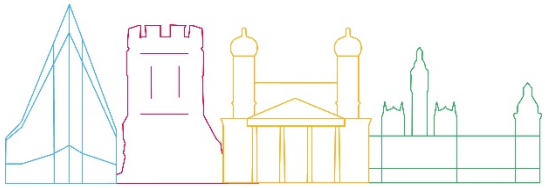
ARCH

ARCH State-of-the-Art Report 3

Building Back Better



Deliverable No.	D7.1
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This document has been prepared in the framework of the European project ARCH – Advancing Resilience of Historic Areas against Climate-related and other Hazards. This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement no. 820999.

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This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement no. 820999.

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List of Abbreviations

Abbreviation	Meaning
BBB	Building Back Better
CC	Climate Change
CCA	Climate Change Adaptation
CURE	CUlture in city REconstruction and recovery
DRF	Disaster Recovery Framework
DRM	Disaster Risk Management
DRR	Disaster Risk Reduction
GFDRR	Global Facility for Disaster Reduction and Recovery
IRP	International Recovery platform
ISMEP	Istanbul Seismic Risk Mitigation and Emergency Preparedness
PDNA	Post-Disaster Needs Assessment
PDRP	Pre-Disaster Recovery Planning
RNA	Recovery Needs Assessment
SotA	State-of-the-Art
UNDP	United Nations Development Programme
UNDRR	United Nations Office for Disaster Risk Reduction

Executive Summary

This report provides a comprehensive review of methods and frameworks for Building Back Better and how to include it in the Disaster Management Cycle. Specific focus is given to Building Back Better in the context of climate change adaptation and cultural heritage.

A general framework for Building Back Better is introduced and it is shortly discussed how a Disaster Recovery Framework, as well as a Pre-Disaster Recovery Plan can be developed. Based on these general discussions the CUlture in city REconstruction and recovery framework, developed by UNESCO and the World Bank, described. This framework aims to put culture at the forefront of recovery and reconstruction and thus closes existing gaps in the Building Back Better approach in the context of cultural heritage.

In addition, the report identifies critical issues and biases of Building Back Better in general and when addressing cultural heritage.

Based on these discussions recommendations for the ARCH project are made, including the stronger inclusion of local and traditional knowledge when identifying / developing resilience options, the potential inclusion of intangible cultural heritage in the information management systems, the examination of impacts to intangible cultural heritage, and linking the ARCH Disaster Risk Management framework and resilience assessment framework with the CUlture in city REconstruction and recovery framework.

1. Introduction

1.1. Background information and aims of this report

This report aims to clarify the concept of Building Back Better (BBB), with a specific focus on BBB in the context of cultural heritage and climate change adaptation (CCA). It is predominantly definitional in focus and should enable the reader to understand the terms and concepts of BBB, how it can be integrated in Disaster Risk Management (DRM), and what the main challenges for BBB are, especially in the context of cultural heritage.

1.2. Relation to other SotA reports and deliverables

To be successful, Building Back Better has to be integrated in all phases of the Disaster Risk Management cycle, needs to consider existing practices and regulations, and needs to be aware of potential biases that might endanger the adoption of BBB measures. As such this report needs to be seen in the context of the other reports included in deliverable D7.1:

- **SotA Report 1** handles conservation practices and relevant regulations / policies, which need to be considered when designing BBB processes and measures for cultural heritage
- **SotA Report 2** handles Disaster Risk Management, emergency protocols, and post-disaster response, which are all processes relevant to BBB
- **SotA Report 4** describes decisions support frameworks and technologies for CCA and DRM, which need to include processes for Building Back Better
- **SotA Report 5** handles gender aspects in conservation, regulation, and disaster risk management of historic areas. As such, it handles relevant biases often found in BBB
- **SotA Report 6** handles standards and regulatory frameworks, which also should be considered when designing BBB processes and measures

Besides the direct links to the other reports in D7.1, this report will also inform the development of the Disaster Risk Management and Resilience Assessment framework in task 7.3 and the development of the Resilience Options Inventory in task 6.1.

1.3. Structure of this report

After this introduction the report continues with an overview of the most relevant definitions for Building Back Better. This is followed by a systematic discussion about how BBB is included in DRM, how BBB can help to improve resilience against climate change and natural hazards, how cultural heritage can be built back better, and which potential biases have to be addressed during the reconstruction phase in order to build back better. The report concludes with a discussion on the most important issues with regard to Building Back Better for consideration within the ARCH project and a summary of the main findings.

2. Definitions

Building Back Better

The concept of Building Back Better originates from the reconstruction efforts after the Indian Ocean tsunami of 2004 (cf. [1]). The first comprehensive definition of Building Back Better was provided by the United Nations General Assembly in 2016 (cf. [2]):

> *""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"*

ParlAmericas and the United Nations Office for Disaster Risk Reduction (UNDRR) extended this definition in 2019 (cf. [3], emphasis added):

> *"This concept refers to the use of the post-disaster recovery and rehabilitation phases to build the resilience of nations and communities, through the integration of disaster risk reduction measures in the restoration of physical infrastructure and social systems and in the revitalization of livelihoods, economies and the environment.* ***This process should focus on improving the location and characteristics of construction, taking into consideration new risk zones and the population's recent experiences in responding to the impacts of natural hazards****."*

The inclusion of the development of new risk zones is an important addition, making sure that future changes in hazard intensity and likelihood are considered during rebuilding efforts. Similarly, taking recent experiences of the affected population into account is paramount for any rebuilding effort, if they are to be successful. However, in the context of (built) cultural heritage focusing on improving the location and characteristics of construction needs to be considered carefully, as physical alterations to heritage sites might have effects on social structures and habitats (cf. [4]).

Therefore, we suggest to adopt a slightly altered version of the definition for the ARCH project:

> *"This concept refers to the use of the post-disaster recovery and rehabilitation phases to build the resilience of nations and communities, through the integration of disaster risk reduction measures in the restoration of physical infrastructure and social systems and in the revitalization of livelihoods, economies and the environment.* ***This process should take into consideration new risk zones and the population's recent experiences in responding to the impacts of natural hazards.****"*

Pre Disaster Recovery Planning (PDRP)

An important concept directly linked to Building Back Better is Pre Disaster Recovery Planning, which is defined by the International Recovery Platform (IRP) and UNDRR (cf. [5]):

> *"Any planned attempt to strengthen disaster recovery plans, initiatives, and outcomes – before a disaster occurs. […] PDRP consists of a series of decisions and actions to be taken both before and after a disaster, in order to:*

- *Identify and establish shared recovery goals, objectives, and strategies – to guide post disaster decision-making, ensure that relief and recovery activities align with long-term development goals, address actual needs, and enhance resilience to future disasters.*

- *Develop and have ready the capacity to plan, initiate, and manage – an efficient, adaptive, and well-coordinated recovery effort that progresses towards the recovery goals."*

Disaster Recovery Framework (DRF)

Another important concept linked to BBB are Disaster Recovery Frameworks, defined by the Global Facility for Disaster Reduction and Recovery (GFDRR) (cf. [6]):

> *"This framework would guide governments and other implementing stakeholders in the middle and longer term recovery efforts. The framework would help in articulating a vision for recovery; defining a strategy; prioritizing actions; fine-tuning planning; and providing guidance on financing, implementing, and monitoring the recovery. Through developing a country-level disaster recovery framework, a government will be better positioned to drive a process that unites all development partners' efforts. Additionally, by developing a framework to manage recovery, a government may be able to better address longer term disaster vulnerability through coherent programs that bridge the current gap between recovery and development."*

How Building Back Better, Pre Disaster Recovery Planning, and Disaster Recovery Frameworks are linked is discussed in detail in the next section.

