism that is more resilient, delivers tangible and equitable benefit to host communities and enables both planet and people to flourish.

Conversations that the Ecomuseum Director Group participated in during their research period for the 'Museum of Rapid Transition' programme were also highlighting that this level of change and transformation would not be led by centralized state sponsored agencies responsible for tourism as long as they remained entranced by the old materialist growth model and were distanced from the unique people and places that extend hospitality. Change was most likely come from "the bottom up," from, by definition, unique place-based communities where tourism hosts collaborate in ways suited to those places to develop a form of visitor economy works for all.

Given this context, the Ecomuseum Director group believed that it was a regenerative tourism approach which had the potential to help the Ecomuseum achieve its 'Museum of Rapid Transition' objectives and designed their 2021 Travel for All Our Tomorrows initiative with this framing.

The work involved developing a second stage of heritage-based walking and cycling itineraries (Fig 3 shows one of the landscape views from one of these[8]) and events across the Ecomuseum and promoting it as one of Scotland's best car free leisure destinations. Messaging, which included a film, Built to Last,[9] reminded people that walking and cycling, is regenerative because it reduces carbon footprint, places less pressure on the

[8] The Cateran Ecomuseum, Explore, Pre-Designed Routes: https://caterane-comuseum.co.uk/itinerary/monega-pass/. Accessed 18th July 2022

[9] The Cateran Ecomuseum, (2021), Blogpage, Built To Last - A New Film From Bikepacking Scotland Set In The Cateran Ecomuseum Launches Seven New Cycling Itineraries, https://cateranecomuseum.co.uk/built-to-last-a-new-film-from-bikepacking-scotland-set-in-the-cateran-ecomuseum-launches-seven-new-cycling-itineraries/. Accessed 15th June 2022

environmental resources of host communities and replenishes and restores people's physical and mental wellbeing.

Further work on developing the Ecomuseum's regenerative tourism experiences is planned, which will include what is known as 'voluntourism' experiences. Voluntourism is a form of tourism in which travellers are offered the opportunity to give back to their host community through some kind of voluntary work and it is one of the fastest growing trends in travel today. In Scotland, these kinds of experiences are primarily focused on environmental restoration projects and it is the Ecomuseum's intention that projects would be designed around natural heritage opportunities.

An early exploration of what could be offered was rehearsed as part of the 2021 'Museum of Rapid Transition' programme. Vital Signs was the first stage of a programme of work, which aims to generate greater engagement with and stewardship of the Ecomuseum's river system by local people and visitors by bringing the environmental discipline of Palaeoecology and the public engagement mechanism of community science into play to tell a new story about one of the Ecomuseum's principal rivers, the River Ericht (Fig. 4).

Fig. 4. The River Ericht (courtesy of the author).

Palaeoecology includes a range of scientific methods with a common goal: to provide an understanding of how ecosystems and individual species function and change over long time periods – where 'long' can refer to decades, centuries or millennia.

Whereas historians use written archives, palaeoecologists rely on natural archives, that is, sediments like peat and lake mud that build up over time and store signals from the environment in that process. Waterlogging in these natural archives reduces decay, so indicators from the environment – in the form of pollen grains, charcoal fragments, plant, fungal and insect remains, minerals, heavy metals and chemical pollutants – do not decompose and are preserved in layers of peat and mud that accumulate over time. These indicators are often referred to as 'proxies' because they allow the reconstruction of conditions that cannot be directly observed.

Focusing initially on the River Ericht and its catchment, a series of activities took place during 2021, which began to reveal its past and present ecology – laying the foundations for a better understanding of how the story of our past might help guide the story of our future.

A desk based palaeoecological study reviewed the landscape and land-use history over the last 10,000 years. This revealed the layers of human and environmental history that shape contemporary landscapes, making them more visible.

An assessment of potential sites for taking sediment cores in the catchment area (which would enable mineral and pollen analyses from past eras) identified a number of lowland and upland sites that could be investigated in the next stage of the project. This would yield important information on past ecological and climate changes.

A new Geotour was developed in the Ericht's broader catchment area at Glenshee, which offers insights into the physical evidence left by the last glaciers in Glenshee c11,700 years ago.

Engaging local people in present day environmental observations offered the opportunity for tree surveying in Craighall Gorge – one of the Ecomuseums last remnants of designated Ancient Forest and a Special Area of Conservation. Volunteers recruited by the Ecomuseum were invited to assist the Tay Ghillies Association[10] in collecting data for their Smart Rivers Project. And a Bioblitz event on the banks of the Ericht in

[10] Tay Ghillies Association, https://tayghillies.co.uk. Accessed 18th July 2022

Blairgowrie – the first ever undertaken in this area – gave local people the opportunity to get to know more about the flora and fauna in and around the river today.

As a result of the success of this first phase, fundraising has begun for a second phase of work which will involve visitors and well as local people in generating high-quality scientific and archival data on the environmental changes of the last few centuries and identifying the main local drivers of change. The aim will be to raise awareness in local and wider communities of the significance and pervasiveness of such changes, environmentally, socially and economically; relate these to contemporary trends and baselines (e.g. public perceptions of 'normality'); situate current environmental management issues in a historical perspective; provide baseline data to inform environmental, biodiversity and climate action management goals; establish objectives in potential regeneration projects; train people in community science roles and promote environmental stewardship.

The focus for this work will be on collecting data from the industrial and agricultural revolution periods of the late 18th – early 19th centuries AD which represent a major socio-economic and environmental transformation. We will define how new ways of thinking about resources radically changed rural and urban landscapes, explore their environmental impacts and their ongoing legacies, and inform the regeneration of diverse ecosystems. Water and how it has been harnessed and impacted will be central themes, as is the lowland landscape of Strathmore in the southern half of the Ecomuseum because environmental histories of lowland landscapes are relatively rare.

One project for example, will focus on lowland drainage and increases in flood frequency due to climate change in the town of Meigle on the southern edge of the Ecomuseum. With Nature-based solutions to increasing flood frequency and intensity now accepted strategies, this project will aim to explain why these methodologies are needed to the local community and the wider public by describing and demonstrating the downstream effects of 19th century lowland peat clearance. Nearly 11km^2 of bog and lochs around Meigle were drained and enclosed between 1750 and 1860 and the environmental impacts and legacies are likely to be highly significant. Because peat stores water and carbon , its removal to create highly productive agricultural land is likely to have led to rapid flooding

and increased flood impacts. Taking a palaeoenvironmental approach like this will show how the need for the near-future reversal of such land use changes can be best understood and accepted by explaining the consequences of past behaviours.

Another natural heritage project designed for the landscape focused 2021 'Museum of Rapid Transition' programme and scheduled to co-incide with the delayed UN Climate Change Conference, COP26, created a physical graphic timeline of 20,000 years of climate change in this part of Scotland. Called Turning Points, the timeline was set across a 50 metre long 2 metre high series of panels (Fig. 5) which were exhibited outside in the centre of the historic town of Alyth in the Ecomuseum. It's message was straightforward:

Our climate is changing. This is not the first time it has changed, but it is the first time it has been changed by us. By burning fossil fuels, cutting down forests and farming livestock we are increasing greenhouse gases which trap the sun's heat and stop it from leaking back into space. As a result our planet home is heating up. In Scotland, temperatures are increasing across all the seasons[11]. Our weather is becoming more variable and extreme – our hottest days are getting hotter and our wettest days are getting wetter – leading to more droughts and flooding. A rapid decline in Scotland's biodiversity[12], closely linked to climate change is also being driven by our behaviour. The methods we use to generate energy and our levels of consumption have begun the sixth mass extinction[13] in the Earth's history. In Scotland, wildlife decline is faster than in the rest of the UK. These twin global crises of climate change and biodiversity loss require us to rebalance our relationship with nature if we are to secure a healthier planet. This decade is the turning point for how we achieve that new balance.

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[11] Adaptation Scotland, Climate Trends & Projections, https://www.adaptationscotland.org.uk/why-adapt/climate-trends-and-projections/future-climate-projections-scotland. Accessed 18th July 2022

[12] Scottish Government, Scottish Biodiversity Strategy, post 2020: Statement of Intent, https://www.gov.scot/publications/scottish-biodiversity-strategy-post-2020-statement-intent/pages/1/ Accessed 18th July 2022

[13] University of Hawai'i, University of Hawai't News https://www.hawaii.edu/news/2022/01/14/6th-mass-extinction-progress/. Accessed 18th July 2022

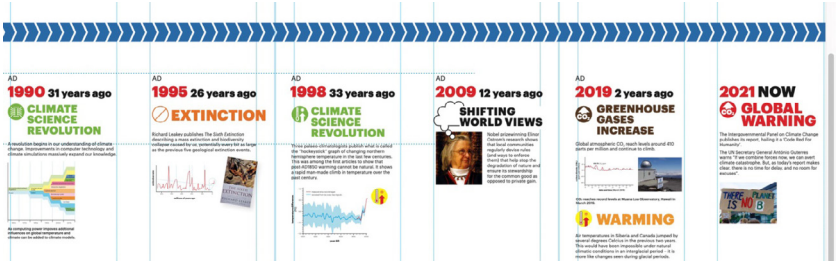

Fig. 5. A section of the Turning Points Exhibition (courtesy of the author).

The exhibition showed how humans adapted throughout history when faced with similar challenges and asked the question "Will we use these lessons from the past to shape a brighter future?"

Ironically, the day after the exhibition was formally opened, the area suffered an extreme weather event, the river next to the exhibition site flooded and the waters were lapping the bottom of the exhibition panels!

Another project designed for the 2021, also scheduled to coincide with the COP26 drew on the intrinsic heritage of the area – one of its main legends, linked to the great Pan Gaelic hero Finn mac Cumhaill[14].

Called The Awakening, three contemporary artists were commissioned to create a multi-media arts installation on the side of one of the hills at the Spittal of Glenshee in the northern part of the Ecomuseum.

Glenshee takes its name from the Gaelic word shith, signifying 'fairies'. Until the old tongue died out in the late 1800's the inhabitants were known as Sithichean a' Ghlinnshith – 'The Elves of Glenshee'. The Glen's ancient meeting place behind the kirk was called Dun Shith (Hill of the Fairies) and is still dominated by a standing stone from the Bronze age. The Coire Shith or Fairy Burn, plunges down the side of Ben Gulabin, the mountain commanding the head of Glenshee adding still more weight to the glens fairy past.

One element of the commission was a 9,000 square metre hand made out of jute and geotextile and pinned to the hillside with steel pins (Fig.6). Another was a poem written especially for the installation and the third was a new story, which im-

[14] 'Fionn mac Cumhaill', Wikipedia, Wikimedia Foundation, https://en.wikipedia.org/wiki/Fionn_mac_Cumhaill. Accessed 18th July 2022

agined a new chapter in the Finn legend especially tied to the climate crisis.

Fig. 6. The Awakening Installation (courtesy of the author).

A symbolic ceremony to awaken the giant took place at the start of the COP26 Conference, which fell close to the date of Samhain, the great Celtic festival when the door to 'the other world' is open. At this event, a Pictish war horn, the Carnyx, was sounded in the Glen three times. This is the signal Scottish giant Lore tells us will awaken the giant and his warriors so that they can come to our aid. The ceremony also featured pupils from Kirkmichael Primary School who gifted community representatives from the area with hazel trees to plant, as a link to one of the most famous of the Finn mac Cumhaill stories. In this story, called The Salmon of Knowledge, Finn gains the knowledge of all the world from eating the salmon, who gained the knowledge of all the world from the Hazel nuts dropped into the water by the nine Hazel trees that surrounded the Well of Wisdom. The presentation of the Hazel trees symbolised the knowledge of all the world being gifted back to us by the giant.

Part of the Commission brief to the artists was that the piece connected back to the Ecomuseum's regenerative tourism approach in that it would encourage people to walk to the site. The storyteller who was commissioned to write for the

Awakening, was also commissioned to create a new StoryBank of stories about trees for the 2021 landscape programme. Called Rooted, the aim of this project was to remind us of the central role that trees, forests and woodlands have played in the life of our species. For millennia, they've provided us with shelter, food, medicine and meaning until our modern human behaviours cleared them, collapsed their biodiversity and disconnected us from the knowledge that our ancestors had of their diverse uses in relation to our health and wellbeing and in the socio-cultural role that they played in developing 'bigger than self' values, life skills and that all important understanding of our complete interdependence with the natural world. The German-Swiss poet and novelist Herman Hesse wrote: "Trees are sanctuaries. Whoever knows how to speak to them, whoever knows how to listen to them, can learn the truth. They do not preach learning and precepts, they preach, undeterred by particulars, the ancient law of life."

As the enormity of the climate and biodiversity crises come sharply into view, the Ecomuseum Director group believes that engaging with and reconnecting to old stories such as those in the Rooted collection, has hugely under-utilised potential to help people build more regenerative and resilient lifestyles and mobilise climate action.

In addition to reconnecting people to old stories which had relevance and value for our lives today, a set of activities was designed that aimed to mobilise different aspects of our heritage to encourage people to take every day climate action now.

Co-designed with willow weaver and climate literacy expert Jane Wilkinson and focusing on food, energy, travel and clothing, and called INHERITage, 14 activities took place over the course of the summer and early autumn in different human settlements across the Ecomuseum.

Bring Back the Bannoch[15] took this ancient Scottish food and told its story in such a way as to emphasise the importance of sourcing local, sustainable food. After the sessions, nearly 56% of participants who responded said that as a result of taking part in the session they would buy more locally grown food, just over 33% said they would make their own bannocks and just over 11% said they would find out more about their food heritage.

[15] A traditional Scottish type of unleavened bread.

Not A Patch on the Plaid focused on this iconic item of Scottish clothing and used the history of how it was worn and made to last to critique our 'Fast Fashion' economy. 50% of participants who chose to offer feedback afterwards said they would mend more of their own clothes and 50% said they would – forthwith – wear the Plaid! (Fig. 7)

Fig. 7. Not A Patch On The Plaid Workshop (courtesy of the author).

The Curragh or the Car? juxtaposed one of the common ways people moved through the landscape in past times – the curragh or coracle, with the most popular way we move around the landscape now, the car, in order to promote discussion about the carbon footprint of our modern travelling habits. In answer to our feedback question 'What new knowledge did you gain?' a few of the many comments from participants included: 'How the coracles were used and some amazing journeys that were done'. 'Gosh! Where do we start?! From the history of the coracle and how far it enabled people to travel, to its use in Wales today and also in Scotland'. 'The teaching of its construction and square lashing was fascinating!' 'Learning how to paddle is definitely a tricky thing to master but again so enjoyable.' 'Had not appreciated what distances coracles could travel, also how damaging car travel is for the planet.'

Hearth is where the Home is tracked the nature of the 'hearth' throughout human history to show how disconnected we

have become from how we heat our homes with participants feeding back that the session would definitely make them think more about how to reduce their carbon footprint overall.

And *By Leaves We Live* re-introduced people to how wild food was harvested in the past. Asked afterwards whether participating in the session would influence what and how you eat in the future? Nearly 67% said 'Very Likely' and 33% said 'Likely'.

The second phase of our 'Museum of Rapid Transition' programme', which has just commenced, will foreground the role of imagination - widely regarded as one of humanity's most powerful attributes.

"By allowing us to confront the world not just as naïve realists who respond directly to immediate threats and opportunities (the general condition of other animals) but as supposition-makers and thought experimenters," wrote the philosopher Dennis Dutton "imagination gave human beings one of their greatest evolved cognitive assets."[16] Leading environmental thinkers are describing the climate crisis as a 'failure of the imagination'[17]. If we are to make the leap to a liveable world, we need to fire up this super power urgently to create the future we want.

This part of the programme will focus on the role of the imagination in our past, beginning by curating local stories, myths and legends, songs, music and cultural traditions, which illustrate:

- how people used these imaginative practices to build a sense of community and belonging, promulgate values and morals and teach life skills
- how they acted as vehicles to help pass on knowledge from one generation to another, build relationships across different communities & cultures & work in harmony with the natural world
- how barriers can be, and have been, overcome in the past through community mobilisation, innovation and experimentation, charismatic leadership, State Government and combinations of them all

These 'acts of imagination' will be interpreted and performed in ways that bring people together to build community resilience and rehearse radical change.

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[16] Denis Dutton, *The Art Instinct: Beauty, Pleasure, and Human Evolution* (New York: Bloomsbury Press, 2010).

[17] Rob Hopkins, *From What Is to What If: Unleashing the Power of Imagination to Create the Future We Want* (London: Chelsea Green Publishing, 2019).

One example of how this is being achieved is through an exhibition, which opened in Alyth Museum in the spring of 2022.

Called 'The Great Imagining' it profiles a number of myths, legends and historical events local to the Cateran Ecomuseum that exemplify how humans use stories to make sense of the world through their capacity to offer insight into deep truths, enable empathy and open up our imagination to new ideas.

One story chosen, called The Onfall of Alyth, (Fig. 8) offers an example of how stories based on history give us a sense of place and influence our local and national identity:

The exhibition goes on to explain to people that stories can be changed depending on who is telling the story and how the stories are told, and culminates in an invitation to visitors to help change humanity's story from its current arc of destruction to one which recognises our interdependence with the natural world and enables all life to flourish.

The third phase of the 'Museum of Rapid Transition' programme will frame the story of design in the Ecomusuem geography.[18]

Humanity's remarkable capacity for design in response to a continuously changing external environment and the creation of new knowledge has been central to the development of the Ecomuseums' communities for thousands of years. Some local designs have been major innovations that have gone on to impact on a much larger scale. Blairgowrie was the town where the machine was invented that spun Jute for example[19], or the many mechanical inventions of James Sandy[20]. Others, more contentious, such as the Lowland Clearances[21], which impacted this part of Scotland, completely changed the area's agricultural industry in a generation.

18

19 The Cateran Ecomuseum, (2021), Explore, Pre-Designed Routes, A Spin Along The Ericht, Oakbank Mill, https://cateranecomuseum.co.uk/site/oakbank-mill/. Accessed 15th June 2022

20 The Cateran Ecomuseum, (2021), Explore, Pre-Designed Routes, Alyth Auld Town, James Sandy, https://cateranecomuseum.co.uk/site/home-of-the-inventor-james-sandy/. Accessed 15th June 2022

21 AITCHISON, P., & CASSELL, A. (2003). *The Lowland clearances: Scotland's silent revolution, 1760-1830*. East Linton, Tuckwell.

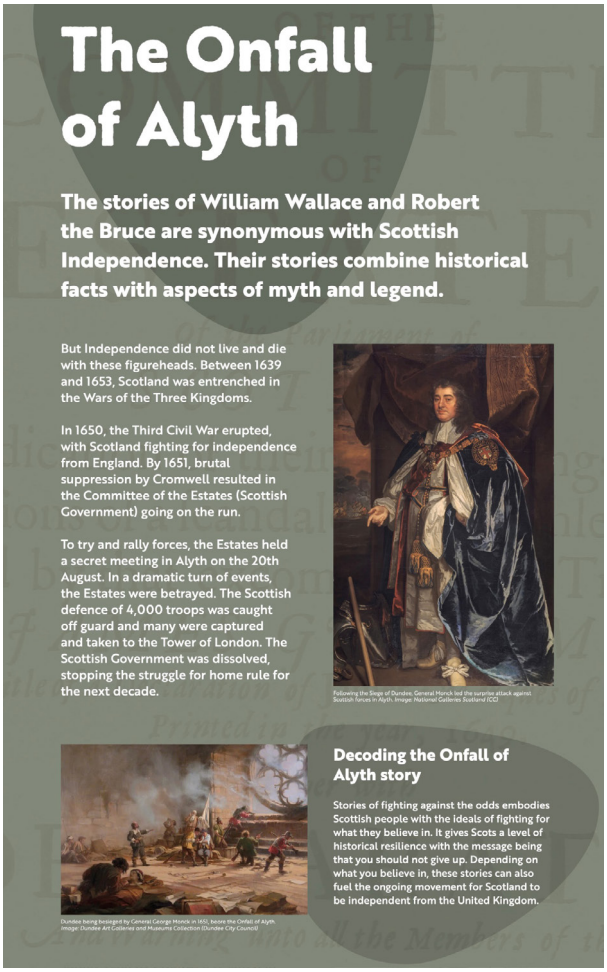

Fig. 8. Onfall of Alyth Panel, The Great Imagining Exhibition, Alyth Museum (courtesy of the author).

