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UN Office for Disaster Risk Reduction

Making Cities Sustainable and Resilient:

Lessons learned from the Disaster Resilience Scorecard assessment and Disaster Risk Reduction (DRR) action planning

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Executive Summary

'Making cities sustainable and resilient: Implementing the Sendai Framework for DRR at the local level', is a three-year initiative (2016-2019) supported by the European Commission to improve understanding and capacity to address disaster risks and build resilience at local levels, with a focus on crisis-prone cities. The United Nations Office for Disaster Risk Reduction (UNDRR) and implementing partners have worked with over 200 cities and local governments to assess gaps and progress in addressing local resilience; and with 20 pilot cities in developing and implementing climate and disaster resilience plans.

This report seeks to capture the cities' experiences and lessons learned by reviewing the opportunities and challenges faced by those who took part and their recommendations for improving the process. It shows how, through the completion of scorecard assessments and DRR action plans, cities raised awareness and understanding of issues and their connectedness. The process built local capacity, generated awareness and interest, and created or strengthened stakeholder partnerships.

Ensuring sustainable progress in resilience building is also a challenge, which depends upon a range of influences. Therefore, the report draws on the experiences of 'Role Model' cities that demonstrate commitment, achievements and good practice in DRR and resilience building to identify key themes and success factors. Several of the success factors identified are closely aligned to UNDRR's 'Ten Essentials for Making Cities Resilient', suggesting that certain core priorities promote sustainability of resilience building.

The report further makes the following recommendations to the future of the Making Cities Resilient (MCR) Campaign:
- **Recognise the value of participatory peer-to-peer reviews** and lesson sharing as powerful approaches to learning
- **Partnerships, learning and sharing** are highly important for establishing networks and platforms that create spaces for discussion and action planning, as well as making partnerships more durable and sustainable. Learning should be seen as an ongoing process.
- **Recognise the need for long-term timetables for change**. Strategies should be based on strategic visions and long-term perspectives, with realistic timeframes for change.
- **Leadership and adaptive management.** Adopt adaptive management approaches to deal with the multiple challenges, uncertainty and complexity associated with city development and resilience in dynamic economic, political, social and risk contexts.
- **Complexity and contexts.** Cities are complex and dynamic systems, operating at different scales, that link the natural and built environments with human processes (social, economic, political, demographic). Understanding how these different factors connect with, and influence, one another is vital to developing integrated resilience strategies.
- **Reduce reliance on external technical assistance and support** by developing a staged process to help cities become more effective, independent actors in resilience; and increasing and broadening the stakeholder base to include actors not normally engaged in DRR and resilience.
- **Engaging all of society** and support independent community-led organisations and initiatives. Put greater emphasis on social equity and inclusion.
- **Finance and the private sector have a very important role to play in resilience and DRR** but securing finance and engaging the private sector remain a key challenge. More effort should be placed into engagement with private sector actors.

1. Introduction and background

Most of the world's population now live in urban areas. The rapid growth of urban populations has resulted in increased concentrations of people, livelihoods and properties in areas exposed to high risks from hazards and shocks. Projections indicate that by 2050, 60% of the world's population (nearly 5.2 billion people) will be urban (UN DESA 2018). Cities, therefore, have huge responsibilities but also face great challenges in ensuring the health, safety and wellbeing of increasing numbers of residents. Subsequently, strengthening urban resilience is the key to sustainable development and enhanced prosperity.

Resilience is the ability of a system, community or society to resist, absorb, accommodate, adapt to, transform and recover from the effects of a hazard. Resilience cannot be achieved without significantly changing the way cities manage urban spaces, with multiple stakeholders playing a role. These include local government decision makers, city officials and departments, central and provincial governments, the private sector, civil society, non-governmental organisations, community-based organisations and academic institutions.

There are many ways to build urban resilience. These range from highly technical and resource-intensive, to simple and inexpensive practices. The Making Cities Resilient (MCR) Campaign, which commenced in 2010 and is co-ordinated by the United Nations Office for Disaster Risk Reduction (UNDRR), has achieved considerable success in promoting urban disaster resilience building (Johnson and Blackburn 2014). Recognising that local governments play a central role in any commitments to disaster risk reduction (DRR) by successfully integrating DRR and resilience into urban developing process, the MCR Campaign works to promote resilience building through awareness-raising activities among local governments and providing tools, technical assistance, city-to-city support networks and learning opportunities. The Campaign advocates use of a 10-point urban checklist (known as the Ten Essentials for Making Cities Resilient: see Box 1) to guide city governments in resilience planning and decision making.

Globally, 4,270 cities had signed up to the Campaign by April 2019. Cities, municipalities and local governments that demonstrate particularly good practice and innovation in DRR and resilience, whilst demonstrating achievements in a minimum of five of the ten essentials, are eligible to become Role Model Cities. Role Model Cities must show continued results in measuring and reducing DRR and a commitment to continue to do so. They are also required share their experiences, best practices and key lessons learned to foster wider learning across different city contexts.

Associated with the MCR Campaign is a three-year (2016-2019) joint initiative of UNDRR, the United Nations Human Settlements Programme (UN-Habitat) and the European Commission, called "Making cities sustainable and resilient: implementing the Sendai Framework for Disaster Risk Reduction 2015-2030 at the local level". It aims to improve the understanding of, and capacity to address disaster risks and build resilience at the local level, with a focus on building local capacities in crisis-prone cities (pilot cities).

Among the key aims of the initiative are that new tools are developed, and existing ones adapted, to establish baselines and gather profiles of risk and resilience-building data and information. To meet this aim, UNDRR and implementing partners supported over 200 cities and local governments globally to assess their gaps and progress in addressing local resilience. Another of the key aims of the initiative is to enhance capacity of cities and local governments in developing and facilitating the implementation of action plans for resilience. To contribute to this aim UNDRR and partners have

Box 1: Ten Essentials for Making Cities Resilient

The Ten Essentials for Making Cities Resilient tool was developed to accelerate implementation of the Sendai Framework for Disaster Risk Reduction (2015-2030) at the ocal level. The Ten Essentials map directly against the Sendai priorities of action and its monitoring indicators. The actions identified under each Essential should be part of disaster resilience and urban development planning.

1. **Organise for disaster resilience:** establish and strengthen local-level institutional and co-ordination capacity; build alliances and networks; form a legislative framework and action mechanisms for resilience.

2. **Identify, understand and use current and future risk scenarios:** identify the most probable and most severe (worst-case) scenarios; make use of the knowledge from risk scenarios for development decisions.

3. **Strengthen financial capacity for resilience:** recognise opportunities where building resilience contributes to a sound economic strategy; ensure a budget for resilience; disseminate risk information and apply to development decisions.

4. **Pursue resilient urban development and design:** place urban planning and land-use management at the core of urban resilience; conduct systematic and specific vulnerability mapping; mainstream resilience into ongoing urban master plan updates and sectoral strategies.

5, **Safeguard natural buffers to enhance ecosystems' protective functions:** raise awareness of the impacts of environmental change and degradation of ecosystems on disaster risk; promote better management of critical ecosystems to strengthen resilience to disaster; strengthen existing ecosystem management based on risk scenario assessments.

6. **Strengthen institutional capacity for resilience:** identify the specific nature of each vulnerability and map against the respective institutions; build local capacities and strengthen participation in disaster management and resilience improvement; ensure the consistency of data and disaster risk information among the stakeholders.

7. **Understand and strengthen societal capacity for resilience:** establish well-equipped response units at local level; develop risk reduction and resilience information; integrate disaster risk reduction and resilience into formal education and other orientation programmes; improve public education and awareness through dissemination of information through the business sector and media; build and maintain open-access data for disaster preparedness and response.

8. **Increase infrastructure resilience:** assess the capacity and adequacy of critical infrastructure; strengthen/retrofit vulnerable infrastructure; establish alliances with environmental managers and the private sector; recognise the relevance of priority services and operations during and after a disaster.

9. **Ensure effective disaster response:** create and improve preparedness plans; strengthen early warning systems; upgrade the city's emergency response services.

10. **Expedite recovery and build back better:** address the different aspects of recovery; include the affected population in defining needs and recovery plans; use recovery as an opportunity to build back better and improve development; seek resources, strengthen alliances and ensure stability.

https://www.unisdr.org/campaign/resilientcities/toolkit/article/the-ten-essentials-for-making-cities-resilient

worked with the 20 pilot cities and local governments to develop and initiate the implementation of climate and disaster resilience action plans.

The aim of this report is to extract the key lessons from recent activities aimed at supporting cities and local governments to assess their gaps and progress in addressing local resilience and in supporting the pilot cities in developing DRR action plans. This includes a review of the opportunities and challenges faced by participating in the initiative, from the perspectives of city officials and implementing partners. In particular, this report reviews the processes undertaken in each region for using the scorecard assessment tool to assess progress and inform future planning.