3. Key topics and issues

This sections first gives a brief introduction on how to phase Building Back Better into Disaster Risk Management, before detailing how to address Building Back Better in the context of Climate Change Adaptation and Cultural Heritage.

3.1. Building Back Better in Disaster Risk Management

A first guideline for implementing BBB in post-disaster reconstruction efforts was introduced by Clinton in 2006 (cf. [7]). Based on a literature review, Mannakkara and Wilkinson in [1] establish a general purpose BBB framework, comprising four key categories and six principles, as a starting point for better inclusion of Building Back Better in Disaster Risk Management (see Figure 1).

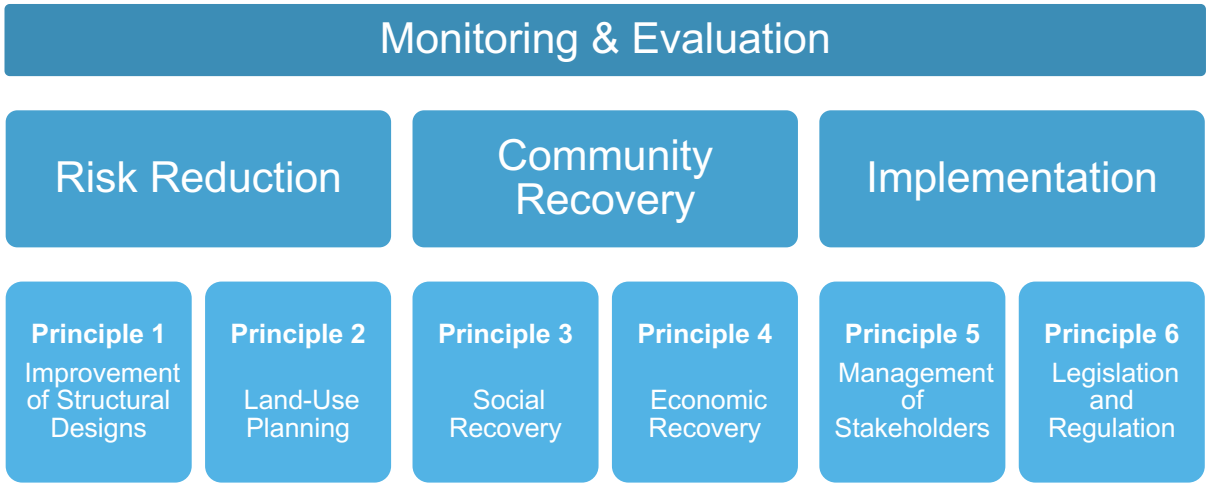

Figure 1: BBB framework as developed in [1]

The four key categories identified by Mannakkara and Wilkinson are: Risk reduction, community recovery, implementation, and monitoring & evaluation. While the latter is an overarching category that needs to be implemented across all actions, the other three categories have a more specific focus.

Risk reduction includes all measures to improve a community's physical resilience to hazards and comprises the improvement of structural designs and the enforcement of revised building codes (Principle 1), as well as the use of hazard- and risk-based land-use planning (Principle 2) (for this and the following paragraphs cf. [1]).

Community recovery focuses on the improvement of social (Principle 3) and economic (Principle 4) recovery, mainly by providing needs-based, locally and culturally appropriate recovery solutions that focus on the well-being of affected communities. This means that recovery efforts require the participation of and consultation with locals in order to be successful.

Implementation covers the means by which risk reduction and community recovery are put into place and comprises the identification of stakeholders and coordination of their roles and

relationships for efficient recovery processes (Principle 5), as well as associated legislative and regulative measures (Principle 6).

Figure 2: Tasks recommended by [8] to implement BBB in DRM

In order to systematically implement Building Back Better in Disaster Risk Management UNDRR in [8] suggest the four tasks pictured in Figure 2. These tasks are highly interdependent and have overlapping goals and processes, as described in more detailed in the subsequent sections.

3.1.1. Development of a Disaster Recovery Framework

The development of a Disaster Recovery Framework has the aim to establish an all-hazards disaster recovery framework for better management of pre- and post-disaster planning and operations. To develop the framework all stakeholders relevant for disaster recovery should be included. Having a common DRF among the large variety of stakeholders involved in recovery actions, many of which unfamiliar with the dependencies among them, simplifies management processes and ensures adherence to Building Back Better principles (see [8]).

How to develop a DRF is described by GFDRR in [6]. The authors break down the development process into six Modules, as depicted in Figure 3.

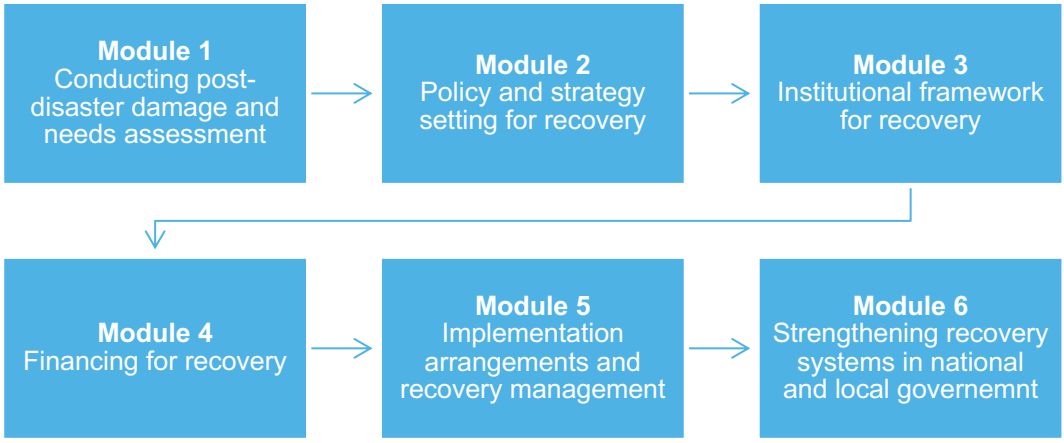

Figure 3: Process for development of a Disaster Recovery Framework according to [6]

Module 1 establishes a link between a Post-Disaster Needs Assessment (PDNA), or similar disaster assessments, and the Disaster Recovery Framework. A damage and needs assessment process is a prerequisite for the development of a DRF, as it provides damage / loss estimates and quantifies needs on which the DRF builds for detailed planning, prioritisation, financing, and implementation of recovery actions (for this and the following paragraphs cf. [6]).