This narrative arc will illuminate how design approaches from the past - in architecture, agriculture, human settlement patterns and social & political organisation, might inspire us to design a rapid transition to new ways of living.

Beginning with architecture, local people and visitors will be able to engage in activities and events which will explain

- how the people of the Ecomuseum designed and constructed buildings of all kinds across 6,000 year of history, including:
  - homes
  - key pieces of infrastructure to manage e.g. water, the movement of first humans & animals and then vehicles
  - monuments which had spiritual meaning and
- how these designs evolved in response to changing conditions be they climate related, political and social organisation or knowledge innovations.

Material will be curated which will exemplify how, by reconnecting to the ingenuity and innovation of this aspect of our design history, we might draw inspiration from it to catalyse the design innovations we need in the context of the synchronous crises we face.

As Andrew Simms pointed out in his original article that provoked and inspired the Cateran Ecomuseum's climate action work[22], history is full of examples of how humans have faced up to the need for rapid transition in the face of new challenges. Across millennia, societies have constantly shown their ability to change and adapt and still meet their needs by overcoming barriers in countless imaginative ways. It remains to be seen whether we can do so again in the face of the unprecedented crises we now face, but museums and perhaps ecomuseums most especially, because of their place-based holistic nature and culture approach, have a unique role to play in how people can understand the dynamics of change. Here in Scotland, in the work of the Cateran Ecomuseum, we hope we are offering a glimpse of that unique role.

[22] Simmons, Andrew (2019) Museum of Rapid Transition: museums in a world facing existential crisis, Rapid Transition Alliance 30 April, https://www.rapidtransition.org/commentaries/museum-of-rapid-transition-museums-in-a-world-facing-existential-crisis/. Accessed 15.6.2022

12. The importance of ecomuseums and local knowledge for a sustainable future: the La Ponte-Ecomuseu project

Óscar Navajas Corral and Jesús Fernández Fernández

Introduction

The concept of sustainability began to gain visibility in institutions and society after the Second World War, although its roots go back to the middle of the 19th century, when ecology began to be established as a branch of biology to study living organisms and their interrelations with the territory and the environment. The meaning of the terms ecology and sustainability have changed from their original focus on the management and sustainability of the natural environment to encompass social, cultural and economic aspects in a holistic manner, as is shown by the 17 Sustainable Development Goals 2030, promoted by the United Nations.

Numerous meetings of international bodies and organisations have raised international awareness of the need to treat heritage (natural, cultural and intangible) as a global issue and responsibility, a joint evolutionary relationship between nature and human beings. Some of these meetings gave rise to programmes such as the Man and Biosphere (MAB) programme in 1972, which led to the concept of Biosphere Reserves that recognise that nature and people have been historically entwined, that people have modified the environment in positive and negative ways. In the same year, the United Nations Environment Programme (UNEP) was created, whose first director, Mauricio F. Strong, proposed the term "eco-development" in 1973.

These theoretical concepts have gone hand in hand with the implementation of its precepts in social and cultural practices,

such as those carried out by museums, and in economic practices, such as those carried out by the tourism industry.

Eco-development, concern about the impacts of growing (cultural) tourism and the concerns of local communities to participate in the management and planning of their territories and heritage assets were soon reflected in concrete practices. In France, the 1960s saw the emergence of regional nature parks and, with them, ecomuseums, entities whose aim was to enhance the value of an integral heritage for social, cultural and economic (tourism) development in a sustainable manner. The very concept of the ecomuseum was - and is - related to the term ecology, both are formed from the Greek word Oikos (house, home, dwelling). Ecomuseums were structured as laboratories where communities, together with political powers and experts, could research, conserve and disseminate a global heritage for future generations.

Since then, ecomuseums have continued to evolve and expand around the world, and have become benchmarks for implementing sustainable policies in the management of heritage, landscape and tourism flows. In 2022, these entities are facing new challenges: the degradation of natural spaces, loss of biodiversity, calls for social justice, demographically depressed rural environments, and, most importantly, climate change. Many of these issues are directly related to the 17 Sustainable Development Goals (SDGs). The following article presents an analysis of the reality of existing ecomuseums in Spain and how they are facing the challenges of climate change, sustainability and reacting to the SDGs, as well as the impact of the creation of this type of museum on a territory and its communities.

This chapter reveals the reality of ecomuseums in Spain and determines whether the increase in the number of ecomuseums is caused by the new social mentality, one that is more aware of sustainability, will analyse the actions carried out by SDG ecomuseums, and will present the specific case of La Ponte-Ecomuséu as an entity that generates actions for citizens who are aware of the challenges facing today's societies.

The birth of an idea of museums for development and sustainability

In the mid-twentieth century the world museum scene was in a profound crisis. An existential crisis that had at its core the distance

between these institutions and the different social and cultural realities with which they cohabited. These spaces that guarded "a tumult of frozen creatures" (Valery, 1923) had passed phonetically and conceptually from 'museum' to 'mausoleum' (Adorno, 1967).

It is in this panorama that dissonant and dissident voices began to emerge, voices that worked to build a different museum model, one useful for the communities and their territories. Their imprint is reflected in the definition of museums by the International Council of Museums (ICOM) when it defined them as entities "at the service of society and its development"[1]. This implied, on the one hand, that the object of the museum was now the subject, that is, the people, the communities; and, on the other hand, that the idea of development should be long-term (sustainable) and in three areas: social, cultural and economic[2].

One of the typologies that appealed to this spirit was the ecomuseum. The term "ecomuseum" originated in France in the early 1970s. In fact, it was the preparation of the 9th General Conference of the International Council of Museums (ICOM), in Paris and Grenoble, where George Henri Rivière and Hugues de Varine coined the term. The role that ecomuseums were intended to play was multiple: on the one hand, to encourage meetings and community initiatives; on the other hand, a tool for the cultural, social and cultural development of different territories and communities.

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[1] The definition of museum is a continuous work carried out by ICOM, especially with the help of its committee for museology, ICOFOM. In fact, at the ICOM Extraordinary General Assembly, held in Prague on August 24, 2022, the new definition of a museum was approved: "A museum is a non-profit, permanent institution at the service of society, that investigates, collects, preserves, interprets and exhibits tangible and intangible heritage. Open to the public, accessible and inclusive, museums foster diversity and sustainability. With the participation of communities, museums operate and communicate ethically and professionally, offering varied experiences for education, enjoyment, reflection and the exchange of knowledge".

[2] This vision will link with the precepts of the Rio Declaration on Environment and Development, issued by the United Nations Conference on Environment and Development (Rio de Janeiro, 1992). It is noted that "human beings are at the center of concerns related to sustainable development" (Principle 1), sustainable development is a right and must be planned for present and future generations (Principle 3), as well as that it must be addressed global (Principle 4) and under parameters of cooperation and citizen participation, addressing mainly the needs and problems of the communities (Principles 4, 5, 6 and 10).

A first phase in the conception of ecomuseums, what could be called proto-ecomuseums (Hubert, 1989; and Duclos, 1990), is given by the creation and expansion of open-air museums[3] or museums of the land[4] that transformed the meaning and significance of the concept of heritage. Heritage began to be valued not only for its "aesthetic" value, but also for the testimony it represents for a population, as for its territorial links. These museums presented reconstructions of traditional architecture, environment and societies inhabiting a territory. The paradigmatic evolution of this typology was the *heimatmuseum* in Germany, where popular culture was revalued, highlighting the relationship between humankind and the environment.

The turning point for the birth of the ecomuseum was the Lurs Conference (Provence) in 1966, which defined a new way of understanding natural and cultural heritage in France. This is when the French regional natural parks were born which, in addition to preserving the natural heritage, took into account the participation and revaluation of the communities that inhabited them and their cultural heritage[5]. These first ecomuseal experiences can be considered as part of the first generations of ecomuseums[6].

Between 1971 and 1974, the second generation of ecomuseums was born. It freed ecomuseums from their "ecological" label and established them as institutions aimed at community development, which implied the relationship of human beings with their environment. In 1971, Paul Evrard proposed to Hugues de

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[3] Skansen was created by Arthur Azelius in 1891 in Sweden. This museum model multiplied in Scandinavia, Germany, the Netherlands, England, Romania and the United States.

[4] It was in this environment that the Arlaten Museum in Arles and the Dauphinois Museum, created in 1904 by Hippolyte Müller, were born in 1898.

[5] The first project to see the light of day will be the *Parc Naturel Régional des Landes de Gascogne*. A space where buildings of cultural and heritage interest coexist. A few years later, it will take the name of *Écomusée de Grande Landes*. This was followed by the *Écomusée d'Ouessant*, which was born from the architectural recovery in the *Parc Naturel Régional d'Armorique*; or the *Écomusée du Mont Lozère*. All of them were born in French regional natural parks.

[6] But this type of experience that brought heritage closer to and linked it with the community as an intrinsic part of it did not only take place in France in May '68. In the same year, John Kinard founded the *Anascotia Neiboorhood Museum*, a museum that was born in one of Washington's marginal neighbourhoods from the needs of the local population itself to alleviate; and Mario Vázquez La *Casa del Museo* in Mexico where the problems of disadvantaged neighbourhoods were worked on in a communitarian way.

Varine, the architect of the term ecomuseum, to create a museum in the industrial community of Creusot. This was the first urban ecomuseum, one not associated with a regional nature park, but identified as the first community ecomuseum.

This experience marked a turning point in museology at an international level. The much-lauded equation where the building became a territory, the collections were transformed into a global heritage, and the public became a population that inhabits and manages the ecomuseum, became fully real. The model would spread to other countries (Canada, Italy, Portugal, and Spain). In some cases, projects took advantage of the appeal of the prefix "eco" and the ecological imagery that it aroused in those who visited them. In other cases, the main driver was participatory and community spirit. However, in both cases, the potential they possessed to look at the territory from a holistic and endogenous perspective was unlocked.

The sense of sustainability in ecomuseums

Ecomuseums, like other museological typologies that promoted community participation, proposed a change in the way of understanding the raison d'être of museums in society. The aim was to transform the museological process into a means of direct participation of the individual and the community, as well as to offer a tool for the integral development of heritage and territory (Alonso, 1999: 52). This process of transformation of the museum and museology entailed substantially modifying the parameters that defined these institutions, such as, for example, the conception of the collection, of heritage, of the work of the curators and technicians, or the spatial dimension, among others, and proposing their renovation or the creation of new ones.

Since the emergence of ecomuseums, there has been a succession of analyses and research into the evolution of the parameters that define these entities and what distinguishes them from other types of museums, especially the so-called "traditional museum", i.e.: what differentiates an ecomuseum from another type of museum typology, where do the boundaries of each of them meet, what indicators can be used to classify what is considered an ecomuseum from what is not? In this sense, different authors have not only tried to define the ecomuseum, but have also searched for parameters that could establish its main characteristics.

The reference text for understanding the pillars of ecomuseums was written by Hugues de Varine in 1978, but it was Patrick Boylan (1992) who proposed a first analysis of ecomuseological practice with a list of five parameters: territory; museological action based on democratic participation between the different actors; interdisciplinary work; an integral sense of heritage (natural and cultural); and the construction of a network of endogenous and exogenous relations between actors that allow the experience to be more than just an initiative for heritage recovery; rather, it should become an instrument to meet the needs of the territory and its inhabitants.

Three years later, in 1995, Hamrin and Hulander published a list of eighteen indicators, highlighting, in comparison with Boylan, the tourism sector as a tool for economic development and visibility, and the musealisation of the territory from a landscape perspective[7] . Peter Davis (1999) reduced this last list to fifteen indicators, the substantial change being that he grouped the indicators directly related to the recovery and dissemination of heritage under the category of Interpretation of the territory. Nevertheless, the feeling of permanent evolution continued to be characteristic, of a living space that is not stagnant in time, but is constantly evolving, like an organism. Past and present exist in the same space for future development.

In 2005, the *Communication and Exploration* Seminar was held in Guizhou, China, where the basic principles for ecomuseums in the 21st century, known as the *Liuzhi Principles*, were ratified, and the strong social sense and relevance of tourism activities were already strongly emphasised[8] . This was the moment when the influence of the initial Francophone trend merged

[7] The reality of Nordic ecomuseums is closely linked to the evolution of open-air museums, a typology intimately linked to the tourism sector. It should be noted here that Bedekar (1995) went so far as to draw up a list of eighty parameters to specify what ecomuseums and the New Museology were.

[8] Tourism was understood from a social, economic, political and academic point of view as a social activity generating economic activity (Vera, 1997). In the last decades, an international movement towards sustainability and sustainable tourism has been developing, which is influencing all social, cultural and economic spheres. The first to unleash this wave was the Lanzarote Summit in 1992, followed by the Évora meeting in 1997, and in our field of action the current cultural tourism charter that has emerged as a joint initiative of the International Council of Museums (ICOM) and the Federation of Friends of Museums (FEAMS) in 2010. In these declarations, tourism is understood as a conquest of the 20th century and culture as a form of social cohesion.

with the (new) Anglo-Saxon and Asian trend; from this point on, the assumption of sustainability as one of the relevant indicators of ecomuseum activity became generally accepted.

The door it opened underlined one of the contemporary parameters that was gaining ground and was part of the essence of ecomuseums, that of "community development" (Corsane, 2006). As Ohara (1998 and 2008) and Mayrand (2010) point out, initiative and action are the two privileged tools of community development. The first is the emergence of the initiative that arises from the community to develop a certain proposal for the common development of the community. The second, action, is the moment or moments of community mobilisation. Both constitute the axis on which the idea of commitment, development and evolution with a forward-looking approach to ecomuseums is based. Linked to this is where the conception of "sustainability" for these experiences comes in.

Hong (2010) divides the indicators into three groups according to: (1) criteria of participation and empowerment, (2) criteria of heritage conservation and preservation, and (3) criteria of sustainable local management strategies. Hong explicitly introduced the concept of sustainable development to encompass a series of indicators together with the idea of community development. This had already been dealt with by the different authors who began to elaborate the first ecomuseological projects such as Hugues de Varine (1991, 2005) or Pierre Mayrand (2004), as well as by authors who have approached the subject from a more contemporary perspective, Peter Davis (1999, 2005) or Gerard Corsane (2006); a sense of community and territorial development is always conveyed, always thinking of the future; however Hong emphasizes the importance of sustainability in the gestation processes.

Two aspects should not be forgotten here: (1) the museological roots of ecomuseums themselves, (2) and their prefix "eco". As for the first, the development of ethnological and anthropological museology since the turn of the century, the experiences of American national parks, *heimatmuseums* and open-air museums have given rise to an "ecologist" tendency within some museological institutions. The first ecomuseums, reflected the consequences of industrialisation and post-industrialisation, and were tools for raising awareness of the problems - and possibilities - of degraded territories, whether due to environmental deterioration, the imbalance of economic activities, or the loss

of population due to the abandonment of rural areas. These kind of projects were the first way of linking ethnology and ecology.

Regarding the second aspect, the concept ecomuseum comes from *oikos* (Greek: οίκος, plural: οίκοι). The *oikos* was the basic unit of society in most city-states, and included the head of the *oikos* (usually the eldest male), his nuclear family and slaves living together in a domestic setting. The translation of this to ecomuseums is provided by the originator of the concept himself:

> The prefix "eco" refers to a concept of human ecology and the dynamic relations that man and society establish with their tradition, their environment and the processes of transformation of these elements, reaching a certain degree of awareness of their responsibility as creators (Varine, 1978: 457).

As Hugues de Varine stated "(...) not only the reasonable management and consumption by the human population of the Earth's renewable and non-renewable resources, but also the personal and collective commitment to recognise the common natural and cultural value of a heritage of humanity, as a precondition for any development programme" (Varine, 2006: 59). It was logical for the emphasis of ecomuseums to move from ecology, as a naturalistic biological phenomenon, to sustainability as an inclusive aspect (Maggi, 2004; Riva, 2008; Davis, 2007). Their ecological (sustainable) perspective, therefore, was not only focused on natural heritage, but also on promoting interdisciplinary work, emphasising the relationship between human beings and their environment and the interrelations of an ecological system characterised by the mechanisms of adaptation and transformation that occur (Maure, 1994 [1984]: 88-89), as well as the impulse that a community gives to a project within the framework of sustainability (Davis, 1999 and 2007) and whose ultimate aim is the integral development of the community under the contemporary parameters of sustainability.

Ecomuseums in Spain

From this conceptualisation, ecomuseums began to be implemented in Spain from the 1990s onwards, although they arrived with a certain delay, largely due to the socio-political conditions that the country experienced (Navajas, 2020).

Nevertheless, projects were developed that are part of the second and third generation of ecomuseums. The ecomuseum of

the Pyrenees, the now defunct ecomuseum of Allariz in Galicia, or the current Cultural Park of Maestrazgo, were born with the firm ecomuseal vocation of community development through heritage (natural and cultural) in space and time. Some of their promoters, such as Mateo Andrés and Xosé Serra, have been active agents of the International Movement for New Museology (MINOM) since the early 1980s.

From 1985 to 1995 Spain went through a drought of ecomuseological productivity. It was not until the end of the 20th century that the situation recovered. This new museum boom was due to several factors. On the one hand, since the beginning of democracy in Spain in 1975, the country became aware of the plurality not only of its territory but also of its new community destiny: Europe. On the other hand, with decentralisation and the state of autonomy, it was fully involved in the local development programmes of the European Union[9] . Added to this was the fact that a tourism model based on sun and sand was showing signs of stagnation, both because of geographical limitations and because of the new comparable tourist destinations that were beginning to emerge as stiff competition on the Mediterranean coast. This encouraged a shift towards policies focused on inland tourism, towards the rural and local heritage that had been left aside after the country's economic development and the explosion of (Mediterranean) coastal tourism.

There are currently 119 ecomuseums in Spain, of which 92 are open, 21 are under construction or in transformation; 6 have closed. These ecomuseums are generally characterised by managing a diversity of biological, geological and integral heritage, towards the idea of cultural landscapes, in line with the Santiago de Chile Round Table of 1972 and the Landscape Convention of the Council of Europe of 2000. Furthermore, the existing ecomuseums in Spain are spaces for education and awareness-raising, above all of what is considered global pedagogy in relation to their local population. All of this brings us to the idea of cultural landscape (Navajas, 2017)[10], a concept linked

[9] We must bear in mind that Spain, since the beginning of its democracy in 1975 and with the 1978 Constitution, has seen its decentralisation consolidated. Over time, the Autonomous Communities have acquired greater powers in all areas. One of these is the recovery and enhancement of their natural and cultural heritage.

[10] After the Forum on Ecomuseums and Community Museums held during the ICOM General Conference (Milan, 2016), a monograph was published

by some ecomuseums to sustainability and related to the SDGs. However, some experts consider it to be a "fashion imposed" from the centre, when they consider that this supposed sustainability is something inherent to life in (some) localities and, therefore, to ecomuseums.

Sustainability management in spanish ecomuseums

This section of this chapter is based on the research carried out in the European ECOHERITAGE project[11] and its methodology. The first phases of the research consisted of generating primary sources (using surveys, interviews and fieldwork) to provide quantitative data and qualitative information with which to construct a situational map of ecomuseums (in this case in Spain). To this end, a questionnaire divided into 5 sections and 22 sub-sections was drawn up. In these sections and subsections, the questionnaire included 65 questions relating to the following aspects: operational characteristics, functions fulfilled, training of members, activities carried out, community participation, financing, and research. The aim was to have a global vision of all the issues to be studied in Spanish Ecomuseums. The following pages reveal findings on sustainability, its conceptualisation, treatment and management in ecomuseums.

The majority of Spanish ecomuseums are public institutions 43.5% of the total, and the rest, 56.5%, are managed by a variety of foundations, collectives, associations, and companies. It should be pointed out that in Spain, associations, and foundations are usually assigned to the "private" sphere to distinguish them from entities, institutions or administrations that belong to the public sphere. Likewise, associations reflect management from civil society and the commons.

