Children and Young People’s Participation in Disaster Risk Reduction

Rodriguez-Giralt, Israel, Mort, Maggie

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Participatory tools for disaster risk management with children and young people

Jussara Rowland, Miriam Arenas, Flaminia Cordani, Anna Grisi, Magda Nikolarai, Maria Papazafiri, Alison Lloyd Williams, Aya Goto and Amanda Bingley

Introduction

This chapter explores the tools and methods used to include children’s voices in disaster risk management (DRM) that we found to be effective during the different stages of the CUIDAR project. Examples include creative and artistic methods such as drawing, participatory mapping, photovoice, active thinking and planning, storytelling, and video and performance art. In working with these tools, our aim was to inform and foster communication and informal learning, and give more value to the local and grounded knowledges of children and young people, their families and communities, suggesting practical ways of promoting intergenerational learning. Policy-makers and practitioners can use these tools, methods and examples for inspiration, and to promote more child-centred disaster management and civil protection in Europe and beyond.

Specific tools were found to be useful to involve children and young people in the different towns, cities and countries where we worked. These were adapted locally to foster participants’ interest and capacity through the iterations of our participatory project design: ‘to discover and ask questions’, ‘to investigate and take action’ and ‘to share ideas and advocate’, as detailed in Chapters 2 and 3. First, we describe some of these tools and resources used in the Dialogues with Children, illustrating their specificity and use. Then we address questions related to the ethics of using participatory approaches, and reflect on our experience when working with children and young people in this particular domain.
Child-friendly tools and resources

If the aim is to promote more inclusive DRM, what methods are best suited to allow children to influence the direction of a project or a discussion? Since the 1990s, interest in working with children and young people in participatory action projects has led to the development and use of what are often described as ‘child-friendly’ methods. These include a variety of activities, dynamics and technologies that respect and accommodate children and young people’s agency and capabilities, and their diverse ways of engaging and participating (Coyne and Carter, 2018). Such approaches can put children’s perspectives at the centre of a project and then empower them to enter into the adultist framing of disaster management as experts in their own right, drawing from their own realities.

It is not because children lack competence to deal with ‘standard methods’ (Groundwater-Smith et al, 2014) or because child-friendly methods are a form of expression closer to ‘children’s issues’ (Varvantakis et al, 2019) that these are advocated. These approaches are useful because methods should adjust to their publics, and children, just like adults, have specific needs and interests to be taken into account. This applies not only for projects involving children and young people, but also for any participatory project.

Creative tools and resources are not in themselves participatory. They become participatory when included in methodologies that consider children as experts in their own lives and create the opportunity for them to engage as active participants and researchers (Coyne and Carter, 2018). Child-friendly methods and participatory tools can be used to work to produce change and allow children to be co-creators of meaning and knowledge, but they also have to be flexible enough to include children’s diverse views and capabilities. When working with children it is important to allow for creativity, remix and mess (Stirling and Yamada-Rice, 2015), and to give space for co-creation, points we explore below when discussing ethical issues around participation. Participatory tools should, in fact, allow children to take greater control of the process, promote dialogue and create space for their preferences and choices. As we have stressed in previous chapters, children are not a homogenous group. They have different characteristics that vary within context and settings. Not all children engage with these tools in the same way or have the same access to resources and technologies. In this sense, it is relevant to focus on the experience and understandings particular children bring to the project to overcome possible differences in ‘participatory capital’ related to
poverty, class, disability and power relations (Groundwater-Smith et al, 2014; Mitchell and Borchard, 2014).

Creative and innovative methods, with interactive and visual components, can be fun and engaging and can help to maintain participants’ enjoyment, while at the same time facilitating their expression and ability to communicate in non-verbal languages (Punch, 2002). They can help sustain interest over time, but they also allow children to engage in inventive and imaginative processes, and to become producers of visual and creative artefacts that help them express what is meaningful to them: ‘The aim is to facilitate reflection, debate, argument, dissent and consensus, to stimulate the articulation of multiple voices and positions, and, through the process, to lay the foundations for empowerment’ (Veale, 2005: 254).

Addressing participatory action research in the field of children and disasters, Tanner and Seballos (2012) stress the importance of an engagement model underpinned by five principles: relevance, creativity, participation, flexibility and sustainability. Relevance here means that projects and initiatives should be meaningful to participants and are informed by their cultural norms and age range. Creativity implies resources should generate a lively and fun environment to keep children motivated, but at the same time be comfortable. Participation involves children being able to shape and change the process and the outputs of the project based on their needs and insights. Flexibility is important to ensure methods respond to children’s needs and interests and support their learning and reflections. And finally, sustainability matters because participatory projects should be backed by an ‘enabling environment that supports the participants’ ability to put new knowledge and improved strategies into action’ (Tanner and Seballos, 2012: 69).

To achieve this goal the CUIDAR teams adjusted the proposed guidelines, adapted available tools and developed new ones, taking into account children’s specificities and context, but also their needs and interests. As we have seen in Chapters 2 and 3, the children were not passive in this process: throughout the three stages of the Dialogues (discover and ask questions; investigate and take action; share ideas and advocate) and the Mutual Learning Exercises (MLEs), the children engaged proactively in choosing and shaping the tools used to think, reflect, engage and communicate with their peers and relevant stakeholders. Drawing, 3D models, assessment tools, ranking exercises, photography, community mapping, public performances and digital platforms, among others, were essential methods in this process.

Our experience of the Dialogues and MLEs allowed us to verify these approaches were effective strategies to engage people and
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foster community-building and sense-making of DRM. As seen in Chapter 1, traditional risk preparedness actions tend to be mostly instructional, designed and implemented by experts and professionals and based on technical language which is difficult to adapt to plain language and engaging methods.

The creative and participatory methods used during the Dialogues and MLEs facilitated the collection, sharing and communication between the children and adults. The opportunity for asking, thinking, remembering and sharing knowledge meant that new and old stories about the past and present in the community emerged, opportunities for intergenerational dialogue opened up, and new possible futures based on ‘lessons learned’ from the past were created. They also allowed the children to develop understandings about the subject, reflect on their knowledge, share their stories and reach their audience. Assessment activities, for example, allowed them to make sense of their prior knowledge and define their priorities. Community maps helped them figure out the magnitude of things and strengthen their knowledge about their local contexts. Art performances were central to explore and express experience and convey ideas. All these activities helped the children to make sense of their role in DRM and allowed adults to see the environment through the children’s eyes, and appreciate their concerns about their families, friends and communities.