Module 2 aims at supporting integrated, cross-sectoral disaster recovery by articulating a central recovery vision that enables to build consensus among stakeholders, ensure

coherence with the development programs, and incorporate resilience and BBB. This vision should be backed by a recovery policy framework that articulates the imperatives for recovery – including Building Back Better – and identifies the priority sectors for recovery. To implement the vision and policy framework, a central oversight mechanism for cross-sectoral and integrated disaster recovery is necessary. This ensures a consistent application of the policy principles, harmonised recovery results, and a consistent monitoring and evaluation of recovery actions.

Module 3 ensures that governmental and non-governmental entities involved in disaster recovery are managed effectively by clarifying roles and processes. This ensures continuity from humanitarian response to recovery and participation of the affected community in the recovery process.

Module 4 addresses the four major financing challenges in post-disaster recovery: quantifying the economic costs of the disaster, developing response and recovery budgets, identifying sources of financing, and setting up mechanisms to manage and track funds.

Module 5 tackles the actual management and implementation of the recovery program, which requires the establishment of a coordination mechanism to ensure coherent support for policies and programs, the establishment of standard implementation procedures and reconstruction standards, as well as monitoring and evaluation mechanisms.

Finally, **module 6** targets three specific areas to strengthen recovery systems: the identification and usage of a standard disaster assessment method, the preparation of recovery frameworks prior to a disaster to improve resilience, and setting aside funds for disaster recovery in fiscal strategies to reduce the budget shock after a disaster.

The development of a DRF feeds naturally into the development of a Pre-Disaster Recovery Planning process, as described in the next section.

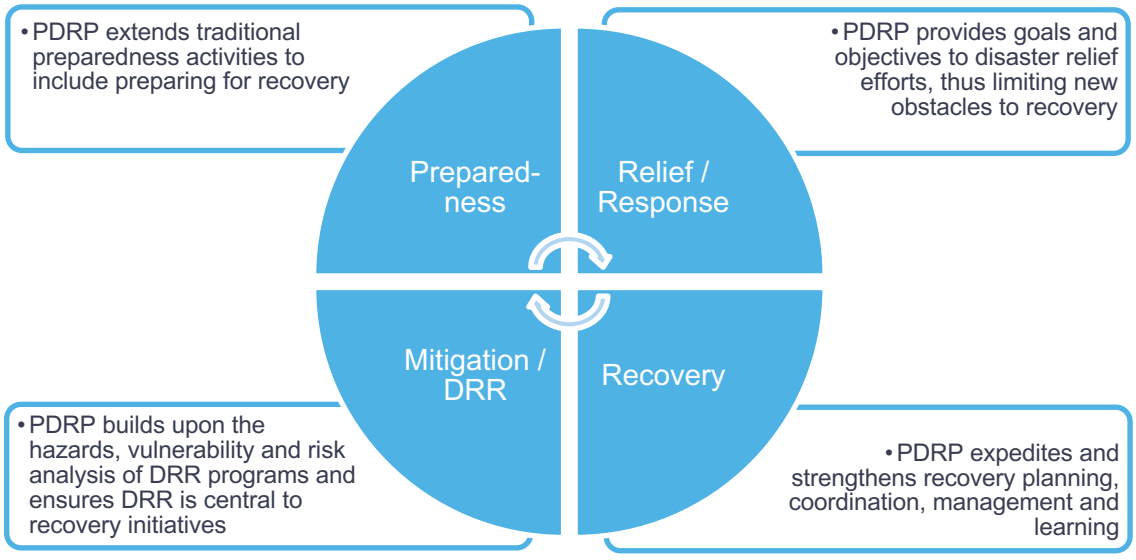

Figure 4: PDRP in the DRM cycle, according to [5]

3.1.2. Enabling Pre-Disaster Recovery Planning

Enabling Pre-Disaster Recovery Planning is important for a community's capacity to effectively and efficiently manage all recovery, reconstruction, and rehabilitation needs after the occurrence of a disaster. It focuses on promoting and building effective leadership initiatives, developing national and local laws / policies to encourage planning activities, and developing support mechanisms and programs for these tasks. By addressing difficult and time-consuming recovery planning tasks before any actual disaster, supports post-disaster recovery immensely and allows to dedicate enough resources to identify opportunities for BBB (cf. [8]).

Pre-Disaster Recovery Planning fits naturally in the DRM cycle and *"strengthens efforts within each [DRM] phase and facilitates the transitions between relief, recovery and development"* [5].

The IRP and UNDRR in [5] describe how PDRP fits in the DRM cycle (see Figure 4) and how to operationalise PDRP (see Figure 5). Pre-Disaster Recovery Planning consists of three components (cf. [5]):

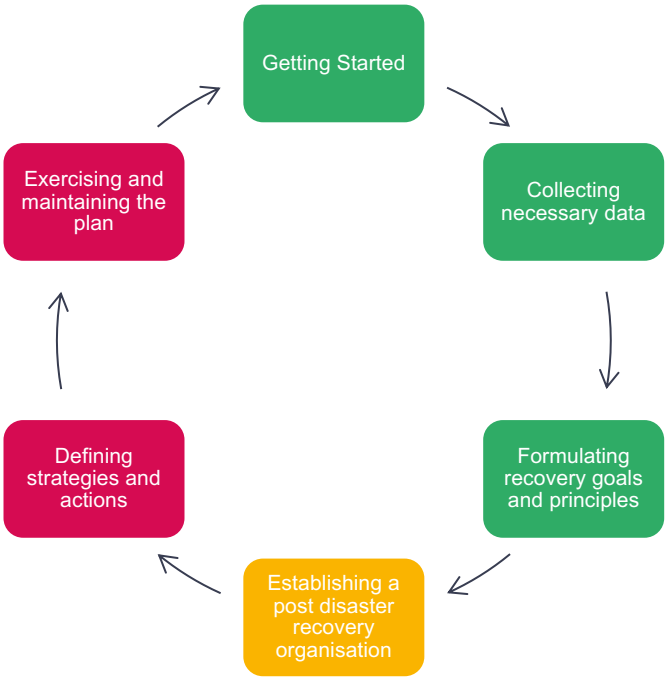

Figure 5: Components and planning process of PDRP (see [5])

1. **Developing goals, objectives, and strategies** for post disaster recovery based on informed disaster scenarios (Figure 5, green boxes).