The data from which this analysis is drawn was gathered from activities that took place in the last of the series of capacity building and experience sharing workshops held as part of the 'Making cities sustainable and resilient' initiative. The main source of evidence is the discussions from an intensive 5-day experience-sharing workshop in Incheon, Republic of Korea, in March 2019, organised by UNDRR, in which the report's lead researcher took part. This was attended by representatives of the 20 pilot cities (from Africa, the Americas and Caribbean, Asia and the Pacific, and the Arab States) supported by the UNDRR, as well as implementing partners for another 200 cities taking part. One of the main aims of the workshop was for the 20 pilot cities to reflect on the Disaster Resilience Scorecard assessment and planning process. The 20 cities also presented and reviewed their DRR action plans (identifying success factors and ways of improving planning, implementation and M&E), developing and sharing ideas on ways to strengthen them and sustain resilience beyond the end of the initiative. The activities were complemented by formal and informal discussions with city representatives and implementing partners. The workshop findings and recommendations presented here are drawn from the contributions of these participants.

This report also looks at the experiences of Role Model Cities participating in the MCR Campaign (Amadora, Portugal; Greater Manchester, UK; Potenza, Italy; Makati, Philippines; and Cairns, Australia) based on a literature search and interviews with key informants who led city-level initiatives. This was undertaken to understand in more detail the processes those cities had gone through to achieve their resilience outputs and sustain resilience building, in order to provide additional recommendations for the pilot cities as they continue to build their resilience.

2. The Disaster Resilience Scorecard for Cities and DRR action plans

Result Area 2 of the 'Making cities sustainable and resilient: implementing the Sendai Framework for Disaster Risk Reduction 2015-2030 at the local level' initiative aims 'to build new and adapt existing tools, to establish baselines and gather profiles of risk and resilience building data and information'. It has, as a target, that at least 200 cities and local governments globally assess their gaps and progress in addressing local resilience. To achieve this, UNDRR worked with implementing partners (IPs) that were already active in the region. This meant that they were able to broaden participation and therefore the coverage of the project. IPs included: ICLEI Africa, Fundacion Humania, Resurgence and Arab Urban Development Institute (AUDI), United Cities and Local Governments Asia Pacific (UCLG-ASPAC), and All India Disaster Mitigation Institute (AIDMI).

Result Area 4 of the 'Making cities sustainable and resilient: implementing the Sendai Framework for Disaster Risk Reduction 2015-2030 at the local level' initiative focuses on 'enhancing the capacity of cities and local governments in developing and facilitating the implementation of action plans for resilience'. Its target is that 20 cities and local governments have developed and initiated the implementation of climate and disaster resilient action plans[1]. A variety of approaches allowed UNDRR to meet this target. Five Individual consultants in the Americas worked directly with cities. Two organisations worked with cities in Asia and Pacific (SEEDs Asia and ICLEI Oceania) respectively. In Africa, an urban specialist worked as a focal point for implementing the project, whereas in the Arab States a combination of institutions and experts facilitated the process.

The cities participating in the process were drawn from LDCs and/or SIDS in high-risk countries globally and have participated in several capacity building and experience sharing workshops. These commenced with the regional kick-off workshops between October 2016 to March 2017, followed by a Training of Trainers on 'Making Cities Resilient: Developing and Implementing Disaster Risk Reduction Action Plans' workshop in January 2018 in Incheon, South Korea. Among the activities of this workshop was an introduction to tools for cities in self-assessing their resilience, and how to develop disaster risk reduction and resilience action plans.

The primary tool developed to support cities in this process is the Disaster Resilience Scorecard for Cities[2]. The scorecard is structured around UNDRR's Ten Essentials for Making Cities Resilient, which were initially developed as part of the Hyogo Framework for Action in 2005 and subsequently updated to support implementation of the Sendai Framework for Disaster Risk Reduction 2015-2030. The Disaster Resilience Scorecard for Cities is now the predominant tool of the Making Cities Resilient Campaign, replacing predecessor versions of the scorecard and the Local Government Self-Assessment Tool (LG-SAT). The scorecard consists of two assessments: a preliminary assessment with 47 indicators to which cities must attach a 0-3 score; and a detailed assessment consisting of 117 indicators to which cities must attach a 0-5 score.

The scorecards are available in two formats: Excel Tool and PDF. The results of the scorecard assessment reflect the progress made by local governments in the achievement of the Sendai Framework targets, as well as SDG11: Make cities and human settlements inclusive, safe, resilient and sustainable. They also form the basis for the city DRR action plans. The scorecard creators recommend a multi-stakeholder approach which reflects the range of actors with a role to play in maintaining and developing city resilience, under the leadership of local government authorities. Implementing partners, including independent consultants, local development actors and academic institutions supported cities in this process. This section presents the key lessons learned from the perspectives of the cities and implementing partners in making use of the scorecard and in the DRR action planning process.

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1 • Cities in the initiative include: Kampala, Uganda; Dire-Dawa, Ethiopia; Kisumu, Kenya; Yaounde, Cameroon; Praia, Cape Verde; Khartoum, Republic of Sudan; Ismailia Governorate, Egypt; Nablus, Palestine; Nouakchott, Mauritania; Honiara, Solomon Islands; Ulaanbaatar, Mongolia; Kathmandu City, Nepal; Dhaka North City Cooperation, Bangladesh; Cilacap Regency, Indonesia; Mawlamyine, Myanmar; Tegucigalpa, Honduras; Guayaquil, Ecuador; San Juan de Lurigancho, Peru; Guatemala City, Guatemala; and Santo Domingo Este, Dominican Republic.

2 • Developed with the support of USAID, European Commission, IBM and AECOM.
https://www.unisdr.org/campaign/resilientcities/toolkit/article/disaster-resilience-scorecard-for-cities

3. Scorecard implementation: process/methodology

Cities and implementing partners undertaking the scorecard process broadly followed similar pathways for assessing resilience, with slight variations in process. One key difference was that the implementing partners for the 200 cities only completed the initial scorecard assessment, whereas the 20 pilot cities carried out the detailed assessment leading to the drafting of DRR action plans. All 20 cities had either drafted their DRR plans or drafted and finalised them. The workshop presentations and key informant interviews revealed that the process generally involved the following steps (recognising that not every city and implementing partner undertook each step).

3.1 Secondary data review

Secondary data identification and review is fundamental to ensuring the success of the implementation of the Disaster Resilience Scorecard, because it helps to set the process up effectively and ensure increased efficacy and efficiency in subsequent stages. Implementing partners for the 200 cities and consultants supporting the 20 pilot cities described carrying out a city context analysis using secondary data to understand a variety of key issues prior to undertaking the scorecard assessments. Key documentation for review included legislative frameworks for DRR, existing city development plans, and municipal organograms explaining where responsibilities for DRR fitted within the municipal structure. These activities allowed the implementing partners to better understand where DRR plans and activities would ultimately be embedded, a necessary step to make the plans and activities sustainable.

3.2 Quick risk estimations (QRE)

Quick risk estimations were carried out in a handful of contexts for both the 200 and the 20 pilot cities, where city-level risk assessments did not already exist and where the urban stakeholders had a good understanding of the hazards that they faced but not necessarily of the risks and impacts that might result from these hazards.

3.3 Scorecard contextualisation

The scorecard guidance suggests that implementing bodies should contextualise the scorecard and remove assessment criteria which obviously do not apply to certain city-specific contexts (e.g. questions relating to ports are not relevant to landlocked countries). City partners who carried this contextualisation out prior to carrying out the assessment stated that it was an important measure which allowed them to group those criteria which they found to be overlapping. Not all of the 20 pilot cities had carried out this activity. These cities were more likely to comment on the difficulties they faced in assessing certain criteria during workshops which did not clearly fit into their city context.

3.4 Scorecard implementation

The most common method for carrying out the scorecard Assessment was a series of face-to-face multi-stakeholder, multi-sectoral workshops. The minimum amount of time taken to carry out the scorecard assessment was two days, whereas others took from 2 to 8 months to complete. All the workshop participants described engaging a wide range of stakeholders from various governmental departments to academic institutions, NGOs, the private sector, and community groups and civil society organisations. The importance was recognised of ensuring that these early

workshops involved a conceptual introduction to familiarise stakeholders with the key technical concepts, develop a common language, and sensitise participants to the scorecard and the 10 Essentials for Making Cities Resilient. Cities that did not do this found that they lost time in unpacking definitions and concepts during the assessment process. In practice, to carry out the scoring activities, participants were frequently divided into their respective sectors with the relevant essential criteria and indicators assigned to them allowing the sector specialists to provide scoring on topics that fall within their jurisdiction.