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with the different interventions and reflections where the relationship and link between ecomuseums and cultural landscapes as elements for the development and sustainability. The reference book is: Riva, R (2017). *Ecomuseums and cultural landscapes. State of the arte and future prospects*. Santarcangelo di Romagna (Italy): Magglioli Editore.

[11] ECOHERITAGE is a project funded by the Erasmus+ call. It aims to analyse the European eco-museum landscape, the creation of a network of ecomuseums in Europe and to offer training tools for its development.

One of the essential features of the ecomuseums that was noted is community participation. 95.5% stated that they generate activities with and for the community, as well as the staff structure of the different ecomuseums and the management stated that they listen to the community when making decisions (91%). 95.5% responded positively to the questions on whether the management communicates its decisions to the community. Finally, in this section on community-ecomuseum relations, most of these entities (91%) are open - and do so de facto - to the possibility that a member of the community may implement their projects.

From a look at this quantitative data, it could be argued that most Spanish ecomuseums have social and community participation and collaboration in decision-making processes and planning as a principle. Some respondents stated:

- It welcomes different groups of people to carry out different activities such as internships, voluntary work, talks and exhibitions of their projects, etc.
- It is an active municipal cultural facility managed by a local non-profit association.
- These answers are based on the fact that the board is made up of representatives of the employers, social sector and political representatives of the municipalities that make up the association. Decisions are not taken by direct consultation with the inhabitants of the municipalities in open meetings.
- No museum address for correspondence?? So no feedback/dialogue possible??
- Decision-making is overseen by the local environmental council and the tourism citizen participation board. The projects to be implemented are based on community initiatives.
- Our organisation is assembly-based, therefore, there is the participation of different institutions (public and private), companies and individuals, without having a specific direction but through the distribution of tasks among all of us.
- The City Council has only carried out small actions to promote it.
- The Ecomuseum of Guinea is managed through a public company that carries out the organisation and planning of the actions. This does not imply that actions cannot be carried out with the community if they are requested, but in no case can the community implement its projects without the approval of the management.

The objectives and aims of the institutions analyzed were distributed as follows. 100% of ecomuseums are concerned with

the safeguarding of heritage. On a second point, 95% of the ecomuseums also consider that it is essential to work to consolidate and improve local identity, work on heritage management as a factor in promoting local development and have among their objectives the promotion of tourism. Below these priorities, the ecomuseums state that their purpose and aim is to support school programs (81.8%) and promoting heritage in situ (91.1%). The least valued objectives are to support community economic initiatives (68.2%); the promotion of human rights and social inclusion and seek to address social, local, national and international challenges (both with 59.1%); and organize their assets in collections (31.8%).

We can observe that there are: (1) generic objectives such as the enhancement of heritage (natural and cultural), conservation and dissemination-interpretation of heritage; (2) specific objectives towards heritage elements; (3) objectives linked to the approaches of ecomuseology such as the empowerment of communities, awareness and self-esteem, research and social and participatory management. This means that climate actions are treated indirectly within objectives related to the territory, the environment and social development.

These data showing the "raison d'être" of Spanish ecomuseums help us to understand the importance of sustainability, and the relationship between the SDGs and Spanish ecomuseums. The study showed that the SDGs that are priorities for ecomuseums in Spain are (in order of importance): *4. Quality education* (77,2%), *5. Gender equality* (72,7%), *15. Affordable and clean energy* (72,7%), *8. Decent work and economic growth* (59%), *11. Sustainable cities and communities* (59%), *12. Responsible production and consumption* (54,5%), *13. Climate action* (54,5%), *3. Health and well-being* (5o%), *9. Water, Industry, Innovation and Infrastructure* (40,9%), *6. Clean Water and Sanitation* (36,3%), *10. Reducing Inequalities* (36,3%), *and 16. Peace, Justice and Strong Institutions* (31,8%). Of all of them, the question was asked which of the SDGs the ecomuseum considers to be the most important or most urgent. The ecomuseums consider it a priority to address:

- Climate action, life, terrestrial and aquatic ecosystems
- Responsible production and consumption, quality education and climate action
- ODS 4, ODS 15, ODS 17
- The survival of forest peoples and their forests.
- Gender equality, quality education and the life of terrestrial ecosystems
- Decent work and economic growth, reduction of inequalities, and sustainable production and consumption.
- Quality education Decent work and economic growth Reducing inequalities
- raising general awareness of sustainability, conservation and dissemination of values of respect for heritage, health and wellbeing
- Equality and decent work, that takes care of the rest.

The way in which ecomuseums have adopted the SDGs (Figure 1) has been either in a cross-cutting manner through other ecomuseum actions (66.7%), or those that have opted for a form in which the SDGs are a main strategy of the ecomuseum (44.4%). In this regard, it is interesting to note that while ecomuseums implement the SDGs in nearly 50% of the actions they already carry out, only 5% carry out actions exclusively for the SDGs.

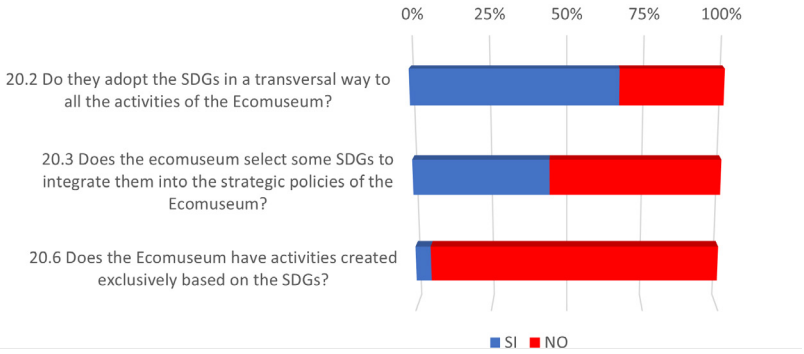

Fig. 1. Adaptation of the SDGs to the ecomuseum's actions. Source: Own elaboration

La ponte-ecomuséu: from farmers to livestock breeders or how a sustainable society has become unsustainable.

La Ponte-Ecomuséu is a community and rural heritage organisation located in a small municipality (Santu Adrianu), with less than 260 inhabitants, in the central area of Asturias (Spain). It was described as a social enterprise of knowledge, which works based on the rationality of economic means and resources, but with social and cultural purposes and a strong link with the territory and its community. So the ecomuseum works together action-research, science and knowledge, community action, cultural heritage and territory.

One of the cornerstones of the ecomuseum is the idea that sustainability of rural territories is not possible without valuing the ancestral knowledge of the communities that created our cultural landscapes. This is the reason why an important part of our work is aimed at promoting values and attitudes of respect, coexistence, empathy and collaboration towards rural communities, the heirs of peasant memory (Alonso González and Fernández Fernández 2013; Fernández Fernández 2013; Fernández Fernández, Alonso González and Navajas Corral 2015; Alonso González, Macías Vázquez and Fernández Fernández 2016; Navajas Corral and Fernández Fernández 2017).

Asturias is a mountainous region in the northwest of the Iberian Peninsula, with a mild oceanic climate, Euro-Siberian vegetation, and fauna. Its green mountain ranges and deep valleys, with steep slopes provide little open space for the development of agriculture. For this reason, the traditional agrarian system was based on a mixed use of crops and self-sufficient livestock with hardly any differentiation between production and consumption. Thus, a unique landscape has been generated throughout a process of transformation of the natural environment that has lasted for millennia. As a result, an enormous intangible local knowledge has accumulated. This knowledge we considerer as a fundamental ingredient for any sustainability plan for these areas. These communities, which practised what we now call the "circular economy", generated hardly any waste or CO2 emissions, and cared for a cultural landscape with a unique biodiversity. However, it was a peasant society, which, while maintaining a balanced ecosystem, harboured enormous inequalities, i.e. it was ecologically sustainable, but

socially unsustainable. Since the 19th century, with the advent of industrialisation, this model has been in crisis. European peasant societies began to disappear. The peasants gained ownership of their means of production and became specialised livestock breeders dependent on external factors and demanding services, machines, genetically modified crops for livestock, chemical fertilisers, and herbicides. This process was very rapid and accelerated in some countries such as England, France and Germany, the focal points of European industrialisation. However, in mountainous areas such as Asturias, with orographic and soil conditions that were not very compatible with intensive and productive market agriculture, the society and landscapes of peasant nature and pre-industrial features survived until the end of the 20th century. They can be considered as landscapes resilient to capitalism. This was not due to active and conscious resistance, but because of their low levels of productivity in the capitalist sense of the word. They thus became what are called "marginal" areas.

The 1990s were decisive in this transformation process. Until then, a family farming model with a strong pre-industrial inspiration still survived in large regions of Asturias, although with more productivist aims and with a certain professionalisation of the agro-industrial sectors. The European Common Agricultural Policy (CAP) put an end to this "natural" model of adaptation, to be replaced by approaches demanding more intensive agriculture and greater production. Farmers and livestock breeders were encouraged to specialise even more, invest in expensive equipment, increase the size of their farms (which definitely ceased to be farms in a traditional sense), in order to produce more food - arguably of poorer quality but cheaper, in order to be able to compete. Livestock breeders and farmers trusted in these institutionally-directed policies, often leading to debt and the loss of farms and their age-old ways of life. The sector became professionalised and specialised, but did not consolidate economically, as this decisive transformation coincided with the era of deregulation and economic globalisation, with the appearance of more competing actors with better comparative advantages, making the sustainability of these types of farms decidedly difficult. Thus, the peasant society that was ecologically sustainable, although socially unjust, was transformed into a productivist society that was doubly unsustainable, both ecologically, by assuming the precepts of

agribusiness, and economically, due to its lack of comparative advantage in a context of global competition.

Fig. 2. Cultural Landscape in La Ponte Ecomuséu (courtesy of La Ponte - Ecomuéu)

There is now a new CAP from the EU (and demands from other national and international institutions), in addition to the SDGs, which tell us that we must turn back the clock, go back to where we were in the 1980s, recover the peasant philosophy of territorial management, produce outside of homogeneous markets, promote designations of origin, and "special" local products. All of this comes after traditions have been dismantled for the sake of productivity and "development". We must now recover many of the ancestral practices of production and management of natural resources, which in some cases have already been lost.

This is where an ecomuseum, such as La Ponte, can play an important role as an element that collects, documents and investigates these practices, one that traces the collective memory, in its material and immaterial dimension. Without peasant memory and local knowledge it is, of course, possible for rural territories to reach a horizon of sustainability. But it will certainly be easier to do so using the vast, deep local knowledge accumulated by these communities over centuries. However, this idea is not without enormous problems, starting with the fact that the rural communities themselves are the first to de-

spise their own past. Thus, the work of the ecomuseum is two-fold: inwards and outwards, both with the local population, instilling self-respect and value of local knowledge for future, and with non-locals, providing them a view from the local perspective and values.

But the ecomuseum should not stop there. It must also be a critical tool, which does not accept the messages from the institutions, as has happened in the past. The Spanish State and its policies, always aligned with the interests of global economic power, will hardly be able, although sometimes they do not lack "good will", to bring about meaningful change. It is up to the citizens to set the agenda. And this will not be possible without self-organised political communities that are capable of creating their own narratives about what they are and what they want to be, that are both proud and yet ashamed of their past, and that on this critical basis are capable of building, also critically, a utopian horizon, which is necessary for the movement to take place. And here, an ecomuseum is a tool that can be very useful.

That is why our SDGs at La Ponte are unique; they cannot be the same as those of the Yanomami of the Amazon rainforest. Imposing a global agenda that homogenises all these diverse practices takes us back to square one: the colonising vision of the world, the imposition of a single vision of things.

It might seem that this idea of bringing local knowledge to the fore is a kind of essentialist backlash, a throwback to a happy Arcadia that never was. It's not about that but proposing that a collective consciousness cannot be created without the territories. The problems of one are the problems of all humanity, there is no doubt. But when it comes to articulating solutions there are no universal recipes. In this sense, claiming local knowledge as a key element of any sustainable development project means grounding, territorializing, locating these abstract concepts of Western origin that make little or no sense to many local communities. This local knowledge can function as an interface from which to articulate the local and the global, and, again, an ecomuseum can be a useful instrument for this.

Conclusions

Ecomuseums, as a typology and experiences that promote sustainability, on the one hand, encourage inhabitants to be-

come aware of, promote and participate in the protection and management of their territories; and, on the other hand, they propose a holistic vision of geo-territorial realities and interdisciplinary work.

This, taken into the territorial, cultural and economic policies of any potential regional or municipal government, makes ecomuseums a "desirable" element to implement as a political and social strategy in the short and medium term. The data collected during the Ecoheritage research project refer to this institutionalised vision, both of ecomuseums and of the idea of "sustainability". Ecomuseums in Spain understand that their work and actions must be carried out within the parameters of respect for natural and cultural heritage, identities and environmental sustainability. Likewise, most of them carry out actions in line with the SDGs promoted by national and/or international governmental administrations. However, the essence of ecomuseums has a deeper spirit.

Every activity of a social and cultural institution such as an ecomuseum generates or aims to propose a transformation in its socio-territorial reality. The essence we were aiming at is to raise citizens' awareness of their responsibility for their reality, which leads to the sustainable protection of their environment, of their lives.

If the case study of La Ponte-Ecomuséu has demonstrated anything, it is precisely the understanding of this frontier. The decade of work that we have been carrying out in this community ecomuseum in Asturias is that at the moment the real endangered species in the rural world is the local inhabitant. Sustainability in ecomuseums, in our experience, does not lie in the parameters set by entities (international, national, etc.) exogenous to the territory, but in the awareness and responsibility of endogenous decision-making.

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13. Ekomuzeum „Dziedziny Dunajca", Poland: steps to environmental sustainability

Barbara Kazior

Introduction

Ecomuseums in Poland have a short history. The totalitarian system that ended in 1989 was not favorable to any initiatives based on grassroots and participatory approaches. State culture and heritage authorities dominated; communities were not consulted in any way and they were not invited to participate in decision making processes or to be involved in planning and managing local heritage.

The situation has changed with the democratic transformation, the development of self-governance and new attitudes towards communities, recognizing their role in the preservation, maintenance and interpretation of local heritage. However, it took another ten years before the ecomuseum concept became a Polish reality.

Poland in transition was more heavily engaged in introducing new social and economic systems rather than with the concerns and values of environment, culture and heritage. This was especially true in Polish rural areas where there were significant basic needs to be satisfied by government, including roads, water and sewage systems, constructions, communication, and education. Thus, environmental and heritage issues have reverted to the interests of NGOs, whose natural openness for innovations, experiments and testing new ideas was favorable and beneficial . NGOs and community leaders developed new models to make the most of their potential. The "Third Sector" began to play an important role alongside communities.

In 2000, the first projects initiated by the Polish Environmental Partnership Foundation1, appeared. They were aimed at intro-

[1] Polish Environmental Partnership Foundation – NGO founded in 1997. Its mis-

ducing the ecomuseum concept and attracting local community leaders to consider it as a solution for natural and cultural heritage protection and socio-economic development by means of sustainable tourism and education. The first phase of ecomuseum development in Poland was implemented in participation with representatives of Swedish ecomuseums, who contributed to an international seminar[2] (Modra, Czech Republic, 25 October 2001) and organized a study visit to share their practical approaches. Thanks to that experience the first ecomuseum initiatives developed, mostly in southern Poland (e.g. the current Ekomuzeum Lanckorona, Ekomuzeum Ziemi Bocheńskiej, and the Ekomuzeum "ączy nas Babia Góra"). They were all based on informal partnership cooperation of various local stakeholders: NGOs, heritage activists, and enterprises – mostly linked to tourism, and institutions like culture centers, that cooperated under the ecomuseum brand. The first ecomuseums were created with real enthusiasm and commitment of all involved. There were very few possibilities of financial support, and most activities were done voluntarily. The knowledge, skills and support was delivered by specialists from the Polish Environment Partnership Foundation which raised funds to facilitate the process of ecomuseum development. A significant advantage was through cooperating with the Istituto di Ricerche Economiche e Sociali per il Piemonte (IRES) and gaining information about the Italian ecomuseum model. It was a time of learning and exchanging information, knowledge, views and searching for common ground. Thanks to IRES, and Maurizzio Maggi's involvement, a 'Local Worlds' European Network of Ecomuseums was launched and Polish ecomuseums became part of it, benefitting from contacts and experiences of more advanced ecomuseums from various parts of Europe.

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sion was to support sustainable development of local communities. It was well-known for launching several programs like Greenways (heritage bike trails), Ecomuseum (heritage protection and interpretation), Schools for Sustainable Development (environment education) and Clean Business (to promote environmentally friendly solutions in companies). It made a consortium with similar foundations in Czech Republic, Slovakia, Hungary, Bulgaria and Romania.

[2] Seminar 'Ecomuseum concept in practice' held in Modra on 25th October 2022 gathered ecomuseum practitioners from Sweden and local heritage organisations leaders from Central Europe (Poland, Czech Republic, Slovakia and Hungary) to disseminate the ecomuseum as a vehicle for heritage protection, maintenance and use in sustainable development. It was financed by the Visegrad Fund.

The second phase of ecomuseum development was connected with the LEADER Programme[3] of the European Union and its implementation in Poland. Local Action Groups that appeared via LEADER, had the capacity to initiate and coordinate ecomuseums, using the split-site model (first seen in Sweden) that has been adopted in Poland. Local Action Groups are still responsible for the initiation and management of ecomuseums, as well as supporting their members and partners. Several ecomuseums were developed by LAGs (e.g. Ekomuzeum Kanału Elbląskiego, Ekomuzeum "Wrzosowa Kraina", Ekomuzeum Lubelszczyzny "Żywa Tradycja"). Thanks to the LAG's projects it was possible to plan and test a participatory model of ecomuseum creation. The process included a set of subsequent phases:

1. Making an Inventory of local heritage
2. The identification of potential partners and supporters
3. The development of the ecomuseum concept
4. Establishing a mode of cooperation and management (including a declaration of cooperation and agreed bylaws)
5. The operation and development of individual ecomuseums.

All five stages are implemented with the full participation of members of the local community. The pilot model process was carried out in Ekomuzeum Doliny Karpia and Ekomuzeum "Żabi Kraj", both initiated and coordinated by Local Action Groups. The model and experiences obtained in work with those two above mentioned ecomuseums were then applied in the mountainous region of Podhale, Spisz, Gorce and Pieniny, where Ekomuzeum "Dziedziny Dunajca" (Fig.1) followed the participatory process of ecomuseum development. At that time the expertise in ecomuseum development was delivered by the Foundation of Active People and Places[4], who continue to support ecomuseums in all stages of their development and also initiates new ones.

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[3] LEADER is a European programme, with the aim to involve local actors in rural areas in the development of their own regions by forming Local Actions Groups (LAGs) and designing and implementing strategies. The LEADER programme exists for almost 30 years. Until now more than 2500 LAGs were established, covering over 50% of the rural population in the EU.

[4] The author who was strongly involved in introduction and development of ecomuseum methodology in Poland worked first for Polish Environmental Partnership Foundation and in 2010 co-established a new organisation – Foundation of Active People and Places and has continued its mission to develop ecomuseums in Poland.

An important issue is that in Poland there is no central institution or academic environment interested in providing permanent support or carrying out research concerning ecomuseums and ecomuseology. There has been some sporadic research done, but ecomuseums are not a subject of ongoing research and very little interpretative assistance is offered.

In effect, ecomuseums in Poland were developed in a spontaneous way in places rich in natural and cultural resources, and where individual leaders or organisations, including Local Action Groups learned about the methodology (often during conference presentations or study visits) and found it relevant to safeguard and maintain their local heritage and develop tourism and informal education strategies based on ecomuseological approaches.

Today, there are two main types of ecomuseums in Poland:

1. Ecomuseums operating in the form of a cross-sector partnership (institutions, organisations and enterprises) coordinated by an NGO (very often a Local Action Group). They make up more than half of the total number of ecomuseums in Poland. Similar to ecomuseums in other countries (Canada, Sweden, France, UK), each member of the ecomuseum consortium operates independently as a heritage unit (e.g. mini-museum, bee-keeper, gallery, monument) but together they provide an holistic view and promote heritage education and tourism over a wide geographic area. Usually, they have no permanent paid staff. They operate usually on a territory of several municipalities.
2. Ecomuseums organized by one entity (organisation or enterprise), often devoted to a particular theme related to local nature, history and culture, and are interested in contributing to the protection and popularization of those cultural and natural assets. Usually they have a more limited territory (a village, a municipality), but often cooperate with other entities and individuals to enrich their offer. This model is also common in other European countries.

