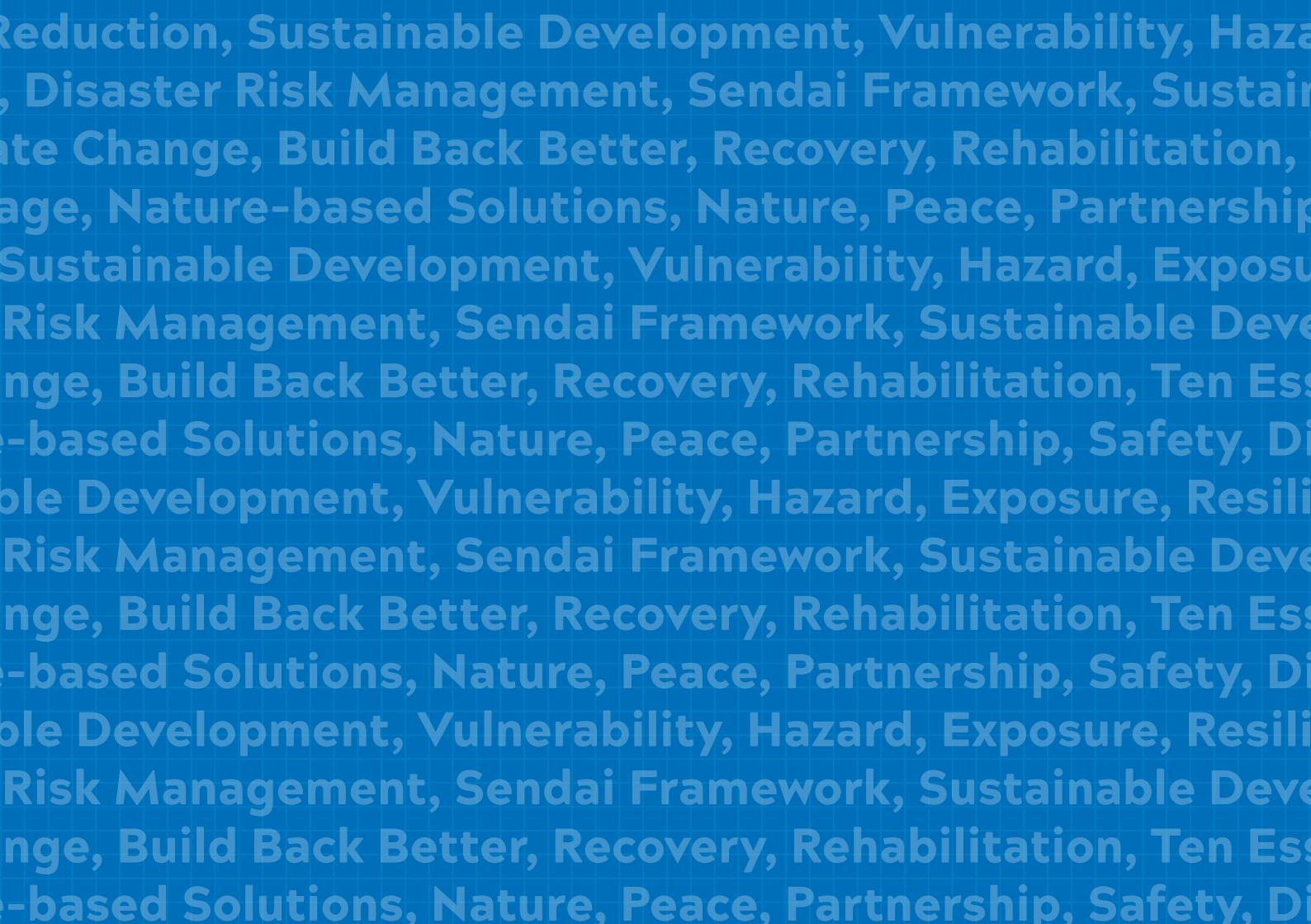
CURATING TOMORROW

Museums and Disaster Risk Reduction

03

Building resilience in museums, society and nature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How can museums use Disaster Risk Reduction approaches, to safeguard themselves, and enhance their contributions to the wider world?

"Disaster Risk Reduction is aimed at preventing new and reducing existing disaster risk and managing residual risk, all of which contribute to strengthening resilience and therefore to the achievement of sustainable development."

CURATING TOMORROW

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Curating Tomorrow is a consultancy for museums and the heritage sector, helping them draw on their unique resources to enhance their contributions to society and the natural environment, the Sustainable Development Goals, climate action and nature conservation. Curating Tomorrow also applies the museum-based skill of curating to thinking about and addressing real-world challenges, not necessarily involving museums or museum collections.

Curating Tomorrow draws on high-quality information and research; combines creativity and imagination with focus, selection and attention to the real world; and has a strong focus on supporting positive change. Depending on the context, this could involve curating collections, research, ideas, partnerships, exhibitions, events, consultations, policies and/or strategies together to address key challenges and questions. It will always involve enhancing your social and environmental impact through focused action directed to positive goals.

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Contents

COVID-19

Firstly, a word of acknowledgement. The COVID-19 crisis has impacted on the great majority of us is some way. Many people have lost their lives, and others' livelihoods or organizations are under threat. We all feel this, to varying extents, but the poor and vulnerable suffer most. This Guide is offered as a means of support for museums. It aims to strengthen their ability to address the potential impact of disasters on museums, society and nature, through planning and partnerships.

I hope you find it useful.

Henry McGhie, Curating Tomorrow

Introduction and Aims

Disasters - crises, emergencies, damaging situations - come in many shapes and sizes. Reducing their occurrence and their impact is a key part of good management, and securing a future that is better than the present. Disaster Risk Reduction is not just about surviving disasters, but working to reduce the likelihood of disasters happening in the first place, being prepared for them when they hit, recovering from them as best you can, and coming out the other side stronger. Everyone can benefit from Disaster Risk Reduction approaches, and everyone can use them, in their own lives and in their work.

Section 1

Introduction

This Guide aims to help empower museums (small, large and of any kind, anywhere), museum workers, museum networks and their partners to draw on Disaster Risk Reduction approaches. This should help them reduce the impact of disasters, whether COVID-19, climate change, or any other kind of disaster, for the benefit of themselves, their communities, and the natural environment.

So, the Guide has two main goals:

To help museums build their resilience, and reduce the impact of disasters on museums themselves.

To help museums contribute to resilience-building in the wider world, for the benefit of society and the natural environment.

Many museums already consider disaster risk in terms of protecting their own buildings and collections. This Guide takes a broader perspective, that museums can play a key role in supporting people, communities, the whole of society and nature, to prevent or mitigate disasters in the wider world. Making a difference in the world is, arguably, the best way for museums to be resilient as organizations.

The intended readership of this Guide is:

- those who have named responsibility for museums, including directors, managers, trustees and governors
- museum associations and training bodies
- museum funders
- museum staff of all kinds, as they all have a role to play in Disaster Risk Reduction
- partner organizations and networks
- anyone involved in Disaster Risk Reduction or disaster planning for communities, towns and/or the natural environment.

Using This Guide With ‘Museums and the Sustainable Development Goals’

This Guide accompanies a similar Guide, ‘Museums and the Sustainable Development Goals: a how-to guide for museums, galleries, cultural institutions and their partners’.

‘Museums and the Sustainable Development Goals’ sets out Seven Key Activities that museums can use as a blueprint for their contribution to sustainable development. The Seven Key Activities are:

1. Protect and safeguard cultural and natural heritage, both in museums and more generally
2. Support and provide learning opportunities in support of the SDGs
3. Enable cultural participation for all
4. Support sustainable tourism
5. Enable research in support of the SDGs
6. Direct internal leadership, management and operations to support the SDGs
7. Direct external leadership, collaboration and partnerships towards the SDGs

As there is a very close alignment between the Sustainable Development Goals and the Sendai Framework for Disaster Risk Reduction (explored on the following pages), these Seven Key Activities are also a good blueprint for museums to incorporate Disaster Risk Reduction into their work. Where the titles of the Seven Key Activities refer to the SDGs, you can think of this in terms of 'for Disaster Risk Reduction'.

This Guide aims to help readers incorporate Disaster Risk Reduction into the work of museums, through these Seven Key Activities.

For further detail on the Seven Key Activities, and how they link to the Sustainable Development Goals and targets, see the accompanying Guide 'Museums and the Sustainable Development Goals'.

Section 2

Risk and Sustainability

The Importance of Disaster Risk Reduction for a Sustainable Future

‘Sustainability’ means the ability to last, continue or persist. It is a balance of considerations of People, Planet, Prosperity, Peace and Partnerships. Sustainability is a desired future state where these aspects develop in harmony with one another. Sustainable development is focused activity that helps achieve that future state. Sustainable Development, at its simplest, is about aiming to ‘do more good, while doing less harm’.

An essential part of sustainable development is reducing people’s, and nature’s, vulnerability and exposure to dangerous situations, and increasing their capacity and resilience to face them. Disasters are disruptions that affect the functioning of a community, society or nature, resulting in human, material, economic and environmental losses and impacts. Disasters are bad news for everyone.

However, the impact of disasters is not evenly spread, and hazards do not necessarily lead to disasters; different groups are more or less vulnerable to disasters. Disaster Risk Reduction aims to address the causes and consequences of disasters, reducing their impact.

Disaster risk can be thought of as a failure to achieve sustainable development and, conversely, that Disaster Risk Reduction is a measure of successful sustainable development.

Actively participating in Disaster Risk Reduction has lots of benefits. It is not just about ‘stopping things from going wrong’. It helps create towns and communities that support people throughout their lives, that are developed in harmony with their surroundings, and that can contribute to wider initiatives to reduce the world’s problems while creating a good life for all, in harmony with nature.