2. **Creating a recovery organisational structure** that assigns post disaster roles and responsibilities (Figure 5, yellow box).

3. **Planning and implementing pre-disaster actions** that will expedite and strengthen post disaster planning and implementation (Figure 5, red boxes).

The pre-planning process itself is a cyclical, non-linear, participative process divided into six steps that might take place concurrently: Getting started, collecting necessary data, formulating recovery goals and principles, establishing a post disaster recovery organisation, defining strategies and actions, exercising and maintaining the plan (for this and the following paragraphs cf. [5]).

Getting started is the most critical step of the pre-planning process and depends heavily on the level at which the pre-planning is undertaken, the mechanisms for introducing policies and procedures, the political and financial support, and the required amount of awareness-raising and education to engage all relevant stakeholders. It is important to note that potentially affected stakeholder should not just be targeted by awareness-raising campaigns, but should

be enabled to actively participate in the planning process in order to enable a successful community recovery process in the event of a disaster. The result of the initiation phase should be the creation of a multi-stakeholder planning team including government and non-government stakeholders that share a joint understanding of PDRP.

After the process is initialised, the **necessary data has to be collected** to allow the development of all-hazard disaster scenarios. These scenarios should not only consider direct but also secondary hazards, known and potential vulnerabilities, as well as existing development and disaster management plans. Based on these scenarios key intervention areas should be identified in which to frame recovery needs.

Based on the developed disaster scenarios **recovery goals and principles can be formulated**. The IRP and UNDRR define recovery goals as *"a vision of the recovered community or society"* [5], while recovery principles *"make clear the values which will guide how the goals are achieved"* [5]. The definition of recovery goals and principles requires the participation of the general public, because only those goals and principles can be achieved / followed that reflect those of the affected communities. The IRP and UNDRR recommend to define recovery principles at national, sub-national, and local levels, while recovery goals should be set by local authorities to enable a demand-driven recovery that aligns with the needs and priorities of the affected communities.

At the same time that recovery goals and principles are formulated, **a post disaster recovery organisation should be established** to avoid the creation of ad hoc task forces in the event of a disaster that usually lead to losing valuable time to developing and learning new systems of working.

Based on the disaster scenarios, goals, and guiding principles, recovery issues should be identified and prioritized in order to **define necessary strategies and actions** to address them. The identified actions and strategies should at least be divided into pre- and post-disaster, with a potentially even finer separation into recovery preparation, early recovery, and long-term recovery. For all post-disaster actions and strategies identified, two questions should be answered to identify pre-disaster strategies and actions:

- Can this be accomplished before the disaster?
- What can be done before the disaster to facilitate the post-disaster strategy?

The PDRP process is not a one-off event, but needs to be **reviewed and updated regularly**. Therefore, the defined strategies and actions need to be **exercised** to expose gaps, overlaps, and potential conflicts as well as familiarising everybody with their responsibilities. In addition, recovery goals / principles – and with them issues, strategies, and actions – might change over time, e.g. due to changing stakeholder groups.

3.1.3. Formalising processes and systems to enable effective PDNA

This task *"aims to institutionalize and strengthen the plans, systems, and infrastructure by which rapid and effective post-disaster recovery assessments – inclusive of opportunities to Build Back Better – may be performed at the national or local level."* [8] Besides the already mentioned requirements of a PDNA for the development of a DRF, formalising the PDNA

processes also reduces the possibilities for data gaps, biases, and errors due to variances in data targets and collection methods by the diverse agencies and organisations involved in recovery efforts (cf. [8]).

3.1.4. Instituting or strengthening policies, laws, and programs

Instituting or strengthening policies, laws, and programs that promote, guide, and support Building Back Better has the aim to establish the necessary support for communities to achieve disaster risk reduction, climate change adaptation, and sustainable development in recovery. During this task *"stakeholders [should] investigate the need for programs that support recovery planning and operations, identify and assess availability, cost, and benefits of opportunities, and address gaps"* [8], which is strongly linked to the development of a DRF.

3.2. Building Back Better for Climate Change Adaptation

Building Back Better in the context of Climate Change Adaptation means that any recovery (planning) process, including PDNA, DRF, and PDRP, has to take climate change projections and scenarios into account in order to systematically incorporate adaptation measures in recovery actions. According to [9], this can result in a more cost effective implementation of adaptation measures, particularly for long-lived infrastructures, and prevent potentially irreversible effects recovery actions might have on future adaptation measures.

The IRP, the United Nations Development Programme (UNDP), and UNDRR in [9] give several suggestions on how to address CCA in the recovery phase. They suggest to conduct a detailed needs assessment at the start of the recovery phase with specific focus on recovery with adaptation options in order to prioritise needs under climate change scenarios. This Recovery Needs Assessment (RNA) can complement an initial needs assessment for emergency intervention conducted immediately after a disaster. In addition, *"governments should ensure that all regulations (e.g. building codes, public health regulations) are also climate-proofed [and] should ensure that all proposed recovery programs […] are climate-proofed in the design stage."* [9]

When designing adaptation measures – and especially when designing adaptation measures for cultural heritage – the incorporation of local and traditional knowledge via community participation is important, since this knowledge usually has been modified over time and can offers higher resilience and lower redundancy (cf. [9]). In addition, Charlesworth and Fien argue in [10] that *"[…] encouraging people to apply their knowledge and skills in recovery and reconstruction efforts will [strengthen the bonds of social capital,] the sense (and love) of place and community spirit needed to bear the trepidations and disappointments of waiting for the situation to be normalised."*

The IRP, UNDP, and UNDRR in [9] also discuss several barriers for successfully including Climate Change Adaptation into recovery efforts. For example, recovery efforts that are highly targeted at climate change impacts often do not address non-climate change challenges and usually require new approaches with a high level of innovation that is often costly and fundamentally challenging to cultural and political norms. In addition, the authors note that there often is not enough information dissemination about the recovery phase – as opposed to the emergency / relief phase – and, specifically, that the wider potential climate change /

environmental impacts of recovery efforts are not discussed enough. Lastly, one of the major barriers to climate change adaptation in recovery efforts is the insufficient availability of and access to climate change information at the local level. Affected communities, local and national authorities need micro-level information in order to make informed decisions for Building Back Better.

3.3. Building Back Better for Cultural Heritage

Building Back Better in the context of cultural heritage is especially complicated, because the underlying principles of Building Back Better often clash with the conservation of historic assets as well as the local cultural and social constructs.

Delay and Rahmayati argue in [11], based on surveys in post-tsunami Aceh, that *"Building back differently is not only potentially disorientating to communities looking to re-establish connections with familiar physical settings because things look, feel, and seem foreign, but also because many of the latent coping and recovery mechanisms that communities need to draw upon in such times are interrelated with the material world in which they existed."* And that *"in some cases, 'building back better' undermines the functionality, vitality, and cultural importance of local built environments and implicit social mechanisms that are important for both long-term social recovery and comprehensive community participation within relief and reconstruction efforts."* Delay and Rahmayati argue further that *"explicit external agendas in which relief and aid is contingent upon or targets social transformation can contribute towards further disorientation, and loss of involvement in key phases of recovery"*.