3.5 Result verification

Once the results had been collected they were verified by stakeholders in meetings and workshops. This was an important step in validating the evidence and stimulating DRR action planning.

3.6 Transition: scorecard result to DRR action planning in the 20 Pilot Cities

A range of methods and processes were adopted by cities to convert the verified results of the scorecard into their action plans. Workshops were the most frequent modality for designing DRR action plans. The DRR planning process often started with scorecard result verification. Then all the gaps/vulnerabilities and in some cases the strengths were identified. Some participants placed all the aspects of vulnerability into a matrix and then grouped them thematically to condense them into key themes, as well as removing themes that were overly similar. Activities were then identified to address the vulnerabilities, and responsibilities for carrying out these activities were assigned. Participants prioritised activities according to various factors, including: cost of completion; timeframe associated with completion; alignment with other political or development policies, plans and agendas; or having several other activities dependent on them. This formed the basis of the draft DRR plans, which then needed to be verified by city authorities and finalised in line with their comments. Once the finalization had taken place, cities endorsed their plans. The timeframes for the implementation of the DRR plans varied greatly, from one year (Dhaka North, Kathmandu, Ulaanbaatar, Dire Dawa, Kampala) to ten years (Ismalia, Nablus).

4. Opportunities and challenges in the Scorecard process and forming DRR action plans

4.1 Preliminary versus detailed scorecard

When reflecting on whether it was necessary to complete both the preliminary and the detailed Disaster Resilience Scorecard or whether completing one or the other would suffice, cities and implementing partners suggested that the preliminary assessment was an important and effective means to engage multiple stakeholders and a necessary first step, especially when these stakeholders were not familiar with DRR. The detailed scorecard, it was felt, was necessary to undertake planning, providing participants with fruitful analysis from which to determine subsequent actions.

4.2 Convening power

The scorecard was widely considered to be a good entry point to start engaging with cities and various stakeholders on DRR. This was largely because of the UNDRR branding and ownership, which was seen to increase its convening power, and it meant that the tool broadened stakeholder participation and even had the potential to engage actors who were not traditionally involved in DRR.

4.3 Establishing a baseline measurement

The scorecard provides immediate results from which activities can be created: overall, it was thought to have allowed co-ordination of DRR efforts among stakeholders to be simplified. It gives an overall picture of the DRR process and has the potential to provide support for longer-term progress monitoring. In several cities, the scorecard process was the first time that they had attempted to measure their disaster resilience: the process was celebrated for allowing them to establish a baseline measurement.

4.4 Bias and subjectivity

The scorecard process encourages participants to supply the proof of evidence while they conduct the scoring, to make it as objective as possible and provide a record for staff and stakeholders who join the process later. The 20 pilot cities have worked on their assessments in this way. Nevertheless, stakeholders recognised that self-assessment can be subjective, which was seen as a potential challenge for monitoring and evaluating progress in resilience building. Implementing partners supporting the 200 cities that did not complete the detailed assessment frequently cited subjectivity as a weakness in the scorecard process; and in some cases, subjectivity made it difficult to obtain consensus on the final resilience scores. In cities characterised by high levels of political instability and staff turnover, newly elected city officials often disagreed with the weightings assigned by their predecessors. Subjective perspectives also led to biased reporting in some cases, where stakeholders interpreted low resilience scores as result of weaknesses in leadership rather than as opportunities to develop actions that can build resilience. Cities recognised that the results may not be comparable over time, especially where there are high levels of staff turnover.

Foreseeing these challenges, the scorecard encourages participants to record decisions and provide evidence while they are conducting the scoring. The aim is to make the process more objective and minimize the challenges associated with staff turnover, or even the potential inconsistencies arising from a single person doing the scorecard assessments. The scorecard also advocates the adoption of a 'growth mindset' among participants: they are encouraged to acknowledge that weaknesses and resilience gaps will inevitably be identified, but also to recognise that this ultimately leads to the development of actions that, when acted upon, enhance urban resilience. Although all the 20 pilot cities supported by the UNDRR to complete the process drew on evidence to make decisions, they also discussed issues of 'sectoral ego' which continued to make achieving consensus difficult.

The subjectivity definitely will be there for other cities that did not go through a comprehensive assessment process, e.g. those working with Humania Foundation, UCLG-ASPAC, Resurgence/AUDI.

4.5 Language and terminology

The language and terminology used in the scorecard were described as unclear and overly technical, with a number of users describing problems in unpacking them. Although translated versions of the scorecard are now being written,

these had not all been available for cities at the time of their assessments, adding to their difficulties in engaging with the tool. These issues added to the facilitation-heavy nature of the tool expressed by many implementing partners. There was often low capacity for workshop facilitation because of the complexity of using the tool. Several cities said they would benefit for their being a web-based platform allowing information sharing and supporting collaboration to complement the tool.

4.6 Suitability across city contexts

It was felt in some cases that the tool was more suited to larger urban centres. Workshop participants from the Solomon Islands, for example, believed that they would have benefited from the adaptation of a tool for SIDS and smaller urban contexts. Other challenges relating to the assessment tool relate to the complexity of the scorecard template, and the different interfaces used for the scorecard and DRR planning activities.

4.7 Time commitment

The time needed to complete the scorecard was regularly cited as a key challenge and it was clear that a balance is difficult to find. Some implementing partners for the 200 cities stated that workshops did not last long enough to complete the scorecard, so that results had to be submitted after the workshop had taken place.

Some local authorities from the 200 cities were unable to complete the scorecard process during the workshops, because they needed to seek out extra data; but this sometimes resulted in implementing partners spending additional time chasing them to finalise the product. One implementing partner stated that some cities ultimately failed to complete the process. In addition, instability caused by factors such as conflict and disasters lengthened the amount of time that it took for some cities to complete the process. Long holiday and harvest seasons also affected the timeframes in some places.

The 20 pilot cities, who were supported through the detailed assessment to the completion of the DRR plans, stated that they needed more time to carry out effective DRR planning. It was acknowledged that the process was already quite complicated and added to the workload of overstretched city officials. UNDRR therefore made a mid-term adjustment to the programme to give the pilot cities more time and opportunity to carry out analysis in depth and secure firmer stakeholder ownership. Increased face-to-face interaction with key stakeholders at all levels was mentioned by several cities and implementing partners as having been necessary. A consultant supporting cities from the Americas stated that there was continued dependency of cities after the planning process had been completed, suggesting a challenge in ensuring full ownership at the city level.

4.8 Costs and logistics

In the 200 cities initiative, implementing partners in the Asia region worked with cities across large nations, sometimes formed of multiple islands (Philippines and Indonesia, for example). These implementing partners noted the cost and logistics challenges of convening workshops. Participants often had to travel long distances on local transport. Such factors have the potential to reduce the presence of key stakeholders. Holding the workshops in-city enhances the participation of key stakeholder groups.

5. Enabling environment

Participants identified the importance of the wider enabling environment that provides opportunities and challenges for carrying out the scorecard and action planning process.

5.1 Governance

The governance context plays perhaps the greatest role in creating an enabling environment for DRR planning and action. In cities with strong political will for DRR at the local and national levels, supported by legislative frameworks and/or ringfenced funding for DRR, the scorecard and DRR planning processes achieved high levels of political engagement.

Cities and implementing partners were actively looking for ways to link their DRR plans and activities to other city initiatives (rather than creating parallel processes) as a key to success. This was fundamental to ensuring DRR mainstreaming and sustainability. Kampala, for example, benefited from having technical assistance from a number of government-appointed experts who were able to align city strategic work plans with wider, ongoing development processes. In Quito, city stakeholders saw an opportunity to shape the city's DRR agenda and worked to align and package this with the 'Quito Listo' (Quito is ready) initiative being developed and launched by the city Mayor: Quito Listo establishes mechanisms of prevention and response to disasters, and it provided a successful entry point for a broad range of DRR activities identified by the plan. The process created or increased momentum, visibility and political appetites for DRR in a number of contexts. In the case of Dire Dawa, the scorecard and DRR action planning process directly resulted in the allocation of additional funds from the national government beyond those which were already ringfenced on an annual basis for DRR activities. Cities in Mongolia, Bangladesh, Cameroon, Uganda, Ecuador, the Dominican Republic, and the Solomon Islands felt that these activities often also provided opportunities to strengthen co-ordination and vertical links between local and national government.