Below we explore a range of tools and resources used during the CUIDAR project. For reasons of systematisation, they are organised by different methods, based on their characteristics and aims. We address their specificities and give visibility to the different ways these have been used by researchers and practitioners around the world to work for and with children in disaster and risk-related projects. We exemplify them with case studies from CUIDAR, to offer insights about how these tools can be used and adapted in practice. These examples describe not only what worked with the children, but also what they preferred and chose to work with. The case studies illustrate the process through which the children produced meaning on the subject of their participation in DRM, and highlight the forms of representation, communication and engagement they used to achieve that goal.

**Art-based methods: drawings, storyboards and 3D models**

These methods use the tenets of the creative arts to promote children’s engagement in participatory projects. These involve the creation of artefacts like drawings, storyboards, 3D models and collages to co-construct knowledge and communicate ideas. They are accessible
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to the general public and can be emotionally and politically evocative for different purposes and in different contexts (Chilton and Leavy, 2014). Drawing, in particular, has been widely used in projects involving children and young people and is useful because: it is familiar to children; it is accessible in cases of low levels of literacy; and it can be undertaken autonomously without the help of adults (Mitchell, 2006). In this sense, it allows children to express themselves through a mode of communication that they usually find agreeable and fun (Mitchell, 2006; Elden, 2013). Because it is familiar and adaptable, drawing can be incorporated into different methods and for different purposes, in all phases of a project. It is frequently used in child-led participatory initiatives since it can help to stimulate creative thinking about what participants want to achieve and how to achieve it (Molina et al, 2009). Drawing has been used in numerous projects to assist children to articulate their perceptions and knowledge about risk and disaster (Rowland et al, 2017; Ribeiro and Silva, 2019).

Storyboards and comics are another useful resource in this domain. Like single drawings, they are accessible to children with different literacy levels, but by incorporating creative storytelling, they also allow children to include themselves (or others) in a specific narrative to better illustrate their stories and show their perspectives. They were used, for example, by children from Hull (UK) to represent their ‘flood journey’ and the disruptions the devastating floods in 2007 brought to their lives (Walker et al, 2012; Whittle et al, 2012). Likewise, 3D models, made with sand, clay or found materials, can be used by children and young people to illustrate their stories and articulate their experiences and opinions, but also to share their ideas with wider audiences (Bingley and Milligan, 2007; Mort et al, 2018b).

For CUIDAR, drawing and 3D modelling were used together to enable the children, especially the younger ones, to express themselves. Drawing was used to articulate ideas about disaster, to illustrate their communities and environments, to depict their thoughts and reflections on the subject and to communicate messages to adults during the different phases of the project. 3D modelling was found particularly relevant in the case of Dialogues in Greece, which involved children with vision disabilities (Nikolaraiizi et al, under review).

Spain: drawing as a tool to help younger children to articulate their ideas

This was the primary strategy used with the younger group of children (aged 9–10) to facilitate the communication and articulation of their ideas about
complex topics during the Dialogues. First it was used to explore their ideas about hazard, risk and disaster. But the strategy was later included in other activities with this group: to help them focus and relax after discussions; to make a group decision; and to offer individual tasks to those who did not like or felt less competent to speak up, or to help the non-verbal expression of ideas and feelings. This group also made a comic to analyse the different phases of their chosen topic (for example, before, during and after wildfires), to help them identify the actors involved in each step and think about ways to improve how wildfires are dealt with (see Figure 5.1). Drawings were also the main strategy to share their ideas with the experts at the beginning of their MLE. The children also used drawings to summarise their conclusions that same day.

Figure 5.1: Drawing showing the actors involved during a wildfire (Rafael, 9 years old, Barcelona, Spain)

Portugal: illustrating risk-reducing measures through drawings and storyboards
Children in Albufeira devised a set of risk reduction measures that could be implemented before, during and after floods in three different contexts: at home, at school and in the city. When deciding how to communicate these ideas, drawing was their first choice. Each child illustrated a chosen risk reduction measure and then presented it in a poster format at the MLE. This specific group of children had some linguistic barriers: some spoke little Portuguese, while others had specific learning disabilities, and drawing helped them express their views and overcome those barriers. A group of young people in Lisbon also relied on drawings to share their messages, opting to illustrate the prevention measures they devised through a comic storyboard. The storyboard showed a girl watching
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TV news about the heat wave and then buying water at the supermarket, taking a cold shower, and telling a friend to avoid sugary drinks. In doing so, they not only shared their message with their audiences; they also drew people like them (teenagers) as active protagonists of the story (see Figure 5.2).

Figure 5.2: Comic storyboard about heat waves (teenagers from Lisbon, Portugal)
Greece: using 3D models and tactile materials with children with vision disabilities

3D modelling facilitated discussion about disasters with specific disabilities so that the Dialogues were accessible to them. For example, regarding the sensory needs of children with vision impairments and multiple disabilities, facilitators used games with sounds of different hazards and 3D models that children could touch and explore (for example, a volcano model), tactile and enlarged materials or texts in Braille (see Figure 5.3). The definition of the main concepts around the topic was done by choosing from words pre-selected by the facilitators. After a discussion in-group, the children gradually selected the words connected to

Figure 5.3: Models and tactile materials from Dialogues with visually impaired children, Greece
their definition of disasters, and also identified others to build a vocabulary bank. Through the discussions, it became apparent that their knowledge about disasters was mainly influenced by TV news or film, but also by educational programmes implemented in Greek schools on earthquakes. Some children interpreted the notion of disaster as something local, such as family or work environment, whereas others linked the notion of disaster to a broader context, more open and abstract, such as a country or a continent (Nikolarazi et al, under review).

Assessment methods: critical thinking, planning and risk ranking exercises

These refer to tools that help participants collect, reflect on and organise information about an issue or event. This can include many types of activities and dynamics, often with a visual and/or interactive component. What makes these activities different from others is that they allow children to work on their existing knowledge and organise their ideas and information in a structured way.