The Sustainable Development Goals and the Sendai Framework for Disaster Risk Reduction

This Guide draws on two global Agendas that can help museums with their Disaster Risk Reduction efforts:

- Agenda 2030 and the Sustainable Development Goals, the most ambitious global programme ever, which aims to set the world on a path to a sustainable future by 2030.
- The Sendai Framework for Disaster Risk Reduction.

These two separate (but complementary) Agendas were agreed by the member countries of the United Nations in 2015. Both Agendas will run till 2030, as guiding frameworks for international - and national - activity for sustainable development.

Agenda 2030 and the Sustainable Development Goals are explored in the accompanying Guide 'Museums and the Sustainable Development Goals'.

The Sendai Framework for Disaster Risk Reduction has the following goal:

"The substantial reduction of disaster risk and losses in lives, livelihoods and health and in the economic, physical, social, cultural and environmental assets of persons, businesses, communities and countries."

To achieve this goal, the Sendai Framework has four priorities for action:

1. Understanding disaster risk
2. Strengthening disaster risk governance to manage disaster risk
3. Investing in disaster risk reduction for resilience
4. Enhancing disaster preparedness for effective response, and to "Build Back Better" in recovery, rehabilitation and reconstruction.

The Sustainable Development Goals and the Sendai Framework for Disaster Risk Reduction are complementary, as addressing disasters and their impact is an important part of sustainable development. Implementing the Sendai Framework helps implement the Sustainable Development Goals, and vice versa.

The Sendai Framework is incorporated into the Sustainable Development Goals as part of SDG target 11.B, but all of the SDGs and targets are concerned with Disaster Risk Reduction in some way.

The Sustainable Development Goals and the Sendai Framework for Disaster Risk Reduction both recognize the crucial importance of an all-of-society approach and of public education, awareness and participation programmes for effective Disaster Risk Reduction.

The Sendai Framework invites civil society, volunteers and community-based organizations to collaborate with public institutions, which would include museums and other cultural institutions, to:

- contribute their perspectives to the development and implementation of Disaster Risk Reduction plans and strategies
- to help implement Disaster Risk Reduction plans and strategies
- to contribute to public awareness on Disaster Risk Reduction, a culture of disaster risk prevention and education on disaster risk
- to advocate for resilient communities and an all-of-society approach.

Special attention is paid to the role of women, children and youth, disabled people and their organizations, older people, Indigenous peoples, and migrants. These groups can bring particular perspectives that ensure Disaster Risk Reduction programmes are designed with their particular needs in minds, build capacity effectively, and draw on their unique and distinctive knowledge and experience. This supports an effective disaster response, and to recover effectively from disasters and 'build back better'.[1]

Both Agendas also recognize the importance of protecting cultural and natural heritage, and protecting collecting institutions such as museums, from disaster risk.

1 Modified from the Sendai Framework, p.23.

An Invitation to Museums, and Every Other Sector

Both the Sustainable Development Goals and the Sendai Framework for Disaster Risk Reduction recognize that real transformation requires all sectors of society, in all places, to collaborate and participate, playing their part to create a better, fairer, more stable world.

They provide frameworks that can help organizations, whether museums or anyone else, to work in pursuit of common goals, levering their skills, capacities and unique resources to collaborate more effectively for positive social and environmental outcomes. Museums have a great deal to offer these Agendas, and some of the elements of them will not be achieved without museums. This Guide aims to help you play your part, and to benefit from Disaster Risk Reduction approaches to help museums to be more resilient themselves. There is no single right way to contribute to these Agendas and, so long as the principles of sustainability are followed, no wrong way. The Agendas are not about continuing with business as usual, but about clear, committed, focused action to enhance your positive contributions to society and reduce negative impacts

An invitation to collaborate and participate

Section 3

Understanding Risk

Understanding Disasters and Disaster Risk

Disaster Risk Reduction is a very powerful concept, which not only aims to prevent new disaster risk, but to reduce existing disaster risk to strengthen resilience. Just think about that for a minute: Disaster Risk Reduction helps you prepare for the worst, so that you have the best chance of coming out the other side of disasters. Not only does it help you reduce the impact of disasters, it helps reduce the likelihood of them happening in the first place. It is entirely possible to be prepared for disasters, as the Case Studies section demonstrates.

But, before we go further, let's get some other terminology clear. What do we mean by disasters, risk, vulnerability and resilience?

Disaster: "A serious disruption of the functioning of a community or a society at any scale due to hazardous events interacting with conditions of exposure, vulnerability and capacity, leading to one or more of the following: human, material, economic and environmental losses and impacts." Although it is easy to think of disasters as short-term, major incidents, disasters can also be long-lasting, chronic situations. A flood or a fire would normally constitute a short-lived disaster, while the steady worsening of the environment, or climate change, are also major disasters in themselves, leading to many local impacts. Whether a localized, one-off event, or a more systematic problem, the same approaches can be used to identify risks, and manage and prevent them.

Components of risk

Hazard: "A process, phenomenon or human activity that may cause loss of life, injury or other health impacts, property damage, social and economic disruption or environmental degradation."

Exposure: "The situation of people, infrastructure, housing, production capacities and other tangible human assets located in hazard-prone areas."

Vulnerability: "The conditions determined by physical, social, economic and environmental factors or processes which increase the susceptibility of an individual, a community, assets or systems to the impacts of hazards."

Disaster risk: "The potential loss of life, injury, or destroyed or damaged assets which could occur to a system, society or a community in a specific period of time, determined probabilistically as a function of hazard, exposure, vulnerability and capacity." Risks are frequently confused with hazards, but a risk is the likelihood of a hazard (threat) occurring or having an impact.

Residual risk: "The disaster risk that remains in unmanaged form, even when effective Disaster Risk Reduction measures are in place, and for which emergency response and recovery capacities must be maintained."

Key concepts

Disaster Risk Reduction: "Disaster Risk Reduction is aimed at preventing new and reducing existing disaster risk and managing residual risk, all of which contribute to strengthening resilience and therefore to the achievement of sustainable development."

Disaster Risk Management: "Disaster Risk Management is the application of Disaster Risk Reduction policies and strategies to prevent new disaster risk, reduce existing disaster risk and manage residual risk, contributing to the strengthening of resilience and reduction of disaster losses." Disaster Risk Management can be thought of as the implementation of Disaster Risk Reduction.

Capacity: "The combination of all the strengths, attributes and resources available within an organization, community or society to manage and reduce disaster risks and strengthen resilience." Capacity can also be thought of as ability, agency and choice. It is the basis of resilience. Oxfam distinguishes three types of capacity that are essential for resilience:

"Absorptive capacity is the capacity to take intentional protective action to cope with known shocks and stresses. It is necessary because shocks and stresses will continue to happen, for example due to extreme weather events, protracted conflict and natural disasters.

Adaptive capacity is the capacity to make intentional incremental adjustments in anticipation of or in response to change, in ways that create more flexibility in the future. It is necessary because change is ongoing and uncertain, and because intentional transformation takes time and sustained engagement.

Transformative capacity is the capacity to make intentional change to stop or reduce the drivers of risk, vulnerability and inequality, and ensure the more equitable sharing of risk so it is not unfairly borne by poor and vulnerable people. It is necessary because resilience is not about surviving in unjust contexts or adapting to whatever is coming. Resilience is about justice and inclusive development."

Resilience: "The ability of a system, community or society exposed to hazards to resist, absorb, accommodate, adapt to, transform and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions through risk management." Capacity and resilience are closely related. Resilience can be thought of as an expression of capacity.

Build Back Better: "The use of the recovery, rehabilitation and reconstruction phases after a disaster to increase the resilience of nations and communities through integrating Disaster Risk Reduction measures into the restoration of physical infrastructure and societal systems, and into the revitalization of livelihoods, economies and the environment."

Direct and indirect losses: "Direct disaster losses refer to directly quantifiable losses such as the number of people killed and the damage to buildings, infrastructure and natural resources. Indirect disaster losses include declines in output or revenue, and impact on wellbeing of people, and generally arise from disruptions to the flow of goods and services as a result of a disaster."

Further terminology

Critical infrastructure: "The physical structures, facilities, networks and other assets which provide services that are essential to the social and economic functioning of a community or society."

Disaster response: "Actions taken directly before, during or immediately after a disaster in order to save lives, reduce health impacts, ensure public safety and meet the basic subsistence needs of the people affected."

Mitigation: "The lessening or minimizing of the adverse impacts of a hazardous event."

Prevention: "Activities and measures to avoid existing and new disaster risks."

Reconstruction: "The medium- and long-term rebuilding and sustainable restoration of resilient critical infrastructures, services, housing, facilities and livelihoods required for the full functioning of a community or a society affected by a disaster, aligning with the principles of sustainable development and 'build back better', to avoid or reduce future disaster risk."

Recovery: "The restoring or improving of livelihoods and health, as well as economic, physical, social, cultural and environmental assets, systems and activities, of a disaster-affected community or society, aligning with the principles of sustainable development and 'build back better', to avoid or reduce future disaster risk."

Rehabilitation: "The restoration of basic services and facilities for the functioning of a community or a society affected by a disaster."

Terminology is drawn from the UN Office of Disaster Risk Reduction Terminology, which aims to promote a common understanding and usage of Disaster Risk Reduction concepts and to assist the Disaster Risk Reduction efforts of authorities, practitioners and the public.

The Disaster Risk Reduction Spiral

The Disaster Risk Reduction Spiral has four phases. Disaster Risk Reduction seeks to make improvements over time, to 'build back better' or 'bounce forward' (rather than bounce back) after a disaster, so Disaster Risk Reduction follows a spiral-shaped path, rather than a circular one.