Where no institutionalisation of DRR existed, or there was an absence of legal and policy backing for it, or where links to national governments were weak, cities found DRR action planning challenging. In these contexts, there is often ambiguity about accountability because local representatives are unable to meaningfully commit to DRR activities and responsibilities. Other cities, such as Praia and Yaounde, were described as being situated within top-down, centralised political structures and legislation for DRR, which made local-level planning a challenge: local governments felt unable to act on assigned DRR responsibilities because DRR was not a devolved function. Factors such as bureaucracy, lack of political appetite at the national or regional levels for DRR or for local government empowerment and capacity building further complicated the process. When completing their DRR planning, cities were very reluctant to prioritize DRR activities when they knew that there was no funding available to carry them out (for example, in Kisumu, Praia and Yaounde). In these cases, all activities without prioritization formed the final DRR plan; and it was agreed that relevant departments should take an opportunistic approach to align their plans with emerging funding opportunities. Political instability and changes in city leadership and focal points also caused significant delays and affected the continuity of the DRR action planning process, making achieving consensus very challenging.

5.2 Technical capacity for DRR

For many cities, the scorecard and action planning process increased their awareness and understanding of the risks, resilience gaps and challenges faced. It was also frequently noted that the process encouraged a shift from focusing solely on disaster response to more comprehensive DRR planning. Cities and implementing partners benefited from the presence of national-level focal points for DRR to ensure that their local DRR plans aligned with national DRR plans and the Sendai Framework. Where there was no focal point for DRR, or where their engagement was lacking, cities found the process far more challenging.

Low technical capacity proved a challenge in several cities. Although the scorecard process and DRR action planning process increased DRR awareness and knowledge, several cities found that a generally low starting point among their workshop and stakeholder participants posed a barrier to effective planning. There were often different understandings of key terms and contexts, and it took time to discuss, explain and resolve these.

5.3 Ownership and buy in

Several cities and implementing partners felt that the process facilitated high levels of stakeholder ownership over the process and the final DRR plans, with high levels of commitment to DRR activities among different sectors and stakeholders. Several cities thought the process had led to increased institutionalisation of DRR. Yet although cities generally believed they had successfully achieved ownership of the scorecard and DRR process at the city level, some consultants described challenges during the process in encouraging authorities to really take that ownership. Ownership is in part fostered by the collaborative and participatory nature of the process, but in cases where the implementing partner was not as well-known city authorities sometimes struggled to understand the importance of their own participation rather than allowing an expert to complete the product and hand it over.

5.4 Collaboration, engaging multiple stakeholders and sectors

The multi-stakeholder, participatory nature of the scorecard and DRR planning process was described as a first for many cities. The process was appreciated for its ability to highlight the contributions to the DRR agenda made by the different players and to broaden participation in it. The process enabled a dialogue between stakeholders who might not otherwise collaborate. In this way it improved connections between sectors, and stakeholders, provided a positive opportunity for stakeholders to collaborate, create synergy between ongoing activities, and identify where parties could contribute to the city's DRR and development vision and develop comprehensive and innovative solutions to the most pertinent DRR issues.

Despite this, cities noted that they struggled to effectively engage all key stakeholders, most notably, the private sector and community organisations. It is generally recognised that the involvement of the private sector in DRR is fundamental, to ensure business continuity and subsequently guarantee the livelihoods of urban communities in the event of a disaster. However, securing the involvement of private sector actors in the process remains a key challenge. Cities requested more support, advice and guidance on how to successfully engage with the private sector in the future. Although local governments need the support of communities to increase community resilience to disaster, community groups were also often under-represented in the process. The lack of representation of these key groups leaves important gaps in DRR plans and contributes to the biases identified as weaknesses in the process described by participants.

5.5 Data

A lack of data and information posed a significant challenge for many cities and implementing partners. Data was often missing, incomplete or scattered across different departments, which impacted upon the scorecard results and the time taken to carry out the assessments. In some cases, there were issues with relevant departments being reluctant to share information that would impact on the scoring process.

6. Recommendations: from Scorecard to action planning

Reflecting on the opportunities and challenges, cities and implementing partners identified the following issues and activities as important to improve the process of completing the scorecard assessment effectively. These included activities and initiatives both before and during the workshops.

6.1 Desk-based secondary research and data analysis

The importance of carrying out secondary research and preparation prior to commencing scorecard activities was noted by many workshop participants. This might include stakeholder mapping, and familiarisation with key terms and documentation (such as city development plans, existing and planned policies and risks maps). This would help to identify the most suitable institutional home for DRR in a city and where responsibilities for planned DRR activities should lie, as well as contributing to understanding where DRR sits in the local and national development agendas. At the same time, it was recognised that there were vast differences in access to relevant information between different stakeholders and across different cities.

6.2 Sensitisation activities

It was agreed by partners that it is beneficial to provide workshop participants with key documentation and materials before the workshop (such as the guides for applying the scorecards) so that they can familiarise themselves with these. Other suggestions included orientation on DRR in general for participants to develop a common understanding of the issues and also to explain, define and reach consensus on the meaning of key terms such as 'resilience' or 'risk'.

6.3 Scorecard contextualization

The importance of contextualising the scorecard ahead of the workshops (as much as possible) was much discussed and emphasised by the participants. This involves removing criteria that are obviously not relevant or adjusting others in line with local realities.

6.4 Flexibility and realistic timeframes

Cities advise setting realistic timeframes for carrying out the scorecard to action planning process, taking into consideration local realities which may disrupt that process: these include events such as holidays, elections, instability and extreme weather events. Increasing the number of workshops throughout the process was highlighted as both

necessary and a potential solution, because of the difficulties, participants faced in completing all activities within short timeframes.

6.5 Consultations and complementary methods

Complementing the scorecard assessments with consultations with other key stakeholders or specific groups who were under-represented in the workshops could help to verify results and build understanding, collaboration and ownership of the process and final product.

6.6 Seek cost share with governments

It was suggested that, where political will for DRR exists, cities should seek co-financing arrangements with governments to carry the process out. This would include paying transport costs and per diems for people who have to travel far to participate in the workshops. Cities urged others to use the process as an opportunity to influence national agendas and promote the Making Cities Resilient Campaign's contribution to the Sendai Framework Target E by co-implementing workshops with the relevant national agencies.

6.7 City-to-City exchanges

Cities identified the need for increased opportunities for city-to-city learning and knowledge exchange as a means of adding value to their own DRR processes. The sharing of lessons learned from experience was highly valued by city participants.

6.8 Accompaniment and capacity building

Several cities cited the need for increased support in completing the scorecard and planning process, but they also recognised the need for increased capacity building/empowerment of actors in DRR. The development of a facilitation handbook to accompany the scorecard was considered to be a necessary step to address these issues. Cities are supported by implementing partners should be encouraged to take progressively greater ownership of the process rather than expecting the partners to carry out tasks on their behalf: this will require open dialogue and negotiation between the relevant stakeholders.

7. Key themes and success factors in Role Model Cities

As the 20 pilot cities approach the end of their DRR planning process, the focus is moving towards how to ensure the sustainability of DRR activities. This section uses documentary and interview evidence relating to the experiences of Role Model Cities (Amadora, Portugal; Greater Manchester, UK; Potenza, Italy; Cairns, Australia; and Makati, Philippines) to identify and discuss elements that have contributed to sustainable progress in urban resilience building, and other factors that influence this progress. Eleven key issues are identified.

1) INTEGRATED APPROACH: broad-based, multi-disciplinary

Resilience should be integrated into the bigger picture of urban development and needs. This requires a thorough and systematic review of different issues and their connections, and careful deliberation over priorities for intervention. Successful urban resilience requires a broad-based, integrated approach addressing multiple related issues (e.g. civil protection, land use planning, risk assessment, low-carbon economy). For example, in Potenza, the concept of urban resilience is seen as a new framework allowing the city to take a multi-dimensional approach in which civil protection is just one aspect of urban development and the city's future. Progress is viewed as series of pathways, involving issues to focus on and experiments or actions to address them. Similarly, Amadora has aimed to place risk assessment in the context of land use planning as well as civil protection, using municipal strategic planning tools which work as an interface between spatial planning and risk management at the local level.

Integrated approaches of this kind require multi-disciplinary teams and expertise to make them work. Amadora's Mayor created a team with personnel from different municipal departments: civil protection, health and safety at work, and urban planning. These brought different skills and expertise with them: civil protection staff promoted DRR activities; health and safety staff focused on self-protective measures and evacuation procedures; and the urban planning department gave technical support to the preparation of security and emergency plans. They were also able to interact with a wider range of local institutions. The Amadora team aimed to maintain contact points in each local neighbourhood in order to share the MCR Campaign's aims and approach with a wider audience.