One specific type of assessment tool is risk ranking. This involves activities that allow participants to identify and prioritise issues and chronological timelines (Molina et al, 2009). It prompts participants to move their thinking from general knowledge of disasters to a more locally oriented discussion. It involves examining the disasters that could happen in their community, ranking them in terms of impact, and reflecting on the impact such events could have on them (Molina et al, 2009). Ranking exercises have been used to produce historical calendars, risk diagrams and timelines. As such they can help promote better historical understanding of the most relevant events in the community’s experience and reconstruct the past to better understand the present in relation to disaster risk.

Other tools that help construct, organise and visualise meaning that have been used in participatory projects with children and young people are diagrams (Punch, 2002; Selby and Kagawa, 2012), problem trees (Selby and Kagawa, 2012) or games (Molina et al, 2009; Yamori, 2010). Diagrams are mostly used to collect, organise and compare information. They can be used, for example, to explore children’s mobility and physical movement within and outside their community (Punch, 2002), or to deepen children’s ideas about stakeholders by representing them on a map, using smaller and larger circles (Molina et al, 2009).

Such resources were used throughout the CUIDAR project. These were useful to help the children research and organise
information and make sense of their prior knowledge about disasters and their communities during the CUIDAR Dialogues. The tools were also essential to help the children identify problems, devise solutions, identify target audiences and communicate their ideas in a structured way.

Spain: helping the children to decide
All groups in Spain had a session in the Dialogues devoted to building a collective chronological timeline of past disasters in their local context. The younger children asked their families and/or neighbours about this and then shared what they found out with the group. Older participants in Sant Celoni explored a selection of news about past events. In some cases, a local expert was invited to the session, to help them build that collective timeline bringing back memories (an activist in Barcelona and a local police officer in Sant Celoni). The goal was to decide which risk they wanted to prioritise, based on the information they had in the timeline. This exercise became more difficult with the Gandesa group, which made great efforts to collect data from their families. For them, this became very emotional, and it was hard to decide among the three main risks or disasters they had identified in their research: the Civil War, wildfires and a nuclear accident. To help them prioritise and have a discussion, we built a tool where they could think about crucial questions related to these events (see Figure 5.4): What were the causes? Might this happen in the future in Gandesa?

Figure 5.4: Using a matrix to organise knowledge in Gandesa, Spain

<table>
<thead>
<tr>
<th>What are the causes?</th>
<th>Is it likely to happen in Gandesa in the future/ Has it happened before?</th>
<th>What are/ were the damages in Gandesa?</th>
<th>In case it happens, who would intervene?</th>
<th>Any ideas on how it could be prevented?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Civil war</td>
<td>Human politics</td>
<td>Not likely/It did happen</td>
<td>Casualties</td>
<td>Police</td>
</tr>
<tr>
<td>Wildfires</td>
<td>Human cause or natural cause</td>
<td>There was a wildfire/it’s likely</td>
<td>Burning growing areas</td>
<td>Firefighters</td>
</tr>
<tr>
<td>Nuclear accidents</td>
<td>Human cause</td>
<td>It never happened/It’s likely</td>
<td>Air pollution/destruction of Gandesa</td>
<td>Scientists, firefighters, etc</td>
</tr>
</tbody>
</table>

Note: This is our own translation of the original document provided by the children.
Did this happen in the past? If it happens, who would be the main actors? Do you have any idea about ways of preventing it?

In the end they chose wildfires, based on the idea that it had not only happened in the past, but it was also quite likely to happen again in the future. Moreover, they felt more confident they could provide improvement measures in this case.

**Portugal: risk assessment with a ‘disaster wheel’**

In Albufeira and Loures, teenagers used a ‘disaster wheel’ to understand risks associated with climate change. Using the tool, the groups rated eight disasters on a colour scale, according to their effects on four areas: impact in terms of mortality or injury, disruption of access to goods and services, damage to infrastructure, and impact on mobility. This allowed them to explore and reframe their own understandings of disaster impacts and discuss different kinds of risks. The teenagers then focused on the risk that climate change poses to their own city, adding this information to the centre of the wheel. This exercise, together with the information they gathered about historical weather-related disasters in their city, was essential for the following Dialogues sessions where both groups ended up selecting floods as the main risk to address (see Figure 5.5).

**Figure 5.5: Working with the ‘disaster wheel’ in Albufeira, Portugal**
Italy: a ‘chronology of disasters’

The young people in Italy worked with historical calendars or disaster timelines. This was an opportunity to explore local changes in past and recent years, to focus on social, economic, environmental and industrial aspects, and to visualise different events, experiences and conditions. Taking this activity home, some children asked parents, relatives and friends about their perceptions of risk and how they prioritised these. They asked questions about disasters that had occurred within the community in the past and they carried out their own internet research. From the groups’ experience, it emerged that the children and young people prioritised risks related to disasters they had experienced in the recent past or that they felt were more likely to happen. The effectiveness of this activity was amplified when representatives from the community, and especially older people, took part in the Dialogues to exchange their knowledge with children; many groups discovered events that had happened in their community which they had never heard of.

As an example, a group in Crotone discovered how the city infrastructure had been redesigned after a major flood in the 1960s (see Figure 5.6). Because of this, some neighbourhoods had disappeared, while others were built to host the displaced population, and many of the young people found that they were

Figure 5.6: Young people in Crotone, Italy, mapping their town and its potential hazards
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living in 'new' neighbourhoods. As a result, they put together all the information they had found to create an infographic about the frequency and impact of the emergencies. They shared this with their peers at school, their families and their community throughout different local and national events.

Photo-based methods: photography and photovoice

Photo-based methods use and integrate images and include photography and photovoice, both of which are powerful tools for working in participatory projects with children and young people. Photovoice involves taking photographs of a specific location or a specific theme (Mitchell et al, 2017), which has a particular meaning for the participants. Photovoice has been used mostly to give voice to marginalised populations (Wang, 1999) and to engage participants in discussions about changes their communities need (Mitchell et al, 2017). It is often used to assess community risks and vulnerabilities and to allow local populations to visually record their perspectives and concerns. These methodologies were used, for example, in a multi-sited research project that involved young people in disaster-affected communities in Canada and the US (Peek et al, 2016). In Slave Lake, Canada, wildfires had affected almost one-third of the town’s buildings and homes, and teenagers took photographs of their communities and used these as the basis for personal montages and for story creation focusing on the disaster and its enduring consequences (Fletcher et al, 2016).