Before a disaster

1. Disaster Prevention and Mitigation
Learning the lessons of previous disasters, planning in light of new or increasing hazards. Minimizing the likelihood a disaster will happen, and reducing its impact

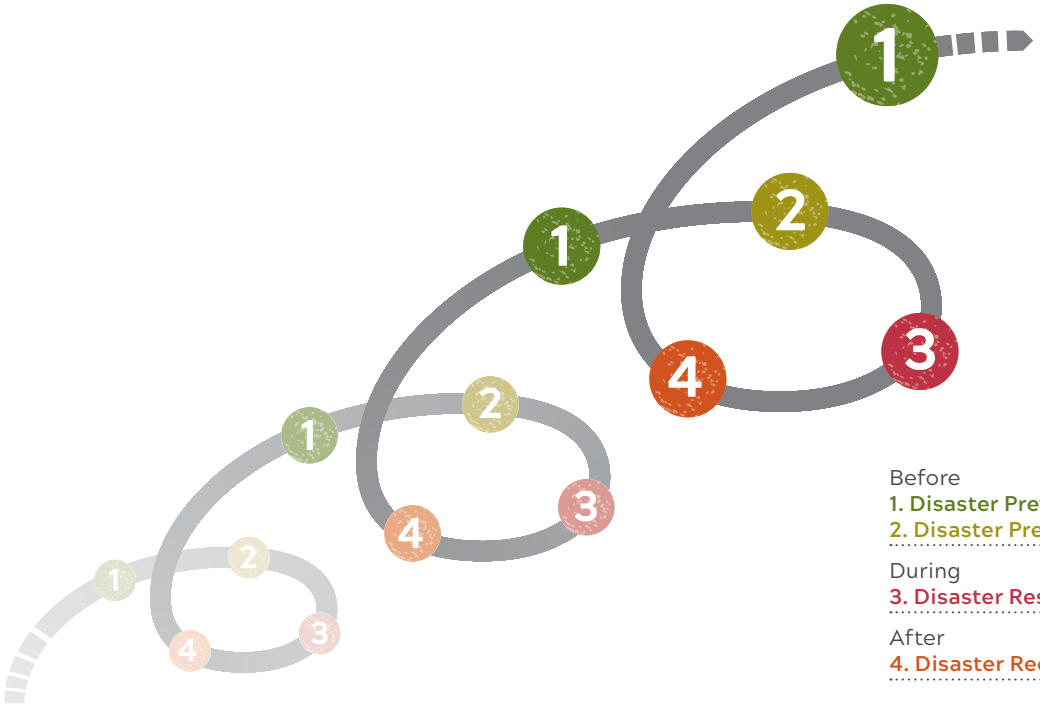
2. Disaster Preparedness
Planning how to respond to a disaster

During a disaster

3. Disaster Response
Activities undertaken during a disaster to reduce injury and damage to people, livelihoods, property, society, buildings, the economy and the natural environment

After a disaster

4. Disaster Recovery
Overcoming the challenge presented by a disaster: rebuilding lives, jobs, property and nature through rehabilitation, and reducing future disaster risk through reconstruction to 'build back better'.



Before
1. Disaster Prevention and Mitigation
2. Disaster Preparedness

During
3. Disaster Response

After
4. Disaster Recovery

Sources of Disaster Risk

Disaster risks can come from many sources, and they can be identified in a number of ways. You may be interested in understanding risk from an institutional, local, national, sectoral or global perspective.

Arguably, everyone benefits from having an awareness of all of these, if they are to be prepared and to contribute to Disaster Risk Reduction properly.

Who or what are you putting at risk?

For example, you could:

- Identify disaster risks in relation to the '5 Ps' of the Sustainable Development Goals: People, Planet, Prosperity, Peace and Partnerships.
- Use the 17 Sustainable Development Goals themselves to identify potential disaster risks in your contexts - institutional, local, national, sectoral and global.
- Use a PESTLE analysis to identify disaster risk in terms of Political, Economic, Social, Technological, Legal or Environmental considerations.
- Use the Global Risks that form the basis of the annual Global Risks Report (discussed on the following pages), and consider how they will impact on your work.
- Work with a group of stakeholders to develop your own approach to identifying disaster risks.

Whichever approach you use, you should also ask yourself how you (your work, your organization, your sector) are contributing to disaster risk: who or what are you putting at risk as a result of your activities?

Global Risks

Every year, the Global Risks Report is prepared by the Global Risks Network ahead of the World Economic Forum in Davos. The Report is based around 30 Global Risks, which are defined as "an uncertain event or condition that, if it occurs, can cause significant negative impact for several countries or industries within the next ten years".

Each year, the set of risks is assessed to identify any changes in the likelihood and impact of a significant threat occurring as a result of particular risks.

The 30 Global Risks fall into five categories:

Geopolitical,

Economic,

Societal,

Technological and

Environmental,

so they are roughly comparable with the elements of a PESTLE analysis.

Geopolitical Global Risks

- Failure of national governance (e.g. failure of rule of law, corruption, political deadlock)
- Failure of regional or global governance
- Interstate conflict with regional consequences
- Large-scale terrorist attacks
- State collapse or crisis (e.g. civil conflict, military coup, failed states)
- Weapons of mass destruction

Economic Global Risks

- Asset bubbles in a major economy (unsustainable over-pricing)
- Deflation in a major economy
- Failure of a major financial mechanism or institution
- Failure/shortfall of critical infrastructure (e.g. energy, transportation, communications)
- Fiscal crises in key economies (excessive national debts)
- High structural unemployment or underemployment
- Illicit trade (e.g. illicit financial flows, tax evasion, human trafficking, organized crime)
- Severe energy price shock (increase or decrease)
- Unmanageable inflation

Societal Global Risks

- Failure of urban planning (poorly planned cities creating social, health, environmental challenges)
- Food crises (famine, lack of food security, or poor nutrition)
- Large-scale involuntary migration (as a result of conflict, climate change etc.)
- Profound social instability (widespread riots etc.)
- Rapid and massive spread of infectious diseases
- Water crises

Technological Global Risks

- Adverse consequences of technological advances (e.g. AI, geoengineering, having negative impacts)
- Breakdown of critical information infrastructure and networks (dependency on internet etc., that increases vulnerability)
- Large-scale cyberattacks (causing economic damage, loss of economies' and society's ability to function)
- Massive incident of data fraud or theft (exploitation of personal or official data)

Environmental Global Risks

- Extreme weather events (e.g. floods, storms)
- Failure of climate-change mitigation and adaptation
- Major biodiversity loss and ecosystem collapse (terrestrial or marine)
- Major natural disasters (e.g. earthquakes, tsunamis, volcanic eruptions, geomagnetic storms)
- Human-made environmental damage and disasters (e.g. oil spills, radioactive contamination)

The nature of threats has shifted over time, so that by the time of the 2020 report, the top five risks in terms of likelihood (that is, the ones most likely to occur, and some are occurring already) were all in the Environmental category. This is really problematic, as these five risks are also very high scoring in terms of their impact. Let's look at the list of the top ten Global Risks by likelihood and impact, from the 2020 report:

Score (1 = highest)	Likelihood
1	Extreme weather (e.g. floods, storms)
2	Failure of climate-change mitigation and adaptation
3	Major natural disasters (e.g. earthquakes, tsunamis, volcanic eruptions, geomagnetic storms)
4	Major biodiversity loss and ecosystem collapse (terrestrial and marine)
5	Human-made environmental damage and disasters (e.g. oil spills, radioactive contamination)
6	Massive incident of data fraud or theft
7	Large-scale cyberattacks
8	Water crises
9	Failure of regional or global governance
10	Asset bubbles in a major economy

Score (1 = highest)	Impact
1	Failure of climate-change mitigation and adaptation
2	Weapons of mass destruction
3	Major biodiversity loss and ecosystem collapse (terrestrial and marine)
4	Extreme weather (e.g. floods, storms)
5	Water crises
6	Breakdown of critical information infrastructure and networks
7	Major natural disasters (e.g. earthquakes, tsunamis, volcanic eruptions, geomagnetic storms)
8	Large-scale cyberattacks
9	Human-made environmental damage and disasters (e.g. oil spills, radioactive contamination)
10	Rapid and massive spread of infectious diseases

Taken from the Global Risks Report 2020 (Appendix A of the GRR includes fuller descriptions of the Global Risks).

So where was COVID-19 in the Global Risks? Infectious disease and pandemics form the subject of one of the global risks, 'Rapid and massive spread of infectious diseases', which can lead to widespread fatalities and economic disruption. COVID-19 fits squarely into this category.

When the last assessment was done, for the 2020 report, the likelihood of a major infectious disease resulting in a pandemic was considered as rather low, and was among the least likely risks to play out (28th out of 30 in terms of likelihood). However, the potential impact of a pandemic was recognized as significant (but less than the impact of climate change or biodiversity loss, as they have more complex origins). The problem with low likelihood, high impact risks is that, when they do occur, it is in some way an even greater shock, a curve-ball event.

The COVID-19 pandemic has happened, but this does not mean that it somehow 'beats' the existing high likelihood, high impact Global Risks, or indeed any of the Global Risks. It means that society and the environment face the challenges it presents as well as the other Global Risks. As risks do not generally cancel one another out, they have a multiplying effect. This means that it will be even harder to address other Global Risks.

One of the great strengths of the Sustainable Development Goals is that they acknowledge that problems can't be dealt with one at a time: we need to look for solutions that address multiple challenges at the same time, to ensure we aren't just moving problems from one place to another. For example, safeguarding forests helps to combat climate change, benefits communities dependent on forests, provides habitat for wildlife, and avoids possible spill-overs of diseases from wild animals to domesticated animals and humans.

Disaster Risk Reduction is a Human Right

At the most basic level, everyone should be provided with an environment in which they can survive and thrive. Everyone should know about the hazards and risks they are exposed to, so they are able to prepare for potential disasters. Everyone should also have the opportunity to understand wider threats facing society and nature, and be provided with opportunities to contribute to Disaster Risk Reduction.