The Ekomuzeum „Dziedziny Dunajca": its mission, goals, and criteria

The Ecomuseum „Dziedziny Dunajca" is a network of 40 sites (Fig.1) where visitors can discover the beauty of nature, and understand the history and traditions of Spisz, Podhale, Gorce and

Pieniny. Ecomuseum sites enable visitors to get to know local history, traditions, folklore, cuisine and nature through direct contact with the local community. Sites to be visited include for example, shepherd's huts, workshops in a former cowshed, regional mini-museums, a honey farm, small hotels offering home-made preserves, a family bistro specializing in trout, a Hungarian castle, the Pieniny National Park, the oldest in Poland, traditional Spisz farms, and horse breeding and riding stables.

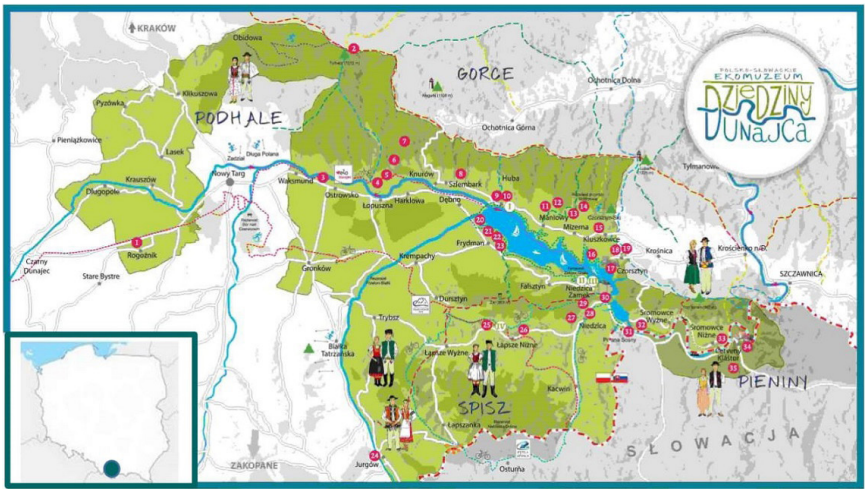

Fig. 1. A map of Ekomuzeum "Dziedziny Dunajca" (courtesy of the author).

At these sites it is possible to meet engaging local people, take part in workshops, taste local food, spend time in an active way, enjoy the landscape riding a bike or a horse, and admire the view of the mountains, lake and castles.

The cooperation of about 40 sites has allowed the development of network tourism based on leisure services, natural and cultural heritage resources, (Fig.2) unique accommodation and local food. An important element is cooperation between the partners based on the common values of:

- Local natural and cultural heritage resources
- Cultural diversity
- Regional integration despite differences
- Cooperation and involvement of the community
- Unique local knowledge and skills
- Internal (within the region) and external relations (with

people visiting the region)
- A passion and emotional attachment to the territory
- Openness to new people, places, experiences
- Willingness to share territory natural and cultural values with visitors

These values provide an essential base of mutual relations and contribute to a common approach to local heritage interpretation and the development of tourism and education.

The ecomuseum mission has the following specific objectives:
- Protection of the richness and diversity of natural and cultural heritage (tangible and intangible);
- Maintenance and use of local knowledge and specific skills;
- Local heritage interpretation and dissemination (for both local communities and visitors);
- Attracting tourists to visit the region (maintenance and new job creation, generating additional sources of income);
- Integration and cooperation of various stakeholders in the region;
- Personal development of ecomuseum members and local inhabitants (learning / experiencing new places, people, phenomena, nature, tradition, culture etc.);
- Realization of passion and interests;
- Building mutual relations between inhabitants, ecomuseum members, partners and visitors;
- Better promotion, the creation and improvement of ecomuseum tourism and its education offer.

The most important objective in the context of climate change goals are related to protection of natural heritage (environment), maintenance of local knowledge and skills (e.g. sheep breeding), local heritage interpretation and dissemination (including specific reference to climate change issues) and building mutual relations that enable the flow of information, ideas, innovations and solutions.

As the ecomuseum is a network of individual people and places it has to share these common values, mission and goals, decided via a participative process. Key guidelines set out the modes of operation, cooperation, activities and projects.

Environmental approaches and actions

The Ecomuseum "Dziedziny Dunajca" is located in an area rich in natural resources: mountains (the ranges of Gorce and

Pieniny), forests and meadows characterized by high biodiversity (with some endemic species: e.g. *Taraxacum pieninicum*, *Erysimum hungaricum*, and *Centaurea triumfettii*). This is a region of traditional agriculture with small farms; its meadows provide good summer grazing and consequently the area has strong traditions for sheep breeding. For centuries the territory was economically poor due to poor quality soil and short growing periods for vegetation. However, its mountains, artificial lake, picturesque landscape, and interesting flora and fauna have contributed to the dynamic development of tourism in last 20 years. Additionally, there are two interesting castles, the Pieniny National Park and traditional rafting on the Dunajec river. It is interesting that the area, although relatively small (three Polish and one Slovak municipality) is inhabited mainly by three highlander groups of separate cultures of mountain people. They differ in folklore, dialect, customs, and their folk costumes:

- Spisz Highlanders are an ethnographic group inhabiting villages around the Spisz Pieniny and Spisz Magura Mountains. They have a strong sense of cultural distinctiveness. Spisz culture has strong Hungarian, Slovak, Wallachian and German influences.
- Podhale Highlanders are the largest ethnographic group inhabiting an extensive area north of the Tatra Mountain to the Nowy Targ Valley.
- Pieniny Highlanders are an ethnographic group inhabiting villages in the Pieniny Mountains. They have an individual and specific culture but have been influenced by the Podhale and Spisz Highlanders.

In the 20th century the region was a mecca for hiking by mountain lovers, who needed simple accommodation and basic food. Nowadays, visitors are more diverse and are more demanding - they need more than mountains.

Fig. 2. Landscape with the Tatra mountains in the background (courtesy of the author).

That demand was a good incentive to start cooperation:

- to identify the potential of the region (natural and cultural resources, human resources);
- to make a common vision of how to deliver tourism that was environmentally friendly and not creating threats to biodiversity or vulnerable local cultures;
- to use a variety of assets and resources;
- to create a network delivering a wealth of possibilities for visitors to get to know the region and the local population.

The Ecomuseum provided solutions and in 2019 it was established, the result of a participative process involving various stakeholders, representing diverse social groups, environments and sectors (institutions, enterprises and NGOs). It is based on partnership cooperation of over 30 stakeholders running individual sites and services such as craft workshops, culinary and herbal workshops, lessons concerning local dances, songs, dialects, and customs, walking, bike and kayak trips and excursions, bike rentals, accommodation with a local atmosphere and local cuisine.

The ecomuseum initiators developed criteria that had to be met by members or partners of the ecomuseum, which include links to local nature and culture, and being environmentally friendly. The Ecomuseum currently has no special projects

aimed at climate change issues but carry out sustainable activities that ameliorate impacts on the environment and promote ecological attitudes. The ecomuseum is a relatively young initiative and has put the most effort into developing the cooperation, building relationships and a common identity, creating an internal organisation and strengthening its performance. Partners realize the effects of climate change, having experienced negative change in rainfall, low water level and droughts, and the rise of average annual temperature, that have affected local agriculture and tourism. Discussion concerning the climate change issues is in initial phase.

The great advantage of the area is the 26 km bike trail (Fig. 3) going around an artificial lake (Jezioro Czorsztyńskie). This is an enormous attraction, both for the local population and visitors, it even motivates people from all over Poland to visit the region. It was built by three municipalities that have access to the lake and has had a positive social and economic impact on the territory. The ecomuseum was the first to initiate promotion of the bike trail by organizing bike rentals.

Fig. 3. Discovering local heritage on bike (courtesy of the author).

Two ecomuseum members run bike rentals, that offer not only bikes and the necessary equipment but also they provide information about places worth seeing, and activities and

events to participate in. They cooperate with other bike rentals in the region. In winter they rent cross-county ski equipment to encourage people to use the trail. As members of the ecomuseum, and having knowledgeable staff, the bike rentals are much involved in the promotion of natural and cultural heritage sites, encouraging people to explore more of the region by bike.

To enable riding a bicycle and discover local nature, history, culture and traditions, the ecomuseum has prepared two quests (treasure hunts). They deliver poetic narratives including knowledge of the places on the trail (sometimes they encourage cyclists to leave the trail to see things of a special value), using riddles (whose solutions can be seen in the surroundings but one has to observe it carefully). Solving riddles provides the password that leads to the treasure. Quests are based on community knowledge and memories and are prepared by local inhabitants during special workshops. The added value is that besides admiring the landscape, cyclists can learn more about the area, its history, nature, culture and people.

The Ecomuseum organizes other ways that groups of inhabitants or visitors can enjoy the landscape and get to know history, culture and traditions that are car-free. These group activities are guided by ecomuseum members, moving around along a planned route to spend the time actively and discovering the territory at the same time. During the trips participants can walk,ride a bike or canoe, sometimes using all three modes of locomotion.

The ecomuseum pays special attention to the promotion of local products, especially those deeply rooted in local history and tradition. One of the important ecomuseum activities that is carried out continuously is the search for those products and producers, and seeking to involve them in the ecomuseum.

The region's agriculture used to be poor, mainly specializing in raising sheep and cattle. The local breeds of sheep and cattle enabled the preparation of unique specialist cheeses (Fig.4); this is another feature the ecomuseum promotes. Today attempts are being made to focus on diversifying agriculture.

Fig. 4. Sheep cheese production and young shepherd (courtesy of the author).

Forests and meadows provide local people living in the mountains with a wide variety of plants and herbs. It is a very ancient tradition to collect them at specific times of year and create very special products. People process herbs at home in the traditional way. There are several ecomuseum sites that specialize in this kind of in-house production, where it is possible to learn about plant properties, the methods of processing and taste products before buying them. The ecomuseums promotes local traditional plant products but also raises awareness of the potential that forests and meadows have regarding edible flora. Benefiting from local resources means no transportation costs i.e. no 'food miles'. These activities have led to new recipes being developed, including herbal teas made from dry and fresh ingredients whose composition and taste are unique. Also popular are plant and fruit "wines" and vinegars – the wines are unique to the area and vinegars are made from surprising plants

such as dandelion. Tinctures, including a very special alcohol beverage, are made using plant or fruit vodka, made as a very ancient tradition; the flavours depend on the plants available in the territory. Another local specialty is plant pasta and pesto – prepared with local herbs.

Raising sheep breeding is a valuable ancient tradition and a significant part of the region's heritage and economy. It also has special value for the ecosystem as sheep are natural grazers and they help to maintain the meadows and mountain pastures and their biodiversity. The added-value is the preservation of a traditional cultural landscape where the high parts of the mountains are forested and below there are pastures, meadows and fields. However, wool, once important as a product, has been mostly displaced by artificial fabrics; lamb and mutton are no longer very popular, so sheep milk remains the most important product. There is very special sheep breeding culture, based on seasonal grazing in the pastures (from spring to autumn) and sheep milk processing takes place in special shepherd's huts (Fig. 4) in a traditional way. The ecomuseum supports this tradition and the owners of the shepherd's huts are ecomuseum members. The shepherds offer demonstrations on the whole cheese production process – from milking the sheep to the final product, providing a narrative about the origin of this occupation and the customs linked to it. Visitors can taste various sorts of cheese and by-products of cheese production. Though the wool is less popular (the Carpathian sheep wool is not of high quality for fabric or knitting), it can be used in other way. In one of the ecomuseum sites you can observe sheep shearing and how wool is processed to be used to fill pillows or duvets.

Baking traditional potato bread – Beekeeping is important, not only because it brings honey, but because, bees and other pollinators are priceless for life on our planet. The ecomuseum therefore not only promotes the product but disseminates knowledge about beekeeping and the whole process of obtaining honey and other bee products. Apiaries belonging to the ecomuseum offer lessons and demonstrations (using a glass hive) showing bee life, the honey production process and the techniques necessary to be successful in beekeeping. Visitors can taste various kinds of honey, (Fig. 6) made from diverse plants' pollen coming from ecologically clean area where no fertilizers are used. Promotion of beekeeping means also promotion of locally made goods.

Fig. 5. Baking traditional potato bread (courtesy of the author).

The local cuisine is very simple, one that can be learned during cooking workshops held by traditional housewives. Due to its simplicity, traditional basic meals are not served in local restaurants. The ecomuseum has started to promote the local cuisine based on local farm products, but it needs to break the negative perceptions of it. One bistro specializes in serving various dishes made of trout which is a very popular local fish. In the bistro one can also buy honey and other natural, home-made products (e.g. jams made from wild berries, mushrooms, and syrups) that are manufactured by ecomuseum members. Ecomuseum members plan to extend the ideas of local food

(Fig. 5) by identifying a wider range of food products and developing a sustainable marketing system.

Fig. 6. Local honey under the Ecomuseum brand (courtesy of the author).

The region is not favorable for wine production, however due to the climate change and development of new frost-resistant vine species it has become possible. An ecomuseum member has founded a vineyard and produces wine; although it cannot compete with wines from southern countries it has a unique and interesting taste. This is clear evidence of how climate change is beginning to have an impact on potential crops.

The ecomuseum has set a target to promote of traditional crafts, support artisans and artists, and contribute to the marketing of craft products. It is especially important in relation to providing quality and authentic souvenirs from the region. Currently there is no good choice of locally manufactured goods, souvenirs being often produced outside the region, even far from it. The ecomuseum has ambitions to work with artists and artisans making a variety of objects that can serve well as souvenirs related to local tradition, made in an environmentally friendly way from local raw material, and using local design. One ecomuseum plan is to launch a competition for artisans to create souvenirs that will be available at ecomuseum sites.

The ecomuseum propagates knowledge about traditional textile production in the region that was based on flax. There is a film showing the process of making fabric from flax (step by step) that was used in many farms as linen was the most popular cloth, alongside wool. The ecomuseum is supporting an idea to restore this activity, and grow and manufacture flax for traditional clothes.

Ecomuseum members belong to the group of people that are aware and sensitive to preserve the local environment and its heritage resources. They love the territory, care for it and look for sustainable solutions that can bring benefits not only to the region but to the whole planet. At ecomuseum sites one can see solar panels, waste segregation, the use of recyclable items and packages, often made of natural material (wood, cloth, paper).

Conclusions

Current examples of environmental, pro-climatic actions include those aimed at sustainable, non-motorized mobility and local production and sale of products rooted in tradition, manufactured in environmentally-friendly way and/or made from local raw material. They still need development and extension. However, more new, innovative methods and tools should be taken into account.

The philosophy of Ekomuzeum "Dziedziny Dunajca" is based on respect and love of local values, landscape, nature, history, and culture. People visiting the ecomuseum can see, feel and experience that strong attachment to the land and a sense of mutual identity. Lots of small and big changes are being done but there is no specific plan addressing environmental issues, especially the climate crisis. The ecomuseum is only 3 years old but it operates independently and is more and more recognized in the region, consequently it might be a good moment to start more comprehensive activities focused on environmental challenges and climate change initiatives.

The ecomuseum can play an active role in environmental and climate actions in the region through:

- Education – develop regular and occasional educational actions concerning environment and climate actions (trainings, workshops, demonstrations, events);
- Implementation of new pro-climate solutions – develop and implement projects to introduce new technological and organisational mechanisms;
- Good practices – sharing good practices among ecomuseum members, partners and audience to inspire and deliver know-how, show feasibility and benefit.

This will require more systematic and planned campaigns and activities and important first steps have been taken. The sense of common responsibility, cooperation with diverse local entities and openness for innovative approaches make a good base for further work towards sustainability and climate action. Thus it is very important to keep the strategic direction set at the very beginning of the ecomuseum and to extend the scale of its activities. Ecomuseum partners are very much attached to all issues connected with promotion of natural food based on plants: vegetables, fruit, herbs: popularizing traditional recipes and healthy diet, bringing back old plant species to use and popularizing edible plants that have not been in use (e.g. ferns); and promoting pro-health properties of plants. They also do a lot to encourage natural methods of food processing and preparing homemade preserves that can be used all year round. They contribute to local marketing of products and the strategy of not wasting food. However the range of their activity today is limited to Ecomuseum members and visitors, but in future they should be more proactive in involving more people and organisations and build strong links and cooperation with the local communities. Keeping traditional sheep breeding based on seasonal grazing and the production of organic cheese contributes not only to sustainable food production but is essential to maintenance of natural ecosystems of meadows and pastures and protecting them from afforestation process. Promoting beekeeping and consumption of honey, especially among youngsters is important to sustain beekeeping and increase the number of apiaries in the region, benefiting also from other pro-healthy properties of bees.

The Polish government has accepted the Strategic plan of adaptations of sectors and areas sensitive to climate change up to 2020 (SPA 2020) that contains the analysis of current and expected climate change, including climate change scenarios

for Poland up to 2030. They indicate that the greatest threats to the economy and society are extreme weather phenomena (torrential rains, floods, inundations, heat waves, droughts, hurricanes, landslides) that are predicted to occur with greater frequency and intensity, and concern larger areas of the country. Sectors identified to be the most endangered are: water management, biodiversity and legally protected areas, forestry, energetics, coastal zone, mountain areas, agriculture, transport, land management ad urbanized territories, construction and health. Goals and directions of activities in the process of adaptation to climate change defined the challenges on a state level and the ecomuseum can contribute not only in raising awareness of the issues but also in introducing new mechanisms on the local level that are consistent with and strengthen the implementation of the national strategic plan. The issues of climate change will have to be part of ecomuseum strategy and action plans.

14. Museums Planning for Cultural impacts. The case study of Parabiago ecomuseum (Italy)

Raul Dal Santo and Douglas Worts

Introduction

This chapter offers a practical glimpse into how one ecomuseum in Italy has used the Inside-Outside Model (See Worts and Dal Santo, chapter 2 this volume) to help guide its work toward sustainability-based, co-creative impacts, across its region.

When a cultural organisation embraces the role of 'cultural catalyst', especially in an unsustainable world, its planning processes must be based on the needs of the present and future, while being informed and guided by insights from the past. Such organisations also need to focus on creating impacts in the living culture, not simply generating organisational outputs for local consumption (e.g. through exhibitions and educational programs).

Cultural adaptation occurs locally, with evidence of emergent issues being successfully addressed. However, global populations and systems have scaled far beyond the capacity of the planet to maintain a regenerative balance between people and nature (Wackernagel, 2005). Accordingly, when individual communities plan their futures, they need to keep a close eye on both local and global trends, modifying their plans as needed.

Figure 1 – Culture is Relationships - provides a rudimentary sense of the complexities involved in human/planet interactions. As a result of exponential growth of human populations on a planet with biophysical limits, the relationships of humans to everything else has shifted.

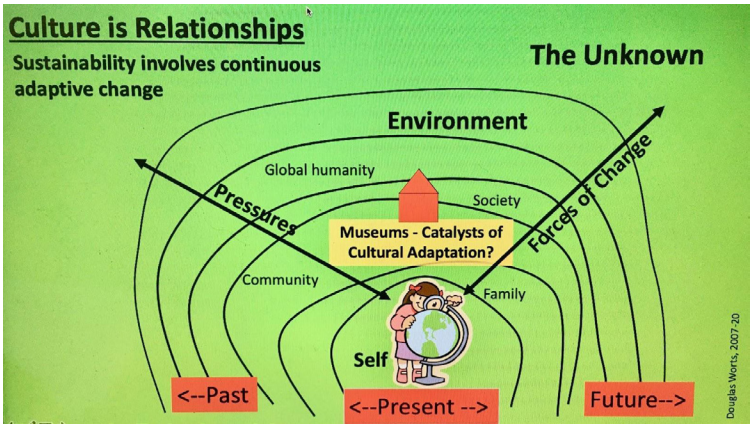

Fig. 1. Culture is Relationships (courtesy Douglas Worts).