Greater Manchester's risk and resilience assessment process identifies the importance of systems-scale thinking – seeing a city as a 'system of systems' – and understanding how changes to one risk or stress may have an effect on others due to these linkages. The assessment identifies a wide range of threats and assesses their significance, including risks to the city's GDP. Greater Manchester's resilience strategy builds on a wide evidence base to address chronic stresses that face the city region, seeking to align the city's resilience strategy with the overall Greater Manchester Strategy ('Our People, Our Place'), with resilience as a cross-cutting theme across all of its key priorities. This includes linking the four dimensions of resilience in the City Resilience Framework (health and wellbeing, economy and society, infrastructure and environment, leadership and strategy) to the Greater Manchester Strategy's priorities and the stresses it seeks to address. Potenza has adopted a similar strategy to successfully integrate resilience lessons into local economic and territorial development plans, particularly the provincial territorial (or land-use) co-ordination plan that directs and co-ordinates municipal development plans throughout the province. Potenza has also integrated DRR and local economic and social development plans. One example of this has been development of educational programmes to raise risk awareness that are based on existing work to deliver energy-efficient solutions, increase use of renewables and set up eco-compatible waste management systems in high school buildings. This is a means of involving families and communities, as well as school students.

Integration must also be across scales (vertical as well as horizontal). Disasters do not respect administrative boundaries. City resilience planning and implementation should be multi-scalar, linking different institutions and levels vertically and horizontally to create polycentric DRR governance. Greater Manchester, for example, recognises that, whilst local resilience focuses on place and locality, appropriate governance mechanisms are needed to address wide-area risk and manage the interconnectedness of services, institutions and organisations. Resilience cannot be delivered as a 'top-down' approach: it requires interconnected activity at different levels. In addition to locally-driven connectivity from the city region level to the district level, Greater Manchester benefits from the United Kingdom (UK) mechanisms designed to connect Local Resilience Forum platforms to the national DRR platform. In 2011 the UK

government established the Resilience and Emergencies Division as a mechanism for communication between national and local governments, with a specific role to work with local organisations to build resilience, support collaborative working and respond to emergencies. In a similar way, Potenza Municipality has established formal co-operation with the Province of Potenza for the integration of actions on risk reduction and environmental sustainability.

2) PARTNERSHIP AND CO-ORDINATION

The development of city-level resilience governance is not the sole responsibility of local governments. Integrated approaches require multi-disciplinary teams and broad-based partnerships, working across institutional boundaries. Partnership building has been an important component of the Role Model Cities' efforts. Amadora, for example, has more than 40 stakeholder groups (including community groups and other civil society organisations, private sector organisations, national/local authorities, universities and schools) working with the local campaign team and municipal services. The local MCR Campaign team worked hard to mobilise these diverse stakeholders, offering them partnerships and local alliances. Workshops and public events were organised to explain the benefits and the commitments necessary to achieve a more resilient community.

Greater Manchester is a good example of how such partnerships can be built and maintained. A review of Greater Manchester's resilience-building initiative observes that:

> 'Greater Manchester's story is all about engaging, collaborating and working across boundaries. This applies to all its policies, including those concerned with resilience. The development and implementation of effective multi-stakeholder disaster risk governance has been an iterative process building steadily over a decade of partnership and collaboration.' (Oldham and Astbury, 2018)

The UK's Civil Contingencies Act 2004 had already established multi-sector, multi-agency Local Resilience Forum (LRF) partnerships to co-ordinate civil contingencies activity across local geographical areas. Greater Manchester formalised existing partnership arrangements to work with this structure. It subsequently built relationships directly with other public institutions and high-level decision-making bodies, to give it greater outreach and influence but also to ensure scrutiny of the work of the Greater Manchester Resilience Forum (GMRF), provide public accountability, give the resilience agenda greater visibility and align it with wider issues. The GMRF, which supports development of civil protection through multi-agency planning, training, exercising and co-ordinated response to emergencies, is now formally represented on a number of local cross-sector partnerships.[3] It has been suggested that this is a model for polycentric DRR/resilience governance. However, although the advantages of this are clear, there are also risks involved. One is that involvement in complex participatory structures can make high demands on the stakeholders involved; another is that embedding resilience across a wide range of policy areas may result in a loss of focus.

Working within a different institutional and political structure, the Province of Potenza also interacts with a number of other actors and stakeholders associated with the multi-layered Italian civil protection system. The process aims at

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3 • Including: GM's Infrastructure Advisory Group (informing GM's strategies on strategic infrastructure issues), Chief Planning Officers Group (integrating activity on land-use planning), Flood and Water Management Group (taking a holistic approach to water management and flood risk), Natural Capital Group (working to protect and enhance GM's natural green and blue assets) and Local Health Resilience Partnership (facilitating health sector resilience and preparedness).

providing a stronger structure for DRR and adaptation on a wide scale as well as giving more support to the municipal level, and at integrating risk assessment with local government planning. There is a Province of Potenza municipalities network for resilience, established to collaborate with and give methodological support to local civil protection systems and their implementation of resilience at the local level. The network brings together all the key actors involved in local DRR and in local development, engages community leaders, local civil society organisations and other key-stakeholders, and facilitates information exchange. There can also be obstacles to building and maintaining city-level partnerships in certain contexts. In the city of Potenza, for example, there was some distrust between different social groups and citizens; and previous participatory processes had not delivered results.

The Amadora campaign has involved more than 30 stakeholders from academic and scientific organisations, local councils, municipal services, public and private organisations, rescue and emergency services, social solidarity organisations, NGOs and schools. The campaign team's aim was to mobilise organisations and create a strategy for participation. It began by listing the institutions it needed to engage as partners in the campaign and identifying issues of common concern, as the foundation for building a long-term relationship with the partners.

Formal networks and platforms (existing or new) help to make partnerships more durable and sustainable as well as generating momentum for resilience building. The Province of Potenza has set up a permanent local platform for its #weResilient initiative, aimed at engaging municipalities, public authorities, other institutional stakeholders, social groups, communities and citizens in translating the strategy into actions. The GMRF, which has met quarterly for over a decade, is a formal body, established under government legislation, to develop and publish risk profiles, warn and inform the public about risks and potential emergencies, and promote business continuity management to businesses and the voluntary sector. The GMRF brings together emergency services, local government, specialist organisations and utility companies. Its membership has expanded over time to include a range of public sector, private sector, academic and voluntary sector organisations. It also provides integrated, cross-organisational leadership for systematic and co-ordinated approaches to emergency planning, including preparing protocols for responding to emergencies and co-ordinating multi-agency training and exercise. Through this Forum strategic leaders come together to coordinate and drive forward resilience activity across the city.

3) LONG-TERM PERSPECTIVE

Cities need to see that the integrated approaches, multi-stakeholder partnerships and innovation which are needed for city resilience are long-term processes. One-off or short-term interventions are useful for raising awareness and maintaining momentum, especially where funding is limited, but strategic vision and planning are essential, together with that ongoing learning. In essence, this means adaptive management, which is increasingly being used to deal with complex problems. It is a 'flexible, exploratory approach in the face of uncertainty and complexity, involving testing, monitoring and getting feedback and – crucially – making course-corrections if necessary' (O'Donnell 2016).

Oldham and Astbury (2018) describe an 'evolution' of disaster risk governance in Greater Manchester, taking place over many years. The city region, comprising 10 separate local government districts, set up a multi-stakeholder partnership to coordinate resilience in 2004, developed its first resilience strategy in 2009, has since updated the city's resilience governance arrangements and continued to strengthen resilience governance and apply learning from participating in the MCR Campaign. Significant emergencies and incidents are reviewed through a multi-agency debrief process to identify good practice and learning that will inform future plans and capability development. Understanding of

the issues has also evolved, moving from a focus on emergencies through DRR to a broader concept of resilience, a process which has also learned from parallel work on climate change mitigation and adaptation. Reviewing progress in Potenza, Attolico (2018) observes that effective resilience building requires 'some radical cultural changes and attitude' towards risk mitigation and adaptation policies. In Amadora, it was important for the campaign team to adapt their strategy to meet the needs of different target audiences, to implement the concepts of risk, disaster and resilience.

4) LEADERSHIP

The first of the '10 essentials' is to organise for disaster resilience, to 'put in place an organizational structure and identify the necessary processes to understand and act on reducing exposure, its impact and vulnerability to disasters'. This requires strong leadership and commitment from city authorities, together with the city-wide strategies, legislative framework and policies necessary to deliver the city's DRR vision. Local leadership has played a central role in the Role Model Cities. Good leadership is about much more than management: it is concerned with introducing change and new approaches, and developing a vision that motivates and mobilises others. The MCR campaign emphasises the critical importance of strong leadership and commitment from officials, together with the city-wide strategies, legislative framework and policies necessary to deliver the city's DRR.