These should be regarded as fundamental rights, corresponding to Articles 1, 3, 19 and 28-29 of the Universal Declaration of Human Rights, as well as a number of other Articles, ensuring the preservation of our own dignity and the dignity of others.[2] Access to food, water, peace, social security, education, self-determination are all the basis of human rights, and all are impacted by disasters, and so by Disaster Risk Reduction.

1. We are all born free and equal
We are all born free. We all have our own thoughts and ideas. We should all be treated in the same way.

3. Everyone has the right to life
Everyone has the right to life, liberty and security of person.

19. Everyone has the right to freedom of opinion and expression, which includes the right to seek, receive and impart information and ideas through any media and regardless of frontiers.

28. A fair and free world
There must be proper order so we can all enjoy rights and freedoms in our own country and all over the world.

29. Responsibility
We have a duty to other people, and we should protect their rights and freedoms.

2 See 'Museums and the Sustainable Development Goals', pp. 14-21, and the 'Further information' section towards the end of this Guide.

The Right to Development, adopted by the members of the United Nations in 1986, "is an inalienable human right by virtue of which every human person and all peoples are entitled to participate in, contribute to, and enjoy economic, social, cultural and political development, in which all human rights and fundamental freedoms can be fully realized." Development does not mean unfettered economic development, but sustainable development: protection from disasters (strongly linked to Disaster Risk Reduction) and an environment in which to thrive.

rights-holders and duty-bearers

The **Aarhus Convention,** adopted in 1998 and entering into force in 2001, establishes three rights relating to the environment: access to environmental information, on the state of the environment and in relation to human health. Second, public participation in environmental decision-making, to enable the public to comment on projects, plans and programmes relating to the environment, and that their comments are taken into account in decision-making. Third, access to justice, the right to challenge decisions that have not taken the previous two rights or environmental law into consideration. Museums are implicated in the first two rights.

In the language of human rights, all people are 'rights-holders'. Those who have responsibility or capability for upholding the rights of others, which would include governments, public services and public institutions, are 'duty-bearers': they have responsibilities to deliver.

Section 4

Museums and Disaster Risk Reduction

Why should museums contribute to Disaster Risk Reduction?

Why should museums work to reduce disaster risk? There are five main responses to this question:

- Reducing disaster risk is really in museums' own interests, as it helps them get through disasters themselves, and to have a stronger role in society.
- As museums are clearly related to a number of rights linked to Disaster Risk Reduction (set out in the previous section), that makes them 'duty-bearers'.
- Museums can provide access to a range of resources, information skills and expertise that can support people's rights. They can increase society's capacity to face and manage disasters.
- Museums are also responsible for creating disaster risk. They use lots of resources and energy, contributing to climate change; they produce lots of waste; they can have negative impacts through intentionally or unintentionally marginalizing groups of people; through overtourism (too much pressure from tourists) and where they lead to gentrification (for example by forcing local people out of communities because of rising property prices). They can contribute to Disaster Risk Reduction by steadily reducing these negative impacts.
- As public institutions (whether they are publicly funded or not), working for some kind of public good, why shouldn't they?

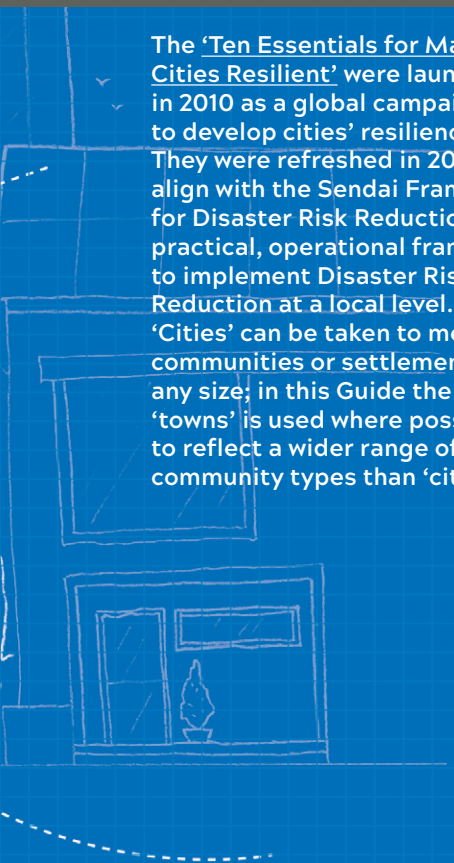
Museums can help give Disaster Risk Reduction initiatives REACH. While Disaster Risk Reduction initiatives can help give museums PURPOSE.

Museums can help people find 'access points', to make participation in disaster risk reduction not only possible, but enjoyable. Museums can help people explore past and current challenges and sources of disaster risk in the safe environment of a museum. Museums can be cultural hubs where the memory of past events, and the skills needed to deal with them, are kept alive.

Disaster Risk Reduction might sound a bit heavy, serious, boring, or perhaps even a bit frightening. But, ignoring disasters and disaster risk will not help them go away. On the other hand, giving people information, skills, tools and opportunities to make the world a better place for themselves and others, and for nature, is surely a role worth playing.

How Can Museums Contribute to Disaster Risk Reduction?

The 'Ten Essentials for Making Cities Resilient' were launched in 2010 as a global campaign to develop cities' resilience. They were refreshed in 2015 to align with the Sendai Framework for Disaster Risk Reduction, as a practical, operational framework to implement Disaster Risk Reduction at a local level. 'Cities' can be taken to mean communities or settlements of any size; in this Guide the term 'towns' is used where possible, to reflect a wider range of community types than 'cities'.



The Ten Essentials for Making Cities Resilient are:

1.	Organize for disaster resilience. Put in place an organizational structure with strong leadership and clarity of coordination and responsibilities.
2.	Identify, understand, and use current and future risk scenarios.
3.	Strengthen financial capacity for resilience.
4.	Pursue resilient urban development and design.
5.	Safeguard natural buffers to enhance the protective functions offered by natural ecosystems.
6.	Strengthen institutional capacity for resilience.
7.	Understand and strengthen societal capacity for resilience.
8.	Increase infrastructure resilience.
9.	Ensure effective preparedness and disaster response.
10.	Expedite recovery and build back better.

The Ten Essentials fall into three groups. Essentials 1-3 are concerned with Governance and Organization. Essentials 4-8 look at planning for resilience. Essentials 9-10 are about Disaster Response planning.

The following pages outline the Ten Essentials.[3] For each Essential, a number of actions are suggested for museums to take. Each action is aligned with one or more of the Seven Key Activities from the accompanying Guide 'Museums and the Sustainable Development Goals'. Readers can refer to that Guide for further information and links to the related Sustainable Development Goals and targets.

As a reminder, 'Museums and the Sustainable Development Goals' sets out Seven Key Activities that museums can use as a blueprint for their contribution to sustainable development, including Disaster Risk Reduction.

The Seven Key Activities are:

1. Protect and safeguard cultural and natural heritage, both in museums and more generally
2. Support and provide learning opportunities in support of the SDGs
3. Enable cultural participation for all
4. Support sustainable tourism
5. Enable research in support of the SDGs
6. Direct internal leadership, management and operations to support the SDGs
7. Direct external leadership, collaboration and partnerships towards the SDGs

3 The titles of the Ten Essentials have been retained. The descriptions have been modified for brevity, clarity and relevance. 'What they mean for museums' has been added.

The ‘Ten Essentials for Making Cities Resilient’ can be combined with the Seven Key Activities in ‘Museums and the Sustainable Development Goals’ as a very simple method of planning for Disaster Risk Reduction, and supporting Disaster Risk Reduction in the wider world.

You could:

- Incorporate actions that support the Ten Essentials into the Seven Key Activities.
  or
- For each of the Seven Key Activities, consider how they create disaster risk. Then, you could work to reduce disaster risk, using the Ten Essentials.
  or
- You could select a particular hazard, such as climate change, and ask how it relates to the Ten Essentials. Then you could use the Seven Key Activities to plan for Disaster Risk Reduction to that hazard.

It doesn’t matter if you incorporate the Ten Essentials into the Seven Key Activities, or the Seven Key Activities into the Ten Essentials, to plan for Disaster Risk Reduction. The two approaches are complementary.

Some Key Activities are more clearly aligned with particular Essentials than others, but in practice the Ten Essentials, and the Seven Key Activities, are all closely connected with one another.

However you incorporate the Ten Essentials into your work, you will be contributing what you can to support Disaster Risk Reduction in your museum, and also in your community, town and in the wider world. You will be playing your part, and you will benefit at the same time. You have nothing to lose, and a lot to gain.

1.

Organize for disaster resilience

Disaster Risk Management and Disaster Risk Reduction requires an all-of-society approach: working effectively with partners and including the public in planning and decisions.

Effective organization helps support collective efforts to reduce disaster risk, and to respond and recover from disasters effectively.

What does this mean for museums?

- Play a part in Disaster Risk Reduction planning, whether in your town, region, sector, or (where relevant) more widely, by taking part in relevant processes, meetings and decisions. (7)
- Ensure museums have effective relationships with those involved in disaster risk management, for example emergency services. (7)
- Ensure museums have effective relationships and partnerships with those who work with the same forms of heritage in the wider world. (7)
- If no-one is bringing Disaster Risk Reduction activities together in your context, consider initiating Disaster Risk Reduction discussions. (7)
- Recognize that you can play a part in providing opportunities for communities and partners to input into town Disaster Risk Reduction activities and to learn about them. Museums can help achieve the 'all-of- society' approach that is needed. (7)

2.

Identify, understand, and use current and future risk scenarios

Disaster risk scenarios are planning tools that identify hazards, exposure and vulnerabilities in towns, sectors, and in cultural and natural heritage.