Therefore, recovery and reconstruction efforts for cultural heritage need to be even more mindful to involving local communities as well as local and traditional knowledge. To achieve this, culture needs to be mainstreamed into all phases the DRM cycle and be at the forefront of Building Back Better.

One way to achieve this is the Culture in city Reconstruction and recovery (CURE) framework, developed by UNESCO and the World Bank in [12].

3.3.1. The CURE Framework

UNESCO and the World Bank developed the CURE Framework to address issues of culture not being at the forefront of the recovery and reconstruction phases and the discrepancy with BBB when addressing cultural heritage. Specifically, they identify a disconnect between the reconstruction and recovery phase as well as between place-based and people-centred strategies in these phases.

While people-centred approaches focus on people, their needs, values, and social practices, *"place-based strategies reflect the need to build on local contexts and leverage local characteristics to empower local stakeholders by allowing decision-making processes that are more reflective of local realities and contextual conditions"* [12]. People-centred approaches are usually employed in post-crisis recovery, while placed-based approaches are used in reconstruction processes (cf. [12]). In addition, the authors identify – similar to Delay and Rahmayati in [11] – that *"there tends to be a tension between reconstruction and recovery that*

[is] driven by external actors instead of local communities, which draw on local knowledge and culture" [12].

To combine both approaches, UNESCO and the World Bank adapt the People, Place, and Policy (3P) approach developed by UNESCO in [13] to a culture driven framework for city recovery and reconstruction (see Figure 6).

Figure 6: CURE Framework, based on [12]

In the CURE framework culture functions as the main driver to integrate people-centred and place-based policies, which in turn are employed for socio-economic recovery and physical reconstruction, BBB principle already identified by Mannakkara and Wilkinson in [1] (see Section 3.1). The framework is intended to cover the whole city, not just historic areas, and follows three basic principles (cf. [12]):

- **People-centred approach as the heart of place-based strategies:** The cultural and creative industries, as well as intangible cultural heritage should be the centre of the reconstruction process to rehabilitate or rebuild infrastructure, housing, and facilities that are linked to people's culture and identities.
- **Place-based approach as the heart of people-centred strategies:** Prioritise the restoration and strengthening of societal organisational structures and traditions, traditional crafts, cultural and creative industries, and the safety of intangible cultural heritage.
- **Culture as the foundation to integrate place-based and people-centred strategies:** Ensures that community needs, priorities, aspirations, and traditions are central to the reconstruction and recovery processes.

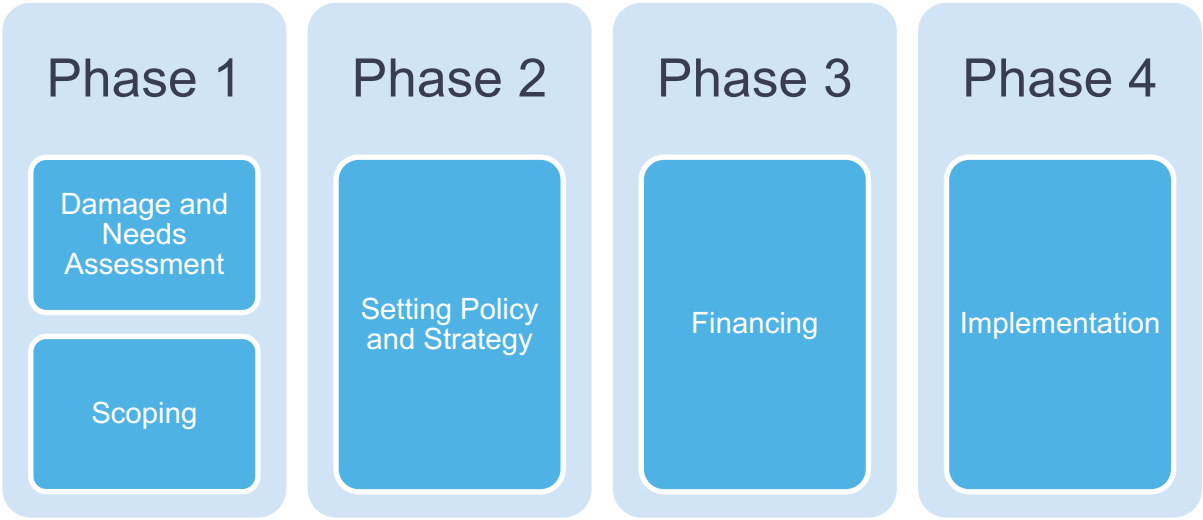

Figure 7: The phases of the CURE framework, based on [12]

To operationalise the CURE framework, UNESCO and the World Bank suggest a four-phase-approach, similar to the development of a Disaster Recovery Framework (cf. Section 3.1.1). Figure 7 visualises the four phases, which are not meant to be implemented in a sequential order, because they tend to overlap and are part of an iterative process that is highly dependent on the specific local conditions.

Phase 1: Damage and Needs Assessment

As in module 1 for the development of a Disaster Recovery Framework, this first phase links the damage and needs assessment to the recovery project cycle. Damages and impacts, i.e. physical damages and the value to restore or reconstruct historical assets, as well as economic losses, e.g. from interrupted use of cultural heritage, need to be assessed (for this and the following paragraphs cf. [12]).

Because cultural heritage is part of a larger urban fabric, these assessments should take the impact of the whole city into account.

This phase is dependent on the identification of historic and non-historic areas to enable targeted approaches for reconstruction and recovery. Such information can, for example, come from site management plans, which usually should include assessments of site values and the attributes that carry these values, as well as an inventory of all tangible heritage assets and details of their location and conditions. It is important to note that information about cultural heritage should not only come from official records. As Delay and Rahmayati observe in [11] *"what local inhabitants [think are] important components of the built environment [can fall] outside our more formalized understanding of heritage"*, because there exist "localised conceptions of culture and heritage".

This phase also requires the examination of intangible cultural heritage practices, cultural and creative industries, and cultural tourism assets. Specifically, the damage and needs assessment should look at five components: tangible cultural heritage, intangible cultural heritage, creative and cultural industries, cultural tourism, and historic housing stock and land resources.

Component 1.1: Tangible cultural heritage

For tangible cultural heritage on-site damage assessment, based on historic documentation and information about economic values associated with the loss of the assets function, have to be conducted by experts. These damage assessments are the basis to calculate replacement values, taking into consideration that historic assets have important non-use and non-market values.

Component 1.2: Intangible cultural heritage

Damage assessments for intangible cultural heritage require consultative processes based on local, community-centred historical knowledge where community members take the lead in identifying which assets have been affected to what extent.