Cairns benefits from having full-time focal points for disaster risk reduction. A local disaster co-ordinator and resilience officer support the coordination of core agencies, administrative departments and other key stakeholders. In Amadora and Makati, strong local-level political leadership and co-ordination between different administrative departments have contributed to engaging local-level participation in DRR. Amadora's Mayor, who established a multi-disciplinary resilience team reporting to Amadora's Councillor for Civil Protection Services and the Environment, is said to be an example of transformative leadership, by encouraging empowerment, engagement and a relational approach to building community resilience. His motivation and commitment stimulated municipal action and community involvement. The Amadora campaign's organisational structure brings individual agencies together around a single mission.

In Greater Manchester, strong place-based leadership is found in the GMRF, which focuses on cross-sector engagement, local risks and population exposure and vulnerability, to forge resilience. Political ownership and engagement have been assured by recognising resilience as a separate political portfolio within Greater Manchester, with a senior council leader mandated to provide leadership. The GMRF reports to politically led, cross-sector bodies that provide scrutiny of its work, and connect this to wider city-region agendas.

The Province of Potenza's planning for DRR and climate change resilient policies in territorial and urban planning is based on different channels of action: an institutional one, based on the Province's role in co-ordinating planning at urban level in the regional context, and a supportive 'accompanying process', collaborating with policy makers, municipalities, communities and citizens.

5) PUBLIC ENGAGEMENT

City resilience building requires extensive and systematic public engagement and communication, using modern media methods, to provide accessible and comprehensible information that is targeted at different stakeholders and will mobilise community action.

Amadora has taken a strategic approach to stakeholder engagement, building a long-term relationship with potential partners. Implementation of a wide range of public engagement initiatives in Amadora is said to have increased awareness of hazard risks amongst different demographic groups, as well as improving community and government capacity to identify problems and implement risk reduction. When the campaign team was formed in 2010, it identified potential partner institutions and issues of concern to the municipality and other stakeholders. The programme's engagement activities include activities in schools, child-care centres, and facilities for disabled and older people, to inform them about methods of disaster prevention. On average, the team, with support from the municipality's education and social welfare department, has developed and delivers more than 100 workshops a year to school students and 20 sessions for the elderly population. Information (including technical data) is communicated in language that is easy to understand.

Social and digital media play an important role in the campaign's outreach work. Amadora's campaign has made extensive use of such technologies, particularly social networking, websites and mailing lists. These deliver information about emergency and contingency procedures, weather warnings and risk assessments online; and they also, just as importantly, stimulate community interaction and discussion regarding the risks where they live. There has been a steady increase in community participation in information sharing and discussion through social networks. Between November 2012 and 2015, the campaign's Facebook page had over 26,000 visits with more than 1,800 people sharing contents. Similar approaches have been adopted in other Role Model Cities (e.g. Potenza).

Increasing community awareness, public support and local political motivation has been identified as a key factor in Potenza, Cairns and Makati. The Province of Potenza has been involved in information campaigns and education programmes on risks and emergency response, directed at municipal officials, schools, communities and other stakeholders; and has also run training programmes in risk assessment, DRR and emergencies for municipality staff (including engineers, architects and geologists) and civil protection volunteers. School authorities, in partnership with civil protection agencies, have promoted a national project on civil protection for young people aged 10-13. In Cairns community awareness campaigns such as 'Be Ready Cairns' encourage community-level preparedness planning. The scheme's three-pronged approach of 'Plan, Pack and Listen' encourages communities to make household level emergency plans, pack emergency kits and to stay informed of potential disaster risks. The initiative is promoted in communities on an annual basis to ensure that DRR remains in the public eye. It was later adopted by the national government and adapted into a national project 'Get Ready'. In Makati, much emphasis is placed in community engagement and on the delivery of information, education and communication (IEC) materials for DRR with voluntary support from community members and officials. Community engagement activities such as the annually held Makati DRM awards have been established to recognize and encourage those barangays which show a commitment to assess and develop local solution to disaster risk management (DRM) problems. The initiative currently supports 33 communities through technical assistance provision for DRM, capacity building in sectors such as health in emergency, first aid, camp management and investment planning. The initiative has seen additional impacts, including the replication of best practices across barangays and is transforming into an informal platform for the sharing of information.

6) ENABLING ENVIRONMENT: NATIONAL LEGAL AND POLICY FRAMEWORKS

The effectiveness of the MCR Campaign and the work of individual Role Model Cities is influenced by the 'enabling environment' of national policies, regulations and practices in DRR. The Campaign works independently of national

governments – it is based on relationships within and between cities – but it has to fit within relevant policy and legal frameworks.

Greater Manchester had a relatively supportive enabling environment. National legislation in the UK in response to a series of emergencies at the turn of the 21st century (the Civil Contingencies Act) was introduced in 2004 and marked the beginning of a shift from emergency response towards DRM. It was designed to improve anticipation of threats; engage more actors in collaborative planning for; improved inter-organisational coordination and cooperation; and make command-and-control mechanisms flexible to address emergencies requiring swift action in different contexts. A key requirement of the Act is the establishment of multi-stakeholder, cross-sector, resilience forums at across the country which compile Community Risk Registers detailing the risks that may directly affect their districts over the next five years: the GMRF was one of these forums. This has been supplemented by other national legislation, particularly the 2010 Flood and Water Management Act which established a multi-stakeholder Flood and Water Management Board to oversee implementation at the city region level. The GMRF was invited to be part of the Board in 2012, which thereby established a relationship with a wider set of stakeholders engaged with floods.

Makati similarly benefits from national laws for disaster risk management. The national DRM law in the Philippines, brought into force in 2010, caused a shift in the policy environment from response to preparedness. The law institutionalised urban DRM across the country, mandating the creation of permanent DRR offices in all cities at various levels down to the lowest administrative unit of 'barangay' or community. Through the formulation of the National Disaster Risk Management Framework the law provides a multi-hazard, multi-sectoral, interagency and community-based approach to disaster risk management. In Portugal, where disaster strategies have in the past similarly focused on response, there are nevertheless a range of laws that cover prevention, adaptation and recovery; but national government has had little involvement in the Making Cities Resilient Campaign. The Amadora team's MCR planning drew on experience with new national regulations for safety against fires (launched in 2009) to guide its progress. Members of the team were familiar with the problems that private and public organisations had experienced in complying with those regulations, and they had developed a checklist to assist organisations.

Italy has a structured disaster management hierarchy, with clearly defined territorial responsibilities for government institutions at national and a series of more local (region, prefecture, province, municipal) levels. Municipalities are first responders but can draw upon support from higher-level state institutions if required. The Province of Potenza has territorial co-ordination responsibility for over 100 Municipalities. A provincial Territorial Coordination Master Plan identifies strategies for development and planning; and municipalities have to demonstrate how their urban planning proposals contribute to resilience. The Province established the municipalities network for resilience which joined the Making Cities Resilient Campaign. The Municipality of Potenza has a formal cooperation agreement with the Province for the integration of environmental sustainability and territorial security into urban and land-use actions.

7) INCLUSION

DRR should be inclusive, putting emphasis on supporting the most vulnerable people and groups within cities. This issue of social equity and inclusion is often overlooked in urban resilience thinking and planning, but a city cannot be resilient or sustainable if societal issues and challenges are not addressed. The Role Model Cities are well aware of this and have approached it in various ways. Greater Manchester's wide-ranging resilience strategy integrates shocks and stresses with ongoing social issues that are priorities for the city's broader development planning, including: children's

education; equipping young people with life skills; providing good jobs and a thriving economy; safe, decent and affordable housing; healthy lives and health care; and creating a city that is age-friendly.

Potenza explicitly refers to the Sustainable Development Goals (SDGs) in its aims, referring specifically to three goals which are relevant to inclusion: Goals 7 (ensure access to affordable, reliable, sustainable and modern energy for all), 8 (Promote inclusive and sustainable economic growth, employment and decent work for all) and 11 (Make cities inclusive, safe, resilient and sustainable). Potenza's open participatory public consultations on implementing strategies for community resilience looked at the needs of different social groups, starting with the most vulnerable: elderly, women, disabled, children/youth, ethnic minorities and migrants. Engagement of people from different social and stakeholder groups has been a key part of plans to regenerate the town centre. However, Potenza has also been transparent about the need for greater awareness of gender and cultural diversity issues in its public education work on DRR, and for finding ways for vulnerable local communities to actively participate in risk reduction decision-making, policy making, planning and implementation processes.

Amadora has adopted participatory approaches and sought to promote full participation of the 'historically underserved', including children, people with disabilities and older people, with the aim of strengthening the city's social fabric. Amadora has also organised information and awareness sessions for different and hard-to-reach target audiences, including immigrants and older people, with the aim of making them more active in their communities. Elderly people, who are a particularly isolated and vulnerable group, and often live alone, receive ongoing home support through the city's social welfare department that includes receiving information about DRR and the contact details of organisations responsible for civil protection and emergencies. Campaigns have also been organised for children: more than 100 sessions on prevention are held in schools each year.