These may be over short or long timescales, and acknowledge the cumulative effect of disasters. These scenarios enable effective decision making, planning and prioritization for Disaster Risk Reduction (prevention, mitigation, preparedness and response). They should include ‘most probable’ and ‘worst case’ scenarios.

What does this mean for museums?

- Ensure that cultural and natural heritage - in museums and the wider world - is factored into disaster risk scenarios and included in lists of assets requiring protection in local disaster plans. (1)
- They can use their collections and other forms of knowledge to contribute to the development of disaster risk scenarios. (1)
- They can provide educational opportunities about disaster risk scenarios, and historical disaster events (2)
- They can involve communities in developing risk scenarios, notably vulnerable and marginalized groups, and communicate disaster risk scenarios to communities. (3)
- They can support research and researchers who are working to understand and reduce disaster risk (5)
- Museums should develop disaster risk scenarios for their own organization, including how they contribute to disaster risk, and accompany these with plans that mitigate the impact of disaster risk. (6)
- Ensure that museums, and those who work in them, are familiar with disaster risks in the wider world, notably to the communities and forms of heritage they are concerned with. (6)
- Museums can participate in the development of disaster risk scenarios and accompanying plans, for their towns and for the forms of heritage they are concerned with. (7)

3.

Strengthen financial capacity for resilience

Disasters can have a serious economic impact, and developing resilience over time - in institutions, communities, towns and in nature - requires appropriate investment.

Resources to build resilience may come from internal sources, local, national or international funding, or from charitable trusts and foundations. Resources for resilience should not only rely on attracting external sources, but be seen as an ongoing commitment, and the basis for good management.

What does this mean for museums?

- Provide educational and awareness-raising programmes on disasters and their potential to cause damage (financial and otherwise) to museums, communities, towns and wider cultural and natural heritage, to build public support for investment in resilience. (2)
- Understand the potential cost of disasters in museums, towns and in the wider world, based on risk scenarios. (6)
- Ensure essential activities are fully costed from reliable financial sources. (6)
- Ensure resilience-building is a key consideration in all budgeting decisions, to continually strengthen resilience. (6)
- Have a clear cost plan that connects financial resources to particular activities, that takes different disaster risk scenarios into consideration. (6)
- Maintain financial capacity that can be used to cover the impacts of disasters where possible. (6)
- Seek funding for resilience-building activities in partnership with others. (7)

4.

Pursue resilient urban development and design

Hazards don’t necessarily lead to disasters, where buildings and towns have been planned with resilience in mind.

Urban planning and development that takes disaster risk and disaster risk scenarios into account can help reduce disaster risk, paying special attention to the vulnerable. Incorporating nature into the development and design of towns can enhance nature’s contribution to sustainable towns and communities. On the other hand, ineffective urban development can increase disaster risk where not planned with Disaster Risk Reduction in mind.

What does this mean for museums?

- Ensure heritage assets, including museum buildings, are well understood and identified. (1)
- Traditional building methods may be adapted to local disaster hazards, and should be considered in urban development. Preserving information on traditional building methods can ensure traditions are not lost. (1)
- Support public education and awareness of resilient urban design. (2)
- Provide people, notably vulnerable and marginalized groups, with opportunities to contribute to urban development plans and decisions. (3)
- Ensure that all tourism-related activities take local communities into consideration, maximizing positive impacts such as providing markets for local products, and minimizing negative impacts such as overtourism and negative gentrification. (4)
- Ensure that museum building and renovation projects contribute positively to resilient urban development, by reducing climate change impacts and other negative environmental impacts, enhancing public spaces and green space, and promoting sustainable tourism that benefits local communities. (6)
- Ensure heritage assets are properly considered in urban development through interaction with planners and developers. (7)

5.

Safeguard natural buffers to enhance the protective functions offered by natural ecosystems

Natural ecosystems - forests, rivers, lakes, seas and oceans, soil, biodiversity - can help reduce disaster risks, for example by reducing the impact of extreme weather events such as floods and storms.

Healthy environments help protect human health. Identifying, protecting, monitoring and restoring natural ecosystems in and beyond towns enhances their capacity for Disaster Risk Reduction.

What does this mean for museums?

- Preserve and develop collections that can support educational, awareness and research programmes for the effective conservation of nature, both locally and globally. (1)
- Provide educational and awareness-raising programmes for the effective conservation and restoration of nature, and promote sustainable lifestyles in harmony with nature. (2)
- Provide opportunities for marginalized or vulnerable groups to experience nature and its benefits. (3)
- Ensure tourism-related activities contribute positively to nature conservation, and work to reduce the negative impacts of tourism, for example greenhouse gas emissions. (4)
- Support research programmes that support the effective conservation and restoration of nature (5)
- Ensure all operational activities and decisions are working to have a positive environmental impact, and steadily reducing the negative impacts of museum activities, for example climate impacts, energy consumption, waste production (material, food and chemicals) and water use. Measure, monitor and report on progress. (6)
- Work in partnership with other sectors to conserve natural ecosystems, in light of present and future risk scenarios. (7)

5. Safeguard natural buffers

KEY ACTIVITIES

6.

Strengthen institutional capacity for resilience

Many types of organization and stakeholders in a town can play an important role in Disaster Risk Reduction of the town as a whole, for example government, public services, business, academia, and civil society organizations.

Strengthening institutional capacity of each of these will increase the town's resilience as a whole.

What does this mean for museums?

Preserve and develop relevant collections that are well cared for, well understood and accessible for education, awareness and research purposes that contribute to Disaster Risk Reduction, locally and in the wider world. (1)

Provide effective programmes and facilities for education, awareness-raising, participatory, and research activities that contribute to Disaster Risk Reduction. (2-6)

Work to ensure museums are on a secure long-term footing through planning and appropriate resourcing. (6)

Ensure museums are well prepared for disasters, based on disaster scenarios. (6)

Ensure staff have the relevant knowledge, skills and motivation to support Disaster Risk Reduction. (6)

Ensure that museums' missions and visions are directed towards positive social and environmental outcomes that support Disaster Risk Reduction, and are aligned with sustainable development principles. (6)

7.

Understand and strengthen societal capacity for resilience

Education, training and public awareness programmes are critical if people are to be able to contribute to the collective effort of creating resilient towns, protecting nature, and indeed their own property and, in some situations, their lives.

Education programmes that promote a sense of community and collaboration are also important for people's participation in disaster management strategies, for early warning to disasters, and to respond effectively to disasters. Cultural and natural heritage can contribute to Disaster Risk Reduction.

Community-based Disaster Risk Reduction and Management (CBDRM) initiatives involve communities, to identify, prevent, mitigate and adapt to disaster risks they face; they take a variety of forms, and may be led by communities, or developed in partnership with other organizations and institutions. CBDRM aims to empower people to participate in disaster risk reduction.

What does this mean for museums?

- Preserve, support or help revitalize traditional cultural practices that can reduce disaster risk. (1)
- Provide multiple opportunities for people to understand and appreciate cultural and natural heritage, and to bring people together in a common endeavour to create desirable shared futures. (2)
- Raise awareness of how groups of people are vulnerable to disaster risk, and educate people to understand how their lifestyles create disaster risk for others. (2)
- Educate, educate, educate: empower people to understand and appreciate disaster hazards and risks, to themselves, to others, and to nature, locally and globally, through educational and awareness-raising programmes. (2)
- Empower people to contribute to Disaster Risk Reduction in their own lives, in relation to their own concerns, and for the benefit of others and of nature. (2, 3)
- Ensure the needs and capacities of minorities and Indigenous groups are addressed in educational and awareness programmes, to promote their participation, ensure their rights are protected, and that others appreciate how they contribute to Disaster Risk Reduction. (3)
- Use sustainable tourism to build resilience locally and globally, through education and awareness-raising programmes, providing markets for local products, and reduction of negative impacts of tourism, that support Disaster Risk Reduction locally and globally. (4)
- Provide opportunities for researchers to make use of collections for Disaster Risk Reduction, and to present their work to the public and other stakeholders. (5)
- Promote a culture of collaboration to reduce disaster risk together. (7)
- Ensure educational and awareness-raising programmes are connected with local Disaster Risk Reduction and disaster preparedness plans. (7)

7. Understand and strengthen societal capacity for resilience

KEY ACTIVITIES

1. 2. 3. 4. 5. 6. 7.

8.

Increase infrastructure resilience

Towns should have a strategy and plan for the protection, update and maintenance of critical infrastructure.

This includes organizations and systems required for the operation of the town and for effective emergency response, for example transport, telecommunications, utilities, healthcare, schools, food supply and emergency services. They also carry out essential functions during and after a disaster, where they are likely to provide recovery and relief.

What does this mean for museums?

Ensure plans for the protection of collections and buildings are in place, and are incorporated into emergency response strategies and plans for towns. (1, 6, 7)

Ensure that all sectors in a town are aware of the part that museums have to play in Disaster Risk Reduction, as partners. (7)

Although not generally included within definitions of critical infrastructure, museums can support critical infrastructures (such as education, health and safety services) by providing additional resources and capacity to those dealing with disasters. (7)

9.

Ensure effective preparedness and disaster response

Create and regularly update disaster preparedness and response plans, which can help save lives and property, and contribute to resilience and post-disaster recovery.

Early warning systems and communication systems also help towns, communities and organizations respond rapidly to disasters. Public education and awareness are crucial for effective disaster response. After any disaster, the needs of the affected population should be central to reconstruction, to design and help implement responses for resilient, sustainable communities and livelihoods, and to ‘build back better’.

What does this mean for museums?