Component 1.3: Creative and cultural industries

In addition to damages to tangible and intangible cultural heritage, damages to creative and cultural industries have to be assessed. These are establishments that provide or produce cultural goods or services, including schools of craft or informal training centres. These assessments must include which skills, knowledge, or know-how might have been lost and whether any established craftspeople were displaced. In addition, damage assessments for creative and cultural industries need to include institutional aspects, e.g. regulatory or licensing authorities for arts and culture.

To assess damages, UNESCO and the World Bank recommend to employ replacement cost methods to account for funds needed to rebuild structures or the industry. For this baseline data is necessary, including

- number, type, and size of commercial and manufacturing facilities, their specifications and machinery;
- annual production and equivalent monetary amount;
- destination of the manufactured goods; and
- local and domestic consumption and value of cultural product exports.

Component 1.4: Cultural tourism sector

Under this umbrella fall productive activities that cater mainly to visitors. Here, damage assessments must examine both the demand and supply-side to make sure that the rebuilding timeline for tourist accommodations correspond with the estimated number of tourists during recovery.

Component 1.5: Historic housing stock and land resources

Damage assessments for historical housing need to also consider the related land, because housing units in historic areas can be built on land with unclear property rights and might be occupied by people with uncertain or undocumented tenure (mainly an issue in developing countries).

Assessments for this types of historic asset require consultation of pre-disaster regulations and guidelines specific to the historic areas, land-use and architectural requirements, as well as national and local housing regulations.

Phase 1: Scoping

Once relief efforts are completed and the affected area has reached a more stable state, scoping can take place. This part of the first phase builds on the damage and loss estimates as well as the preliminary listing of reconstruction and recovery needs (cf. Sections 3.1.1 and 3.1.2).

Similar to module 2 of the DRF development, scoping requires to bring together all stakeholders in order to identify their needs and develop a common vision for reconstruction and recovery, based on a thorough data analysis to develop a broad picture.

The scoping phase consists of four components: data collection and analysis, asset mapping, stakeholder mapping, and vision development.

Component 1.6: Data collection and analysis

Data collection for scoping should be conducted both at micro (historic area) as well as macro scale (city-wide) and include baseline data on all sectors in order to understand a city's relationship within its country and region. UNESCO and the World Bank suggest to include pre-disaster information on *"cultural and natural heritage assets, economic data, social data, growth dynamics, market assessments, and obstacles to growth"* [12]. This pre-disaster data could then also be used to benchmark the achievement of the BBB principles.

Component 1.7: Asset mapping

This component deals with recording the available human, social, cultural, economic, and physical resources in the affected areas and requires community input to understand the value of assets and ensure a comprehensive approach.

Component 1.8: Stakeholder mapping

As stated previously, a key component for BBB – in particular for cultural heritage – is the identification and engagement of key communities and local organisations, including under-privileged groups that have not conventionally participated in the planning recovery process (cf. Section 3.1.2). UNESCO and the World bank suggest in [12] to map out the dynamics and relationships among stakeholder groups for better understanding.

Component 1.9: Vision development

The vision development is the main component of the scoping phase. Similar to the Pre-Disaster Recovery Planning described in Section 3.1.2, the goal of this component is to provide a shared idea of the future direction of the city that is owned by all stakeholders and is empirically grounded using all available data sources from pre- to post-disaster.

Phase 2: Setting Policy and Strategy

After needs and damages are assessed and a common vision is defined, operational actions that translate this information into an implementable plan need to be defined. This is the goal

of the second phase, similar to module 2 of the DRF development (cf. Section 3.1.1) and the first component of the PDRP planning cycle (cf. Section 3.1.2).

The policy and strategy phase of the CURE framework consists of three components: Designing a planning process, regulatory mechanisms, and civic engagement.

Component 2.1: Designing a planning process

The planning process for post-disaster reconstruction should be inclusive, transparent, and objective, allowing public, private, and community stakeholders to interact in the reconstruction development and implementation. UNESCO and the World Bank recommend to establish a central coordination entity to make sure that different sectoral reconstruction plans align with each other (cf. [12]).

Component 2.2: Regulatory mechanisms

The reconstruction phase after a disaster is an opportunity to revise existing planning regulations and ensure the development of building codes and regulations that will produce a more sustainable and resilient urban area. In order to support the uptake of new regulations and the implementation of new building codes, post-disaster approval processes should be streamlined (cf. Section 3.1.4).

GFDRR suggest in [14] that *"building codes should ensure resilience and compatibility with traditional construction practices and features. Proper building codes and technical guidelines can include the harmonisation of construction projects and materials of new structures compatible with the local cultural and natural heritage."* The Istanbul Seismic Risk Mitigation and Emergency Preparedness (ISMEP) project that implemented seismic retrofitting designs at multiple heritage structures is a good example of such an approach (cf. [14]).

Component 2.3: Civic engagement

As in the previous phases of the CURE framework, the involvement of affected communities in all activities of reconstruction and recovery is essential. Therefore, all *"planning [activities] must evaluate community dynamics, capacity, and post-disaster social capital to identify the way in which communities can be engaged in the reconstruction and recovery processes."* [12]

Phase 3: Financing

Before implementation can begin, funding needs to be secured, which is challenging in a post-disaster setting. According to UNESCO and the World Bank *"[t]he process usually starts with a large, upfront investment by the public sector to rehabilitate infrastructure and housing. The process then moves to leverage government investment and public assets to attract private sector investment."* [12] This is in line with module 4 of the DRF development (cf. 3.1.1) and consists of five components: Identifying funding resources, management of land resources, land value capture, land re-adjustment, and city-led financing tools.

Component 3.1: Identifying funding resources

The aim of this component is to identify a reliable pool of funds to start rebuilding. It is important to note that the reconstruction process differs from the regular budget cycles and procedures, i.e. it must be quicker and more flexible due to rapidly changing conditions.

Component 3.2: Management of land resources

This component is mainly targeted at cities in the developing world, where property ownership does not necessarily follow a clear-cut regime. The aim should be to employ local institutions and traditional dispute resolution mechanisms, as well as effective community participation to manage post-disaster urban land resources.

As UNESCO and the World Bank note *"[i]n cities with a large number of informal settlements, crises may provide an opportunity for the normalisation of land tenure."* [12]

Component 3.3: Land Value Capture

Land Values Capture is a set of different financing schemes that cities can use to leverage land assets in financing infrastructure (see [12] for details).

Component 3.4: Land re-adjustment

Land re-adjustment is a principle that allows landowners to pool their land in cooperation with the local government to undertake a redevelopment project, but *"should [only] be undertaken [in historic areas] in exceptional cases, where lands are of unusual shape or result from recent subdivisions. The priority should be given to the conservation of architectural and urban heritage and the traditional urban fabric."* [12]

Component 3.5: City-led financing tools

This component handles the use of incentives or regulations to create attractive real estate markets and encourage redevelopment in post-disaster situations where the private market is not yet strong enough to invest. For example, local authorities can transfer development rights, offer grants for specific purposes, or use tax-based incentives.