8) MCR & OTHER CAMPAIGNS

Membership of the MCR Campaign, the Rockefeller Foundation's global 100 Resilient Cities (100 RC) programme and other international initiatives gives Role Model Cities inspiration and provides them with knowledge based on experience, as well as contributing to partnerships and networking. It is a fundamental element of ongoing lesson-learning and sharing. All Role Model Cities have benefited greatly from this.

The MCR Campaign is said to have been a catalyst for urban resilience work in Amadora. The Amadora campaign team has been active in national and international city-to-city learning. Representatives from Amadora took part in several workshops and conferences, sharing their knowledge and experiences with other teams. The campaign team believes that joining the Making Cities Resilient Campaign has provided opportunities to build its own capacity and to gain global visibility for its work. Makati highly valued city-to-city learning opportunities, stating that it has allowed the city to open up to a far greater world of DRR. The city sits on a fault line so has sought out learning opportunities in engineering practices from Kathmandu. Greater Manchester is both a role model city within the MCR Campaign (which it joined in 2014) and one of the cities in the 100RC programme.

Involvement in international initiatives also gives cities an opportunity to showcase their work internationally. For example, the resilience programme in Potenza was one of three examples of best practice from around the world selected by the Cities Alliance for presentation at the 2018 High Level Political Forum (HLPF).

9) REVIEW, ANALYSIS, EVIDENCE, LEARNING

Tools, processes and activities for review, analysis, evidence and learning are an essential, central component in resilience building in the Role Model Cities, for three main reasons: (1) they provide data to support and improve resilience policy, planning and implementation; (2) they bring multiple and diverse stakeholders together to exchange knowledge and ideas, thereby creating and sustaining a community of practice; (3) they demonstrate change and impact, providing evidence and encouragement to decision makers.

The core tool used for this has been the MCR Disaster Resilience Scorecard for Cities (or self-assessment tool) based on the Ten Essentials of Making Cities Resilient, developed as part of the Hyogo Framework in 2005[4] and revised as part of the Sendai Framework. The scorecard methodology is designed for completion through participatory discussions (e.g. a 1-2 day city multi-stakeholder workshop for the preliminary level, or a 1-4 month multi-stakeholder assessment from which a detailed city resilience can be developed). The scorecard's structured assessment framework has helped to make resilience a common denominator in city-wide strategies and agendas. Relevant, up-to-date resilience indicators support informed decision-making, help to assess progress and the state of resilience, provide a robust qualitative and quantitative evidence base for resilience strategies, and help inform resilience interventions going forward, although stakeholders need to identify the most relevant metrics in different contexts.

In Greater Manchester, completion of the Campaign's Local Government Self-Assessment Tool (LG-SAT) gave stakeholders a new perspective on the 10 Essentials, which included recognising the need for trans-disciplinary collaboration for effective DRR. Completion of the LG-SAT was a catalyst for greater engagement with other stakeholders within Greater Manchester's governance structures whose work includes addressing disaster risk as part of wider agendas. Greater Manchester also found that completing the scorecard's preliminary assessment and reviewing this against strategic city-region plans and drivers of resilience gave a unique view picture of the current resilience focus across Greater Manchester. This analysis helped to understand where the city's resilience strategy could best align with and leverage existing initiatives to strengthen city-region resilience. The process 'encouraged conversations between a wide variety of stakeholders, improving awareness of resilience issues, strengthening understanding of how our shocks and stresses interlink and building system-wide linkages to deliver resilience solutions that offer co-benefits and efficiencies'. Greater Manchester's empirical case study of disaster governance used multiple sources of evidence. It drew on the self-assessment tool, the scorecard and findings from a multi-stakeholder city resilience workshop to provide a systematic analysis of the GMRF's work; this was supplemented by secondary literature from the GMRF archives.

More recently, Salford (in Greater Manchester), Amadora (Portugal) and Viggiano (Italy) have been involved in developing and piloting a new tool (UScore2) through an EU-funded project which began in 2016. This is also a self-assessment resilience scorecard completed through a city-to-city peer review process which enables cities to share their experiences and learn from each other about good practice. The approach facilitates improvements in resilience through the exchange of best practice and mutual learning, whilst maintaining impartiality and transparency and Greater Manchester has gained substantial learning from participating in the peer review. Salford in Greater Manchester and Amadora have both been peer-reviewed.

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4 • Initially the main method was the Local Government Self-Assessment Tool: LGSAT.

Cities and partners continue to seek ways to increase the understanding of risks and resilience, building upon the MCR Campaign's Disaster Resilience Scorecard for Cities. Additional to the peer-to-peer review methodology piloted by Role Model Cities, the Campaign's partners also customized the scorecard to promote understanding of resilience in specific sector such as health.

10) ECONOMICS, FINANCE & ADDITIONAL/COMPLEMENTARY SOURCES OF FUNDING

Access to finance is essential for building urban resilience. Evidence of a city's resilience is likely to stimulate inward economic investment but lack of adequate financial resources for civil protection and resilience has been a major constraint in many MCR cities. A councillor responsible for civil protection services in Amadora, cited in a recent paper, believed the impact of the global financial crisis had restricted the ability of the whole country of Portugal to provide national-level financial support for DRR. Potenza has faced significant difficulties in financing urban resilience and the infrastructure needed for resilience (which can incur high costs), due to the lack of national financial resources and an ongoing 'crisis of the public financing mechanism'. However, it was able to access some regional support for road safety and improvement.

In such circumstances, cities have to be creative. In spite of a limited budget, the Municipality of Amadora has developed an innovative DRR strategy based on coordination, motivation and participation. A councillor in Amadora told researchers that:

> 'What we've been doing is maximising the resources that we have […] to create synergies with other agents, with universities and other partners […]. We spend very little money because we have a pro-active attitude, we have a lot of partners, we have very important know-how in people, and we have a particularity that is that the main agents of Civil Protection are absolutely motivated' (Burnside-Lawry & Carvalho 2016).

In Cairns, a creative and somewhat opportunistic approach was adopted. Upon completion of the LG-SAT the office of the Local Disaster Coordinator converted the resilience gaps identified into discrete projects. They then seek out or respond to funding and co-funding opportunities with the national government to realise them. This approach allows the city to respond rapidly to funding opportunities. As a result, Cairns has successfully obtained funding for a number of infrastructure and ecosystem maintenance projects.

The National Disaster Risk Management Law in place in the Philippines provides Makati with a platform to set aside funds for disaster risk reduction and management (DRRM), and not just response. The law states that 5% of local revenue of the city must be set aside for DRRM and 70% of the 5% is required by law to be used for prevention and mitigation activities. A major source of support for resilience in the EU-based Role Model Cities has been EU programmes and funding. In 2015-16, Greater Manchester, Amadora and other cities were part of the EU-funded USCORE and USCORE II projects (Managing Urban Risks in Europe: Implementation of the City Disaster Resilience Scorecard). These used the Disaster Resilience Scorecard for Cities developed by AECOM and IBM as a free tool that enables cities to measure their resilience against a range of indicators aligned with the Campaign's 10 essentials. This enabled them to carry out a comprehensive self-assessment of their current resilience.

Potenza is a partner in the EU's interregional LOCARBO project (2014-20) for promoting a low-carbon economy through better policy instruments for improving the energy efficiency of buildings and supporting energy consumers' behaviour change.[5]

City leaders have sought to take advantage of other externally funded or managed initiatives that contribute to resilience. For example, in 2017 Greater Manchester benefited from Save the Children's 'Take Care' project which aims to provide space for children to be at the centre of their own resilience-building. The Province of Potenza has had access to a government financing programme of 70 million euros for school rehabilitation and renovation.

The documentation says little about other financial services such as savings and credit schemes or insurance available to vulnerable households. This is usually left for the private and non-profit sectors rather than regional or city governments. Private sector involvement and investment in resilience appears to be welcomed and encouraged by the Role Model Cities but it is unclear what the outcomes have been. Potenza's Hyogo Framework for Actions (HFA) report acknowledged that there were no partnerships at that time with the private sector, but efforts were being made to strengthen co-operation with private-sector actors as well as community and local organizations involved in DRR (5HFAPotenza). National and regional policies and regulations are needed that provide economic incentives to households and businesses to invest in DRR.

UNDRR has promoted private sector involvement in DRR for many years, and it has shared experiences and lessons learned. Its Private Sector Alliance for Disaster Resilient Societies (ARISE) initiative[6] aims to create risk-resilient societies by energising the private sector in collaboration with the public sector and other stakeholders to deliver on the targets of the Sendai Framework. Historically, the private sector has also played an important role in DRR through corporate social responsibility.