- Ensure cultural and natural heritage is properly protected in times of disaster, through effective planning. (1)
- Help with disaster preparedness and response through public education and awareness programmes. (2)
- Participate in or organize regular training and drills that are part of a town's or museum's disaster response plans. (3)
- Cultural heritage can be important for supporting community resilience through times of disaster. (3)
- Ensure museums have disaster preparedness and response plans in place for themselves, to mitigate the impact of disasters to protect buildings, collections and other assets, and jobs. Make sure these are practical, and as specific as possible, in terms of the needs for stabilizing, moving or protecting collections, and that sources of readily-available materials needed for packing or removal are identified, sourced and costed. (6)
- Make sure museums feature in town disaster preparedness and response plans, to protect cultural heritage and to provide support for effective disaster response, sharing resources, space, expertise, or anything else that can help. (7)
- Ensure the needs of local communities and other stakeholders are at the very heart of response and reconstruction plans. (7)
- Play a part in early warning systems where appropriate and where possible. (7)
- During times of disaster, use your resources, spaces and/or media channels to bring people together. (7)

10.

Expedite recovery and build back better

Although disasters present a need to rebuild quickly, there is an opportunity to ‘build back better’.

The ‘build back better’ approach is to ensure that recovery and reconstruction strategies are aligned with long-term Disaster Risk Reduction plans, and other plans, to improve the quality of towns for sustainable development. This has longer-term benefits that restore and rebuild damaged infrastructure, recover the economy, and empower people to rebuild their lives, housing and livelihoods. Recovery can be planned ahead of a disaster to a large degree.

Leadership, co-ordination and financial resources are key to recovery. The ‘build back better’ principle aims to create more effective, resilient and sustainable organizations, processes, towns and sectors, and to better protect cultural and natural heritage, to reduce future disaster risk. ‘Build back better’ means ‘better’ in terms of institutional resilience, enhanced positive contributions to sustainable development, and the reduction or elimination of negative impacts.

‘Build back better’ is also sometimes thought of as aiming to ‘bounce forward’ as opposed to ‘bounce back’, to achieve a situation that is preferable - more resilient, addressing sustainability issues - to the state before disasters.

What does this mean for museums?

Museums can help ensure cultural and natural heritage is better identified, managed, valued and protected, to reduce the impact of future disaster risk. (1)

Museums can help incorporate the views and address the needs of the public, notably vulnerable and marginalized groups, into post-disaster recovery, including post-disaster needs assessment, recovery planning, implementation, monitoring and evaluation. These can be achieved through consultations, focus groups, and public education and awareness programmes. They have to be done with sensitivity and with the interests of participants at the forefront of considerations. (2,3)

Museums can play a part in promoting sustainable tourism. (4)

Museums should be open-minded about how they can better support the needs of local communities, society, and cultural and natural heritage, by modifying their missions, operations and practices to facilitate 'build back better'. (6)

Museums should be sensitive of the need to remember, and the need to forget, disasters, to reduce future disaster risk. (6)

Museums' (and the museum sector's) own recovery and reconstruction should use the 'build back better' approach, to contribute positively to longer-term priorities and Disaster Risk Reduction for more sustainable museums, communities, towns, and cultural and natural heritage. (6)

Museums can support post-disaster recovery by providing space and resources to support critical infrastructure services. (7)

Museums and Disaster Risk Reduction: climate change

An example

Climate change poses one of the most complex challenges facing society, as it is the consequence of a wide range of human activities, including industry, energy use, land use change, deforestation and agriculture, and human impacts on the oceans. Museums will be increasingly impacted by climate change, and they contribute to climate change through their greenhouse gas emissions.

1. Organize for disaster resilience

Climate action is needed from all of society and all sectors, including museums. Institutions such as museums can play a particular role in bringing different stakeholders together. Museums will be much more effective if they work in true partnership and collaborate, learn from one another, make a collective difference, and tell a collective story. Increasingly, museum networks have been incorporating climate change into their list of concerns. ICOM adopted a resolution 'On sustainability and the adoption of Agenda 2030, Transforming our World' in 2019. The importance of museums' current and potential roles is recognized in the Work Programme for the Paris Climate Agreement.

2. Identify, understand, and use current and future risk scenarios

Global climate change scenarios have been developed by climate scientists. These are reviewed by the IPCC, notably in the 1.5 degrees report released in 2019. National scenarios exist, and many towns and regions have climate change adaptation plans. However, these have little public profile, meaning people are not aware of the disaster risk they are exposed to, or adaptation measures underway. Museums can help promote an understanding of adaptation plans and climate change scenarios, and provide people with opportunities to input into their development.

3. Strengthen financial capacity for resilience

Climate change is already causing increasingly extreme weather, which will be experienced differently in different locations, whether as floods, storm surge, coastal erosion, rising sea level, wildfires or heat waves. It will be increasingly important for museums to be financially prepared to address increased levels of damage, protect their properties, or to move their buildings or collections to different locations.

4. Pursue resilient urban development and design

Building projects have huge carbon footprints. Museum developments should aim to minimize their carbon footprint, and reduce emissions in the longer term through more efficient buildings. Museum expansions that have large carbon footprints increase disaster risk. Tourism is also responsible for large carbon emissions, and sustainable tourism should be a priority for museums. Adapting existing buildings to a changing climate will become increasingly important.

5. Safeguard natural buffers to enhance the protective functions offered by natural ecosystems

Climate change is one of the largest causes of declines in biodiversity worldwide, and poses a great threat to species and ecosystems. Nature is also very important in combatting climate change. All museums can support natural ecosystems by promoting lifestyles in harmony with nature through their programmes, but also by minimizing waste, and generally working to reduce the amount of resources they use. Natural history museums are a valuable resource for researchers and conservationists working to conserve nature.[4]

4 See the Curating Tomorrow publication 'Museum Collections and Biodiversity Conservation'

6. Strengthen institutional capacity for resilience

Museums can play a key role in climate action, and this can be embraced across all museum activities, from mission and vision, to everyday decisions. Reducing their greenhouse gas emissions is crucial. Ensuring staff have the relevant training, expertise and attitudes is necessary for them to be able to support climate action effectively. Museums can also be prepared for the impacts of climate change, through effective planning and resourcing, which helps to protect cultural heritage for the future. Museums will increasingly need to modify their 'ground rules', to reduce their negative contributions to climate change, and as it becomes impossible to maintain the status quo in light of climate change.

7. Understand and strengthen societal capacity for resilience

Education, awareness-raising, and public participation in decision making are all crucial for supporting people to meet the challenges of climate change. Museums reach huge numbers of people, and can support all of these activities, drawing on their collections and wider cultural and natural heritage. Supporting people's individual and collective abilities to contribute to climate action, with knowledge, attitudes, motivation and skills to do so, is vitally important now, and needs to accelerate to address climate change. Museums of all kinds can ask themselves 'how can I help communities, society and nature be more prepared for climate change, and to take the action needed?'

8. Increase infrastructure resilience

Museums can support their town's resilience by working to support emergency services where appropriate.

9. Ensure effective preparedness and disaster response

Climate change impacts will be different in different locations. Ensuring communities understand the risks they face from climate change impacts, and what disaster scenarios may occur, helps people to prepare for climate change impacts. Ensuring museums understand these risks also helps them to prepare for emergency situations, protecting collections, buildings and livelihoods. Providing support during times of disaster, in whatever form, will become increasingly important as climate change impacts worsen.

10. Expedite recover and build back better

Following extreme weather events and other forms of disaster due to climate change, museums can help put the interests of communities at the forefront of rehabilitation and reconstruction. Museums can use their resources - building, exhibitions, collections, programmes - to help people imagine and plan the creation of desirable futures. Ensuring museums and communities come out of disasters better prepared and more resilient for the future will help reduce the likelihood and impact of future disasters.

Section 5

Case Studies

Case studies of Disaster Risk Reduction in practice

Museum of New Zealand / Te Papa Tongarewa

In 2016, the Kaikoura earthquake (magnitude 7.8) struck the South Island of New Zealand. The Museum of New Zealand /Te Papa Tongarewa was almost completely unharmed by the earthquake.

The museum is sited close to a fault line, and had been built to withstand a one-in-500 years earthquake, of magnitude 10. The building sits on large rubber blocks (called 'base isolators') that absorb the shock and vibration of earthquakes, helping to protect the building, people and collections. The public can visit the base isolators, and learn about the construction and disaster risk. The base isolators help mitigate the impact of earthquakes (which the museum is exposed to through its location), building institutional and infrastructure resilience. The educational aspects support societal resilience.

Chuetsu Earthquake Memorial Corridor

The Niigata Chuetsu Earthquake occurred in 2004, on Honshu, the main island of Japan.

Four museums were developed in the Chuetsu Earthquake Memorial Corridor to act as cultural hubs, to preserve memory of the event, and to reduce future disaster risk through awareness and education. The four museums focus on different aspects of the earthquake and of Disaster Risk Reduction, and were important in communities' recovery, rehabilitation and reconstruction.[5]

5 Hayashi (2016).

Earthquake awareness and children's emotions

"Raising Earthquake Awareness and Coping Children's Emotions" is an EU-funded project developed in 2010, led by Crete Natural History Museum, with partners in Greece, Bulgaria, Italy and France.

The aim of the project is to support children, especially physically disabled children, to reduce the negative emotional impact of a serious natural hazard (notably earthquakes, volcanic risk and tsunamis). The project aims are achieved by raising awareness and improving knowledge on earthquakes, and educating and training teachers, parents, volunteers and civil protection operators on disaster response best practices. The project aimed to foster collaboration and to increase the effectiveness and functioning of museums and educational centres, to contribute to Disaster Risk Reduction.

The Flooded House Museum

When Hurricane Katrina struck the US in 2005, it caused massive amounts of damage.

The levees that were supposed to protect New Orleans from floodwaters were overwhelmed by storm surge. Many properties were damaged and more than 1,400 people lost their lives. The Flooded House Museum was developed in 2016, to commemorate the event and raise awareness, and to campaign for better flood protection. The Museum consists of a house, a typical family home, that had been damaged by the flood. Artists recreated the effects of the damage.