In the CUIDAR Dialogues, photographs were mostly used during ‘transect’ walks (see below). These allow children to take pictures of relevant aspects of their location and community and identify vulnerable places. They were also used in the pledges young people made to the adults during the MLE and National Policy Debates, as a visual recording of their findings and ideas. This was the case, for example, in Loures, Portugal, where young people took pictures of their school to raise questions with relevant stakeholders during the MLE.

Portugal: using photographs to show school vulnerabilities

Teenagers in Loures decided to focus on the poor conditions of their school infrastructure, especially in terms of climate change-related risk, such as cold snaps, storms and floods. To share their ideas and illustrate their message, they
used photography and video. Using their mobile phones, they took photographs of the vulnerabilities they noticed around the school, and interviewed other students and staff about the harsh conditions they faced during heavy rain, storms or cold waves. With this material, they produced a PowerPoint presentation of their ideas and demands, later shown at the MLE to school stakeholders and local authorities (see Figure 5.7). The images showed gutters blocked with litter, holes in the path leading to the school entrance, the inadequate build of the

Figure 5.7: The presentation made at the Loures MLE, Portugal, including photographs of the school’s poor conditions and interview video clips with members of the school community
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playing field (that flooded in heavy rain), deficiencies in how school premises were maintained, and lack of heating in the classrooms. This gave rise to a debate among adult participants about responsibilities regarding conditions at school.

Spatial methods: transect walks and community mapping

Transect walks and community mapping have a long tradition in participatory and disaster risk reduction (DRR) research, especially with children and young people (Amsden and VanWynsberghe, 2005; Gaillard and Pangilinan, 2010; Mitchell et al, 2008; Molina et al, 2009). Transect walks are a participatory exercise where members of a community walk a path to observe and discuss different aspects of their surroundings. Community mapping is a visual and relational data-gathering technique that allows the collection and organisation of information, not only geographical information (Amsden and VanWynsberghe, 2005).

Transect walks and community mapping can be combined and are useful when working with children because they enable them to take the lead in research, allowing them to guide the exploration of their own environment. These techniques also allow the perceptions children have of their space and associated emotions and responses to be collected (Groundwater-Smith et al, 2014). In the project ‘Meaningful Maps’, for example, researchers worked with the children to explore their ideas about their locality through maps. The aim was to find out what places matter to them, what places they value and their ideas about their environment. As can be seen in the CUIDAR international film, for children, maps became a valuable way to communicate with others and to express ideas about the world. In DRR this tool is used mostly to enhance children’s awareness of the relation between the environment and existing risks, and then to plan measures to prevent or reduce the identified risks. Typically, during this activity participants portray their community or neighbourhood from their own perspective and in their preferred manner, identifying important locations and landmarks, human and material resources but also the hazards, vulnerabilities and local capacities available.

During the CUIDAR Dialogues, some groups made community maps of their towns or neighbourhoods. In some cases, participants walked around their community or to a specific place to discover more details and complete the map. During the walk, the children took cameras, paper, pencils and stickers with them to note their observations,
and what they wanted to add to the community map. In some cases, photographs were laminated and then used to create the map. This activity helped children prioritise the risks and topics they wanted to explore further during the following sessions. The maps were revisited several times throughout the Dialogues, adding new details discovered during the sessions and from subsequent meetings with experts.

**UK: a three-stage community mapping exercise**

In Glasgow, Scotland, a community mapping exercise followed a three-step process, exploring: the meaning of risks in the community, what risks could look like, and which risks may apply to the community the children live in and which were less likely to occur. Those risks were represented as pictures, and the children were able to choose and discuss them and explore whether they might apply to their local area. In a second session, the children were given cameras and asked to find things that were risky and things that provided protection or safety, walking around the local community taking pictures. The children’s perspectives revealed risks and safe spaces that the adults were not necessarily aware of. On the other hand, the children discovered signs and places in the local community that didn’t yet make sense to them, and the walk enabled a sharing of knowledge. The locality is a long-standing migrant area of Glasgow with a mix of different cultural spaces, so, while the teacher knew about the locations of mosques and the role they play in their community, the children pointed out where their own community safe spaces were and where important members of their community lived, and they could talk about which places they, as children, would or wouldn’t go.

In a follow-up session of the Dialogues, print-outs of the photographs and memories of the walk helped the construction of a large community map on flip charts. This allowed the children to make sense of what they had seen and to decide what they would include in their community map. It also gave them map-making skills, transferring an immersive experience into a 2D sketch. Based on the photographs and the map, the children talked about the different risks they’d identified and then focused on three major risks (derelict buildings, fire in multiple occupancy dwellings and illegal deposit of waste). After exploring the level of risk and its impact, the children unanimously decided to focus their attention on house fires in multiple occupancy dwellings.

**Spain: creative maps**

Groups from Barcelona, Gandesa and Sant Celoni created their own neighbourhood or city maps during the Dialogues (see Figure 5.8). The aim
was to grasp the children's perceptions, knowledge and worries about the risks they had identified in the places in which they lived. To create the maps, in each location, the children worked in groups of four, each one with a different assignment. The first drew their neighbourhoods on large sheets of paper, taking into account housing areas, public spaces, forest areas, crop areas, industrial zones, roads, rivers, etc. The second group's task was to think about the locations exposed to the chosen hazard and the possible causes. They also chose icons to represent each of those causes, and drew them on white stickers. The third group had to think about and represent areas with increased vulnerability, locations where the hazard could generate severe damage – local vulnerability can be exacerbated by concentration of certain social groups (younger children, older people), other added hazards (petrol stations, excess traffic), and animals and objects of high value such as museums. Finally, the fourth group focused on the types of equipment and resources in the area that could be activated to respond to an emergency. This could include services (the police, fire service, ambulance service, civil protection, forestry agents, Red Cross), facilities (open air swimming pools, radio, television, health centres), safe meeting centres (for example, sports centres), as well as individuals with knowledge and resources (agricultural workers, volunteers, neighbours). All groups then shared the work done and agreed on where they should situate each of the stickers on the map, and why, adding anything else that might be relevant. This general methodology was adapted for each group, depending on their age and available time. In all cases, the map provided the children and young people’s perspectives about: how the hazard was distributed in their village or neighbourhood; which areas were most at risk and why; and the location of the communities’ assets and

Figure 5.8: Sant Celoni group (Spain) building their map
capacities for reducing risks. In each session, a ‘local expert’ (civil protection officer, teacher, ambulance technician or local historian) helped the children and young people, in case they were uncertain or needed to alter the maps. The experts were, however, impressed by the accuracy of the maps, and the children themselves were surprised at how much they knew about their environment once they started to analyse it.