Multi-stakeholder partnerships for urban resilience, such as those supported by the MCR and 100RC campaigns, should involve private sector actors, and in some cases, these are involved. For example, the GMRF (which brings together emergency services, local government, specialist organisations and utility companies) has expanded its membership to include a wide-range of public sector, private sector, academic and voluntary sector organisations. However, other Role Model City evidence suggests that there is much more to be done. In a report to UNDRR, Potenza acknowledged limited progress from its efforts to persuade local business associations, such as chambers of commerce, to support the efforts of small enterprises to ensure business continuity during and after disasters. It also found limited private sector participation in the implementation of environmental and ecosystems management plans by local authorities: this seemed to be limited to sponsoring some public green spaces.

11) RISK DATA AND ASSESSMENT

Risk assessments can play an important role in mobilising local stakeholders. Accurate data collection and analysis is central to this. Risk assessment results combined with commonly used planning tools (such as GIS) are often seen as a key to understanding risk and resilience, and an entry point for wider action.

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5 • https://www.interregeurope.eu/locarbo/
6 • https://www.preventionweb.net/arise/

The Amadora campaign team identified lack of information about risks in the municipality and the consequent lack of a culture of prevention in the community as major challenges. The team's stakeholder engagement strategy was based on the premise that the entire community needs to know about the hazards and risks to which it is exposed if it is to be better prepared and more resilient. It was therefore important for the team to collect, analyse and share information on hazards, exposure and vulnerability. A key stage of the MCR process methodology for developing city resilience strategies is to undertake a Quick Risk Estimation (QRE) which provides an initial analysis of a city's exposure to hazards and risks and identifies areas that need to be explored further during the development of the strategy.

Potenza Province collects a wide range of information on hazards, vulnerability of assets and population exposure for a wide range of risks; data is put into a GIS that provides multi-risk analyses at wide-area and local levels and is updated regularly. The information is used to develop a Provincial Territorial Coordination Plan (TCP) that integrates sustainable development, DRR and climate chante adapation (CCA) into land-use/government policies; it has also been used in disaster simulation and planning scenarios, and to assist decision making during disasters. Sharing and integration of datasets is challenging, however.

The application of such tools and methods, and the publication and sharing of their results, also contributes to greater public accountability regarding resilience. The Province of Potenza sees monitoring results of interventions and networking with municipalities and other stakeholders as 'a wider accountability system', involving political, public and social accountability, which is integral to increasing confidence in resilience building and stimulating co-operation and assistance.

8. Conclusion and recommendations

8.1 Key role of the scorecard assessment process

The scorecard process and 10 Essentials framework are key to building urban resilience at local levels. The 10 Essentials are a strong, practical framing of the issues and a guide to areas of intervention that address the fundamental elements of resilience-building. The act of reviewing situations, contexts and capacities in order to complete the scorecard and develop DRR s raises awareness and understanding of different issues and their connectedness. It also builds local capacity, generating awareness and interest, and creating or strengthening stakeholder partnerships.

8.2 Synergies between the 10 Essentials and the 11 success factors

The documentary evidence on the experiences of Role Model Cities has identified 11 factors in successful urban resilience. Several of the success factors identified are closely aligned to the 10 Essentials, suggesting that there are a number of core priorities that they have in common (see Table 1) which shall be built upon each other to ensure sustainability of the resilience building processes.

Table 1: 10 Essentials and 11 Success Factors

10 Essentials	11 Success Factors
1. Organise for disaster resilience	1. Integrated approach: broad-based, multi-disciplinary
2. Identify, understand and use current and future risk scenarios	2. Partnership and co-ordination
3. Strengthen financial capacity for resilience	3. Long-term perspective (and adaptive management)
4. Pursue resilient urban development and design	4. Leadership
5. Safeguard natural buffers to enhance ecosystems' protective functions	5. Public engagement
6. Strengthen institutional capacity for resilience	6. Enabling environment: national legal and policy frameworks
7. Understand and strengthen societal capacity for resilience	7. Inclusion
8. Increase infrastructure resilience	8. MCR and other campaign
9. Ensure effective disaster response	9. Review, analysis, evidence, learning
10. Expedite recovery and build back better	10. Economics, finance and funding
	11. Risk data and assessment

8.3 Value of participatory peer-to-peer reviews and lesson sharing

Making cities resilient has been an inclusive, discursive and participatory process for all of the cities involved, enabling them to generate learning and new insights. Workshops and sharing of good practice are essential for knowledge and skills transfer, and they help to build a broad community of practice. The experience sharing workshop as held in Incheon in March 2019 was a valuable opportunity for representatives of the 20 pilot cities and implementing partners for the 200 cities to reflect on their experiences and lessons from their experiences in undertaking these processes. Peer exchange is a very powerful approach to learning that should be encouraged and supported.

8.4 Reducing reliance on external technical assistance and support

While the Role Model Cities and Pilot Cities are now making good progress independently, the 200 cities require ongoing support and monitoring. However, the 200 cities must be encouraged to take ownership of that process and reduce their dependence on implementing partners. This challenge could be overcome by developing a staged process that would help cities to graduate towards becoming more effective, independent actors in resilience. Increasing and broadening the stakeholder base is a key element in this: in particular, it is important to include actors who are not normally engaged in DRR and resilience. At the same time, UNDRR has an important role to play in supporting the community of practice that exists across all of the cities involved in the Campaign and to facilitate opportunities for cities to interact and share their experiences. UNDRR's convening power makes it possible to bring more cities into the Campaign, broaden the range of stakeholder groups involved and develop synergies with other initiatives such as the Rockefeller 100 Resilient Cities and the Asian Cities Climate Change Resilience Network.

8.5 Long-term timetables for change

The experiences of all the cities involved in the Campaign demonstrate that it takes a long time to develop resilient cities, whatever the levels of resourcing and stakeholder involvement available. Integrated approaches, multi-stakeholder partnerships and innovation are long-term processes requiring sustained efforts. Strategies should also be based on strategic visions and long-term perspectives, with realistic timeframes for change recognising that resilience has to be built incrementally. Maintaining momentum and enthusiasm for resilience throughout this process is likely be a challenge: having a strong and clear strategic vision can help to overcome this.

8.6 Leadership and adaptive management

Visionary leadership, providing motivation; and efficient management systems, underpin progress towards resilience. Policy makers and managers will increasingly need to adopt adaptive management approaches to deal with the multiple challenges presented by dynamic economic, political, social and risk contexts, and the uncertainty and complexity associated with city development and resilience. This requires flexibility and adjustment, willingness to acknowledge uncertainty, and ability to make changes where necessary.

8.7 Partnerships, learning and sharing

The experiences of the many cities involved in the Campaign have demonstrated the value of establishing networks and platforms that create spaces for discussion and ning, as well as making partnerships more durable and sustainable. Learning should be seen as an ongoing process for everyone involved.

8.8 Engaging all of society

Citizen engagement and public participation should form a central element of city resilience planning and implementation: this is identified in both the 10 Essentials and the 11 success factors. Activities to achieve this in the Campaign appear to have focused on awareness-raising initiatives to enable citizens to protect themselves more effectively against risks and prepare for and respond to crises. Social media and networks appear to be very influential in sharing practical information about risk and emergencies, raising awareness and stimulating public involvement, particularly in disaster preparedness activities. All of this is clearly very important, but there is more that can be done to engage communities and support independent community-led organisations and initiatives. The Campaign should also put greater emphasis on social equity and inclusion, in alignment with the 'leave no one behind' agenda of the Sustainable Development Goals.

8.9 Finance and the private sector

Both the Incheon workshop and the desk study of Role Model Cities identified that securing finance for city resilient building was a significant challenge. Nevertheless, it appears that cities have been creative in maximising use of existing resources and creating synergies with other actors. There is a need for more lesson learning and sharing on this issue. Findings from the workshop and desk study give a strong indication that the private sector as a whole has not engaged much with the Campaign. This is a cause for concern, since it is generally acknowledged that the private sector has a very important role to play in resilience and DRR. Cities and international actors should put much more effort into engagement with private sector actors.

8.10 Complexity and contexts

Cities are complex and dynamic systems, operating at different scale, that link the natural and built environments with human processes (social, economic, political, demographic). Understanding how these different factors connect with, and influence, one another is vital to developing integrated resilience strategies – for example, linking DRR and economic development planning. Cities exist and function in a variety of contexts, some of which can constrain or even challenge resilience building. For example, it can be difficult to establish locally led processes where governance structures are centralised and top-down or where institutional and financial capacities to plan and implement change are very limited. More research and guidance are needed to help cities overcome these obstacles. The Campaign would also benefit from adapting tools and approaches to different contexts such as SIDS, smaller urban centres, and cities and countries affected by conflict or social tensions.

Acknowledgement

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