Phase 4: Implementation

Once damages and needs are known, a plan is made, and financing is secured, implementation can start. The aim of this phase is to bring together all previous elements of the reconstruction project cycle by setting up an institutional framework that ensures the sustainability of the process and divides the project into logical activities. This is in line with modules 5 and 6 of the DRF development (cf. Section 3.1.1) and component 2 and 3 of the PDRP cycle (cf. 3.1.2).

The implementation phase consists of three components: Institutional arrangements, risk management, and communication and engagement strategy.

Component 4.1: Institutional arrangements

The phase begins with setting up a reconstruction and recovery management structure with a long-term vision that should lead all efforts from emergency management to the recovery phase through to normal governance and stability. This structure can either be centralised, decentralised, or a hybrid between the two.

A centralised structure could locate the reconstruction and recovery management within the central government, which is the usual approach for disasters that surpass regional and state

boundaries. In decentralised reconstruction management systems policy-making at the local level is prioritised with some support and coordination provided by the national government. Finally, hybrid systems work across different levels of government, but remain under tight supervision from the central government.

UNESCO and the World Bank note that *"[u]nder certain circumstances, a development corporation can be formed to take on the reconstruction efforts, but only under the control of local governments. These development corporations must have strong technical capacities, notably in culture, heritage, and communication. They operate outside of restrictive civil service legal frameworks (especially for recruitment and procurement) and are semi-autonomous."* [12]

These corporations should have a clear mandate that establishes how the population and local government will keep control and should take *"social and cultural practices and values, economic processes and the intangible dimensions of heritage as related to diversity and identity [into account], when establishing the boundaries of the project area, to enable a sound urban design and reconstruction strategy."* [12]

Component 4.2: Risk management

The reconstruction after a disaster faces similar risks as any large-scale construction project. However, *"[i]n rebuilding after crisis, the stakes are even higher because of trauma and a lack of human and social capital."* [12] Therefore, implementation of recovery and reconstruction measure requires a sound risk management approach.

Component 4.3: Communication and engagement strategy

The implementation phase needs to be accompanied by a communication and engagement strategy. UNESCO and the World Bank in [12] identify five components of an effective communication and engagement strategy:

- Mapping existing initiatives on the ground including good practices to identify possible institutional and financial partners.
- Giving due consideration to the importance of public and civic spaces in the collective post-conflict healing process
- Advocating for increased collaboration between institutions, civil society organisations, cultural and artistic public policies, and youth-led initiatives.
- Taking into account post-disaster induced change in the composition of the inhabitants of historic urban areas and the emergence of new local communities.
- Mediating conflicting opinions on the value of heritage for different local communities amid political and identity tensions as reconstruction can also trigger conflict when one community / authority might claim their heritage and reject that of other communities.

Therefore, it is critical to ensure public participation that encourages collaboration between communities and reconstruction teams.

Another very important point is to choose the right medium for communication. Choosing the wrong medium might limit the communities that can be reached, because not all communication mediums are equally relevant for all community groups (cf. [5]).

3.4. Biases in Building Back Better

In the previous section we already discussed some of the potential problems that can occur when trying to apply BBB to cultural heritage. Another issue that is identified by Delay and Rahmayati in [11] considers (re)construction managed by Non-governmental organisations: If (re)construction is driven by NGOs and filtered through arrangements of construction companies and subcontractors, delays, confusion, and the construction of housing inappropriate within local cultural and social context can result. This might force displaced people to react to very different and unfamiliar spatial parameters, which are not sympathetic to pre-existing conditions. In addition, this can undermine important mechanisms for internally-driven social rehabilitation, as well as effective distribution of aid resources.

This reinforces the point made several times previously that community engagement is key for BBB. Delay and Rahmayati even argue in [11] to *"counter 'build back better' with 'reconnecting with the cultural past' as another lens for conceptualizing post-trauma relief and reconstruction projects."* And to define *"community recovery as re-establishing as best as possible the social trajectory and momentum that existed within a community prior to a disaster, to the point where communities can manage the longer-term effects of devastation and trauma within frameworks of stability and change defined internally."* They argue further that the *"success of recovery efforts [should be measured] as how well communities are able to continue as cohesive social and cultural entities in the aftermath of reconstruction."* UNESCO and the World Bank address some of these issues with the CURE framework in [12]. However, since the implementation of the CURE framework is contingent upon the specific local situation, the authors want to reiterate these potential biases at this point.

Other biases that BBB can be prone to come from its strong link to the recovery phase and include:

- People benefiting from recovery projects have a vested interested in the continuation of the project and might be less inclined to criticise the project or discuss problems (cf. [9]). It is especially important to be aware of this bias when gathering information and engaging affected communities (e.g. when letting people exchange experiences about the project).

- Recovery efforts to date still reflect traditional gender stereotypes, prioritizing the needs of men and excluding women from equitable assistance, placing them at even greater risk of future harm. In addition, women's skills and knowledge are still too often marginalized, limiting their opportunities to participate to a larger extend in Building Back Better (see [15]).[1]

[1] We refer to State-of-the-Art Report 5 for a more nuanced discussion of this issue.

- Building Back Better often focuses on physical improvements to construction characteristics (see Section 2), which can run counter to concerns of heritage practitioners about loss of authenticity and integrity when not considering traditional materials and knowledge/technologies for such improvements (see [16])

4. ARCH project issues and connections

As the previous sections have shown, there does not exist one definitive process for Building Back Better, but rather a set principles and methods to be applied over the whole DRM cycle that have to be tailored to local conditions and need to be conscious of the specific issues of CCA and cultural heritage. While CCA can be included in BBB relatively easy, BBB for cultural heritage is complicated and can run counter to heritage conservation as well as damage recovery and reconstruction effects, as discussed in Sections 3.3 and 3.4. Nonetheless, if done right BBB can significantly help to increase the resilience of tangible and intangible cultural heritage. To achieve this, culture needs to be put at the centre of the DRM cycle, as described in [12].

This leads to the first issue ARCH should examine: **Which aspects of the CURE framework can / should be included in the ARCH DRM framework, developed in WP7, and how?**

The majority of the discussed general publications about Building Back Better and associated frameworks / guidelines identify the improvement of structural designs, enforcement of revised building codes, and adaptation of land-use planning as important principles. As discussed in Section 3.3, this can be problematic in the context of cultural heritage – and thus in the context of ARCH. Changing the structural design or building codes of (tangible) cultural heritage can only be done to a very limited extent without running the risk of changing the cultural and social value. In addition, changes to cultural heritage might endanger its legal status, e.g. as World Cultural Heritage. Similarly, changes in land-use planning need to consider effects on tangible and intangible cultural heritage. Otherwise, risk-informed land-use planning might result in unforeseen effects, e.g. changes in traditional behaviour of communities or even migration of communities away from a heritage site.