The mid-20th century heralded the beginning of the Anthropocene – the newest geological epoch (Koster, 2020). With it came the reality that humans are now the single-most potent force affecting the Earth's natural systems. The implication is that either humans as a whole must alter the scale and form of how they inhabit the Earth, or our planet's natural systems will begin to collapse and reinvent themselves in new ways (Peterson, 2013) The latter will either radically transform how humans live, or eliminate humanity entirely from Earth.

We collectively stand at a cross-road. The wellbeing of humanity depends on our global culture becoming rooted in conscious and responsible relationships - to ourselves and to all of nature. Being aware of this precarious moment in time, as well as the accumulated insights and wisdom from the past and the vast creativity of humanity today, the potential to chart a course towards a flourishing future is within our grasp.

Physical museums have not always been part of human culture. Nonetheless, the idea of invoking creativity, insight and meaning, through reflection and imagination (i.e. the muses), has been vital to human development. In this sense, museums can be seen, not simply as particular physical places, but rather as processes designed to foster reflection, understanding and creative action. More than ever, humanity needs effective mechanisms to help it adapt to the changing world.

Accordingly, at the centre of Fig. 1 is a suggestion that museums can design themselves to be catalysts of cultural adaptation in our ever-changing world. This potential would draw heavily on

many existing skills and assets which museums hold – especially the stories and creative products of our amazing world. However, new skills, relationships, activities, knowledge, visions, values, goals and priorities will be needed to ensure that museums are, first and foremost, addressing the cultural issues of our times - and focusing on change processes that must occur beyond museum walls, in the heart of the living culture (Worts, 1998).

If humanity aims to have some control over its own destiny, it needs a vision of what a sustainable future for our species might look like – which means building a consensus vision that people will embrace. This will involve becoming clear about how people can thrive in nature's complex world of materials, lifeforms and systems, not to mention human diversity and diverse lifestyles around the globe. What museums do currently was never designed to facilitate cultural change/adaptation, so there is no reason to believe that exhibits in leisure time will address the goal. It will demand thinking 'outside the box' with novel strategies, partners, settings and performance measures. This work is tricky because museums can't, and shouldn't, set their sights on changing living cultural values in specific ways. Museums can help convene and facilitate public processes for generating visions of the future that are both scientifically viable and ethically desirable, all within regional contexts.

Convening diverse stakeholder discussions about viable futures requires insights that come from an array of perspectives that must be grounded variously in the issues of our day, but also in the changing circumstances that connect the past, present and future. These kinds of insights exist throughout society, and include scientists, artists, historians, storytellers, city-builders, farmers, engineers, economists and much more. These inclusive and creative discussions are required to build and refresh societal cohesion. Undoubtedly, some will be contentious.

For example, we might well ask ourselves whether the value of "competition" as a driver of the economy and our governance systems, should be replaced by "collaboration", or another alternative? How can humans envision, and then transition to, a system of equity that treats everyone as a valued and equal member of communities? How can we shed our colonial traditions that have been proven to be utterly unacceptable? It won't be easy for museums, because these are not the questions that museums have traditionally had to deal with.

Nonetheless, culture is what connects humanity to its past, present and future. Culture also provides the values foundation (both conscious and unconscious values) that enables human civilization to operate day-to-day. Being able to address the issues, needs and opportunities of our time requires deep reflection, meaningful dialogue and co-creative action. Can museums step into that space and begin to function as catalysts of cultural transformation? The answer to these questions is likely a resounding... 'not unless many things change within museums.' Luckily, there are some precedents that may be very helpful - especially from the field of ecomuseology.

The Inside-Outside Model in Practice

Parabiago is a town of about 30,000 inhabitants, near the City of Milan, in the Lombardy Region of Italy (see map, Fig.2). Since the 1950s, the surrounding landscape has become severely degraded because of industrialisation, urbanisation and the growing infrastructure. It suffers from the loss of many local species and essential biodiversity. Gone too is ecosystem integrity and resilience after the encroachment of humans on natural spaces. These are just some of the symptoms of this neglected landscape that seem to have become invisible to local populations.

Fig. 2. Parabiago is in northern Italy (base map by https://www.naturalearthdata.com/)

What seems especially sad is that inhabitants no longer appreciate the living heritage of this bioregion. For centuries, locals felt a deep sense of connection between the land and their lives. The land contained social relationships, guided by customs and traditions that helped define the meanings of places and the resources they contained. There were rules and procedures for cohabitation between humans and the land. In our contemporary world, there are still opportunities to nurture vital relationships between community and the land upon which it relies. However, as the world changes, so too do the relationships - hopefully informed by the wisdom that has been generated by residents over the years. The possibility exists for banishing the sense of placelessness that has evolved in recent times and generate a collective vision for a healthy community that thrives within a flourishing landscape. It will take effort, commitment and a shift in priorities of residents to realize such a vision.

The landscape ecomuseum of Parabiago was established in 2008 to address the environmental degradation described above. It is a cultural institution that was created within the local Agenda 21[1] project, a voluntary process started by the Municipality of Parabiago in 2002. The ecomuseum is managed by the Municipality of Parabiago. It was accredited by the Lombardy Region, according to regional regulation (Dal Santo, 2009).

Issues

Like many places in the world over the past few years, Italy has suffered from the COVID 19 pandemic. Over 170,000 people in Italy died, with the elderly being especially hard hit. As COVID was knocking public health off balance, Italy has also been struggling to deal with the economic slowdown from the pandemic, a war in Europe that broke out in early 2022 and the massive uncertainty driven by the gathering storm of climate change.

While governments do provide services, they also exist to foster a consensus vision of a future of wellbeing for both people and the natural world upon which humanity depends. They

[1] Agenda 21 is an action plan to foster sustainable development. It was approved in the 1992 UN Earth Summit in Rio de Janeiro.

also need to constantly be engaged in building meaningful public relationships that nurture cohesion, trust and respect. In the metropolitan area of Milan governments at various levels (municipalities, regions, provinces) have been too quick to adopt corporate mindsets that focus too much on issues of legal control rather than on collaborative, participatory democracy. Rebalancing this relationship is one of the main opportunities of ecomuseums.

Strategies

The Parabiago ecomuseum has developed a set of strategies for engaging many community stakeholders in discussions about the nature of the community's ever-changing needs and how best to meet them. By taking a holistic approach, the ecomuseum is operating indirectly on the sick state of the physical landscape (e.g. loss of biodiversity, water pollution and inappropriate development), through direct interventions into the causes of the dysfunction that are crippling the landscape and rendering the problem largely invisible to the community (e.g. a growing lack of awareness of how human behaviour is degrading natural systems). By addressing the anthropogenic forces that are degrading local environmental systems, the ecomuseum builds community relationships, fosters common vision, builds cohesion, and cultivates a sense of empowerment to help secure the wellbeing of the region. (Dal Santo, 2017). The ecomuseum is part of, and in some cases is coordinating, co-creative processes within local, regional, national and international networks.

Heritage

The Ecomuseum of Parabiago empowers the community in the adaptive and sustainable use of the living heritage. The ecomuseum's projects and activities are shaped by many forces and factors, including personal and collective values, morals and principles that guide choices. It is our beliefs that help bridge the gaps we encounter with the unknown, our connections to nature and to our fellow humans; our relationship with the past, present and future; as well as our rituals, routines, aspirations, creativity, customs, skills, fears, and more. According to

Hugues de Varine, the living heritage is the humus, the breeding ground, and the root of the future. Everyone should take charge of it, through an effective governance process of cultural, social and economic change, rooted in living heritage, with the prospect of sustainable local development (Varine, 2005).

Participation

The Ecomuseum of Parabiago was designed to operate outside traditional museum logic. Specifically, this means planning and working *with,* as opposed to *for*, the community. Often, traditional museums attempt to generate material for the public that they believe will be of interest and value, but which commonly excludes the community from the planning, design and decision-making processes. The purpose, process and planning of the work of this ecomuseum is oriented towards working "with" the community, according to the logic of participatory planning and active citizenship. A public forum of participation was first created in 2007, and such forums continue to be organised to address community issues and futures. Owners of land and the cultural heritage, municipalities, museums, parishes, water treatment companies, associations, farmers, traders and artisans, public and private educational institutions, as well as individual citizens, are all encouraged to attend such forums. The stated goal of our ecomuseum is to engage citizens and local organisations in the issues and forces that are shaping their community. Public meetings are designed to ensure that participants become informed about how the ecomuseum can help citizens shape and respond to the issues and trends affecting Parabiago. Central to the whole idea is that citizens and local interests participate in co-creative processes of planning and implementing long term action plans that activate and utilize their local heritage resources, knowledge and skills to realise the planned actions (Fig 3).

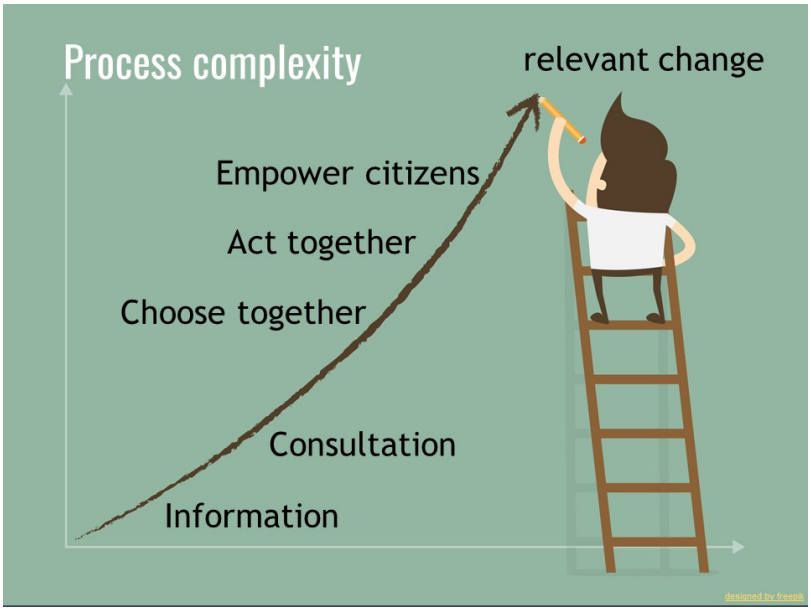

Fig. 3. The stair of participation (courtesy of Parabiago Ecomuseum)

For the Ecomuseum of Parabiago, the co-creative and participatory processes are at least as important as the results and the outcomes of the planned actions. In fact, the interactions of the local actors are essential in order to create a sense of place and community, while maximizing impacts. The aim is not only the realisation of participatory activities, but also to trigger co-operation agreements with citizens, for the care, management, and regeneration of the cultural heritage and the landscape, in accordance with Article 118 of the Italian Constitution.[2] In this way, the ecomuseum becomes a facilitator that enables people to apply their creative and physical energies, while sharing resources inside the community itself – all for the general interest and to produce and develop common goods and wellbeing. The agreements that were concluded over the years have been both formal and informal, following a careful process. (Fig. 4).

[2] Comma 4 - art. 118: "The State, regions, metropolitan cities, provinces and municipalities shall promote the autonomous initiatives of citizens, both as individuals and as members of associations, relating to activities of general interest, on the basis of the principle of subsidiarity". This principle consists in identifying the right actors and the best level for action that is consistent with the issues resolution

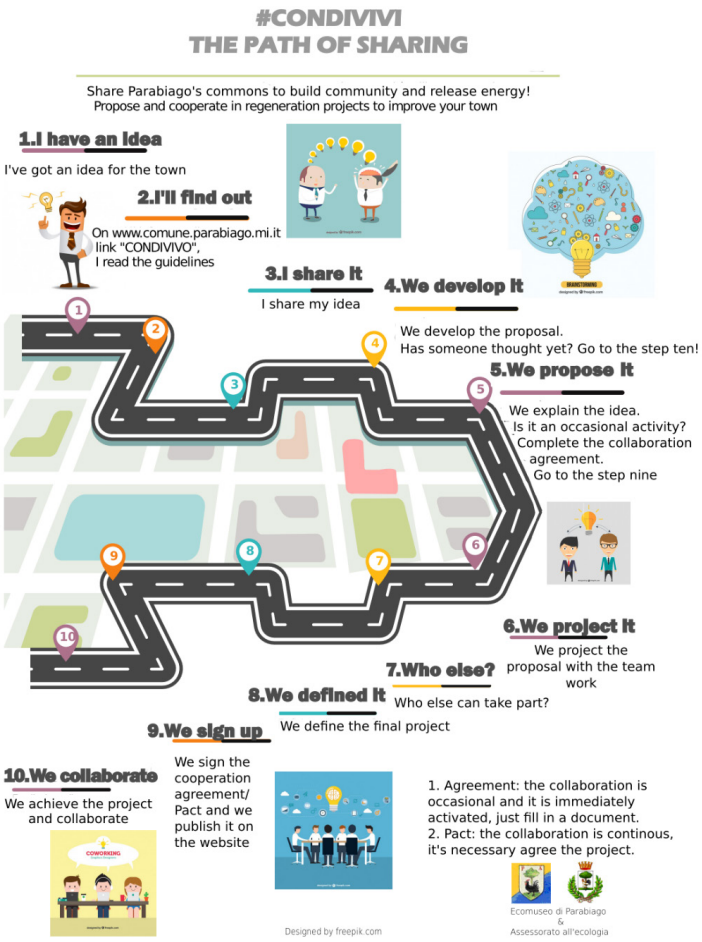

Fig. 4. The workflow for a cooperation agreement (courtesy of Parabiago Ecomuseum)

Climate action and 2030 UN SDGs[3]

Since 2019, working within the international museum movement, the Parabiago ecomuseum has been actively nurturing the potential role of museums in achieving the UN 2030 Sustainable Development Goals (SDGs). Specifically, climate action projects have played an important role in helping gen-

[3] https://sdgs.un.org/goals

erate meaningful impacts in this region. The results of these initiatives are reported elsewhere in this volume (Pigozzi et al, chapter 3, this volume).

Through relationships with engaged community stakeholders, the Parabiago ecomuseum is helping to visualize the 'sustainable future' that the region plans to build.

Parabiago Ecomuseum: Short Term Plan[4]

In 2020, the Parabiago Ecomuseum and the local ecomuseum network proposed that the Lombardy region incorporate the SDGs as new requirements that ecomuseums must commit to in order to be officially recognised. The proposal was accepted, and the Parabiago Ecomuseum developed its short-term plan, based on the SDGs.

For example, the ecomuseum's short-term plan, Action #6, starts with the premise that local cultural practitioners can play an important role in biodiversity conservation, specifically through a focus on community-based projects and "citizen science" initiatives. The notion of 'cultural practitioners' is used in a very inclusive sense, including: artists, craftspeople, arts and heritage professionals, as well as governments, business, teachers, farmers and every citizen. For this reason the Parabiago ecomuseum planned to engage, promote and achieve the 17 United Nations Sustainable Development Goals, using participatory processes, by 2030, monitoring results annually and assessing process impacts within the planning process.

The Ecomuseum promotes collaborations between many types of organisations and individuals. These are carried out, not only in relationship to the SDGs most closely linked to culture, (e.g. SDG 4, focused on 'quality education'), but also on the others. For example, SDG 11 "Making cities and human settlements inclusive, safe, lasting and sustainable" and SDG 13 "Adopting urgent measures to combat climate change and its consequences". All of the goals are entirely interdependent.

The Ecomuseum is committed to developing the role of cultural organisations, specifically in relationship to addressing climate change and building cultures of resilience. This com-

[4] A English version of the ecomuseum short term program is available at http://ecomuseo.comune.parabiago.mi.it/ecomuseo/risorse/piano_operativo2022_24_eng.pdf

mitment can be broken down into several specific functions, including:

1. building staff and public (meaning citizens, organisations, communities, and more) awareness of how our changing climate is but one manifestation of how culture and human behaviour have inadvertently knocked planetary systems off balance;
2. supporting local actors in raising public awareness of the need for mitigating the causes of climate change;
3. mobilizing cultural workers as empathetic, and co-creative cohesion-builders in the public discourse on climate change;
4. positioning cultural organisations to lead by example, providing tools and resources to do so.

In the coming years, the Ecomuseum plans to work in participatory ways with cultural heritage management institutions, as well as other partners in the community, for the implementation of sustainable strategies and practices at all levels of society. The overall goal is to both envision and then realize relevant and resilient cultural organisations that act as catalysts for resilient communities.

Ecomuseum impacts

The ecomuseum adopted the Inside/Outside cultural impacts model, by Douglas Worts, when it was first shared through the international ecomuseum DROPS platform, in 2019.[5] What follows is a reflection on how the Inside-Outside Model (see Worts and Dal Santo, chapter no. 2, this volume) led the Parabiago Ecomuseum to think differently about the various internal and external aspects of being a catalyst of cultural adaptation.

Inside Impacts - Museum culture

Vision / Mission / Policies

We began with a review of our vision, mission and policies.

[5] International online platform for Ecomuseums and Community Museums, known as DROPS, can be found at https://sites.google.com/view/drops-platform/home

- *Vision* - culture of sustainability

We affirmed that our vision was to achieve a 'culture of sustainability' for the community - a vision that already had a history. The Parabiago ecomuseum was established as part of a local 'Agenda 21' process.[6] In 2002 the Municipality of Parabiago developed its strategy, aimed at fostering sustainable local development, based upon active participation of citizens, policy integration and measurability of results. In 2004, the City of Parabiago signed the Aalborg Commitments[7], (the goals of the European cities to achieve sustainable development of their communities) and started a long-term process to integrate the commitments of sustainability into municipal politics and practices. This was a cooperative and co-creative learning process that has empowered the Ecomuseum since 2008. The expectation was that such a process would lead to change in the internal culture and thinking processes of the municipality. Many felt that new skills would be developed, enabling more effective identification of stakeholders, conducting community needs assessments, developing new forms of policies and new working relationships with local and regional governance bodies and institutions (e.g. schools). Ultimately, there were ambitious hopes that this approach would, develop new types of vision/values-aligned partnerships and projects.

- *Relevant* - address cultural needs

We asked ourselves if the ecomuseum was 'relevant' and oriented to addressing community needs. The answer was that the Municipality, and the ecomuseum itself, had experienced an internal culture change in recent years, so that now it is better able to identify and address local cultural needs. We are also better positioned to interact with the entire community, as a 'living museum and a 'living culture'.

- *Plan for adaptive cultural impacts*

We also affirmed that the Ecomuseum's intent is to foster adaptive cultural actions and impacts. The Ecomuseum participated extensively in the regional planning process (i.e. the Strategic Plan of the Olona River basin, the landscape regional plan) promoted by Lombardy Region. In 2019 the Parabiago

[6] For information on the Parabiago Agenda 21 initiative - http://ecomuseo.comune.parabiago.mi.it/INDEX_ev.html

[7] https://sustainablecities.eu/the-aalborg-commitments/

ecomuseum, within the Lombardy Ecomuseums Network, inspired the Lombardy Region Council to adopt a new model for monitoring ecomuseums that will also evaluate their impacts (see Pigozzi et al, chapter 3, this volume).

Net-Positive Value Generation

We were intrigued when we asked ourselves whether the museum facilitated net-positive value generation in its operations and the community, because we hadn't thought this way about our impacts before. We had thought about our own waste and about our energy use, but considering an overall assessment of both negative and positive value created was a challenge - especially when we thought about whether the museum was fostering net-positive value across the entire community.

- *Sustainable energy /waste /emissions*

The Ecomuseum, as part of the Parabiago Municipality, contributed to developing actions in according to the EU green new deal policies for example:

- Efficiency - (Inside: thermal insulation of building, LED lighting)
- Reduction of carbon emissions - (Inside: solar energy production on the museum roof use of bicycles by employees and volunteers)
- Waste management, energy use reduction campaigns - (Inside: by employees)
- Digitization / documental dematerialization / informatization

- *Assessing cultural needs*

The Ecomuseum had developed several strategies for assessing the cultural needs of the community - both long and short-term needs.