Performance-based methods: music, drama, theatre

Many projects that engage children and young children in DRR draw on performance-based methods, such as music, song, dance and drama (Gibbs et al, 2013; Mulyasari et al, 2015; Mort et al, 2016). These methods are based on the recognition that art-based work can develop practical and embodied knowledge, and that through this process new ideas and theories can be created (Gibbs et al, 2013). Performance practices privilege such things as play, intuition, serendipity and imagination to make sense of reality (Kara, 2015). This sense of creative play makes performance arts an accessible way to engage young participants in articulating their understanding of the world and exploring how they might want that world changed (Gibbs et al, 2013). In particular, they can help children to see themselves as ‘actors’, developing their confidence to explore and express experience (Lloyd Williams et al, 2017).

Performance-based methods have been used in the field of DRR as a way for children and young people to make sense of events, as well as share and present insights to others (Gibbs et al, 2013; Lloyd Williams et al, 2017; Goto et al, 2019). In fact, performances can play an important role in dissemination, creating a platform for participants to communicate their ideas and messages to a wider audience (Kara, 2015). In Alberta, Canada, for example, the project Youth Voices Rising (YVR) (Resilience By Design et al, 2018) used several art-based methods to engage with young people affected by wildfires and to understand and amplify their ideas for improving their community. One of the activities in particular, the creation of original songs to be used in youth-centric social media, worked as an empowering tool that allowed them to express and share their ideas, and was also reported to have helped improve their wellbeing after the disaster (Plush and Cox, 2019).

Drama presentations and performance events such as flash mobs formed a strong part of the CUIDAR methodology and were often
preferred by children and young people to convey their ideas and make sure their messages reached adult stakeholders and their families. Theatre activities were also central to the creative workshops CUIDAR researchers held in Fukushima, Japan, with children and communities still recovering from the 2011 triple disaster.

**Italy: spreading awareness through role-playing and public performance with flash mobs**

In Crotone, young participants promoted a number of activities, one of which was a ‘flash mob’ they performed to sensitise the local community and their peers about flooding (see Figure 5.9). This youth group decided to focus on floods and the importance of school safety during floods. Their city is often affected by floods that cause school closures and damage to the school buildings. The youth group took dance classes for over a month to prepare the show they then performed in one of the main city squares: they danced with coloured umbrellas to the song, ‘It’s Raining Men’. As a final product to show and discuss during the MLE, they produced a video clip about the flash mob they performed, in order to sensitise the local community and their peers about flood risk. They also produced a leaflet that was handed out during the flash mob, to make their messages clear to the public.

Figure 5.9: Flash mob in Crotone, Italy

**Japan: working with children in Fukushima using participatory theatre**

In Fukushima, CUIDAR researchers worked with Fukushima Medical University using participatory theatre to explore and promote children’s role in community development in the wake of the nuclear disaster on 11 March 2011. The project, ‘After Fukushima: Working with Children to Build Community Resilience’, involved
a class of 27 elementary school students aged 11–12 in an area of Date City affected by radiation during the disaster. In partnership with the school, the team ran a series of 90-minute theatre-based workshops, combining drama and discussion, two to three times a week for five weeks. The children created a series of ‘scenes’ in small groups and as a class, using drama, music, dance and poetry, and these were woven together into a final 20-minute public performance for school presentation day (see Figure 5.10). The methodology centred on the positioning of children as ‘actors’ who used theatrical methods as a means to explore and present their ideas and opinions. The imaginative space of the theatre became a place to rehearse and reflect on different ways of being and doing in the wider social space, thereby inviting the children to engage with the possibilities of change.

The performance work the children created highlighted how they understood the problems of a decreasing and ageing population – a trend exacerbated by the disaster – and that they wanted to be involved in community plans for development. For example, they wrote a letter to their local mayor about the neglected state of their local playground and read this aloud in the performance, accompanied by physical actions, to stress the potential health benefits and the role the playground could play as a space for community interaction. They also created a musical piece about shopping, which recognised how local development could help grow the economy and make the place ‘busier’, while at the same time promoting their own autonomy as they could go shopping ‘by themselves’. The

Figure 5.10: Children in Date City, Fukushima, Japan, perform their song about going shopping
participatory methods used in the project proved to be a powerful way for the children to create and communicate an alternative vision of the future of their community, which was still recovering from a major disaster.

Digital-based methods: digital tools and new media

The expansion of digital technologies since the 1990s has brought new possibilities to participatory initiatives and methodologies (Mitchell et al., 2017). The proliferation of many platforms that are both affordable and accessible became an opportunity when working with children and young people in a child-led manner. These tools can be used for different goals. Participatory video, for example, allows participants to engage with a specific topic through collaborative planning and filming, enabling them to control the process and take ownership of a project (Haynes and Tanner, 2013; Mitchell et al., 2017). Because it is based on digital storytelling, it allows the participants to reflect back or to look forward to how things might change (Mitchell et al., 2017: 30), becoming an effective tool to research specific topics, but also to raise awareness and to better communicate children and young people’s specific ideas and concerns to decision-makers and other publics (Plush and Cox, 2009; Haynes and Tanner, 2013).

Digital technologies allow remix and reinvention of the visual and the digital in participatory projects. In this sense, ‘they are able to align mode of representation and dissemination with the communicative practices that are valued in particular communities’ (Kendrick, 2016: 815). They are also powerful tools to disseminate knowledge, engage stakeholders and other members of the community. They can amplify voices and perspectives, but also engage participants in a creative way, developing new skills (Benjamin-Thomas et al., 2019).