Singing for Disaster Risk Reduction

Simeulue Island, in the Indian Ocean, was hit by a major tsunami on 26 December 2004. However, almost all of the island's 78,000 inhabitants survived.

A song based on the story of a previous tsunami, in 1907, was kept alive by oral traditions. Such traditions had existed in other communities, but had not been recognized or utilized, so communities did not benefit from them. The people of Simeulue had used their cultural heritage for Disaster Risk Reduction. Empowering communities to draw on cultural heritage relating to Disaster Risk Reduction can help enhance societal resilience.[6]

Building climate resilience in communities

The US National Oceanic and Atmospheric Administration Environmental Literacy Program provides communities with grants to build their resilience to environmental hazards through education and participation in Disaster Risk Reduction.

For example, The Wild Center (a museum in New York State) ran a two-day climate change summit for high school students and teachers, to plan student-led resilience campaigns to implement in their communities. The Wild Center's model for a climate summit was so successful that it is featured in the US Climate Resilience Toolkit and on the Climate.gov online portal for other communities to adopt. The toolkit is freely available for other educators to use.

6 Swayfina (2014).

Remembering SARS

To mark the 10th anniversary of the outbreak of SARS (Severe Acute Respiratory Syndrome) in 2003, the Hong Kong Museum of Medical Sciences developed an oral history archive of short films from a wide range of people who were involved in the response to SARS.

The films preserve a record of their experiences and the lessons they learnt, to help society be better prepared for similar future challenges.

Asian dance traditions and COVID-19

In 2020, traditional Asian dancers in India, Indonesia and Thailand each drew on their cultural traditions to aid the disaster response to COVID-19.

They incorporated new elements into their performances, that aimed to promote social distancing and handwashing to restrict the spread of COVID-19. Others addressed the emotional trauma associated with COVID-19. Not only did these creative responses promote public education and awareness, they drew worldwide attention, raising awareness of the dance traditions themselves.

Eco-Disaster Risk Reduction in Kenya and worldwide

In Kenya, as elsewhere, trees play an important role in reducing disaster risk in ecosystems, protecting both people and nature.

They are a form of 'Eco-Disaster Risk Reduction'. They help reduce the impact of flooding, stabilize soil and riverbanks, provide resources and habitats. Wangari Maathai founded the Green Belt Movement in 1977, to respond to the needs of Kenyan women, who reported that their land was being degraded, by planting trees. The Green Belt Movement developed to address some of the root causes of poverty and inequality, building people's sense of agency and empowerment. The project inspired many other projects worldwide to drive sustainable development and participation of people in Disaster Risk Reduction. The project is a good demonstration of the interconnected benefits of Disaster Risk Reduction, benefiting people, communities, the environment and the economy.

Promoting public health, disease control and prevention

The David C. Spencer CDC Museum is the visitor centre for the US Center for Disease Control and Prevention, in Atlanta, Georgia.

The CDC Museum's mission is to educate visitors about the value of prevention-based public health, while collecting, preserving, and presenting CDC's rich heritage and vast accomplishments through engaging museum exhibitions, dynamic educational programming, and web archives.

Conflict Textiles

Conflict Textiles is a project that includes exhibitions, workshops and a digital archive (hosted by the University of Ulster).

The project is based around textiles, including quilts and 3-d 'storycloths' called arpilleras, that document human rights abuses, experiences of conflict, and statements of resistance and hope for the future. Some conflict textiles are made by groups of people, often women, and are part of individuals' and communities' healing in post-disaster situations. By documenting and engaging people with conflict textiles, the project raises awareness of human rights and human rights abuses around the world, that can serve as a setting to explore just, sustainable futures, locally and globally.

Citizen science for Disaster Risk Reduction

Citizen science projects can build capacity for Disaster Risk Reduction, by advancing scientific knowledge, providing early warning of hazards, and creating opportunities for people to participate in Disaster Risk Reduction.

A review of citizen science projects for Disaster Risk Reduction (not specifically linked to museums) suggested six common principles for citizen science projects related to Disaster Risk Reduction: (1) Active benefits for all participants. (2) Clear attempts to ensure legacy and longevity. (3) Responsible engagement in both quiet times and during active hazard moments. (4) Framed around DRR goals. (5) Careful definition of partners (to ensure equitable outcomes). (6) Equitable and empowering.[7]

Museums for peace

The International Network of Museums for Peace (INMP) is a worldwide network of museums that are dedicated to promoting a global culture of peace, through collecting, displaying and interpreting peace-related material.

Museums for peace inform the public about peace and nonviolence using illustrations from the lives of individuals, the work of organizations, campaigns, historical events, etc. One of the strengths of museums for peace is that they can reach out to and involve a broad general public.

7 Hicks et al. (2020).

Sites of Conscience

Sites of Conscience interpret history through a place, often a place where human rights abuses took place in the past, to promote justice and human rights in the present and the future.

The International Coalition of Sites of Conscience supports the documentation of past human rights atrocities and struggles for justice, and applying history's lessons to nurture civil society and prevent the recurrence of abuses. In this work, the Coalition is supporting disaster recovery, rehabilitation and reconstruction in post-disaster contexts, and promoting societal resilience to prevent further disasters. The attention to the future is what differentiates Sites of Conscience from Sites of Memory.

UNESCO designated sites and Disaster Risk Reduction

UNESCO oversees a number of schemes that aim to protect cultural and natural heritage of special importance. Schemes include World Heritage Sites, Biosphere Reserves and Global Geoparks.

As part of these schemes, those responsible for managing these sites are expected to foster disaster-resilient communities, engaging local people and tourists in activities that support Disaster Risk Reduction. For example, Biosphere Reserves offer opportunities for people to understand the way changing environments impact communities. Global Geoparks play a role in telling the story of past and active geological processes and the way they affect people. Many Global Geoparks have educational and awareness-raising programmes on the source of geo-hazards and ways to reduce their impact, including disaster response strategies. UNESCO shares good practices on Disaster Risk Reduction, to foster a 'culture of prevention'. Good practices on earthquakes, volcanic activity, landslides, floods, tsunamis, cyclones and wildfires can be explored on a website. Museums and exhibitions are cited in many of the good practices.

Climate change education in a Global Geopark

As an example of a Global Geopark engaged in Disaster Risk Reduction, the coast of Percé, in Canada, is negatively impacted by climate change.

While ice used to form along the coast in winter time and protect the coast from erosion due to storms, ice now forms later, and accelerates erosion. The coast is being returned to natural forms of protection, rather than concrete. Public education and awareness-raising activities aim to support Disaster Risk Reduction, aiding adaptation to climate change.

Smithsonian Cultural Rescue Initiative

The Smithsonian Cultural Rescue Initiative aims to protect cultural heritage threatened or impacted by disasters, helping communities to preserve their identities and history.

It encourages the recognition of threats to cultural heritage, fosters resilience among heritage organizations, supports disaster response to heritage at risk, and conducts research on at-risk heritage. Projects have involved cultural rescue work in conflict and post-conflict situations in Haiti, Syria, Iraq, Egypt, Mali, Nepal and the US, as well as providing disaster training for heritage workers and military personnel around the world.

Heritage Futures

While heritage is often thought of as preserving the past and handing it on to an unspecified future, Rodney Harrison and colleagues have developed a premise that heritage practices, of all kinds, are (or can be) about making futures.

Heritage futures have to navigate four challenges when working with the future in mind: uncertainty, diversity, transformation and profusion. Heritage futures can contribute to Disaster Risk Reduction by helping imagine, resource and construct desirable futures in the present; this contributes to institutional, societal and nature's capacity and resilience.

Disaster Risk Reduction through every museum

Every community is exposed to varying levels of disaster risk.

Every single museum in the world can play a part in Disaster Risk Reduction, through raising awareness of disaster risk locally and more widely, educating and empowering people to understand and contribute to Disaster Risk Reduction. Museums can help reduce people's vulnerability to disaster risk and increase their capacity to face disasters, making communities more resilient.

Museums strengthen their own resilience in the process.

Section 6

Welcome to Resilient Town and Resilient Town's Museum

Welcome to Resilient Town

Welcome to Resilient Town. Resilient Town is exposed to various hazards, but at least it has plans in place to address these, so it faces the future with relative confidence. Resilient Town is made up of a number of different sectors - education, business, local government, as well as communities and individual people. They all understand and value the part that each and all of them have to play in the life of the town. Success is not measured solely in economic terms, but is also about addressing the town's social and environmental challenges.

People of all ages and backgrounds are aware of the town's plans and have contributed to their development. They are empowered through education - formal, informal and non-formal - to play a part in the town and to create the futures that they want for themselves and others. They are aware of where they have come from, and where they want to go to, drawing on their heritage.
The town has changed over the years, but in ways that benefit all parties, not just developers. Cultural and natural heritage are well understood, appreciated, and made accessible for all; heritage is continually renewed and refreshed.

All the town's institutions have steadily strengthened their ability to fulfil their public responsibilities, supported effectively by decision-makers and policies.

There is a strong community spirit and identity. Should a disaster occur, the town is confident that its effects can be minimized, as there is a strong co-ordination across the town, and people know what they have to do and who they can turn to for support. The town's long-term plans can help steer recovery after any disaster, and the strong relationships in place will help the town to 'build back better' and recover rapidly. Resilient Town could be anywhere, and it could be - maybe it already is - your town.

How much does this describe your town? What hazards does it face? Who is exposed to these, and which groups are particularly vulnerable to hazards? What is being done to address hazards, and to build people's capacity and resilience to reduce the impact of hazards? Who is involved and who should be involved? What successes have there been, in terms of reducing disaster risk, and how could the town flourish?