- *Measuring impacts*

The integration of policies and processes related to community-engagement and impact-assessment is still rudimentary, but evolving. For this reason, the Parabiago ecomuseum took part in regional and international networking to improve our measuring and monitoring skills. The Ecomuseum is part of:

1. the steering committee of DROPS, the international platform for ecomuseums and community museums, which is addressing the issues of monitoring and measuring impacts.
2. The Ecoheritage Consortium, founded by EU ERASMUS+ programme (Ecoheritage) is designing a tool for auto-monitoring and developing a training module for the European context that considers cultural impacts (see Pigozzi et al, chapter 3, this volume).
3. the Lombardy Ecomuseums Network suggested that the Lombardy Region consider cultural impacts as legal requirements in the ecomuseums monitoring system. The Region accepted the proposal and approved the new requirements.

Skills, Strategies, Partners

- Align vision, skills, actions, • Co-Creative Partnerships • Diversity – staff, board

In the late 2000s the Ecomuseum hired experts and acquired new skills in participatory and co-creative learning as well as stakeholder engagement.

Through these participatory processes, and enhanced skills, knowledge and resources, for use both inside and outside the institution, the Ecomuseum has expanded its capacity for nurturing meaningful impacts. The ecomuseum was able to take over the role of facilitator of a complex network of actors (institutional, economic, non-profit sector, and individual citizens) to empower a co-creative partnership with a wide convergence of stakeholders.

Outside impacts - living Culture

Individuals

The I-O Model (See Worts and Dal Santo, chapter 2, this volume) suggests that some of the central impacts of museums involve and depend upon individuals. From visitors to collaborators, the museum always works with individuals. And when individuals are engaged in ways that have the potential to advance the goal of sustainability, it is aided by the museum's commitment to: stimulate curiosity; nurture self-reflection (of one's values and behaviours); support creativity; foster empathy; encourage the acquisition of new knowledge; foster responsible action; and build harmony with nature. While en-

gaging individuals has always been an important goal for the Ecomuseum, the idea of measuring actual impacts was a more challenging concept.

Numerous projects included in the Ecomuseum's long-term plans aim to foster individual empowerment and inspiration to learn how local heritage and contemporary issues forge the living culture.[8] Since cultural heritage provides the roots of the future (De Varine, 2017) the ecomuseum helps people to know and draw insights from the past, to better inhabit the present and forge a flourishing future. To do this, the "memory bank"[9] was published online and is being continuously updated in participatory ways. The database is composed of pictures, eBooks, maps, video interviews, educational video clips, exhibitions, conferences, and more. Most of the "bank" is composed of material provided by the local population and the informatics community (e.g. through Wikipedia) and was digitized and made publicly available, to enable everyone to interpret it. Some elderly people who collaborated on the project later died and the memory bank preserves their memories. The ecomuseum carries out research and produces materials for the public to better know and understand their local heritage (in particular issues related to landscape and nature), as well as, global issues, such as the need for climate justice[10].

The open-source licence of most of the memory bank material permits people to share, copy and redistribute it, transform and build upon it for any purpose, even commercial. In this way, the memory bank enables authors to add value to existing material, including attribution of authorship to the new contributors, while distributing the work under the same license as the original.

The momentum of the memory bank project has slowed in recent years, but its impact was high during the pandemic lock-

[8] link to the Ecomuseum's Long-term plan - http://ecomuseo.comune.parabiago.mi.it/ecomuseo/risorse/piano_operativo2022_24_eng.pdf

[9] the "Memory bank" is an online collection of photographs, videos, interviews, soundscape recordings, ebooks, maps, exhibitions and thesis on material and immaterial heritage. It is available at: http://ecomuseo.comune.parabiago.mi.it/ecomuseo/BANCA_DELLA_MEMORIA.htm

[10] The climate justice campaign is a joint venture with the Mulini natural Park and is available at: https://sites.google.com/view/parcodeimulini/partecipa/cambia-il-clima

down times, when people searched online for cultural products with which to engage. The Ecomuseum promoted the memory bank material through social media networks, resulting in a significant increase in accesses, compared to the pre-pandemic period.

Groups and Communities

Beyond a focus on individuals, museums can engage with groups in order to expand the kind of impact it wants to generate. When museums are able to engage groups in ways that fosters dialogue, or generates trust and respect, then meaningful change can be nurtured. Many of the impacts that are required to build a sustainable world require momentum at collective levels - and groups are one of those levels. When groups and other collectives begin to focus on relevant societal issues and forces, with the intent of shaping wellbeing, then the collective thinks somewhat differently than one does as an individual. Groups are able to help explore issues thoroughly and build momentum for cultural transformation. And when museums manage to foster dialogue between groups, then it builds the kind of cohesion within and between groups that can produce a shared vision for the future.

From 2017 to 2022 the ecomuseum facilitated the creation of 39 cooperation agreements or pacts with community groups to develop projects (see Fig. 4 and the "Participation" paragraph). One example is a group of volunteers who organized visits to the Madonna di Dio'l Sà Church, a national monument that was closed due to the lack of priests who celebrate masses.

Other examples are more complex and collaborative, including the Olona River Pact and the

Agriculture Pact. These groups are working together with a specific focus on the river basin management and the agro-ecosystems regeneration. The ecomuseum supported cohesion within and between collectives that in the past were not used to working together. Through this kind of collaborative work, impacts have been felt as transformations - both in a cultural sense (the cooperative way that work is done) and in a physical sense (how the health of the landscape has improved).

When increasing public participation combines with increasing process complexity, the results can include meaningful change in the local living culture. All of these agreements are monitored and some projects are renewed. Also, new projects have emerged from ongoing dialogue with community stakeholders. Accordingly, the flow chart in Fig. 4 should be re-envisioned in a circular way.

In fact, the monitoring of each concluded agreement gives essential feedback to better design new agreements.

Communities / Neighbourhoods / Town

Within the framework of the I-O Model, neighbourhoods are larger units than groups, but smaller units than communities. Creating ways to engage effectively with these types of collectives will likely take experimentation. The goal is ultimately quite similar across these collectives - to build cohesion around a vision of the future that people can embrace, or at least agree to. It requires an inclusive process that discusses the assumptions that underpin various approaches to the future, and working through how well those approaches meet the needs of everyone for a safe, nurturing, satisfying life, within an environmental system that has biophysical limits. Being able to identify stakeholders, not only as individuals, but also as groups, neighbourhoods, communities and organisations, is a big step. This work also lays the foundation of communication and co-creativity that can build cohesion related to a viable, desirable vision of a sustainable future.

The Ecomuseum and its partners have succeeded in documenting and mapping the living heritage and assessing cultural needs of the four neighbourhoods that make up the Parabiago community. This process began in 2007, with the creation of a parish map. In fact, this map was the first programmed action contributing to the long-term planning of the ecomuseum. It involved a participatory process, resulting in a permanent and updatable "archive" of the tangible and intangible heritage of this territory. Other parish maps were also realized in 2011, 2017 and 2018 (Dal Santo, 2020). These maps help build trust between individuals and groups, as well as help to identify emerging visions of the future. To update and implement map contents, a multimedia map was realised inside the Memory bank. This later map contains earlier parish maps of Parabiago, with more recent updates layered in.[11] The maps and participatory mapping processes also inspired thematic, cultural and natural routes through the community, both on foot and cycling, which encourage individuals to explore their community in new and thoughtful ways. During the COVID pandemic lockdown times a great number of people did a lot of walking and cycling – these cultural routes continue to be used today.

[11] http://ecomuseo.comune.parabiago.mi.it/ecomuseo/MAPPE.htm

Transforms Human Systems

- economy - net-positive value (social, environment, economic)
- social systems-equity, justice, etc.
- governance - participatory democracy

Now that human activities and impacts are destabilizing Earth's natural systems (i.e. the epoch of the Anthropocene is upon us), the I-O Model identifies 'human systems' as important factors in both understanding and addressing humanity's existential predicament. For over 50 years humans have pushed our planet beyond its ability to regenerate itself. Being able to visualise a scientifically viable and ethically desirable future is essential. Current systems of economics, business, governance and laws have enabled humans to wield powers that are not guided by wisdom, justice or ethics. Unless current trends in population growth, consumption, waste-generation, governance, well-being and stewardship of the environment are redirected, Nature will establish a new world order, Systems that have driven wealth and power generation now provide the inertia that is propelling humanity, and earth systems, into collapse. While a small town in Italy cannot itself change these systems, collections of small towns do have the ability to be catalysts for systemic change. Catalysts don't have to do the heavy lifting of systems change - but they can develop the understanding of how to exert influence in ways that bring about necessary change. The ecomuseum of Parabiago has coordinated, facilitated and empowered the work of a wide network of stakeholders (individuals, groups, public institutions, businesses and traders, non-profit sector) to address the problems facing the landscape that had become invisible to most local people, and which needs to come back into view. This network was able to engage the local culture to map the geography, along with the heritage, then diagnose what was making the landscape sick and devise ways to restore it to health. Along the way, the community has considered how best to manage the wellbeing of the land, while regenerating it. Forums and working groups that meet periodically has considered and chose design options.

It was determined that a change in the model of governance of the ecomuseum was required to address and integrate physical, managerial and procedural aspects, and to bridge the public interests with interests of the private sector. In fact, in the beginning, the ecomuseum worked more closely with the

traditional logic of administration management where the bureaucratic power has control over decisions. However, over the years, it has increasingly embraced the shared management of the common goods.

The results can be read in relation to the changes and impacts that have been produced or triggered: changes in the way work is done, cultural changes, in particular linked to the relational and social dimension. Such changes, in turn, contributed to produce physical impacts in particular the improving landscape.

What happened in the area along the Olona River gives an example of these kinds of transformations that the ecomuseum called "river renaissance" (Fanzini, 2019). In 2013, the Mulini natural Park and its partners, (including the Ecomuseum, the owners of the land and numerous individual citizens), signed the *Pact for the Olona River*, which contains general system objectives for the entire Park and studies of feasibility for the territorial redevelopment of suburban areas. In 2016, the stakeholder network also promoted the Pact for the care and enhancement of agroecosystems along the Olona river and the Villoresi canal and the supply of local products (Fig. 5). This is an initiative that affects a wider area in the upper plain of Milan. As part of the Pact, the signatories (agricultural companies united in the Valle Olona agricultural district, institutions and associations), undertook to ensure that, through their actions, the agroecosystems are redesigned to carry out their interdependent ecological, economic and cultural functions. In 2017, the cooperation agreement called the *Olona Charter* was signed, which extends the contents of the Pact to the entire catchment area of the river, expanding its territorial scope and contents. This Charter reflected the awareness that, in order to resolve complex issues in a lasting way, it is necessary to develop synergies, especially at the level of the catchment area.

The projects envisaged by the Olona Charter have been included in the Action Plan of the Olona, Bozzente, Lura and Lambro Meridionale River Contract, approved in 2017 by the Lombardy Region Council. It defines the system objectives and four sub-actions: a. coordination of activities defined locally with the planning of the entire basin; b. use; c. maintenance; and d. ecological connections. This charter as the Olona river pact developed yearly processes for results monitoring. The impact assessment was addressed only in 2022 with the "Strategic Project" (called PSS) of the

basin of rivers Olona, Bozzente, Lura, Southern Lambro promoted by the Lombardy Region. PSS is a participated action plan for the integration between the Water Protection and Use Program, the Flood Risk Management Plan, territorial and/or sector programming (eg. rural development programmes, management plans for protected areas, etc.) and for the concrete support for local projects. The Parabiago ecomuseum and the Mulini Park actively participated in the designing of the PSS through the proposal of goals, specific projects and indicators to measure impacts.

In particular the ecomuseum worked to raise questions that come from an understanding of the cultural landscape to help bring heritage and issues related to wellbeing into the PSS working group so that better decisions can be made.

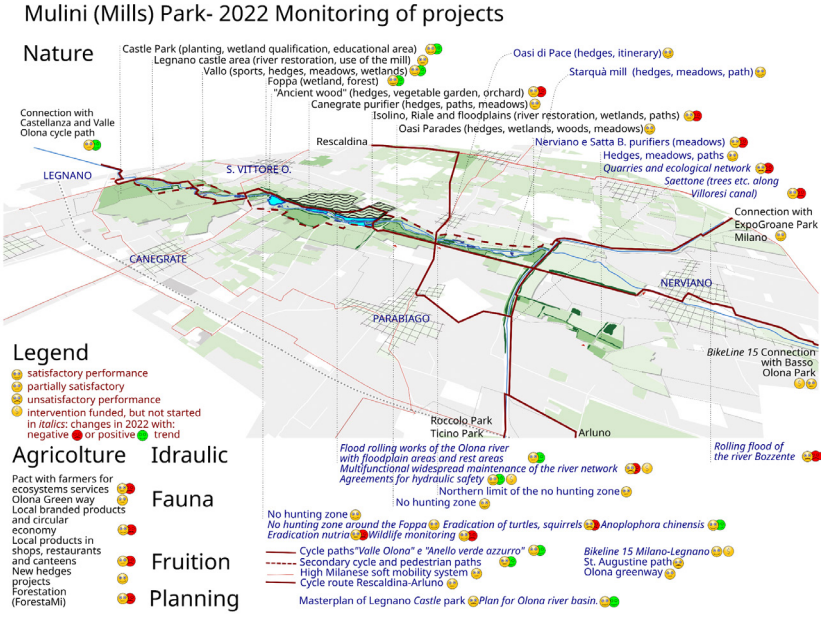

Fig.5. 2022 monitoring of the Olona river agreement (courtesy of Parabiago ecomuseum)

Organisations:

Contemporary culture is shaped profoundly by the activities of organisations - for-profits, non-profits, governments, educational, and more. They are all important drivers of the status quo. It may be impossible to imagine a sustainable future without significant transformation of organisations and the roles they play in the living culture. If museums and ecomuseums collaborate

with vision-aligned and values-aligned organisations, they will gain new leverage for fostering a sustainable future.

Circular economy

Farming is not the main economic activity in Parabiago, but agricultural land is a very important feature of its landscape and a vital link between humans and nature. The Ecomuseum has been exploring the potential of embracing the principles of a 'circular economy'. In this approach there are three basic principles: to eliminate waste/pollution; ensure materials and products can be reused/reprocessed; and that nature is regenerated in the process. Circularity, undoubtedly, must be a feature of a sustainable future. In 2015, the Ecomuseum proposed a project to the local community, for the Milan EXPO "Feeding the planet, Energy for life!". This project focused on the production of bread, using an entirely local supply chain, including local grains, local processing and local markets - with strict attention paid to waste along the value chain. There were many local partners involved, including farmers, bakers, retailers and consumers. (Dal Santo, 2020).

In a circular economy, the life cycle of materials and products are extended. Circularity means that waste is always treated as a new input that has value and is continuously being recycled. Essentially this is the foundational process of Earth's biological systems. Embracing circularity requires a shift in the traditional take-make-waste approach that has become a prevalent part of modern consumer society. The Parabiago Ecomuseum has been working with its partners to develop examples of circular approaches within its local economy, (Fig 6). The goal is that material inputs (new and recycled materials), are efficiently processed to create goods that meet the needs of people, while waste products become new inputs in ongoing processes. The result is that natural and human-made materials continue to circulate in the economy without generating large quantities of waste. Parabiago is advanced in waste and water management, handcraft and trade, but much less in energy and food production. For this reason the ecomuseum assessed that the greatest gains that could be made are in landscape regeneration.

The Parabiago Ecomuseum is helping farmers draw on local heritage insights, especially cultural landscape knowledge, to adapt agricultural practices so they better meet the evolving needs of the present and the future for example through agriculture practices with low carbon emissions and for high biodiversity landscape. It is vital that local stakeholders feel

empowered to work and live in balance with nature. However, the interactions of the Parabiago community with other parts of Italy and the world remain largely tied the intractable methods of our unsustainable global market for goods. Ideally, people in a region can meet their needs through their reliance on local natural resources and systems, while dramatically reducing reliance on goods that originate in distant lands. The Ecomuseum established a dialogue with local farmers, retailers and citizens to experiment with a more sustainable approach to food production, designed to meet local demand.

In embracing the principles of a circular economy, the ecomuseum affirms that it is possible to significantly decouple carbon emissions, and other forms of waste, from economic growth. However, the goal of sustainability will be undermined as long as market economies rely on long and complicated supply chains for their goods. This traditional approach to global goods is entirely dependent on relatively cheap and polluting transporation, and is driven by corporate and societal demand for maximizing GDP, even at the expense of eroding the Earth's natural systems. With the reality of a globalized economic system that externalizes massive real costs that it doesn't want to be responsible for, it will take great courage for communities to live locally. The more that ecomuseums, and traditional museums, can become catalysts for localizing economies and fostering principles of circularity, the faster humanity can breathe a sigh of relief.

Pursuing a 'circular economy' is a challenging path. It requires that stakeholders across entire supply chains are committed to understanding the science of making products, as well as all of the impacts involved in packaging, transporting and recycling those products. The search for new and sustainable ways to do things will often threaten those engaged in practices that have become normalized. In Parabiago, a controversy erupted when the media reported that the local bread initiative was using local wheat, that was grown with damaging chemical fertilizers. Almost instantly, the project was threatened, with bakers pulling out. Even a small amount of doubt in the media can undermine progressive work. And in today's world, the rush to judgement is a knee-jerk reaction, rather than taking the time to truly understand the underlying issues. It was later made clear that there was no problem with the fertilizers used and the media reported the news. However, it is important to re-

member that for ecomuseums embracing their role as catalyst of cultural adaptation, this can be a tricky, but vitally important one.

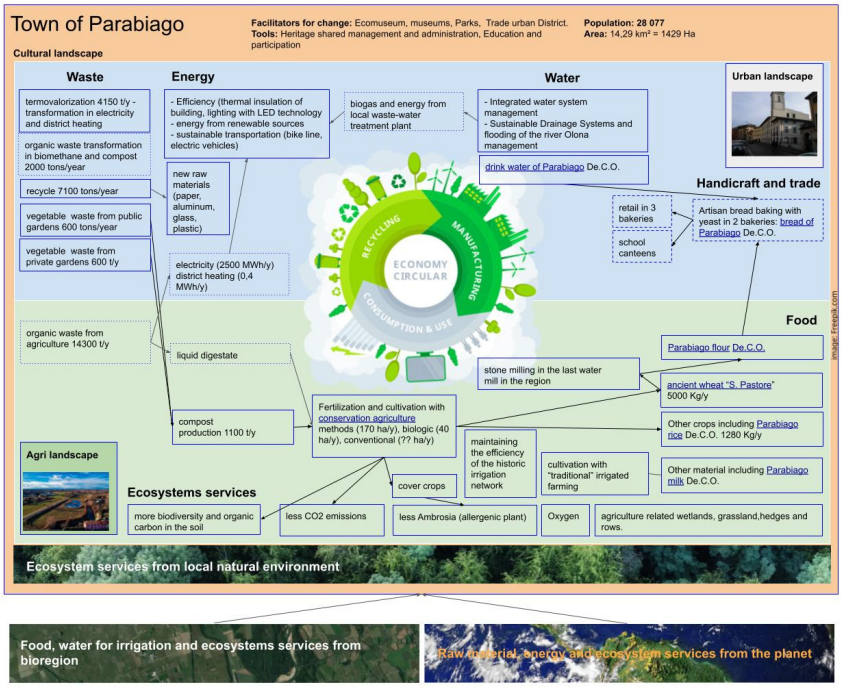

Fig. 6. Circular economies in Parabiago (courtesy of Parabiago Ecomuseum)

Cities/Regions

Cities are perhaps the most practical level at which systems, organisations, various collectives and individuals can generate a scientifically viable and ethically desirable vision of the future. Existing governance structures may be inadequate to rise to this challenge, however, cities represent the level of governance that is closest to the daily life of people and connected to the realities of a natural world that is in steep decline. Provinces/states, as well as national governments, are important for knitting together a global shift in cultural values, behaviours and systems, however it is at the local level that these changes need to be most securely grounded. Addressing the issue of 'food security' is a good example of a local issue that must be addressed to ensure the most basic future. Currently, many cities would

soon be without food, if the global supply chains of food were to collapse.

In Parabiago, the percentage of food currently coming from the local bioregion is small. For this reason the ecomuseum promotes short supply chain products coming from local suppliers. In many places, the best of local food production is reserved for foreign markets, because those markets are larger and more lucrative.