These tools are relevant when working with children of all ages, but they became particularly effective with teenagers. Websites, digital videos, podcasts and apps can be engaging media for young people. They also allow for storytelling and narratives, important devices to convey messages in the case of DRM (Mangione et al., 2014). In Calgary and High River, for example, young people affected by floods created animated videos that described the loss of memories, homes and irreplaceable items caused by the disaster, but also their hopes and their need to move forward (Peek et al., 2016).

In CUIDAR, digital videos were sometimes incorporated into the messages created by the children and young people to communicate
with adults. In Ancona, Italy, digital technologies were chosen by teenagers to share the work they developed during the Dialogues, leading to the creation of the website ‘Piano alla Mano’.

**Italy: creating a child-friendly digital emergency plan**

Digital tools and media were used in the final output of the Ancona Dialogues. The youth group had decided to create a web-based map using their child-friendly version of the municipal emergency plan (see Figure 5.11). Their idea was to convert the paper-based community map they had drawn into a digital community map, a mobile phone-friendly website, since smartphones are the main device used by young people and their parents. The website, named ‘Piano alla Mano’, is a simplified and conceptual version of the (official) city map and contains information about local risks, strengths, vulnerabilities and resources identified by the CUIDAR participants during the Ancona Dialogues, focusing particularly on earthquakes (see Figure 5.12).

The aim of this map is to make children, young people and adults aware of the importance of knowing their local area, and the safety actions that can be put in place, to be active and resilient citizens. To create the map, participants worked...
Participatory tools for disaster risk management

Figure 5.12: ‘Piano alla Mano’ website, Ancona, Italy

with a web designer and experts to develop the tool, to translate the complex information in the local emergency plan into a child-friendly version, adapting the content and technical functions to the needs of their peers. ‘Piano alla Mano’ is a useful tool since it indicates the emergency assembly points spread around the city and the main resources in case of emergency (hospitals, civil protection offices, council, etc). The municipal emergency plan can now be downloaded and has information about what to do in case of earthquakes and a list of emergency numbers to contact in case of need. This informs both children and the community about what to do and where to go in case of an earthquake, especially when in public spaces, where young people said they felt more vulnerable.

Participatory tools and ethics of participation

Participatory projects with children and young people are often unpredictable and ‘messy’ (Thomas-Hughes, 2018). They must be flexible enough to include children’s diverse views and capabilities, open enough to create space for their opinions and ideas, but structured enough to guarantee children’s safety and the quality of the project. Mess, in this sense, is an important part of the process, which can lead to unique opportunities, creative outputs and rewarding outcomes, especially when engaging with creative methods. It can, however,
also pose specific ethical challenges that have to be taken into account when working with participatory methodologies in a child-centred project. Three aspects regarding the ethics of participation and the use of participatory tools and visual methodologies with the children, young people and adults were particularly important throughout CUIDAR: inclusion, symmetry and representation.

Inclusion refers to the need to take into account children’s different needs, socio-demographic characteristics and cultural and socio-economic contexts. One challenge of working with children from different contexts and backgrounds is how to adapt the methodologies to these. This involves particular attention to aspects related to diversity such as disability, linguistic barriers, different levels of literacy and economic vulnerability. When choosing tools and methods, it is important to be flexible, to adapt to different needs, adjust to new developments, and engage with children in an inclusive way.

While children have been excluded from DRM practices and processes, some are exposed to additional layers of exclusion, according to socio-economic status, gender, levels and access to education, urban and rural residence, whether they are children from migrant backgrounds, refugees, out-of-school children, children living on the street, and so on. Working with marginalised children also poses challenges as to how to include them in a meaningful participatory process since many have internalised their marginalisation and oppression, and may have difficulty feeling qualified to participate, especially if mixed with other, more privileged, children. When faced with mixed groups, the facilitator must take great care to show respect to all children and figure out ways to draw in underprivileged children and affirm their thoughts and opinions.

A specific challenge arises, for example, when working with children from vulnerable contexts, such as those with a migrant background. Here, language can be a barrier, not only for the children involved but also for their families, an issue that is relevant when talking about DRM policies and initiatives in local communities. In many instances, because of their recent arrival, these families are often not considered in emergency planning. Research has shown that migrant children often act as cultural brokers in their communities, as they tend to adapt to new contexts more quickly than their parents/carers, and can assume an important role of interpretation and translation for their families (Mitchell et al, 2008; Marlowe and Bogen, 2015). Recognising their capacities and finding ways to incorporate their contributions in emergency planning strategies is central for improving the resilience of their communities. Participatory methods and creative
resources are a valuable resource to overcome language and cultural barriers, promote effective participation and ensure their inclusion in the disaster reduction process.

The CUIDAR work with migrant children in Scotland gives us an example of how these participatory activities can be adapted when working with a group of children with different backgrounds and different levels of English proficiency.

**Glasgow, Scotland, UK: adapting approaches to the needs of children from migrant backgrounds**

CUIDAR Dialogues were adapted to suit the needs of children aged 10–12 from migrant backgrounds, whose first language is not English, and who have low literacy levels. The children themselves pointed out how inclusive tools and activities benefit all, as everyone can take part in them and thus they break down barriers. One of these tools was a large world map used to explore migration. We asked where the children (and adults) came from, and spoke about how migration was a common and shared experience (it helped that both the Save the Children facilitator and class teacher also had a migrant background). Several tools were used to assess risk and identify the focus of the session, namely, risk ranking activities, photovoice, transect walk and community mapping. This allowed them to identify three major risks in their local community, and they decided to focus on fires in houses with multiple occupants.

During this process the children pointed out that while a lot of safety information was available, they or their families wouldn’t be able to access it due to the language barrier and use of jargon. They felt that a story in pictures would have a greater communication impact and would be inclusive, so they created a fire safety booklet to demonstrate safer home practices as well as what to do in case of a fire (see Figure 5.13). The children developed their own storyline and drew images for the booklet that were edited into it by a designer. This meant that it was produced to a high quality, but was still owned by the children.