Welcome to Resilient Town's Museum

Resilient Town's Museum is a well-known part of town life: a place for everyone throughout their lives, and that connects the past, present and future. The Museum's functions in the town have changed over the years, but they have always been about aiming to be a positive asset to the town, and giving people opportunities to exercise their rights to education, to cultural participation, and to access their shared heritage.

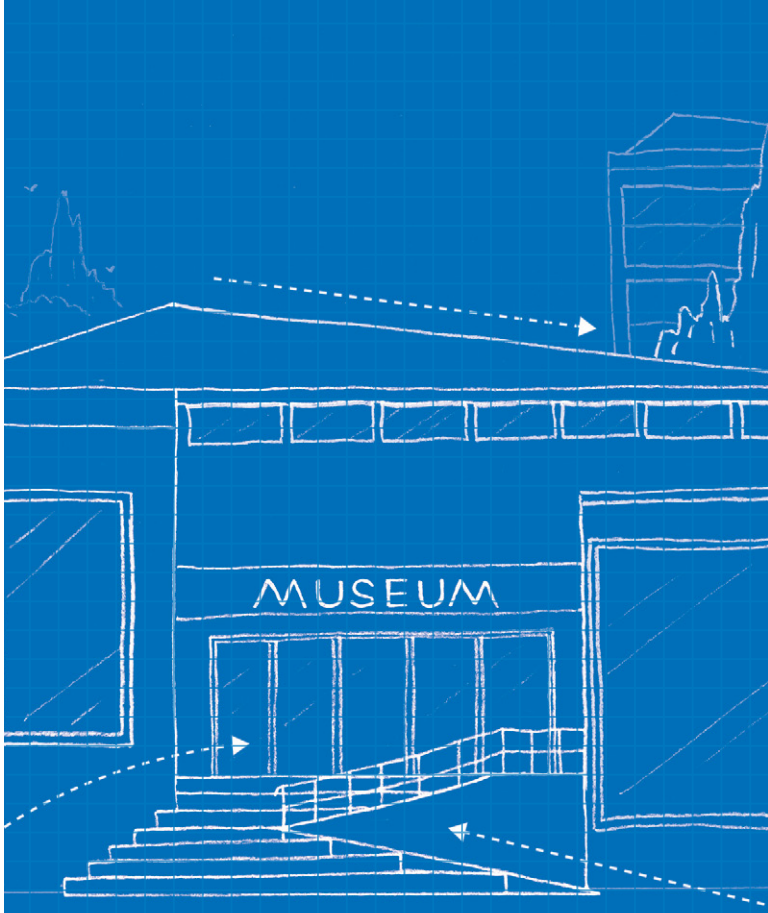
After Resilient Town's last disaster (let's call it a flood, but it could be anything), the town looked at what institutions and sectors in the town could do to help society be better placed to face disasters in future. The Museum was identified as a place that could help educate people and raise awareness, bring people together, and that housed important cultural and natural heritage that needed safeguarding. The Museum was also a good place to connect people with the town's plans, and to connect the town and its people with issues facing the wider world. So, the Museum came to play a key role in Resilient Town's future planning, working with other partners.

The Museum has plans in place for its own survival, and understands how a range of different types of disaster could be managed as well as possible, in the circumstances. It doesn't aim to be the biggest or best museum in the world, or in the country, but it aims to be a part of the town for the long-term, and it aims for this because the town and other partners have told it that they want it to be there for the long-term.

Resilient Town's Museum provides people with opportunities to debate, shape and contribute to plans for the town, to face the future with confidence. People in Resilient Town take part in community activities at the Museum, that explore both the possibilities of, and risks to, Resilient Town. People draw on their heritage and communities, as well as information and traditions from elsewhere, that can play a part in supporting equitable, fair, and vibrant communities. People understand the importance of addressing the causes and consequences of disasters facing the town, their own property, and in the wider world.

Resilient Town's Museum is well known and well trusted by other sectors and community partners, who know how they can turn to it for help should they need it. Resilient Town's Museum helps people in Resilient Town play a part in the world, based on people's individual and shared concerns, hopes and ambitions.

How much does this description fit your museum? What could you do to make your museum more like Resilient Town's Museum? How would your museum benefit from being more like it? What opportunities would this help create, for your museum, your community and the wider world?



Section 7

Additional Information

Introduction to Disaster Risk Reduction

Understanding Disaster Risk

SDGs Knowledge Platform: Disaster Risk Reduction

Sendai Framework for Disaster Risk Reduction

Words Into Action (briefing series), UNDRR

General sources of information on Disaster Risk Reduction

Preventionweb Knowledgebase (very extensive collection of information, toolkits and best practices on Disaster Risk Reduction).

Periperi U (extensive collection of information, toolkits and best practices to build Disaster Risk Reduction capacity in Africa).

International Federation of Red Cross and Red Crescent Societies, Resilience Library (Southeast Asia) Resources.

Learning from Past Disasters (case studies from the 1980s onwards).

Hardoy, J., Filippi, M. E., Gencer, E., Morera, B. E. and D. Satterthwaite (2019). Implementation Guide for Local Disaster Risk Reduction and Resilience Strategies. Words Into Action. UNDRR

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Twigg, J. (2015). Disaster Risk Reduction. Good Practice Review No. 9. Overseas Development Institute.

UNDRR (2020). Enhancing Disaster Preparedness for Effective Response. Words Into Action. UNDRR.

UNESCAP (2015). Integrating the Three Dimensions of Sustainable Development: a framework and tools. UNESCAP, Bangkok.

UNEP/OCHA (2009). Environmental Emergencies: learning from multilateral response to disasters. UNEP/OCHA.

UNISDR (2017). National Disaster Risk Assessment. Words Into Action. UNISDR. (contains good summary information on various hazards and the associated risks)

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Ten Essentials for Resilient Cities

Gencer, E. A. (2017). How to Make Cities More Resilient: A Handbook for Local Government Leaders. UNISDR, Geneva.

UNISDR, The Ten Essentials for Making Cities Resilient (toolkit).

Scorecard assessment tool for implementing the Ten Essentials for Making Cities Disaster Resilient.

Nature-based solutions

Brears, R. C. (2020). Nature-based Solutions to 21st Century Challenges. Routledge, Abingdon.

Kabisch, N., Korn, H., Stadler, J. and A. Bonn (eds.) (2017). Nature-based Solutions to Climate Change Adaptation in Urban Areas: linkages between science, policy and practice. Springer International, Cham.

Maes, J. and S. Jacobs (2017). Nature-based solutions for Europe's sustainable development. Conservation Letters 10(1): 121-4.

Monty, F., Murti, R. and N. Furuta (2016). Helping Nature Help Us: Transforming Disaster Risk Reduction Through Ecosystem Management. IUCN, Gland (Switzerland).

Disaster Risk Reduction as a human rights issue

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OHCHR (2015). Understanding Human Rights and Climate Change. Submission of the Office of the High Commissioner for Human Rights to the 21st Conference of the Parties to the United Nations Framework Convention on Climate Change.

OHCHR (2016). Frequently asked questions on the Right to Development.

Rawinji, F. (2013). Claiming the Human Right to Protection from Disasters, the case for human rights-based disaster risk reduction (an essay).

Education, public awareness and public participation in Disaster Risk Reduction

Adaptation Scotland, Climate Adaptation Framework for the Public Sector (handbook, framework, further resources).

Boyle, S. (ed.) (2009). Good Practices on Disaster Risk Reduction in Education in Central Asia. UNISDR and UNICEF.

Ciampi, M. C., Gell, F., Lasap, L. and E. Turvill (2011). Gender and Disaster Risk Reduction: a training pack. Oxfam, Oxford.

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National Oceanic and Atmospheric Administration Environmental Literacy Program Resilience Hub (links to resources, toolkits, articles for building community resilience to climate change).

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Trujillo, M. (2020). Guidelines for Community Participation in Disaster Recovery. UNDP.

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UNESCO Disaster Risk Reduction education activities around the world.

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UNESCO/UNODC (2016). Educating for a Culture of Lawfulness (including Handbooks for teachers and educators working in informal and nonformal education settings).

Wild Center, Youth Climate Summit Toolkit.

Heritage in Disaster Risk Reduction and post-disaster situations

Bonazza, A. and others. (2018). Safeguarding Cultural Heritage from Natural and Man-Made Disasters: a comparative analysis of risk management in the EU. EC, Brussels.

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Hayashi, I. (2016). Museums as Hubs for Disaster Recovery and Rebuilding Communities. In N. Sonoda (ed.) New Horizons for Asian Museums and Museology (pp. 165-76). Springer, Singapore.

ICOM (2020). Museums and COVID-19: 8 steps to support community resilience.

ICOMOS Climate Change and Heritage Working Group (2019). The Future of Our Pasts: engaging cultural heritage in climate action. ICOMOS, Paris.

ICSC (2018). Interpretation of Sites of Memory.

Japan Consortium for International Cooperation in Cultural Heritage (2011). Research Report on International Cooperation in the Recovery Process of Disaster-affected Cultural Heritage National Frameworks for International Aid.

Jigyasu, R. and V. Arora (2013). Disaster Risk Management of Cultural Heritage in Urban Areas: a training guide. Research Center for Disaster Mitigation of Urban Cultural Heritage, ICCROM and UNESCO.

Lambert, S. and C. Rockwell (eds.) (2011). Protecting Cultural Heritage in Times of Conflict. ICCROM, Rome.

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Naidu, E., Gabriel, B. and M. Hoque (2012). From Memory to Action: A Toolkit for Memorialization in Post-Conflict Societies. International Coalition of Sites of Conscience.

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In 2020, I was due to travel as a Winston Churchill Travelling Fellow, to explore how museums and the cultural sector can accelerate their contributions to the Sustainable Development Goals, Paris Agreement and Disaster Risk Reduction. While I have not yet been able to travel, this guide is offered as a contribution to this project.

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