The bread of Parabiago was the first of many products with a trademark that certifies that the product is made in Parabiago[12]. Now there are many local products that have links to local traditions, and which utilize novel innovations that truly embrace the idea of circular design and positive impacts on the natural environment.

It is important to remember that designing a food security system requires a good understanding of both the supply side (i.e., how to grow food sustainably) and the demand side (i.e. what are the needs of the community for food, both in the present and for the future). If citizens feel that their needs are not being recognized, then they will try to meet their needs by using alternatives to local systems (e.g. using the internet to buy foods from elsewhere and have them shipped in). It is a complex process (Fanzini, 2019). However, a suggestion from the ecomuseum led to the adoption of the same strategy for growing local breads by the Municipalities of the Mulini National Park.

Despite clear and positive impacts, these projects related to food production have done little to encourage stakeholders across the community to systematically increase their ability to live within their own bioregion. For this reason the ecomuseum's intent is to continue to cultivate a public vision of a future that prioritizes stability and health from living within the productivity of the bioregion, both for food and for ecosystems services (Fig. 7).

[12] http://ecomuseo.comune.parabiago.mi.it/ecomuseo/deco2_ev.html

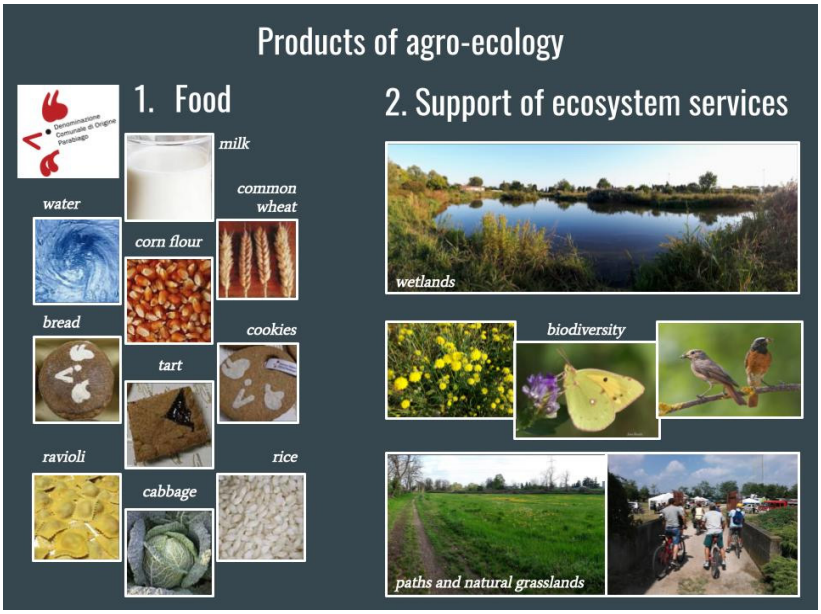

Fig. 7. Products of agro-ecology in Parabiago (courtesy of Parabiago ecomuseum)

Equitable Education

The ecomuseum organizes education programmes for local schools (from kindergarten to high school). Programme goals are for students to observe the landscape closely. This understanding becomes a prerequisite for learning how to act in ways that respect and preserve the landscape, thereby passing on a flourishing, adaptative landscape to future generations.

Landscape education is aimed not only at school children, but also parents and grandparents and, in some cases, acquaintances and the elderly in retirement homes. The ecomuseum hosted internships and degree theses (Fig. 8).

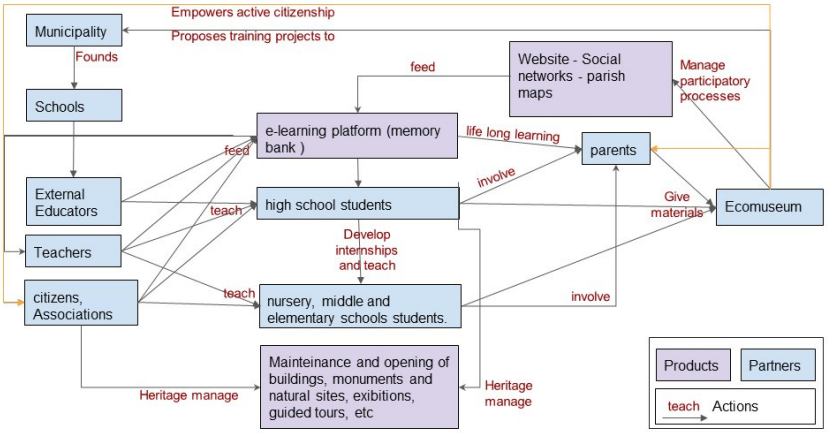

Fig. 8. The training strategy of the ecomuseum (courtesy of Parabiago ecomuseum)

Conclusion

Using the Inside-Outside Model, it is evident that ecomuseums and community museums have an advantage over traditional, collections-based museums in terms of promoting sustainability and encouraging actions to halt climate change. The fact that many ecomuseums focus on a geographic region and are preoccupied with the wellbeing of local inhabitants within their territory, has helped ensure that both inside and outside perspectives are in place and connected in constructive ways.

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15. The "Ecomuseo Martesana" and the climate challenge

Edo Bricchetti

The Ecomuseo Martesana

The Martesana Ecomuseum was founded on 6 May 2016 in Gessate (Milan, Italy) to celebrate and remember the historical and cultural values of the generations that have inhabited the Naviglio Martesana over the centuries. Initially it had 17 founding members (8 municipalities, 7 associations and 2 economic entities), but in 2019 it comprised 80 members (17 municipalities, 26 associations, 6 schools, 4 economic entities, 24 individuals). The number of its members continues to grow.

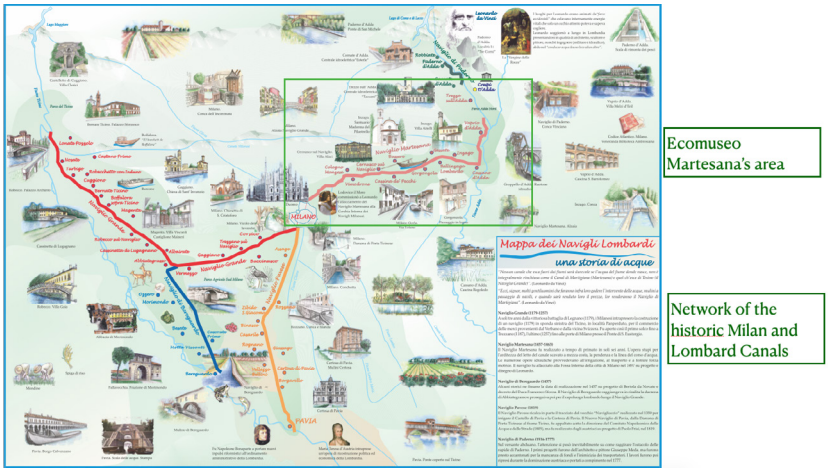

Fig. 1. The network of Lombard Canals. The green box shows the ecomuseo Martesana area (courtesy of the author).

The area of the Ecomuseum (Fig.1) is crossed by the Naviglio Martesana, a canal whose waters have been widely used in agriculture and for commercial purposes. It was built in 1457-1463.

The canal is derived from the waters of the river Adda. After about 33 kilometres, the canal reaches Milan where it supplies water to the approximately 8-kilometre-long Inner Circle of the Naviglio Milanese, within the city of Milan itself. In addition, the ecomuseum includes the so-called 'dry lands' to the north of the canal and the 'wet lands' irrigated by the canal to the south (Fig. 2); there are also vast green areas organised into parks and transport infrastructures such as the Milanese Green Subway and the railway. A cycle path runs along the entire course of the canal (see Fig.4). The municipalities involved in the Ecomuseum are all those that make up the 'Zona omogenea Adda Martesana', included in the three-year strategic plan of the Milan Metropolitan City (MCM), which links strategies, projects, actors and territories in the Milanese metropolitan area.

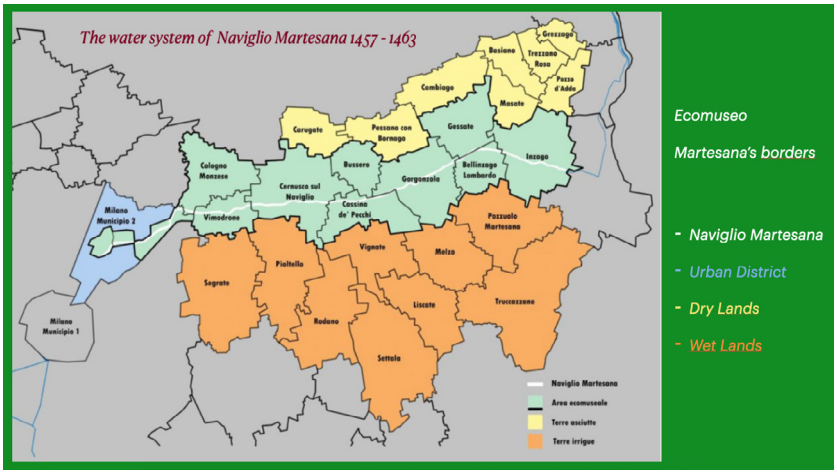

Figure 2. Ecomuseo Martesana's borders (courtesy the author).

Ecomuseo Martesana's mission

The mission of the Martesana Ecomuseum is to research, conserve and enhance the natural, cultural and social assets and ways of life of the territory with the participation of the population. It promotes participative development projects of the local communities, including the protection and safeguard of the territorial heritage in its environmental, historical, cultural, productive and ethnographic components. It keeps alive the collective memory and history of the territory, including urban

spaces (Fig. 3). To pursue its statutory mission, the management of the Martesana Ecomuseum has a chairman, a coordinator, a management and participation committee and a scientific advisor. In addition, the ecomuseum makes use of 17 'ambassadors or local contacts' located in 10 municipalities. Local authorities, cultural and environmental associations, private (non-profit) institutions, tour operators and economic actors are also involved. The stakeholders of the Martesana Ecomuseum pay a membership fee which varies according to the physical members, associations and municipalities. Its finances benefit from contributions and funds from local authorities and economic subjects. In addition, it avails itself of funding opportunities related to public calls at local and regional level and fundraising for targeted projects, carried out in partnership with institutional bodies, private sponsors and creative cultural enterprises.

Fig. 3. Ecomuseo Martesana in the urban district. Cassina de' Pomm (Greco Milanese). (courtesy of Imerio Raffaini, reproduced with permission).

Ecomuseo Martesana's engagement with the climatic challenge

Ecomuseo Martesana regards climate change as a real threat to the area and has set the following goals to actively engage with the climate challenge:

- attaining zero emissions from ongoing human activities;
- finding innovative but effective ways to monitor climate changes;
- considering appropriate solutions for infrastructure resilience in particular the ones related to the inland waterways;
- facilitating dialogue among the territorial actors about technical and scientific information relating to the climatic emergency;
- being actively engaged, as stakeholders and advisors, in the territorial policy instruments;
- establishing a shared-vision on key projects concerning a better quality of life through the direct participation of the ecomuseum community;
- building information campaigns on the compatible reuse of water in respect of the environment and of society's vital needs;
- promoting awareness of a "soft" navigation along the Martesana Canal (Fig.4);
- promoting "soft mobility" such as cycle tourism, cultural itineraries, gastronomic visits;
- promoting the use of solar panels for energy self-sufficiency, the recharging of electric vehicles, heat pumps for home heating and air conditioning;
- recycling and reducing waste;
- promoting ecological entertainment events for families and children;
- educating people to respect nature "*Education is the most powerful weapon that we can use to change the world*"(Mandela, 2017)

All these statements reflect the need to combat the current human condition which is marked by an economy of consumption and waste, recognizing that, unless we do this, we will be unable to face the climate emergency. Yet sustainable development is impossible without intergenerational solidarity. *"Now we cannot talk about sustainable development without solidarity between generations. ...We can no longer think only starting from a utilitarian criterion of efficiency and productivity for individual profit."*(Francis, 2015) Intergenerational solidarity is not optional, but rather a basic question of social justice for an integrated ecology. Greater awareness and knowledge of the situation in which society currently finds itself will only work if it leads to concrete action on environmental issues.

Fig. 4. Cascina Regoledo (Inzago - Cassano d'Adda) (courtesy of Giovanni Gargantini, reproduced with permission).

Ecomuseo Martesana and the climate challenge

Ecomuseo Martesana prioritises the life of human beings, animals and plants in the area. Its support is deeply concerned for the future of the Earth in helping people to face climate change. Its *Declaration for the state of climate and ecological emergency*[1] (agreed in Gessate, 8th July 2019) states: *Ecomuseo Martesana considers this declaration and the commitments it assumes as a priority over any other sphere of action, alignment or objective. This is a declaration in favor of the LIFE of human beings, animals, plants! It is a declaration that is deeply concerned for the future of the new generations and for this reason, in addition to committing ourselves with the highest priority, we ask our associates to do the same in their respective areas.*" The Ecomuseum has developed several climate-related projects, which are described below.

a) Smartland Adda Martesana (S.A.M.)

The Ecomuseo Martesana territory incorporates a series of so-called "Smart Cities" inserted in an intelligent "Smart Land"

[1] See the declaration at: https://ecomuseomartesana.it/comunicato-emergenza-climatica/

territory in which not only citizens and human beings are at the center with their needs, but also other living beings, animals and plants, in a harmonious process of respect of nature. The Smart Land is a Community Pact between Institutions and Civil Society. For this reason Ecomuseo Martesana identified as a good practice the example of the 14 municipalities of the homogeneous zone of Milan South East which, since 2019, have been working to encourage the development of Integrated Territorial Investments (I.T.I.)[2] in the S.E.M. (Smartland South East Milan) with the mission of "Supporting the evolution and development of the territory, arranging the infrastructures and services according to how the social, economic and cultural dynamics evolve; a mission based on the core values of community guidelines such as "Innovation, Sustainability, Cohesion and Contamination".

Ecomuseo Martesana, in 2021, presented the results of the Territorial Focus of the SAM - Smartland Adda Martesana project together with CISA Energy[3] and made a partnership agreement with CISA Energy for an integrated development project (I.T.I.) and social cohesion for the territory of Adda/Martesana. The core of the I.T.I. agreement focuses on sustainable mobility, renewable energies, urban and rural regeneration, and the valorisation of individual local natural and cultural heritages, stimulating and maintaining dialogue and cooperation between the various local public and private actors in order to generate a virtuous circle of well-being. In detail, the agreement aims to: develop participatory projects to safeguard the territory's environmental, historical-cultural, productive and ethnographic components; support sustainable agricultural, craft, industrial and commercial activities on a local scale; launch a unitary planning process to ensure cooperation between public and private actors; keep local citizens informed through the production and dissemination of periodical newsletters. More than 200 projects have been designed in six thematic areas: Mobility, Water and Environment, Energy Transition, Regeneration, Proximity Tourism, and Digitization.

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[2] The I.T.I. (Integrated Territorial Investment) is an efficient, flexible European tool for the implementation of integrated territorial strategies aimed at the development of a specific locality.

[3] CISA Energy (https://www.cisaenergy.it/) is a consulting firm specialized in technological, economic and financial advisory services.

Mobility: to improve local mobility by identifying solutions that create integrated transport networks that link road, train, metro and bicycle.

Water and Environment: to coordinate policies for the management (inside the perimeter of the ecomuseum area) such as travel by bike, walking and boat. As regards boat, the primarily purpose is to redevelop navigation along the Naviglio Martesana for social and environmental purposes.

Energy Transition: to focus not only on energy efficiency, public lighting and the provision of electric recharging points, but also on encouraging Renewable Energy Communities (RECs). Energy transition represents a new model of energy production and management helping to mitigate the climate crisis and by 2050. The members of the RECs (as foreseen by the European Directive RED II)[4] define themselves as prosumers since they can take energy, self-produce it, feed the excess into the grid or share it with other members, achieving savings in terms of energy and electricity bills, offering support to families in need, and reducing local environmental impact.

Regeneration: to give new life to underused public buildings or those with serious structural deficiencies to make them sustainable by encouraging new uses and providing innovative cultural, social or social welfare services.

Proximity Tourism: to create a territorial brand that not only relates to local natural, historical and cultural assets, but one that is marked by an advanced environmental, social, technological and innovative solutions that enhance the whole territory by creating a sustainable tourism economy.

Digitization: is the theme that supports all the other sectors, enhancing efficiency and productivity. Moreover "Smart Land Martesana" aims to encourage the involvement and active participation of local people in compliance with policy guidelines dictated by the NGU (Next Generation Europe) program[5] and by the declination of national PNRR program (National Recovery Plan and Resilience). Europe is on track to become

[4] In November 2016, the European Commission published its 'Clean Energy for all Europeans' initiative. As part of this package, the Commission adopted a legislative proposal for a recast of the Renewable Energy Directive.

[5] The Next Generation EU, better known in Italy under the informal name of the Recovery Fund, is a fund worth 750 billion euros approved in 2020 by the EU Council to support the Member States affected by the COVID -19 pandemic.

the first climate-neutral continent by 2050, the aim being to avoid producing more greenhouse gases than our ecosystems can naturally absorb. With Next GenerationEU we will invest in environmentally friendly technologies, introduce greener vehicles and public transport and make our buildings and public spaces more energy efficient.

b) Permanent Ecomuseo Martesana Observatory

The ecomuseum programme includes an agreement with CISA Energy that integrates the key themes by organising a permanent "territorial observatory". The Ecomuseum Territorial Observatory will be a physical and virtual meeting and information exchange place, a place where citizens, stakeholders, public administrators, associations and institutions can interact by providing or using territorial and cultural data, sharing experiences and proposing projects. It will be a tool capable of creating dialogue and territorial value around the themes of sustainable development, digital transformation, policies for the conservation and regeneration of places (Fig.5), soft mobility and land valorisation. To date, the Martesana Ecomuseum has collected data for about a thousand records on the cultural heritage of the Martesana. The permanent observatory will complement the Smartland Adda Martesana by providing information for a sustainable and shared development of the territory. It is not yet officially in use, but will be available in the near future. It can be consulted on the Martesana Ecomuseum website. An information centre is useful for active support of the Martesana Community in the campaign for global well-being, together with the municipalities, and for pre-feasibility ecomuseum projects. The role of the Martesana Ecomuseum will be that of coordinator and guarantor for the entire duration of the project. The CISA, on the other hand, will have the task of preparing and using the tools for screening, interpreting and processing data and requests from the local administrations.

Fig. 5. Villa Alari Visconti (Cernusco sul Naviglio) (courtesy of Imerio Raffaini, reproduced with permission).

c) The campaign for "We Plogging"

The campaign named "We Plogging"[6] is an initiative promoted by CEM Ambiente Spa[7] which Ecomuseo Martesana joined and supported together with CISA Energy. It consisted in carrying on plogging activities in the territory through the supply of collection materials (gloves, bags and high visibility harnesses) through initiatives carried out with and for the Municipalities or directly with citizens. The core of "We Plogging" was centered on urban hygiene services such as separate waste collection, street cleaning, disposal and recovery of materials and all related services. In May 2022 the initiative "We Plogging" was carried out in collaboration with "CEM Ambiente", promoting the collection of plastic and non-hazardous waste. The Healthy Festival in Martesana, "Magnolia Festival" was another initiative of "We Plogging" by Ecomuseo Martesana.

d) Bicycle rest station areas

The Martesana Canal cycle path enables a connection from the city center of Milan to the Adda Nord Park (eastwards)

[6] "We Plogging" is a sporting activity born in Sweden that combines physical activity and environmental sustainability. It consists of collecting garbage while running or walking.

[7] CEM Ambiente Spa is a fully public capital company that deals with an integrated set of environmental services.

including the Leonardo Adda Ecomuseum", northwards. Ecomuseo Martesana carried out a feasibility study for an official cycle route along the Martesana Canal. The project stems from the need to satisfy the desire for exercise and recreation within the natural environment, perfectly symbolised by the bicycle. The route requires adequate infrastructure to guarantee the circulation and safety of cyclists and pedestrians (Figures 6 and 7). In addition to the cycle path, the Martesana Ecomuseum has developed 'rest stations' for bicycles, equipped with various services, which meet the needs of tourist cyclists for the development of soft mobility. The rest stations will be equipped with solar panels for energy self-sufficiency, electric vehicle charging, certified information points and green technologies. The stations will be branded and managed with common protocols to make them recognisable. In addition to the main canal cycle path, the 28 municipalities of the Adda-Martesana can offer a good variety of other routes, away from traffic congestion, for the benefit of hundreds of thousands of inhabitants, sportsmen, walkers and cyclists, families and tourists. The Martesana Ecomuseum will guarantee the enhancement and maintenance of the cycle routes in exchange for institutional sponsorship, primarily by the municipalities.