This identifies the second issues ARCH should examine: **Which changes to building codes and structural design to historic assets can be done without risk of changing the cultural and social value, authenticity, and integrity (see also SotA report 1)? And can the effects on social / cultural value be measured reliably? The resilience options inventory, developed in WP6, should try to assess the effects certain resilience measures have on these aspects.**

In addition to the above mentioned principles, the involvement and participation of local communities and the use of local / traditional knowledge was emphasised. As shown by UNESCO and the World Bank in [12], cultural heritage can play a key role in this regard, as it reflects cultural, historical, and social values. The information contained within cultural heritage (be it build materials / architecture or traditional community knowledge) can play an important role when designing recovery plans and measures. At the same time, the strong cultural and social values of cultural heritage for a multitude of communities can require more extensive consultation processes.

This has implications for multiple work packages:

- The co-creation process, conducted in WP3, should try to engage a larger set of stakeholders from the pilot cities than just the project partners. This was already anticipated by including specific local co-creation activities for every city, aimed at employing the

developed method and tools to solve local problems while engaging with local stakeholders.

- Since intangible cultural heritage and cultural / social constructs are an immeasurable asset for DRM and BBB in the context of cultural heritage, **ARCH should examine if and how these intangible assets can be included in the information management systems of WP4.**

- In addition, it would be worthwhile to **examine in WP5 if and how the effects of disasters on intangible cultural assets and cultural / social constructs can be assessed.**

- **The resilience options inventory, developed in WP6, should aim to include resilience options based on local practices, knowledge, and know-how**. In part, this will be addressed via task 7.2 (Review, map, and characterise experiences and good practices). However, **ARCH should additionally examine how to enable the inclusion of further local knowledge into the resilience options inventory**.

Lastly, when adapting the UNDRR Disaster Resilience Scorecard for Cities for the ARCH resilience assessment framework in WP7, **it should be examined how more focus can be put on cultural heritage appropriate BBB issues at appropriate position(s), including more specific assessment questions regarding PDRP, DRF, and relevant points from the CURE framework.**

5. Conclusions

This report discussed the concept of Building Back Better (BBB), with a specific focus on BBB in the context of cultural heritage and climate change adaptation (CCA). After introducing the most important definitions of Building Back Better, Pre-Disaster Recovery Planning, and Disaster Recovery Framework, a general BBB Framework and how to incorporate it into the DRM cycle was discussed. Afterwards, specific issues in BBB for CCA and cultural heritage were discussed. As has become clear, there does not exist one definitive process for Building Back Better, but rather a set principles and methods to be applied over the whole DRM cycle that have to be tailored to local conditions.

When applying BBB to cultural heritage, numerous issues have to be addressed, from relatively obvious regulatory issues like limited possibilities to change building codes or structural composition of historic assets to complex issues regarding the effects of disasters and recovery / reconstruction efforts on intangible heritage and social / cultural constructs. The CURE framework was presented as a first step in bringing culture to the forefront of recovery and reconstruction (and thus BBB).

For BBB in the context of cultural heritage to be successful, culture has to be mainstreamed into the DRM cycle, the involvement and participation of local communities and potentially affected population groups has to be strengthened, and local / traditional knowledge has to be included when designing recovery and reconstruction efforts.

To address the identified issues, the report made several suggestions on how to address recovery / reconstruction and BBB issues over the different work package of ARCH and suggested to include stringer references to the CURE framework.

6. References

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7. Annex

7.1. Glossary of specialist terms

Term	Explanation	Source
Building Back Better	This concept refers to the use of the post-disaster recovery and rehabilitation phases to build the resilience of nations and communities, through the integration of disaster risk reduction measures in the restoration of physical infrastructure and social systems and in the revitalization of livelihoods, economies and the environment. This process should take into consideration new risk zones and the population's recent experiences in responding to the impacts of natural hazards.	Adapted from [3]
Pre-Disaster Recovery Planning	Any planned attempt to strengthen disaster recovery plans, initiatives, and outcomes – before a disaster occurs. […] PDRP consists of a series of decisions and actions to be taken both before and after a disaster, in order to • Identify and establish shared recovery goals, objectives, and strategies – to guide post disaster decision-making, ensure that relief and recovery activities align with long-term development goals, address actual needs, and enhance resilience to future disasters. • Develop and have ready the capacity to plan, initiate, and manage – an efficient, adaptive, and well-coordinated recovery effort that progresses towards the recovery goals.	[5]
Disaster Recovery Framework	This framework would guide governments and other implementing stakeholders in the middle and longer term recovery efforts. The framework would help in articulating a vision for recovery; defining a strategy; prioritizing actions; fine-tuning planning; and providing guidance on financing, implementing, and monitoring the recovery. Through developing a country-level disaster recovery framework, a government will be better positioned to drive a process that unites all development partners' efforts. Additionally, by developing a framework to manage recovery, a government may be able to better address longer term disaster vulnerability through coherent programs that bridge the current gap between recovery and development.	[6]

7.2. Key resources

UNDRR, “Building Back Better in recovery, rehabilitation and reconstruction,” 2017. [Online]. Available: https://www.unisdr.org/files/53213_bbb.pdf.

- A general guide on how to include BBB in the DRM cycle

IRP and UNDRR, “Guidance Note on Recovery: Pre-disaster recovery planning,” 2012. [Online]. Available: https://www.unisdr.org/files/31963_predisasterrecoveryweb.pdf.

- A general guide on Pre-Disaster Recovery Planning

ParlAmericas and UNDRR, “Parliamentary protocol for disaster risk reduction and climate change adaptation: Aligned with the Sendai Framework for Disaster Risk Reduction 2015-2030,” 2019. [Online]. Available: https://parlamericas.org/uploads/documents/ENG_Protocolo_DRR_Online_Version.pdf.

- A general guide on how to address climate change adaptation in recovery and reconstruction efforts

UNESCO; The World Bank, “Culture in city reconstruction and recovery,” 2018. [Online]. Available: https://www.preventionweb.net/files/61959_131856wprevisediipublic.pdf.

- The description of the CURE framework, i.e. how to mainstream culture in recovery and reconstruction efforts

P. Delay and Y. Rahmayati, “Cultural Heritage and Community Recovery in Post-Tsunami Aceh,” in From the ground up: Perspectives on post-tsunami and post-conflict Aceh, P. Daly, R. M. Feener and A. J. S. Reid, Eds., Institute of Southeast Asian Studies, 2012, pp. 57,78.

- A critical discussion of BBB principles and recovery efforts, based on surveys in post-tsunami Aceh, including extensive discussion on how to include culture in recovery efforts