At the MLE with adult stakeholders, the group presented their project journey and picture booklet at a series of talking stations. This meant that the children could choose a station they felt most comfortable with, work in pairs, and be able to speak in smaller groups. The head teacher noted that the language used for these small presentations was above what she would normally expect of the group, and that the project-based learning and child-led approach had given the children skills that were transferable and met literacy outcomes without being part of a literacy programme.
To support the children in getting the most out of the MLE, we took a staged approach. Initially we explored who has a say in governing the country and who makes decisions. As the UK is new to the children, their knowledge was very basic, and they were keen to find out more. We used cardboard people shapes to represent different types of decision-makers, noting their roles, and coloured them in. This led to a natural discussion around how complex the decision-making process is and the different responsibilities individuals held. This introduced the children to the differences between a Member of Parliament, Member of the Scottish Parliament, Member of the European Parliament, Councillors, the Queen, and also how children could influence decisions that affected their lives. We used the names of real decision-makers, which made this activity very concrete, and used their pictures to think about what we would like to ask of these people. The children had the option to write the question themselves, and this then became a 'lucky dip', so that they didn't have to remember the questions and so that anyone could pick and ask the question at the MLE.

The MLE brought the children and emergency planners together in small groups to explore how they could help each other, what they have to offer, and consider pledging one change to work towards preventing fires. This discussion led to the emergency services reconsidering how they communicate with the migrant community, realising that leaflets and brochures were not helpful, but that face-to-face conversations and informal visits were the best way to engage. As a result, more smoke alarms were installed and the safety of appliances was tested.
in the children’s community. Children made pledges, too, such as ensuring that the keys to unlock their flats in case of a fire were always at hand, that nobody smoked in their flats, and that flammable materials such as waste paper baskets and hand towels were kept away from fire sources.

In summary, the need to adapt activities to move from words to pictures and experiential learning demonstrated that DRM can be made to be inclusive for very different groups of children. In fact, activity adaptations that were engaging for children with low levels of English were also engaging to children with English as a first language.

Issues of inclusion are also relevant for disabled children that are often excluded from DRM initiatives (Peek and Stough, 2010). Preconceptions about what it means to have a disability often hinders children’s inclusion in participatory disaster management (Ronoh et al, 2015b). Inclusive DRM approaches need to recognise the increased vulnerability of disabled children to disasters, but also the structural and cultural barriers that block their inclusion in preparedness initiatives (Smith et al, 2012). In participatory projects, when working with disabled children, it is important to acknowledge these barriers, and adapt the tools and resources available to better accommodate their needs and knowledge. This was the case especially during the CUIDAR workshops in Greece, a partner with expertise in inclusion. Here the Dialogues involved children with vision impairment and children who were deaf or hard of hearing, many of whom also had additional disabilities.

**Greece: working with children with sensory and additional disabilities**

The Dialogues involved children with vision impairment, multiple and vision impairments, and deaf or hard-of-hearing students from different ethnic backgrounds, aged 6–12. Workshops took place in three different cities (Athens, Thessaloniki, Volos) in special and general educational settings. Depending on the educational setting, some workshops took place within schools while others took place in museums or environmental centres, facilitated by classroom teachers in cooperation with the CUIDAR team. The team took into consideration the language and communication barriers these children faced, adapting materials to their needs in order to promote their participation and engagement. During the sessions, children with sensory disabilities were encouraged to participate in child-led activities, with a variety of tools and accessible materials that included
tactile and audio materials, 3D models, large-print materials, hands-on activities, role-play activities, modelling and posters (Nikolaraizi et al, under review).

The children had an active role during this process, and they created many tools to express and communicate their views and feelings. In Thessaloniki, the children designed and carried out a theatre performance, to raise awareness of the importance of a local forest, and also to underline the role of prevention and mitigation measures in case of a forest fire. The children also used a PowerPoint presentation to illustrate different local risks, and exhibited the 3D models they had developed during the Dialogues. Deaf and hard-of-hearing children organised an exhibition of posters and models they had produced to communicate their knowledge to their peers (Nikolaraizi et al, under review).

In Athens, when discussing past emergencies with children with a vision impairment, we used tactile maps to help them locate the areas where disasters had taken place. In the case of hard-of-hearing children, depending on their communication needs we communicated orally or in Greek Sign Language. The main concepts about emergencies were chosen from words pre-selected by the facilitators and, after a discussion in-group, participants gradually selected the words connected to disaster definitions, and also found others to build a vocabulary bank (Nikolaraizi et al, under review) (see Figure 5.14).

Figure 5.14: Vocabulary bank in relation to risks and hazards from the deaf and hard-of-hearing children's exhibition in Thessaloniki, Greece

All these activities enhanced children’s participation, communication and literacy skills, and gave them the opportunity to share their perspectives and express their own views on the subject of DRM.
A second, important, aspect when engaging with children and young people in participatory projects refers to issues of symmetry, power imbalance and mutuality (Davidson, 2017). As mentioned before, to be child-led a process should involve children and young people themselves identifying issues of concern, expressing what they like and what they don’t, and driving the activity design based on their views and needs. This does not mean that the power between children and adults is shared equally, or that pre-existing relations of power can be ignored (Coyne and Carter, 2018). It means that there must be an effort to balance this relation by shifting the power of agency from adults to children (Gibbs et al, 2013).

As Davidson suggests, ‘The capacity of an approach to be participatory depends on the nature of the social relations between those involved, the ways in which methods are practiced, and the extent to which individual capacity and social conditions are observed and accounted for’ (Davidson, 2017: 230). This is essential for children to actually experience these processes as participatory (Coyne and Carter, 2018). The use of creative and innovative methods is important in this context, but must be underpinned by a set of values and practices that have to be oriented by an ongoing reflexivity regarding issues of power and ethics (Benjamin-Thomas et al, 2019). In this way adults should serve mostly as facilitators, and children and young people should be able to control the direction of the process.

Spain: flexibility, active listening and transparency

During the CUIDAR Dialogues we tried to keep the process as open as possible and accommodate children’s demands and preferences. This implied being quite flexible when translating our initial design to the real implementation and holding a position of active listening and transparency in every step of the process. That approach was easier with the Lorca group as it took place in a non-formal education space, which allows higher flexibility. Working in schools posed more restrictions in terms of the schedule, calendar or working spaces. However, even in this context, we tried to create an open environment where children could express their preferences, also organising extra sessions when we detected they needed more time. The Dialogues reflected their preferences as much as possible. In all cases, each group of children and young people decided: (1) the local risk they wanted to prioritise; (2) their proposal to improve how that local risk was managed; and (3) the tools to communicate their messages to the experts. All the workshops were organised to help them think and be informed about the topic so that they could make considered decisions before choosing the risk and
suggesting improvement measures. This was done mostly using creative and participatory tools as a media of expression.