Fig. 6. Skating along Naviglio Martesana (courtesy by Giovanni Gargantini, reproduced with permission).

Fig. 7. Biking along Naviglio Martesana (Courtesy of Giovanni Gargantini, reproduced with permission).

Ecomuseo Martesana and the local climate emergency projections

The future scenarios of the local climate emergency projections up to 2060 must be faced with a realistic and scientific method. The emission scenarios, as expected by "ACLI TERRA Milan/Lombardy"[8] (Province of Monza and Brianza), indicate the growing levels of greenhouse gases and aerosol concentrations enabling an understanding of how the climate may change. The forecast data for the Lombardy Region, and its Climate Plan, enable us to consider what might happen even within the Ecomuseo Martesana. The current plan to combat climate change is to broaden the response within the Adda/Martesana area, prioritizing decarbonization projects.

[8] See the notes by the National Centre for Climate Services NCCS and the impacts, adaptation and vulnerability by the "Focal Point for Italy" of the Intergovernmental Panel on Climate Change (IPCC).
https://www.nccs.admin.ch/nccs/it/home/cambiamenti-climatici-e-impatti/le-informazioni-di-base-sul-clima/cosa-sono-gli-scenari-di-emissione.
https://ipccitalia.cmcc.it/ar6-sesto-rapporto-di-valutazione

Ecomuseo Martesana and Logistics

Urban logistics are crucial to the adoption of solutions to meet the climatic challenge. Milan, for example, is preparing a Zero Emissions E-Commerce freight transport system to help achieve the C40 goals.[9] Ecomuseo Martesana is aware there is a need for urgent action, across all sectors, to decarbonize, while at the same time strengthening resilience to the changing climate. Ecomuseo Martesana is exploring the possibility of containing, limiting and governing the logistical phenomenon and is engaged in addressing the "Ecological Transition" to the Agenda 2030's Goals by connecting all initiatives to the Smartland Martesana.

Food Communities and the "Martesana Solidarity Economy" (ESM)

The 'Comunità del Cibo' project was generated by 'Economia Solidale Martesana' (ESM), the network of Solidarity Purchasing Groups (GAS), associations and agricultural producers that has activated an economy responding to the need to support agricultural quality, soil protection, rural landscapes and the environment in general. Over the past five years the MES, together with the Martesana Ecomuseum and the ACLI, has emphasised the great historical significance of the north-south corridors that have made Milan and its surroundings important. Ecomuseo Martesana, academically and socially endowed, emphasised social cohesion and the theme of 'good and fair work', bringing together the municipalities of the Adda/Martesana district. Ecomuseo Martesana involved the 29 municipalities of the 'local community economy', giving a unified vision of the territory and its needs. Ecomuseo Martesana promptly joined the GAS project, which focused its activities on zero km initiatives. Zero km products often have lower prices than those of normal outlets. Moreover, they cover a wide range of goods, from food to clothing. As the acronym indicates, GAS activate (within themselves) not only an organisation aimed at consumption, but also one that has a great respect for social relations and the environment. The network that is created

[9] C40 is a network of mayors of nearly 100 world-leading cities collaborating to deliver the urgent action needed right now to confront the climate crisis.

can also find its connotation within different social contexts, creating the basis for greater inclusion of different types of families or groups in the area. Each group has its own management: some use a storage place to collect goods, others organise themselves to take turns to collect goods from the supplier and then deliver them to others. There is usually a contact person who acts as an intermediary with the supplier(s) and who collects and sends orders, who takes care of "bureaucratic/accounting" management, for deliveries. In past years, the Martesana Ecomuseum has always supported local agricultural production. This provides a means of governing 'green spaces', which are currently severely compromised by the economic power of multinationals. The Martesana Ecomuseum intends to give greater emphasis to the production, processing and marketing of the agricultural products of its territory. Building and supporting a true Food Community in Martesana means preserving the territory, encouraging politicians to make choices that limit the loss of green areas. The project, which started in 2021 with three meetings involving individual farms, farmers' associations and the "Orti Comunali della Martesana", will continue in the following years with the involvement of public bodies, not only municipal administrations, but also parks, associations, third sector realities, neighbourhood traders and restaurateurs to create a different future for the Martesana territory. The Martesana Ecomuseum hopes that the initiative will lead to local solidarity economy networks 'Distretti di Economia Solidale' (DES).Municipalities have the task of using the planning tools at their disposal to prevent the loss of good agricultural land and encourage the production of the local foods. Farmers and their groups should interact with the institutions and have greater collaboration in the production of food for the local market, while traders and restaurateurs prioritise local products. Consumers should be encouraged to consume local products through direct purchase in farms and farmers' markets, and in "Botteghe del Mondo" (Shops of the World) that are organized by Solidarity Purchase Groups with the collaboration of associations such as Ecomuseo Martesana with the establishment of a "Promoting Committee of the Martesana Food Community".[10]

[10] For further information see notes www.economia-solidale.net

The community map: "The Places of Soul"

Ecomuseo Martesana's community map project "The Places of Soul" reunited people, sites and memories within a multifaceted common vision of the territorial heritage of Ecomuseo Martesana. "*A village means not to be alone, to know that in the people, in the trees, in the territory there's something yours that, even when you are far away, still keeps waiting for you.*"(Pavese, 1950) The model is the "Parish Map" (Clifford and King, 2006, pag. 317-318; Clifford, S and King, A. 1996) a pictorial means (paintings, tapestries, photomontage, video) of capturing the memories, ideas, people and places that reflect the tangible and intangible heritage important to inhabitants. Parish maps have proved a popular way of beginning discussions with local people about their heritage, and since the beginning of the 21st century have been extensively used to good effect in Italy, for example in Cortemilia ecomuseum (Murtas and Davis 2009). In Italy about 46 ecomuseums have created at least a community map (EMI, 2022). Generally, the parish map is one of the first actions planned by Italian ecomuseums and in some experiences such as the one in Puglia it was a tool to plan the sustainable use of the heritage.

The 'Places of the Soul' are the places to which the people of the Martesana Ecomuseum are sentimentally attached through memories, emotions and feelings. The result is a map of words and images from the personal memories of the territorial actors. [11] "Places of the soul" are also a stimulus to rediscover places and things that are deeply rooted in people's memories and that have real significance for the future. These memories, brought back to mind, gave an idea of what places were in the past, building a roadmap of territorial and (also) climatic changes. The result of these 'memories' has been transformed into a virtual map offering an emotional journey through the Martesana area.

"Martesana. Girala come vuoi". "Let's build a collective memory together"

"Martesana Girala come vuoi" is a project by "Emisfero Destro

[11] The census of the parish maps made by Italian ecomuseums is available at https://sites.google.com/view/ecomuseiitaliani/chi-siamo?authuser=0
The community map project on the "Places of the soul" of the Ecomuseo Martesana the map is available at:
https://www.ecomuseomartesana.it/i-luoghi-dellanima/
https://www.associazionemneme.it/it/mappa-comunita-ecomuseo-martesana/

Teatro"[12] carried out with the collaboration of the Martesana Ecomuseum. People were involved in creating their own film, capturing their daily surroundings. It was an opportunity to film the territorial aspects of Martesana. The initiative was included in the programme of the 'Year of Slow Tourism' promoted in 2019 by the Ministry of Cultural Heritage and Activities.

The "Green areas"

The Martesana Ecomuseum attaches importance to the so-called 'green areas'. "Green" is an English term used, in its broadest sense, to refer to issues related to the protection of the natural environment that recalls the principles of sustainability, and protection of nature (Fig. 8). In the case of the Martesana Ecomuseum, the 'Green Areas' are based on the preservation of natural sites and their enhancement through quality agriculture, mainly aimed at the production of food for local consumption. They are based on 'gentle' proximity tourism along the axis of the Naviglio Martesana and its surroundings.

Fig. 8. Naviglio Martesana, a Green Landscape (courtesy of Giovanni Gargantini, reproduced with permission).

[12] Emisfero Destro Teatro" since 1989 is a place where creative research passes through a deep awareness and knowledge of one's own expressive tools. More informations are available at https://www.giralacomevuoi.com/home.php and https://vimeo.com/emisferodestroteatro

Ecomuseo Martesana on navigation

Navigation plays a predominant role in the activities of the Martesana Ecomuseum. It helps limit car fuel consumption and avoids impacts on the environment. Soft navigation, especially if powered by electricity, can be one of the many solutions to tackle the ecological crisis. The Martesana Ecomuseum is currently involved in the initiative organised by the association 'Riaprire I Navigli' to reopen the Inner Circle of the Milan Canals and reuse the entire 140-kilometre system of Lombard canals (including the Martesana). This would create opportunities for gentle tourism and recreation (Fig. 9) on the entire network of historic canals.

Fig. 9. Water sports on the Naviglio Martesana (courtesy of Giovanni Gargantini, reproduced with permission).

Ecomuseo Martesana and the Global Network of Water Eco-Museums (WA.MU.NET)

As a co-founder and affiliate member of the "Global Network of Water Museums"[13] the Martesana Ecomuseum seeks to con-

[13] The Global Network of Water-ecomuseums, since 2018 is a flagship initiative of UNESCO by the Council of the Intergovernmental Hydrological Programme

tribute to a worldwide network of ecomuseums and water heritage sites in order to develop more sustainable management models for a "new water culture". The mission of the Global Water Museum Network focuses not only on SDG 6 (clean water and sanitation) but also on all related SDGs. The mission of WA.MU.NET is to develop and coordinate new educational programmes on water and to stimulate innovative projects for sustainable water management. The Martesana Ecomuseum is deeply involved in this issue, having identified water as one of the most relevant features of the territory and its potential to regenerate the environment. The campaigns will focus on the compatible re-use of water in respect of the environment and the vital needs of society. Water Ecomuseums, acting together, could re-establish humanity's ties with water and its natural, cultural, material and intangible heritage.

"The water we want"

Among its initiatives, the Global Network of Water Museums (WA-MU-NET) launched the 'The Water We Want' competition and youth prize, engaging young people as storytellers of water heritage and as narrators of a sustainable water future. The call aimed to reconnect schools with their local water heritage to cultivate a positive commitment to halt and reverse the loss of aquatic ecosystems and biodiversity. In 2022, the Martesana Ecomuseum involved 7 primary school classes with 146 pupils, 5 secondary school classes with 106 students and 7 secondary school classes with 39 students. The materials (see, for example, Fig. 10) sent to "The Water We Want" consisted of photos and video clips emphasising the urgency of establishing a new ethical vision and relationship between communities and the material and intangible heritage of water. In their work, the school students, together with their teachers, explored the crucial importance of water heritage from a creative point of view. All the videos, drawings and images from students around the world will be included in a digital exhibition, implemented by a social media campaign with the support of the UNESCO Beijing Office to disseminate professional videos promoting the SDGs and a more sustainable use of water.

"I Remember water"

The Global Water Museum Network (WAMU-NET) promoted a deeper understanding of the past relationships between people's memories and water, reconnecting people (through the "I remember Water" project) with the tangible and intangible aspects of water itself. The Martesana Ecomuseum joined the call, emphasising the urgent need to develop interdisciplinary and holistic approaches to water. "I Remember Water" collected more than 400 images and documents provided by all members of the Global Network. The results of this project will be collected in a digital archive and exhibition.

Fig. 10. A Poster by Silvia Rovagnati. "The Water We Want". Silvia is a student of the Istituto Comprensivo "Mattei- Di Vittorio" High School in Pioltello - Sezione Liceo Classico (Courtesy of Maria Grazia Lupo, reproduced with permission).

The Groundwater Catalogue for a global inventory of water eco-museums

The "Groundwater Catalogue" is a Wikipedia-like application that aims to provide information on water management tools, measures and means using digital materials for education and training on water sustainability. The 'Groundwater Catalogue' was presented at the special session of the 9th World Water Forum organised by the United Nations Water Task Force in March 2022 in Dakar, Senegal. The catalogue captures the many aspects of our daily relationship with water. Considering the diversity and complexity of water problems around the world, it is important to identify them and find appropriate solutions. In the decision-making process, the catalogue is important because policy makers and administrators do not always have a sufficient overview of the tools, measures and means that could be applied to explore and solve complex spatial issues. Water ecomuseums could inspire new visions to connect past and present, bringing together different perspectives and examples through a database on rivers, lakes, mountains, rural springs, reservoirs and canals, creating an inventory of different 'water worlds'. The Global Network would stimulate people to explore their inherited water heritage and promote imaginative new ways of managing water heritage. Ecomuseums, Water Museums, Interpretation Centres, Digital Museums and Extended Museums are included in the Catalogue and the Martesana Ecomuseum has contributed a questionnaire from its own experience.[14]

The UNESCO Chair: "Water, Heritage and Sustainable Development"

A UNESCO Chair has been established with the support of WAMU-NET at the Ca' Foscari University of Venice (Italy) in 2021. The chair is housed at the New Institute Centre for Environmental Humanities (NICHE) in Ca' Bottacin, Venice.[15] [Linking the water sciences and environmental humanities to the UN Agenda 2020, the Chair is active in identifying and supporting new interdisciplinary work to develop imaginative ideas in water museums and digital materials for educa-

[14] More information is available at www.watermuseums.net

[15] This is a project, twice funded by the EU Commission with the Interreg Europe Program in 2016 and in 2021

tion and training on water and sustainability. In this way, the UNESCO Chair, in cooperation with WAMU-NET, contributes substantially to the implementation of the UNESCO-IHP Resolution on Education for Water Sustainability and Water Awareness Initiatives. The Martesana Ecomuseum contributed to the initiative with a presentation given by Edo Bricchetti on «Waterways as vectors of Ecomuseums: towards the realization of the Community Map».

SWARE - Sustainable heritage management of Waterways Regions

Ecomuseo Martesana actively participated as a stakeholder in the SWARE[16] project whose aim was to improve the synergy between the protection of cultural and natural heritage and the sustainable development in regions characterized by inland waterways. SWARE Project objectives aimed at transforming and improving regional policies on inland waterways to promote tourism and new "green" economic investments in the Milan Metropolitan area.[17] SWARE sought a better balance between protection of the environment and the sustainable exploitation of the water resources; a more effective and integrated management of the regional water heritage; urging the commitment of stakeholders to enhance the territorial heritage in a sustainable way; a greater involvement of the community in the protection and promotion of the inland waterways system; drawing a "roadmap" to underline the present state and plan next actions. SWARE concluded its first phase by drawing up an "Action Plan" with the participatory contribution of about 60 stakeholders.[18]

In 2021, the Monitoring Committee of the Interreg Europe Program gave its approval to the extension of the SWARE project[19], already funded by the previous calls, restarting from the best practices and learning from the effective measures imple-

[16] The Project Partners came from The Netherlands, Ireland, Italy, Slovakia, and Latvia

[17] More information is available at: http://www.interregeurope.eu/sware/

[18] These were private businesses, consortia, associations, cooperatives, touristic agencies, local authorities, touristic operators, hoteliers, catering operators and schools.

[19] More information is available at: https://www.cittametropolitana.mi.it/sviluppo_economico/Progetti/SWARE/SIG.html

mented by the communities and local institutions to deal with the COVID-19 pandemic. So, the continuous exchanges of experiences between territorial partners and groups of stakeholders (public and private) lead to a second Phase (2018-2020). The additional activities were mainly concentrated on the territorial stakeholders supported by the "Stakeholder Institutional Learning Group" (SIG) and new economic drivers and creative enterprises to make the inland waterways a system for sustainable tourism and soft mobility.

Conclusion

What can ecomuseums do to face the climatic emergency? "*When we speak of sustainable use, consideration must always be given to each ecosystem's regenerative ability in its different areas and aspects.*"(Pope Francis, 2015) Ecomuseums can do a great deal in this field, precisely because at the basis of their foundation, there is a mission that is the search for sustainable ways of life. Ecomuseums demand respect for the environment and nature's delicate balances, currently at risk from the impacts of a disrespectful society. It is the unanimity and daily routine of our actions that could make the difference in the medium and long term. Ecomuseums have the potential to create a dialogue with all the territorial actors by inspiring good management practices for the environment and cultural landscapes and the tangible and intangible heritage. Moreover, Ecomuseums could focus on the dangers and risks related to the environmental crisis and disseminate messages to the community regarding the 17 Sustainable Development Goals (SDGs) as the 2030 Agenda states. Ecomuseums could be a loudspeaker of the climate challenge, thus contributing as narrators to inspire new ways of life to recover the green planet.

In general, all these practices go in the direction of avoiding waste, proposing non-polluting means of transport (e.g. electric bicycles and boats), supporting and coordinating zero km food circuits and creating food communities. Ecomuseums bring territorial actors closer to the themes of nature and culture and the defence of 'green' spaces. They can help develop 'intelligent' tourism and create tools for school students, as well as open up knowledge of the territory through storytelling and the capturing of memories. Everyday actions, even the smallest, are very important

because they can activate social practices capable of creating the conditions for an improvement in the living environment.

The actions of the Martesana Ecomuseum described here have been carried out directly or in collaboration with other institutions and associations. They were supported by the local population, which greatly appreciated the efforts of the ecomuseum in tackling the climate emergency. However, a critical review shows that the most obvious problem is the potential lack of continuity of the activities themselves over time: maintaining the commitment, energy and vitality of a wide range of projects will not be easy. But the results of all these practices are still in people's minds. Moreover, all these actions have induced in people a new outlook and a new feeling towards the environment, encouraging actions such as turning on the water tap only when needed, travelling by non-polluting means, limiting consumption, sourcing local food with zero kilometres and avoiding the use of non-recyclable pollutants. People have realised, for example, that there are also many measures that can be taken to help improve air quality, the food circuit, avoid unnecessary waste and reduce CO2 emissions from buildings. As a consequence of these good practices, local authority politicians have started to think about how to use local expertise to tackle environmental problems. The Martesana Ecomuseum will continue to follow this new trend by respecting the new criteria of the new "Green Deal" of the Lombardy Region and the Network of Lombardy Ecomuseums (REL) even though the Martesana Ecomuseum has not yet been recognised by the Lombardy Region. This recognition is not due to problems of the ecomuseum, but to the deadlines set by the Lombardy Region and the collapse of administrative support caused by the Covid19 epidemic. In the meantime, the Lombardy Region has changed the requirements that must be met for official recognition of ecomuseums. The new criteria pay special attention to the SDGs and climate action. The Martesana Ecomuseum, with many projects related to the SDGs, is now ready to be recognised and expects the Lombardy Region to support it, especially by helping to finance its projects and facilitating dialogue between territorial actors.

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Climate change is a reality, and communities around the world are now facing significant environmental problems – rising global temperatures leading to increased risk of flooding, fire, and sea level rise, resulting in the destruction of property and social infrastructure, loss of biodiversity and tangible and intangible cultural heritage, and damage to economies. Little wonder then that the online conference held on 30 September 2021 with the title "Ecomuseums and Climate Action" attracted more than one hundred participants from countries whose communities are facing these problems. This book presents the results of this conference where heritage experts, community activists, curators, politicians and academics from several countries, explored how ecomuseums and community museums are acting as catalysts for transition, renewal, and sustainable development and how they might effectively contribute to the UN's Sustainable Development Goals and climate action. How can these organisations best contribute to the debate about the climate crisis and promote local action? Central to those actions are encouraging local people to recognise how important their cultural, natural and intangible cultural heritage is in making places special and giving a sense of belonging, why that heritage should be sustained, and how heritage assets can be used to promote climate action. This book - with its remarkable collection of essays from around the world - demonstrates how small local actions, considered together, can have a dramatic and far-reaching impact. It will be warmly welcomed by anyone interested in climate action, heritage and museum studies, and environmental issues.

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