The children also co-organised the MLEs, choosing the main message they wanted to share with the experts, the topics they wanted to address and the kind of experts they’d like to invite to work with them. Because they were co-organisers, they were asked to arrive at the venue before the experts (with their teachers/educators) and help to arrange the place (chairs, tables, posters, etc). Both during the Dialogues and the MLEs, the children used cameras and took notes, as a way to make a child-led report of all activities. Finally, for the National Policy Debate, they chose the representatives to speak to the audience and the message they wanted to share that day.

This whole process implied listening to the children and taking into account their preferences as much as possible, even if not all the demands could be addressed. We presented ourselves as facilitators rather than educators or instructors, more to support their ideas and decisions than to correct or change them. We also had to manage the expectations and attitudes of the other adults involved, making them aware that this project should be as child-centred as possible. While we cannot affirm that every adult–child interaction was symmetrical, we tried to generate an environment where children and young people felt the power relationship was more balanced than was normally the case.

Finally, and because we are talking about methodologies with a strong visual component, it is also important to take into account the ethics of representation of those involved. The use and creation of visual materials can create specific ethical issues regarding who is represented and what is represented, and to what extent the children and young people are identifiable (Mannay, 2015; Coyne and Carter, 2018). For instance, anonymity is difficult to guarantee in the context of photography, especially when there is much focus on the geography of the images produced, as is the case in projects related to DRM. Researchers and stakeholders must realise that when an image is produced and enters the public sphere, it becomes difficult to control the way it is replicated and circulated, and this circulation may continue long after the original project is ended. Thus, even with consent, it is important to reduce the potential for inadvertent identification, and to reflect on the use of these images and the channels of distribution, especially in the case of the internet, since ‘Once in the public realm, participants and researchers have no control over how images might
be interpreted by different audiences, or may be used for different purposes by others’ (Clark et al, 2010: 88).

At the same time, the avoidance of faces and anonymisation of the participants poses an additional problem: that of invisibility of those whose voice the participatory project is trying to promote. Often, children and young people who produce this data want it attributed to them. Attempts to anonymise data can be not only a way of taking away children’s right to attribution, but may also prove difficult to perform since images include many references that cannot be erased without compromising the author’s vision and its relevance for the project (Clark et al, 2010). So, it is important to consider these questions when designing this kind of work, and to discuss the issues of balancing safeguarding versus the need to share ideas publicly with children, young people and their families, and where appropriate, to gain consent to use and display these images as safely as possible. The model that CUIDAR followed for all visual images including photographs, artwork and film was the ‘triangle of risk’ recommended by Save the Children, identifying three points of risk: name, location and image – the aim is to ensure that no more than two are included in relation to the image.

A final question about ethics of representation when engaging with creative methods is that of the ownership of the data or material produced. Although children must give consent to participate in a project, this does not mean that they lose the ownership of the data produced (Wilkinson and Wilkinson, 2017). Drawings, photographs and videos are some of the material that, because they can be replicated and disseminated in various outlets, pose particular concern in this regard. Children, young people and their families must give their agreement regarding their use, even in the case of academic presentations or publications, for example giving additional informed media consent, with clear alerts on its possible circulation in the future. Children and young people might agree to their use in a specific moment but change their minds later. Hence, if there is any concern from children and young people (and their family or carers), researchers advise not only adhering to the triangle of risk model but also only using unidentifiable images (such as pixelation or no recording of faces). The European General Data Protection Regulation (UE 2016/679) (Delicado and de Almeida, 2019), for example, has specific rules regarding the right to withdraw personal data from a project, and this might include different materials produced by participants. Researchers and stakeholders engaged in participatory projects with children and young people, when asking for consent,
have to be clear about how the data will be stored, accessed and circulated, and must inform participants and their families of their rights regarding the use of their personal data.

**Conclusion**

In this chapter, we discussed the tools and methods used during the different phases of CUIDAR to work with children on the subject of DRM. We addressed how the methods can be a powerful strategy to give children and young people a central role in participatory projects, and how they have been used by researchers and practitioners around the world in projects related to disaster risk.

In particular, we exemplified how different activities such as drawings, storyboards, 3D models, chronological timelines, photovoice, community mapping, participatory theatre and digital tools, among others, can be used in different situations and to work with children from diverse contexts and backgrounds. We stressed the need to underpin their use with a model of engagement that considers children as experts in their own lives, that gives space to children’s preferences and creativity, and that at the same time takes into account differences of ‘participatory capital’ among different groups and between children and adults.

Our experience of the Dialogues and MLEs allowed us to verify these approaches were effective strategies to engage people and foster community-building and sense-making of DRM. They allowed the children to make sense of their prior knowledge, to become more informed on the subject and to improve their capabilities. They gave the children and young people the creative space to share their stories and convey their ideas. They facilitated communication between the children and adults. The vast array of methods used during the CUIDAR workshops became essential tools to help the children and young people make sense of their role in DRM and to make adults understand and appreciate their ideas and perspective.

There are, of course, complexities in the implementation of these methodologies during a participatory project. Co-production is often an unpredictable and ‘messy’ process (Thomas-Hughes, 2018) that can lead to creative outcomes and unique outputs, but that creates specifically ethical challenges to researchers and practitioners wanting to engage with children and young people. We addressed, in particular, the relevance of taking into account children’s different needs, profiles and cultural and socio-economic contexts when adopting and adapting creative methods; the significance of addressing issues of power
differentials between children and adults in participatory projects; and the importance of the ethics of representation when dealing with tensions regarding anonymity, confidentiality and recognition inherent to the use of visual methodologies.

Creative methods are, therefore, useful tools when engaging with children and young people in participatory projects that give value to their knowledge and experience. They promote more inclusive disaster management not only because they facilitate children’s participation, but because by facilitating changes in power relations between children and adults, they are also transformative of the way adults engage in the domain of DRR. By allowing co-construction of meaning and knowledge on the subject of disaster risk, these tools and methods have an essential role in the promotion of more inclusive and effective DRM policies and practices.

Notes
1 http://meaningfulmaps.org
2 www.lancaster.ac.uk/cuidar/en/film/
3 www.pianoallamano.it